

Flexibility is key when protecting the Southern Ocean, says study

April 21 2023



Adélie penguins are among the important Southern Ocean species considered carefully in marine protected area planning. Credit: Dr Nicole Hill

Undersea mountains that help shape ocean currents and support a dazzling array of marine life are just one of the important ecosystems under-represented in current marine protection, scientists say.

University of Tasmania Ph.D. candidate Anne Boothroyd has investigated different planning scenarios for establishing large-scale marine protected area (MPA) networks in the Southern Ocean, and determined adaptability is crucial.

Her findings show that the incremental planning approach currently used to protect marine biodiversity can be effective but only when [decision makers](#) are committed to re-visiting plans over time as new information and challenges emerge.

"Over the last decade, significant investment has led to the declaration of two large MPAs in the Antarctic region—the Ross Sea region MPA and the South Orkney Islands Southern Shelf MPA, and proposals for three more MPAs are underway," Miss Boothroyd said.

"The sheer magnitude of the Southern Ocean, making up 10 percent of the world's blue spaces, and the importance of rare and isolated [marine ecosystems](#) within it, means decisions made about the management of these areas are very important."

"MPAs are an effective tool to reduce threats to Antarctic marine biodiversity which is already experiencing the pressures of climate change," she said.

"Getting the conservation planning approach correct is critical for the sustainability of many marine species and environments into the future."

Miss Boothroyd found that current and proposed MPAs make a significant contribution to protecting many of their intended conservation features, including feeding areas for species like penguins and seals that live on and around fast ice, but that others, like deep-ocean seamounts and rare environments, were not fully represented.

Institute for Marine and Antarctic Studies (IMAS) researcher and study co-author, Dr. Nicole Hill said that, as an example, while 34 seamounts in the Southern Ocean had been identified as either rare or isolated, currently only five of these were included in existing or proposed protected areas.

"Seamounts are extinct underwater volcanoes that rapidly rise from the seafloor, directing deep, nutrient-rich waters up their sloping sides to the surface, often hosting rich seafloor communities and attracting open-ocean species for feeding, breeding and spawning," Dr. Hill said.

"We can protect these important ecosystems—and [marine biodiversity](#) more generally—but we need decision makers to progress proposed MPAs now, and to factor in ongoing flexibility and adaptation throughout the planning process."

This research was published in *Nature Sustainability*.

More information: Anne Boothroyd et al, Benefits and risks of incremental protected area planning in the Southern Ocean, *Nature Sustainability* (2023). [DOI: 10.1038/s41893-023-01077-w](https://doi.org/10.1038/s41893-023-01077-w)

Provided by University of Tasmania

Citation: Flexibility is key when protecting the Southern Ocean, says study (2023, April 21)
retrieved 5 May 2024 from <https://phys.org/news/2023-04-flexibility-key-southern-ocean.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.