

Washington Post

# Panel Links Underwater Mapping Sonar to Whale Stranding For First Time

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Published: October 6, 2013

The mysterious stranding of about 100 melon-headed whales in a shallow Madagascar lagoon in 2008 set off a rapid international response — a few of the eight- to 10-foot marine mammals were rescued, necropsies conducted, a review panel formed.

Did they follow prey into the lagoon? Were they sick? Was it the weather or chemical toxins?

The panel recently gave its best answer, and it is causing ripples of concern. For the first time, a rigorous scientific investigation has associated a mass whale stranding with a kind of sonar that is widely used to map the ocean floor, a finding that has set off alarms among energy companies and others who say the technology is critical to safe navigation of the planet's waters.

The independent review panel appointed by the [International Whaling Commission](#) concluded Sept. 25 (2013), that a high-powered, "multi-beam echosounder system" (MBES) was "[the most plausible and likely behavioral trigger](#)" for the stranding. About 75 of the animals, which normally inhabit deep ocean waters, died.

<http://iwc.int/home>

<http://iwc.int/cache/downloads/4b0mkc030sq0gogkg8kog4o4w/Madagascar%20ISRP%20FINAL%20REPORT.pdf>

A contractor for [Exxon Mobil](#) was using the sonar system — which sends "ping" sounds from a vessel toward the ocean floor — in a channel between Mozambique and Madagascar to determine where an oil and gas exploration rig might be safely constructed. Computers use the returning echo from the pulses of sound to map the ocean floor.

The panel of five scientists "systematically excluded or deemed highly unlikely" nearly every other possibility before settling on the use of the MBES, which previously was considered relatively benign, according to the group's report.

“The evidence seems clear to us that [the MBES] was pretty likely” the cause, said Brandon L. Southall, the panel’s chairman and a marine biologist at the University of California at Santa Cruz. He said he hopes the report will cause governments, regulatory agencies and private companies to “realize that some of the types of mapping sonars have the potential to cause reactions in marine mammals that can be detrimental.”

Exxon Mobil, which helped select the panel and partly funded the rescue of some of the whales in 2008, rejects the conclusion, contending that the evidence is too flimsy for a determination that could have a far-reaching impact.

“While Exxon Mobil is not accepting responsibility for the stranding in light of the uncertainties in the report, we did cooperate and provide funding for the response effort in 2008 and the review panel because we are working in Madagascar,” spokesman Patrick McGinn said.

Another skeptic is Larry Mayer, a professor at the University of New Hampshire’s Center for Coastal and Ocean Mapping. “From my reading of that report, it’s not clear how they could have come to that conclusion,” Mayer said. “Any of the other possible conclusions are just as likely.”

**The report could have significant consequences for U.S. government agencies and others around the world that use the MBES to map ocean floors. “If it endangers the ability to use these sort of systems . . . it could lead to all kinds of dangerous downstream consequences,” Mayer said.**

And Joseph Geraci, an adjunct professor of comparative medicine at the University of Maryland who has studied cetacean strandings for 40 years, said he was troubled by the strength of the language in the panel report.

“I’m not sure on the basis of a single event where there are two activities that the words ‘most plausible cause’ are the right ones,” he said. “It’s only those three words that made me pay attention.”

But Howard Rosenbaum, director of the Ocean Giants program of the New York-based Wildlife Conservation Society, hailed the panel for pushing the envelope on possible factors in the strandings and deaths of marine mammals.

“I think what we would like to see is the most effective regulations that will minimize the risk [of mass strandings] to sensitive whales and dolphins,” Rosenbaum said.

**U.S. Navy sonar has been implicated in harm to whales and dolphins, environmental groups contend. [A federal judge last month ordered federal biologists to reconsider permits that could allow the Navy to kill or disrupt marine mammals during antisubmarine warfare exercises off the coast of the Pacific Northwest.](#)**

But in 2008, the Supreme Court allowed similar drills off Southern California to be held without protections for marine mammals.

Other environmental groups are [skirmishing with energy companies over the use of “seismic air guns.”](#) devices that send much louder blasts of compressed air toward the ocean floor to help find oil and gas trapped below.

The noise from an MBES is better compared with an industrial-size version of the fish-finders widely used by recreational anglers, Southall said. That is part of the reason his panel’s finding is so controversial: the pinging sound is used so widely around the globe, in so many forms, that most involved have considered it relatively harmless.

But it may be time to adjust that thinking, Southall said. He acknowledged that no study of whale strandings will achieve the kind of certainty that Exxon Mobil and others would like but said that this one provided a rare opportunity to consider a wide range of possibilities and disprove them.

Because the Wildlife Conservation Society has a presence in Madagascar, it was able to quickly respond to the stranding, rescuing some of the whales and conducting necropsies on the dead, Rosenbaum said. And because regulators, conservation groups and energy companies were together at a conference in Chile at the time, they were able to put together a coordinated rescue response and later work together to form the review panel.

“It seemed to be a very uncommon event,” Southall said, “and we were able to go through almost all the factors that we looked at and rule almost everything else out.”

A 2009 coup and later unrest in Madagascar, an island nation in the Indian Ocean that is off the southeastern coast of Africa, delayed the study, which was resumed in 2012 and released late last month.

Exxon Mobil contends, among its other objections, that the stranding began before its contract vessel arrived off the shores of northwest Madagascar. The company has provided satellite photographs of objects on other nearby beaches before the melon-headed whales fled into Loza Lagoon, but the panel concluded that they most probably were small fishing boats.

**Nevertheless, Exxon Mobil has changed its practices to prohibit the use of an MBES near an underwater cliff face, because the panel raised the possibility that the sound pulses echoed off one in this case and had an unusual effect on the whales, McGinn said. Southall said the whales already were in unusually shallow water for unknown reasons.**

The bottom line for the company, McGinn said, is that “our contract vessel happened to be there in that time frame, but there are so many uncertainties in the area that we’re not sure it’s us.”

End

