

Zoning the ocean may help endangered whales to recover

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Scientists in Scotland, Canada and the US have proposed a new method to identify priority areas for whale conservation. The team's findings, published in *Animal Conservation*, suggest that even small protected areas, identified through feeding behaviour, can benefit highly mobile marine predators such as killer whales.

"There are enormous challenges associated with setting conservation priorities for such mobile and migratory species as whales," said lead author Erin Ashe, a PhD student at the University of St Andrews.

"However the topic was important enough to bring together 200 managers, scientists, and government and NGO representatives from 40 countries for the first International Conference on [Marine Mammal Protected Areas](#)."

The annual censuses conducted by the Center for Whale Research indicate that the endangered southern resident killer whale population found in the waters of British Columbia, Canada and Washington State, USA now numbers only 87 animals. In addition to high contaminant levels, food limitation and repeated disturbance from boats represent serious threats to the whales' recovery.

Throughout the study, co-authored with Drs Dawn Noren, NOAA NMFS Northwest Fisheries Science Center and Rob Williams, University of Washington, Ashe mapped locations where killer whales were observed feeding.

"Protecting even small patches of water can provide conservation benefits, as long as we choose the spots wisely," said Ashe. "We followed individually recognisable whales for hours on end and mapped where they were engaged in resting, feeding and social activities."

The team realised that feeding habitat is important to these whales for two reasons. Chinook salmon, the preferred prey of the whales, has also declined in the region and the whales are thought to be food-limited. Also, killer whales are more responsive to whale watching boat traffic when engaged in feeding activities than when they are travelling.

The authors observed that these two conservation threats are linked, so mitigation measures ought to consider the threats simultaneously. They argue that management strategies to protect feeding hotspots should confer greater conservation benefit than those that protect habitat generically.

The team's research identified a small area in which whales were almost three times as likely to be feeding as they were in the rest of the region. By interviewing managers and environmental educators, the team were able ensure their candidate area was large enough to be biologically meaningful while being small enough to allow effective management of human activities within those boundaries. This information could also be incorporated into NOAA Fisheries' recent proposal to create a Marine Protected Area for killer whales.

For some species, critical habitat is immediately apparent from casual observation. Killer whales strand on special beaches in Patagonia (Argentina) to capture seals. A few key lagoons provide obviously important breeding habitat for grey whales in Baja, Mexico. In most cases, identifying critical habitat for whales, dolphins and porpoise is complex, and requires statistical analysis.

"Ashe et al.'s research suggests that the successful conservation of southern resident [killer whales](#) depends on paying attention to their feeding behaviour," said Erich Hoyt, Head of the Critical Habitat MPA Program at the Whale and Dolphin Conservation Society and author of Marine Protected Areas for Whales, Dolphins and Porpoises. "Their research has cleverly indicated a relatively small MPA that could nevertheless be helpful here - especially if the proposed no-go area applies to all boat traffic (except for emergency situations). MPAs are rarely the complete answer. So much more will need to be done here to ensure the future supply of Chinook salmon that these whales depend on."

"Zoning the ocean is a new concept and is rife with human conflict," said Dr Joe Gaydos, science advisor to Puget Sound Partnership and Chief Scientist for the SeaDoc Society. "Science is our most objective tool for balancing species recovery and human needs and work like Ashe's is critical if we're going to ask boaters and fishermen to leave important areas for the whales."

Provided by Wiley

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