



## SW Florida project gets scarce, superb sand

By PETER SEIDLE, P.E.,  
Applied Technology  
and Management Inc.

In a region of Southwest Florida where supplies of beach-quality sand are scarce, Applied Technology and Management Inc. (ATM) was able to locate, permit, utilize and place an abundance of white, beach-compatible sand along Bonita Beach to restore the beach to its original glory.

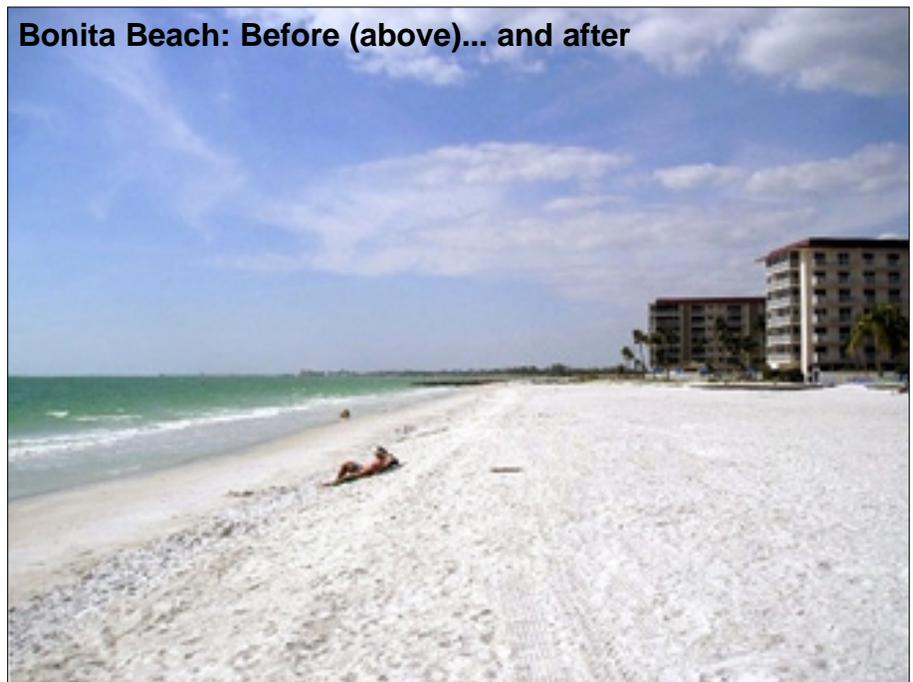
Lee County contracted ATM to conduct the studies necessary for designing and permitting the first renourishment of Bonita Beach since the original nourishment in 1995. To this end, ATM performed a comprehensive sand search, assessed the existing conditions and erosion rates, evaluated design alternatives, obtained state and federal permits, and supervised project construction.

It was realized during the preliminary stages of the sand search that adequate offshore sources of beach-compatible material in southern Lee County were scarce, at best. ATM's extensive sand source investigation included bathymetric,

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Bonita Beach: Before (above)... and after







## Key Biscayne project performing well

By TIMOTHY K. BLANKENSHIP, P.E., Coastal Systems International Inc., and ARMANDO NUNEZ, Village of Key Biscayne

**K**ey Biscayne is a barrier island just six miles off the Miami coast. The Village of Key Biscayne is situated with Crandon Park to the north and Bill Baggs Cape Florida State Park to the south. The beach is an important resource on the island, and Cape Florida was recently named No. 9 among America's Best Beaches.

The village implemented the first phase of a 50-year beach management plan in 2002 by placing approximately 120,000 cubic yards of sand along its 1.3 mile shoreline. Coastal Systems developed the management plan in 1997, and provided the engineering and environmental services required to secure a 20-year joint coastal permit and 10-year Miami-Dade County DERM permit for the project. The expected interval for subsequent renourishment activities is 8-10 years. The permits also allow for emergency renourishment activities major after coastal storm events.

Biological and hydro-graphic monitoring is ongoing. One-year monitoring survey data indicated the beach has



performed generally consistent with historical average trends of shoreline retreat at 5.2 feet/year and erosion at 7,200 cubic yards/year, respectively.

Typically, nourishment projects result in erosion rates that exceed adjacent areas, which benefit from end losses and have a lower overall erosion rate. However, the project performed better than adjacent beaches, which is an indication that background erosion activity exceeded normal annual levels during Oct. 2002-Sept. 2003. Continued monitoring efforts in the next two years will provide additional data to evaluate project performance.

The project was constructed in an environmentally sensitive area. Offshore

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### BISCAYNE

■ Continued from previous page seagrass, which is unusual for the east coast of Florida, lines the entire shoreline. Biological monitoring indicates zero to minimal impacts from offshore sand transport, which is consistent with permit requirements.

Monitoring of the recovery of the pipeline corridor through the seagrass beds is under way, and mitigation will likely be required. Beach tilling was completed in April 2004 as a result of compaction testing prior to the sea turtle nesting season. Sea turtle nesting activities are being monitored, and there was no reduction in nesting in 2003 (one year after construction).

The village also implemented a dune restoration project, installing larger and more established plants. This resulted in fewer plants per unit area of dune, but the initial increased cost of the plants was offset by not requiring temporary irrigation. The dune vegetation is well established and stabilizes the dunes, thereby increasing sand volume retained in the dune system. ♦



## SHORELINE

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**PRESIDENT:** Stan Tait

**EXECUTIVE DIRECTOR:** David Tait

**CHAIRMAN:** Monte Blews

**DIRECTOR OF GOVERNMENTAL AFFAIRS:** Debbie Flack

**EDITORS:**

Kate Gooderham, APR, & Ken Gooderham

Gooderham & Associates Inc.

Phone: (239) 489-2616 • Fax: (239) 489-9917

Send e-mail address changes to [kgooderham@comcast.net](mailto:kgooderham@comcast.net)

**Florida Shore & Beach Preservation Association Inc.**

2952 Wellington Circle, Tallahassee, FL 32309

Phone (850) 906-9227 • Fax (850) 906-9228

Online at [www.fsbpa.com](http://www.fsbpa.com) • Send e-mail to [mail@fsbpa.com](mailto:mail@fsbpa.com)



## PROJECT

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Wildlife Conservation Commission expressed concern that the project may experience increased escarpment due to the carbonate content fraction of the borrow area. ATM addressed this concern by including an experimental section along the southernmost 1,520 feet of the beach with a re-graded berm providing a slope gentler than the 1V:10H construction slope. To re-grade the experimental section, the seawardmost 10-15 percent of the berm was bulldozed seaward to below the MHW line, thus creating a milder beach slope in an attempt to reduce the formation of post-construction escarpment.

Overall, the project provides increased storm protection, recreational enhancement, increased sea turtle nesting habitat and potential shorebird nesting and foraging habitat. The cost of the project, including design and permitting, was approximately \$2 million. ◆



## Beach battle lines drawn

*A sign on the west side of James Lee Park in Destin denotes the end of the public beach. Property owners in the area are concerned about the establishment of an erosion control line for beach renourishment purposes. Photo courtesy Northwest Florida Daily News.*

## Beach briefs

■ AOL's Travel Consultant names Captiva Beach the No. 1 romantic beach in the U.S. and nearby. No other Florida beaches were included. Incidentally, Captiva is the site of FSBPA's annual conference

Sept. 29-Oct. 1.

■ According to *Florida Trend's* "Portrait of Florida's Visitor," 38.5 percent of Florida's domestic tourists visited beaches – more than those who played golf or tennis, visited state parks, enjoyed the nightlife and were involved with other outdoor activities *combined*.

■ According to the DEP, much of the sandbar that paralleled Escambia and Santa Rosa beaches washed away after Hurricanes Erin and Opal struck in 1995. Some believe loss of the sandbar made surf conditions worse and might have contributed to the 22

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## Changes at FSU research center

Dr. T.Y. Chiu has retired from Florida State University's Beaches & Shores Research Center. Dr. Todd Walton has replaced him, and Mark Leadon has joined the center as associ-

ate director. The prior focus of the center was research concerning the coastal construction control line program. Now, the focus will be more supportive of beach management overall. ◆



*Boca Raton's redesigned South Beach Pavilion offers shade, shelter and a great ocean view. But some of its lights burn too brightly for the safety of nesting sea turtles. Lights added during a \$1.7 million makeover are visible from the beach, a potential nesting disruption.*

## BRIEFS

■ Continued from previous page drowning deaths along Panhandle beaches last year. There is interest in undertaking a study to determine if rebuilding the sandbar is feasible.

■ Broward County is planning to set up two small experimental beaches of ground-up glass bottles. If the experiment is successful, the county might add the material at erosion hotspots in the stretch between Port Everglades and Hallandale. The county will look at factors likely to affect sea turtle nesting and will come up with a way to survey people about whether they would feel comfortable with it. The glass would be ground to an exact size to replicate sand and blend it for a color match.

■ The June *Southern Living* magazine has deemed Navarre Beach "a great family beach." It described Navarre Beach and its eight miles of



*Navarre Beach*

sugar-white sands as "blessedly undiscovered."

■ Web cams, cameras broadcasting live to a Web site, at Boca Raton, Boynton and Lake Worth Inlets will join the one at the beach in Boca Raton. In addition to the pictures and information available to the public, the Web cams have a long-term environmental purpose of monitoring changes in the shoreline. Archives will be used with weather information to plan shore protection. ♦

## FSBPA annual meeting and call for awards set

The FSBPA Annual Meeting is Sept. 29-Oct. 1 at South Seas Resort, Captiva. The FSBPA Awards Committee is looking for nominations in the following categories: Bill Carlton Award, Per Bruun Distinguished Service Award, Bob Dean Coastal Research Award, Jim Purpura/TY Chiu Engineering Award, Local Government Award, Legislative Award, Private Citizen Award, Environmental Award, and Member of the Year. Nominations are due **June 25**. For more information, go to [www.fsbpa.com](http://www.fsbpa.com) and click on the annual meeting.

■ American Shore & Beach Preservation Association has announced its annual meeting, "America's Shoreline: Beach and Ecosystem Restoration in the 21<sup>st</sup> Century," at the New Orleans Marriott, Sept. 13-15. For further information, go to [www.asbpa.org](http://www.asbpa.org).

■ The FSBPA's National Conference on Beach Preservation Technology will be held Feb. 2-4, 2005, at the Hilton Sandestin Beach Golf Resort and Spa in Destin. The call for abstracts has been issued and they are due Aug. 6. E-mail abstracts to [David@fsbpa.com](mailto:David@fsbpa.com). ♦