

Erosion control projects help beaches stand up to Irene

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VIRGINIA BEACH – As he drove a city-owned SUV slowly up the beach just hours after Hurricane Irene blew through this high-rise vacation spot, Phill Roehrs, the city's coastal engineer, liked what he saw: a flat, wide, beautiful beach, even bigger than before the storm hit.

Call it luck: By the time it arrived here Saturday, Irene had weakened to a Category 1 hurricane. But here as elsewhere, officials and engineers say years of strategic planning and millions of dollars spent on erosion control and shoreline protection minimized the storm's impact. Others say Irene actually showed that, in especially vulnerable areas, such as North Carolina's **Outer Banks**, it may be a waste of money to try keeping up with beaches' shifting sands.

On New York's Long Island, the beaches fared "pretty well," said Moke McGowan, president of the Long Island Convention and Visitors Bureau. "We expected heavier erosion, especially on the **South Fork** and the East End," home to the Hamptons and Montauk. A handful of beaches, including parts of **Jones Beach** and **Fire Island National Seashore**, remain closed this week. They're scheduled to reopen for **Labor Day** weekend.

Here in Virginia Beach, Roehrs said, a 10-year, \$140 million project kept Irene's waves from topping the boardwalk. The project included a beach replenishment project that imported 4 million cubic yards of sand — enough to fill a line of dump trucks from here to Denver — and construction of a concrete boardwalk built atop a 10-foot-wide pipe that runs its length. The huge pipe gathers storm water and, through a series of massive pumps up and down the beach, delivers it 2,000 feet out to sea.

The system "worked like a charm" during Irene, Roehrs said.

Up the Atlantic coast in **Ocean City**, Md., a similar project did the same, according to the **Army Corps of Engineers'** Kevin Brennan. Survey crews this week were taking measurements, but Brennan, who inspected the beach on Sunday, said he had expected the damage to be much worse.

Brennan said the \$42 million project protected the popular resort's beach. "If we hadn't done this project starting back in the '90s, Ocean City would look very different than it does today," he said. "There would be some areas where we would have lost some buildings, and you wouldn't have as much of a beach as you've got right now."

As recently as May, crews were pumping sand onto the beach.

But farther south, in such areas as North Carolina's Outer Banks, the storm brought heavy damage, in part because such extensive engineering projects aren't feasible. Critics say trying to preserve the beaches as is may be impossible.

**Rob Young**, director of the Program for the Study of Developed Shorelines at **Western Carolina University**, said areas such as the **Oregon Inlet** north of **Cape Hatteras National Seashore** are "incredibly vulnerable" and getting more vulnerable every year. Irene wasn't an especially strong hurricane, yet it washed out several sections of North Carolina Route 12, which connects Outer Banks islands. He calls a proposal to replace the inlet's Bonner Bridge "extremely questionable."

**Greg Williams**, a coastal engineer with the Army Corps of Engineers' Wilmington district, said fragile areas such as the Outer Banks require constant vigilance, because they're constantly shifting.

As for Route 12, he said, it's a "chronic challenge" to keep it in one piece, but it's like any other highway: "When you build a road, you don't build it and walk away from it."

"Beach nourishment," as sand replenishment is sometimes called, has become fairly routine and has a good track record of minimizing storm damage.

Adding to the hurricane problem are rising sea levels, engineers say, and the job of making the beach stay put in a such a place as the Outer Banks becomes especially tricky, perhaps futile. "Because they're a barrier system and sea levels are moving, it's their nature to move to higher ground," said Hilary Stockdon, a research oceanographer with the **U.S. Geological Survey**.

Brennan said projects such as those in Ocean City, many of them approved by Congress, serve the common good by keeping the sea away from both homes and businesses, including high-rise hotels. He and others say the projects pay for themselves in the long run.

Young agrees, with a caveat. He rattles off the names of high-rise beach resorts up and down the **East Coast**, saying, "Nobody's going to go to **Myrtle Beach** if there's no beach. So in that case, it probably is very cost-effective for them to maintain a beach in front of those buildings." But if a community thinks it's important, he says, they should pay for it, not stick everyone else with the bill.

In Virginia Beach, the Army Corps of Engineers paid 65% of the cost of the massive storm water pump system, while a "tourist tax" on restaurants, hotels and other attractions covered the balance. Ultimately, Roehrs said, many beach communities will be forced to install such systems if they want to keep the beach around and the tourists coming. "We can raise our beach another foot," he said. "It's not rocket science."