

# Humpback whales staying in Antarctic bays later into autumn

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Large numbers of humpback whales are remaining in bays along the Western Antarctic Peninsula to feast on krill late into the austral autumn, long after scientists thought their annual migrations to distant breeding grounds would begin, according to a new Duke University study.

The study, published July 30 in the journal *Endangered Species Research*, provides the first density estimates for these whales in both open and enclosed habitats along the peninsula in late autumn.

It suggests that the little-studied bays are late-season feeding grounds for humpback whales and much more important than scientists previously thought. It also highlights changes that might be occurring in the region in response to the later arrival and reduced extent of winter ice cover associated with [rapid climate change](#).

"The old dogma is that by late autumn, the ice is heading in and the whales have headed out. But 70 percent of our surveying took place in waters with no ice, and we detected 371 groups of humpback whales over a 654-kilometer survey area, with density estimates of up to 1.75 whales per [square kilometer](#)," said David W. Johnston, a research scientist at Duke's Nicholas School of the Environment and lead author of the paper.

At that density, "if you were to walk to the bridge of a ship and look around, you'd spot two whales within 500 meters of the boat. That's higher than anyone expected," Johnston said.

The highest densities of whales were found in narrow, enclosed sections of Wilhelmina Bay, Andvord Bay and the Errera Channel. The lowest densities -- as low as 0.02 whales per square kilometer -- occurred in the open water of the adjacent Gerlache Strait, which separates the Palmer Archipelago from the Western [Antarctic Peninsula](#).

The researchers conducted the study aboard the National Science Foundation (NSF) [research vessel](#) Laurence M. Gould in late April through early June of 2009. NSF funded the study.

"Establishing the autumn density of humpback whales in the inshore regions of the Western Antarctic Peninsula is crucial for understanding the role they play in this rapidly changing ecosystem," said Ari S. Friedlaender, a researcher with the Duke University Marine Lab. "Our results provide a new perspective on the magnitude of predator-prey relationships in the region as the Antarctic winter sets in."

Scientists have long known the waters around the Western Antarctic Peninsula are important foraging grounds for [humpback whales](#) that feed on swarms of shrimp-like krill, but previous studies have been conducted earlier in the season or in open waters farther from land.

Being the first to estimate densities in the peninsula's narrow in-shore waters was a challenge, Johnston said. The line-transect techniques and distance-sampling methods scientists traditionally use for this type of study weren't well-suited to the bays' tight quarters, tricky currents and jutting shorelines.

"We had no idea that the whales were going to be packed up in these narrow channels and passages. We had to think on our feet a bit and use alternative sampling approaches and incorporate data from other portions of the project," he said. For instance, data collected from tagging the whales and tracking their underwater movements turned out

to be incredibly useful for estimating densities, too.

"Once we knew their dive behaviors, we could establish how likely it was that we might miss them as we were traveling along the surface of the water," Johnston said. "That's not something we would have been able to do using only the traditional methods."

Provided by Duke University

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