

Why are the whales dying?

Study identifies bone abnormalities commonly found in humpback whales on the Brazilian coast

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A joint effort by researchers from the states of São Paulo and Bahia has been looking into the lives — and deaths — of humpback whales (*Megaptera novaeangliae*) along the Brazilian coast. Every year, between July and November, these huge cetaceans swim north from freezing cold Antarctic seas into their breeding grounds in the warm tropical waters off the Brazilian coast. Although this migration route is well known, there is little information about the health of these whales and the reasons why they become ill. There is a simple reason for this: it is not easy to collect tissue samples under adequate conditions to estimate the health status of these marine mammals because they can grow to 16 meters in length, weigh up to 40 metric tons, and are constantly on the move.

Two groups of veterinarians from the University of São Paulo (USP) and the Petrobras-funded Humpback Whale Project (PBJ) are working to change that scenario. The group, led by José Luiz Catão Dias (USP) began systematically collecting skin samples and biological material expelled by the whales through their blowholes. By analyzing tissue from live animals and material extracted from the bones of whales stranded along the shore, the researchers plan to record the state of health of Brazilian humpback whales.

"We are using the biological material collected from live animals to investigate various pathogens," says Catão. His group is also analyzing the project's collection of photos taken during field expeditions to check whether the monitored animals gained or lost weight, de-



"Analyzing bone changes could provide valuable data about the life of whales," says Kátia Groch

veloped skin lesions, or gave birth. "We want to understand the health dynamics of the whales and how human activities can influence them, and thus contribute to whale stranding and death," Catão affirms.

LESIONS AND MALFORMATIONS

In early November 2012, Catão and Kátia Groch, his doctoral student at USP, in collaboration with veterinarians Milton Marcondes and Adriana Colosio (PBJ) published the project's initial results in the journal *Diseases of Aquatic Organisms*. According to the researchers, the

paper is one of the world's largest inventories of skeletal abnormalities in humpback whales. In their work, they analyzed the bones of 49 animals stranded between 2002 and 2011 in the Abrolhos region of southern Bahia State.

Of the 49 whales, 12 presented at least one type of skeletal problem. Five whales had birth defects; four had inflammatory lesions; five displayed degenerative changes; and four showed signs of trauma (possibly from collisions with boats, in several cases). "Analyzing the bone changes of these animals could provide valuable data about the life history



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1 A specimen being analyzed on a beach in Abrolhos

2 Humpback whale during typical leap

3 Research team during field expedition

4 Dart for collecting skin samples

5 Ribcage with bone callus (rectangular area)



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of whales and their pathological conditions," says Groch. "Some of these changes may have contributed to the whales getting stranded, especially the lesions in the tail region, which we found on two animals," she explains.

The researchers believe that constant monitoring is the only way to understand the extent to which these animals are affected by exploitation and modification of the marine environment, which

might increase further when subsalt oil exploration is fully underway. "Whales and dolphins are indicators of marine ecosystem health. The results of these studies are essential for understanding the threats to whale populations and to provide supporting data for public policies designed for their protection," says Groch.

Whale hunting was permitted in Brazil until three decades ago, when it was banned by Federal Law No. 7,643. In 2008, Decree No. 6,698 declared Brazil's marine jurisdictional waters to be a "whale and dolphin sanctuary." The country's current legislation for whale protection is very good. "Whales already face major natural challenges just keep-

ing themselves alive. Protection policies can only be effective with efficient oversight and by reconciling economic growth, exploitation of marine resources, and environmental preservation," Groch affirms. ■

Project

Analysis of health aspects of humpback whales (*Megaptera novaeangliae*) in the southeastern and northeastern Brazilian coast, with special emphasis on anthropogenic interactions –No. 2011/08357-0; **Grant mechanism** Regular Line of Research Project Award; **Coordinator** José Luiz Catão Dias/FMVZ-USP; **Investment** R\$67,661.40 (FAPESP).

Scientific articles

GROCH, K. R. et al. Skeletal abnormalities in humpback whales *Megaptera novaeangliae* stranded in the Brazilian breeding ground. *Diseases of Aquatic Organisms*. 8 Nov 2012.