

**Beach Nourishment Update****31 January 2002**

What a difference a couple of months can make. In October, we were wondering whether we would get permits for the nourishment project. By Christmas, the first mile of new beach was nearly complete.

After the regulatory gauntlet, we thought construction would be easy by comparison. However, true to form for projects of this nature, we were soon reminded of the engineer's credo to "expect the unexpected."

Before discussing some things that have slowed construction, let's first review what has been accomplished.

Great Lakes Dredge & Dock Company, one of the world's premier dredgers, mobilized to Pine Knoll Shores in November. With two self-propelled hopper dredges, barges, tugs, cranes, bulldozers, pipe, and about 100 people, GLD&D established a presence in the community. Part of the \$1.4 million mobilization cost for all this equipment and personnel is being returned to our community in the form of housing rental, grocery purchases, restaurant meals, and some pretty sizable fuel bills. GLD&D has also set up an office on the causeway. John Auernhamer is GLD&D's on-site project manager.

Sand pumping began on November 26<sup>th</sup> as the *Sugar Island* lowered its "drag arms" to the bottom in borrow area B1 and began making the first shallow cut about 3000 feet offshore. As the dredge moves slowly, the eight-foot-wide dragheads rake the bottom and suck sediment into the ship's hold. Once filled with about 2500 cubic yards (nearly 200 large dump trucks full of sand), the dredge travels to a "booster" barge anchored close to shore. Thirty-inch hoses are hooked to pipes, and the pumps of the booster crank up. This draws sand out of the hopper and pushes it thousands of feet to shore. At that point, the shore crew, working with dozers and pipe loaders, spreads the sand into its final beach shape.

The dredging procedure that we are using on this project is less efficient than traditional pipeline dredging methods because of the "double handling" of material. However, it is considered more favorable for environmental reasons. During excavations, we are finding most of the mud and finest sands are washing out of the hopper back into the borrow area. This material would not be stable on the beach, so eliminating most of it before pump-out is good.

So far, the sediment that is reaching the beach is more stable than expected. Without getting too technical, we are finding the sediment quality in the completed sections to be about 10-15 percent better than design (quantities around which the project was formulated). In simple terms, we expect this to result in 10-15 percent slower erosion over the long run.

The first mile of completed beach at the eastern end of Pine Knoll Shores is as much as 200 ft wide. This is wider than it was planned to be this past summer for two reasons. First, it takes some time for waves