

NOAA studies boat wake impact to shorelines

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BEAUFORT — A National Oceanic and Atmospheric Administration scientist is doing research that could determine the impact of boat wakes on shoreline erosion.

Dr. Mark Fonseca, a researcher with the NOAA lab on Pivers Island, is studying the impact of boat wakes in the Snow's Cut area of the Atlantic Intracoastal Waterway near Kure Beach north of Bald Head Island. Dr. Fonseca said he believes the results of this study have significant potential for informing people on boat wake impact in many areas of the waterway, including Carteret County.

The study began through a Defense Coastal/Estuarine Research Program at Camp Lejeune in 2008. Dr. Fonseca said the part of the study relating to Snow's Cut, which was a computer simulation, was conducted in the last few months.

"We have begun to study the impact of boat wakes on shore-

lines as part of our larger effort here at the National Centers for Coastal Ocean Science to help resource managers make informed decisions on shoreline management in general," he said, "including the influence of wind waves and sea level rise."

According to a technical memorandum released April 9, boat wakes in the waterway occur in environments not normally subjected to wind wave events, making sections of the waterway potentially vulnerable to extreme wave events generated by boat wakes. The Snow's Cut area has been identified by the Army Corps of Engineers as having significant erosion issues, which could be exacerbated by boat wakes.

The memorandum said the study has found that at 10 knots, about 11.51 mph, boat wake height and potential erosion was greatest with V-hulled boats. At higher, planing speeds, wake and forecast erosion were slightly reduced.

The memorandum said ves-

sel speeds greater than 7 knots, about 8.057 mph, were forecast to create wakes and sediment movement zones much bigger than wind could create.

If vessels were to slow down, particularly large V-hulled ones, to pre-plowing speeds (about 7 knots down from 20), transit times would be increased in Snow's Cut by about 10 minutes. However, the memorandum said doing so would significantly reduce erosion-generating boat wakes.

Dr. Fonseca said Camp Lejeune is particularly interested in his team's findings. He and his team presented their findings in an Intracoastal Waterway Workshop in Washington, D.C., in 2010.

"They were particularly interested in what we could tell them about Snow's Cut and shoreline erosion in that area," Dr. Fonseca said, "because of high channel-dredging maintenance costs."

Dr. Fonseca said he and his team haven't conducted a defin-

itive work on the threat of boat wakes to shorelines yet. He said it's been a significant challenge to create a model that can forecast the behavior of boat wakes and how they'll move through coastal waters.

"Now that we have a means of modeling the waves, we can proceed with tests on actual shorelines," he said. "This effort is being planned on an ad-hoc basis by a group of scientists from NOAA, the University of North Carolina and Duke University."

Dr. Fonseca said it appears areas of the Intracoastal Waterway sheltered from wind waves will be the most vulnerable to boat wakes. However, further exploration of this study will depend on funding.

"We can conduct some limited experimentation through joint work," Dr. Fonseca said, "but we'll see if the technical memorandum generates interest through the management community to pursue applying this approach on a broader scale."