



PSA-012-Seismic Study-Atlantic

How do we save coral reefs?

Vic Ferguson

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Seismic study could predict sea level rise

Kirk Moore, @KirkMooreAPP 12:12 a.m. EDT April 21, 2014



(Photo: photo courtesy Lamont-Doherty Earth Observatory/Columbia University)

A survey of deep ocean floor sediments off New Jersey this summer could help scientists document the speed of ancient sea level changes — and better understand how a warming ocean may affect cities and towns along the coast in the coming decades, says the project's chief scientist.

“We know from (geologic) records the shoreline has been as much as 50 miles inland, almost to the New Jersey Turnpike, and as far as 75 miles out” from today's beaches,



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said Gregory Mountain, a professor of geology at Rutgers University and primary investigator for the sea floor survey. The \$369,000 project is funded by the National Science Foundation and includes Columbia University's Lamont-Doherty Earth Observatory and the University of Texas.

But what scientists don't know is the speed of those ancient changes. That's a very big deal for the future in New Jersey and other Middle Atlantic States, where the pace of 21st-century change is predicted to be faster.

Environmental activists with the group Clean Ocean Action and commercial fishermen raised concerns about the project last week. Seismic surveys use loud air guns towed behind ships to generate sound waves that penetrate the sea floor, bouncing back like sonar waves and yielding images of the sediment layers deep below. Those skeptics worry the noise will chase away fish and disrupt movements of whales and other marine mammals.

"Science doesn't get a pass," Cynthia Zipf of Clean Ocean Action said. "Impacts on marine life ranging from harassment to death have been documented at the proposed noise levels."

Mountain said this project actually will be quieter than past efforts. "We've been out there twice before with air guns twice the volume of what we're going to use," Mountain said. In addition to scientists and crew, the research vessel Marcus G. Langseth will carry five observers — independent contractors hired by the National Science Foundation.

Marine mammals are protected under federal law that prohibits disturbance or harassment, so a project like the seismic study needs a permit from the National Oceanic and Atmospheric Administration, and a plan to minimize interactions with the animals.

Those trips have built up data along a 31 mile corridor east of Long Beach Island to document sea level changes over the millennia. Mountain likens that two-dimensional imagery to X-rays; this cruise will be the first to use a more advanced three-dimensional technology, like the difference between simple X-rays and magnetic resonance imaging in medicine, he said.

One line in the National Science Foundation grant award speculated that the study might be useful for the offshore oil and gas industry — an aside that alarmed critics. But



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Mountain said researchers expressly avoid any places that might bear hydrocarbons, for fear of accidents or pollution while drilling bore holes.

Moreover "it would be a political disaster," he added.

Mountain said he's worried about people equating the research with oil and gas surveys, when it's aimed at anticipating the effects of climate change: "I'm just concerned that people don't understand this has societal value."

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