



Book Review: The Cultural Lives of Whales and Dolphins

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A book review on The Cultural Lives of Whales and Dolphins

Hal Whitehead and Luke Rendell, Chicago; London: The University of Chicago Press, 2015

In the early 1980s, Hal Whitehead and other budding whale biologists set their sails across the Indian Ocean in search of whales. The International Whaling Commission had just declared the Indian Ocean as a giant no-whaling sanctuary. Whitehead and crew's post-whaling reconnaissance aimed to see what was left. Near Sri Lanka, they encountered sperm whales, groups of intensely social females and calves, surprisingly shy and incessantly clicking. That and subsequent sailing expeditions meeting sperm whale groups in the Pacific and Atlantic oceans, as well as humpback and other whale work, set Whitehead on a path leading to *The Cultural Lives of Whales and Dolphins* (Whitehead and Rendell, 2015).

Co-author Luke Rendell began collaborating with Whitehead in the 1990s, focusing on sperm whale social behavior and acoustics. They started thinking about exploring the idea of culture in whales and dolphins. Their review paper in *Behavioral and Brain Sciences* (Rendell and Whitehead, 2001) entitled "Culture in Whales and Dolphins" and a 2001 workshop at the Society for Marine Mammalogy biennial conference in Vancouver, B.C., helped launch things. For the book reviewed here, they gathered hundreds of fundamental papers based on long-term photo-ID and acoustic work on sperm, killer, humpback and blue whales, and bottlenose and other dolphins. A number of books set the stage, too, including *Among the Whales* (Payne, 1995), *Sperm Whales: Social Evolution in the Ocean* (Whitehead, 2003), and *Cetacean Societies: Field Studies of Dolphins and Whales* (Mann et al., 2000), among others. *The Cultural Lives of Whales and Dolphins* thus synthesizes much of the past work from over four decades and effectively launches a new field of enquiry in a comprehensive volume that does justice to the boldness of the title.

The first 44 pages are mostly devoted to defining the term "culture" in order to build a "not-too-leaky vessel" before examining the behavior of wild whales and dolphins. After looking at anthropocentric interpretations of culture from various disciplines that, by definition, exclude non-humans, the authors settle on a concise and clear definition of culture as "information or behavior—shared within a community—which is acquired from conspecifics through some form of social learning." Of course, much of the information that animals pass along has a genetic basis and this has dominated the way behavioral ecologists think about the biology of most animal species. But, in Whitehead and Rendell's words, culture is another method of moving information from animal to animal. And the more that is learned about cetacean social behavior, the more the evidence stands out.

Two of the main kinds of cultural transmission that Whitehead and Rendell examine are acoustic behavior and feeding behavior. Dipping a hydrophone into the ocean reveals that tropical oceans throb with humpback whale songs arranged in complex, evolving refrains. The Arctic has bowhead songs, while 14 different regional blue whale songs occupy the lowest

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register and rumble out from the corners of the world where this endangered species yet persists. Killer whales with their dialects are more localized.

For feeding behavior, the various ecotypes of killer whales specialize on prey that they learn to eat as calves. Techniques such as rolling up on beaches in Patagonia to catch sea lions are practiced in the offseason by observing mothers or other older pod members. Culture can also be seen in the spread of dolphin behavior such as tail-walking and using bits of sponge to protect their beaks to probe in the sand, while humpbacks slap their flukes to enhance bubble-cloud feeding, and killer whales go beach-rubbing. Many shared behaviors probably started with an individual learning something and then passing it around.

How does culture affect biological fitness? The varying reproductive success in sperm whales of different oceans may indicate more successful transmission of specific pieces of information or behavior. Yet bottlenose dolphins who have learned to accept food hand-outs and human attention in Western Australia, have been less successful at taking care of their young than the dolphins staying offshore, so this cultural trait may be counter-productive and unlikely to persist.

The authors make numerous comparisons to culture in primates and humans that are instructive and entertaining. To suggest a few decades ago that culture was driving behavior outside of *Homo sapiens* would have been outside of the behavioral ecology line of research that has dominated cetacean work but, as Whitehead and Rendell explain, behavioral ecologists now accept that culture is part of the story. Of course, how much of behavior is due to social learning and how much due to genetics or environmental correlation, is up for further study and elucidation. The anthropologists and psychologists, meanwhile, mostly refuse to accept the notion of whale or

chimpanzee culture (Tyack, 2001). It will take more evidence—and acceptance of a more up-to-date definition of culture—to persuade them.

Meanwhile, the acknowledgment that cetaceans have cultural lives is already having an impact on whale conservation. In 2014, the Convention on Migratory Species (CMS) passed a resolution calling on members to investigate the conservation implications of cetacean culture (CMS, 2014). The IUCN Marine Mammal Protected Areas Task Force has recognized unique cultural features as a criterion for selection as an Important Marine Mammal Area (IMMA) (Hoyt and Notarbartolo di Sciara, 2014).

The Cultural Lives of Whales and Dolphins is well written, carefully edited and accessible to a wide readership without sacrificing authoritativeness. The backmatter with notes and bibliography alone extends to 92 pages and there is a 19-page double-column index. The book could serve as reading material in biology or conservation courses, or a delightful provocation in anthropology or psychology courses. It can be anticipated that new editions will be able to chart the further implications of culture and add to the body of evidence. Those of us studying whales are fortunate to have seen our studies go from zero to an extraordinary flowering of research results uncovering highly diverse behavior, life history and population biology. We can now also enrich ourselves with the cultural lives of wild whales and dolphins.

AUTHOR CONTRIBUTIONS

The author confirms that he is the sole contributor of this work and has approved it for publication.

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