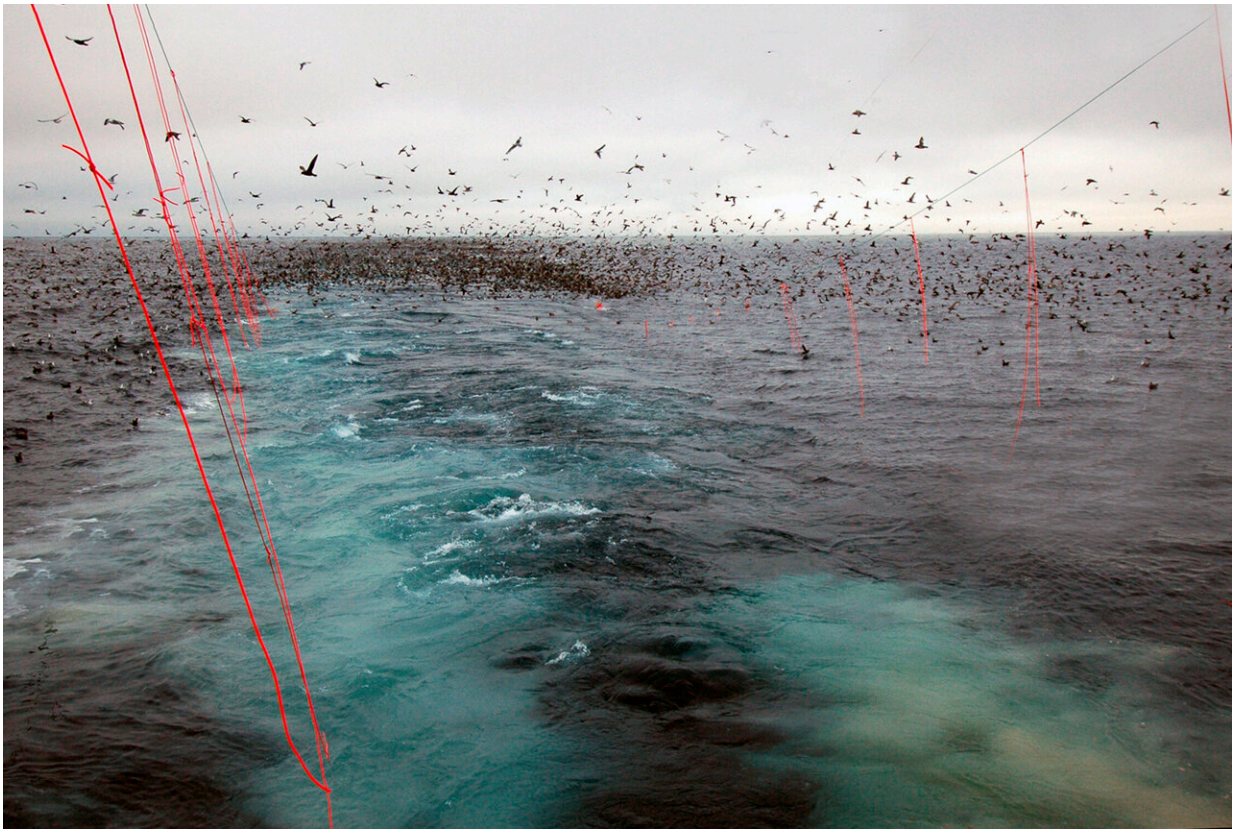


Shifting ocean closures best way to protect animals from accidental catch

January 17 2022



Deploying streamer lines behind boats in Alaska longline fisheries has saved thousands of seabirds from being accidentally caught each year. Credit: Ed Melvin/Washington Sea Grant

Accidentally trapping sharks, seabirds, marine mammals, sea turtles and

other animals in fishing gear is one of the biggest barriers to making fisheries more sustainable around the world. Marine protected areas—sections of the ocean set aside to conserve biodiversity—are used, in part, to reduce the unintentional catch of such animals, among other conservation goals.

Many nations are calling for protection of 30% of the world's oceans by 2030 from some or all types of exploitation, including fishing. Building off this proposal, a new analysis led by the University of Washington looks at how effective fishing closures are at reducing accidental catch. Researchers found that permanent marine protected [areas](#) are a relatively inefficient way to protect marine biodiversity that is accidentally caught in fisheries. Dynamic [ocean](#) management—changing the pattern of closures as accidental catch hotspots shift—is much more effective. The results were published Jan. 17 in the *Proceedings of the National Academy of Sciences*.

"We hope this study will add to the growing movement away from permanently closed areas to encourage more dynamic ocean management," said senior author Ray Hilborn, a professor at the UW School of Aquatic and Fishery Sciences. "Also, by showing the relative ineffectiveness of static areas, we hope it will make conservation advocates aware that permanent closed areas are much less effective in reducing accidental catch than changes in fishing methods." These techniques could include devices that keep [sea turtles](#) away from shrimp fishing, or streamer lines on boats to deter seabirds from getting caught in fishing lines.



A loggerhead sea turtle (*Caretta caretta*) seen in the ocean near Uruguay. Dynamic ocean management, which would close parts of the ocean in accidental-catch hotspots, would help protect turtles like this from being accidentally caught during fishing operations. Credit: Philip Miller

The international team of researchers looked at 15 fisheries around the

world—including Californian swordfish, South African tuna and Alaskan pollock—and modeled what would happen both to the targeted [fish](#) and to species caught accidentally, called [bycatch](#), if 30% of fishing grounds were permanently closed, compared with dynamic management. In practice, dynamic management tracks real-time data of bycatch and closes smaller areas that can move year to year based on where species are most affected.

One of the critiques of permanent marine protected areas is that many of the species they are supposed to protect—marine mammals, turtles, seabirds—move around and may leave the protected area altogether. The study found that, on average for all fisheries studied, restricting fishing in 30% of a fixed area did reduce bycatch by about 16%. But in dynamic closed areas, over the same fraction of the ocean, bycatch was reduced by up to 57%.

"We found we can significantly reduce bycatch without decreasing the catch of target species by closing small fishing areas that can move year to year," said lead author Maite Pons, an independent fisheries consultant based in Uruguay who completed this work as a UW postdoctoral researcher. "This dynamic approach is increasingly valuable as climate change drives species and fisheries into new habitats, altering these interactions."



A loggerhead sea turtle (*Caretta caretta*) is accidentally caught during longline tuna fishing operations in Uruguay. Dynamic ocean management, which would close parts of the ocean in accidental-catch hotspots, would help prevent bycatch like this turtle. Credit: Philip Miller

The authors acknowledge that goals differ for various marine protected areas, and if the main purpose is to protect a [critical habitat](#), a biodiversity hotspot or unique feature, static closures might be more effective and easier to enforce. In this way, all conservation goals should be broadly considered when determining which types of ocean protections to put in place, they said.

"I hope this study encourages everyone to consider how best to reduce bycatch and protect marine ecosystems," Hilborn added.

More information: Trade-offs between bycatch and target catches in static versus dynamic fishery closures, *Proceedings of the National Academy of Sciences* (2022). [DOI: 10.1073/pnas.2114508119](https://doi.org/10.1073/pnas.2114508119)

Provided by University of Washington

Citation: Shifting ocean closures best way to protect animals from accidental catch (2022, January 17) retrieved 25 April 2024 from <https://phys.org/news/2022-01-shifting-ocean-closures-animals-accidental.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.