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Press Release

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New Study, Old Reports Question Oregon Inlet Groin

OCEAN -- A small jetty that the state built at Oregon Inlet on the Outer Banks almost 20 years ago has increased beach erosion on sections of a national wildlife refuge and hasn't lessened the need for repeated beach re-nourishment projects.

That's the conclusion of a new scientific study of the groin. It's also an assessment that's echoed in almost a decade of recently uncovered federal reports on the project. Combined, the new study and old reports raise serious questions about the beneficial effects of these so-called "terminal groins" as ways to control beach erosion.

Groins and other types of hard structures aren't allowed on the beaches of North Carolina because they usually destroy the beach by increasing erosion, but the state Coastal Resources Commission is currently studying whether to permit these terminal groins at inlets. It will hold a public hearing on the study Wednesday at the North Raleigh Hilton. Public comments start at 4:30 p.m.

Some beach communities and other proponents of terminal groins claim that they don't trap enough sand to cause erosion farther down the beach and lessen the need for expensive and repeated beach re-nourishment projects. They point to the 2,700-foot-long groin that the N.C. Department of Transportation built at the northern end of Pea Island in 1991 as the state's best example of a successful terminal groin. The agency built the groin to protect the southern end of the Herbert C. Bonner Bridge, which spans Oregon Inlet.

Stanley Riggs, a researcher and marine geologist at East Carolina University and co-author of the new study, isn't buying it. "The bottom line is, no matter how you cut the mustard, the groin didn't work," he said. "The only thing it did was stop the inlet from moving, which was DOT's objective. But the downstream effects were enormous."

Riggs and his assistant, Dorothea Aimes, found serious flaws in DOT's monitoring of beach erosion in the Pea Island National Wildlife Refuge. After completing the groin, the agency agreed to monitor beach erosion for six miles south of the inlet. If erosion increased because of the groin, DOT would pay the Army Corps of Engineers to pump more sand on or close to the refuge beaches from the Corps' dredging of the

channel in Oregon Inlet. Those DOT reports consistently found that the groin had lessened erosion, and they form the basis of proponents' contention that terminal groins don't harm the beach.

The threshold that DOT used to determine "historic" erosion rates was much too high, Riggs found. The agency used a four-year period, 1984-88, for its baseline. If beach erosion after the groin was built exceeded that baseline, DOT would pay for more sand. But frequent winter storms, intensive dredging of the inlet and other factors combined to increase erosion dramatically during the period that DOT chose, Riggs said. That guaranteed that erosion rates in subsequent years would be lower, he said.

Robert Dolan, a geologist at the University of Virginia, made the same point repeatedly for more than a decade. The U.S. Fish and Wildlife Service, which manages the wildlife refuge, hired Dolan to analyze DOT's monitoring reports. The N.C. Coastal Federation recently obtained Dolan's reports. Until now, they have been unpublished.

"As I have stressed before, the baseline erosion rates that we are using in these analyses are too high to begin with, so even when thresholds are not reached Pea Island can be eroding at higher rates than at any time during the period in which we have data," he wrote in 1997.

Riggs chose the period 1947-63 to derive a more realistic historic erosion rate. That period predates the bridge, inlet dredging, beach re-nourishment and other efforts to control erosion. The erosion rate then was much lower than it is now. Portions of the beach four to six miles from the inlet actually gained as much as 10 feet of sand a year during the period. In comparison, that same section of beach lost as much as 40 feet of sand annually during the DOT monitoring period.

Dolan also stressed that point in his 1996 report. "My point is although we never hear this point restated by NCDOT or the (Army) Corps (of Engineers), the groin did not stop erosion along Pea Island as they predicted. In fact, the erosion along the island has continued, not at reduced rates but rather at accelerated rates," he wrote.

Dolan's reports, which Riggs hadn't seen until after he completed his study, also backed up another key finding of Riggs' study: That the Corps' ongoing beach re-nourishment of Pea Island beaches was masking the groin's destructive effects.

"I would also guess that they (DOT) must thank the COE every day for the program of placing the Oregon Inlet sand on Pea Island, because without that sand, we'd be in an entirely different situation and the monitoring program would be center stage in the discussions," Dolan wrote in a memo to the service in 1994. "Thus, the placement of Oregon Inlet sand on Pea Island has really bailed the state out in that to a degree it buffers them from reaching the triggers, and now they seem to be thinking that the monitoring program, as presently designed anyway, is perhaps too much."

If the groin had succeeded in controlling erosion, there would have been no reason for continued beach re-nourishment, noted Rob Young, a geologist who heads the Program for the Study of Developed Shorelines at Western Carolina University. Instead, the northern end of Pea Island is barely viable, he said, and only a massive engineering effort holds it together. That has included, at one time or another since the groin was built, beach re-nourishment, sandbags and even relocating the road.

It all leads to one inescapable conclusion. "While the structure at Oregon Inlet has prevented one end of the island from moving and has protected the southern end of Bonner Bridge," said Young. "It certainly has not lived up to its promise and has exacerbated the erosion problem on Pea Island."

You can view Riggs' study, a summary of the study and excerpts from Dolan's reports at the federation website, www.nccoast.org.

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***About the North Carolina Coastal Federation:
"Citizens Working Together for a Healthy Coast"***

The North Carolina Coastal Federation is the state's only non-profit organization focused exclusively on protecting and restoring the coast of North Carolina through education, advocacy and habitat restoration and preservation. The federation headquarters are at 3609 N.C. 24 in Ocean between Morehead City and Swansboro and are open Monday

through Friday from 8:30 a.m. to 5 p.m. The headquarters include the federation's main offices, the Cape Lookout Coastkeeper office, a gift shop, Nature Library, Weber Seashell Exhibit, ShoreKeeper Learning Center and adjoining nature trail. The federation also operates regional offices in Wilmington and Manteo. For more information call 252-393-8185 or check out our website at www.nccoast.org