

# Study on Pacific sperm whales suggests culture isn't just for humans

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This male sperm whale was one of many Mauricio Cantor observed off the Galapagos Islands in 2013. Credit: Mauricio Cantor / The Whitehead Lab at Dalhousie University

A Dalhousie University PhD candidate in biology is fuelling the debate that culture—generally viewed as distinctly human—is also found in the animal kingdom.

Mauricio Cantor has studied Pacific sperm whales off the Galápagos Islands since 2013. His findings, published today in *Nature Communications*, suggest that culture is an important mechanism for structuring society in two clans of sperm whales.

"Animal culture is a highly-debated topic among experts," says Cantor, a member of the Whitehead Lab in Dalhousie's Faculty of Science. "Our findings provide evidence that key features of human culture—which we think makes us so different from everything else in nature—might be at play in populations of other animals."

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Cantor and supervisor Dr. Hal Whitehead teamed up with the Galápagos National Park to observe two clans of sperm whales.

The two clans share the same geographic area but Cantor's work shows they've segregated themselves because each has developed its own "dialect"—a repertoire of communication sounds that the other clan may not understand. This kind of segregation is rare in nature, explains Cantor, though it's evident in human populations as a result of cultural evolution.

Using computer simulation and Whitehead Lab field data dating as far back as the 80s, Cantor created virtual whale populations to investigate how these two dialects may have developed over thousands of years. Testing various scenarios, it became clear the whales are social learners—conforming to those they're most similar to in their environment.

"Our findings show that social learning among sperm whales is the required ingredient for the segregation in clans with different 'dialects'," says Cantor.

Cantor's work showing that culture can be a mechanism to help structure animal society will fuel the ongoing debate among experts all over the world. Now tourists on the world-famous islands will have more insight into this debate too. Through the partnership with the Galápagos National Park, Cantor provided material that will help guides to explain [sperm whale](#) behaviour and culture to visitors.

"I've been trying to understand the culture of sperm whales for quite a few years, and for even more I've studied their societies," says Dr. Whitehead, biology professor at Dalhousie and Cantor's supervisor.

"What Cantor has done is show how interrelated sperm whale society and sperm whale culture are, and how the feedbacks between culture and society may have worked in the evolution of this extraordinary animal."

The Whitehead Lab is known for its work examining [culture](#) in marine life. Late last year, Dr. Whitehead and Dr. Luke Rendell of the University of St. Andrews (and former PhD student in the Whitehead Lab) co-authored a book titled *The Cultural Lives of Dolphins and Whales*.

**More information:** "Multilevel animal societies can emerge from cultural transmission." *Nature Communications* 6, Article number: 8091 [DOI: 10.1038/ncomms9091](https://doi.org/10.1038/ncomms9091)

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