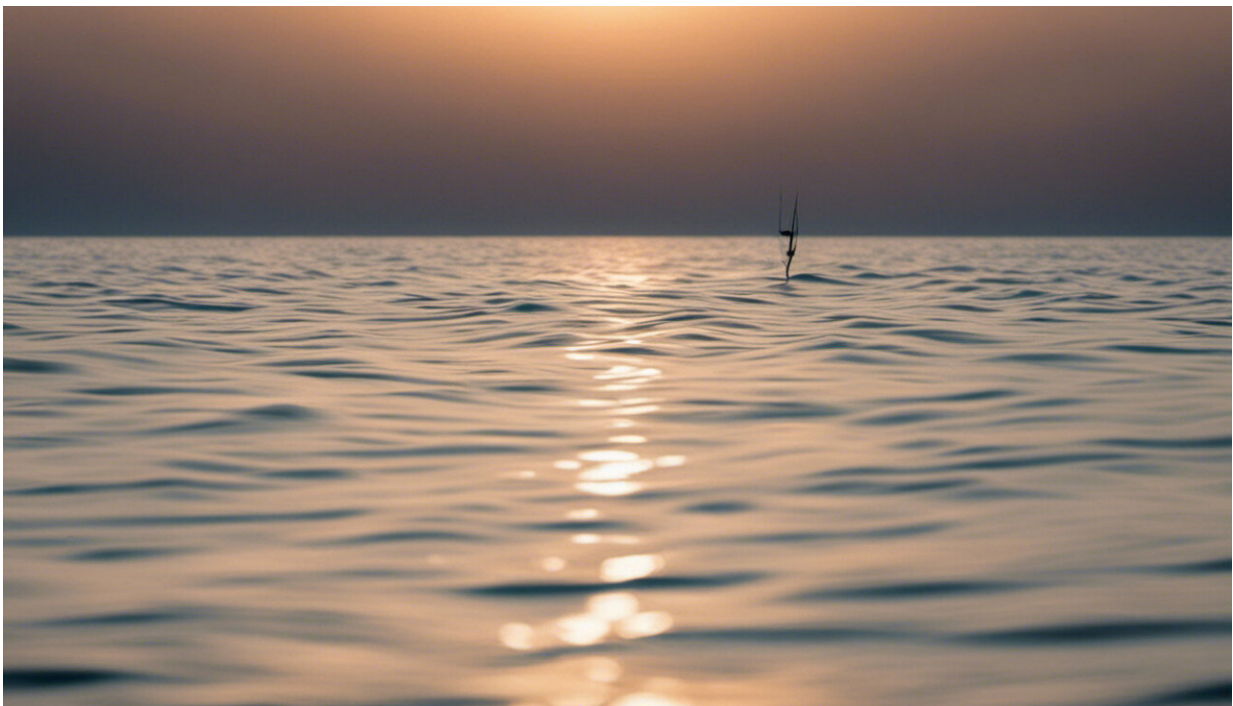


Creating the world's largest marine preserve and what it means for fishing, climate research

November 7 2016, by Thea Singer



Credit: AI-generated image ([disclaimer](#))

Last week, an agreement was reached by 24 nations and the European Union to establish the world's largest marine protected area, in the Ross Sea in Antarctica. The area, which will come under protection on Dec. 1, 2017, covers some 600,000 square miles of ocean, 28 percent of which

will be designated as research zones. Commercial fishing will be banned throughout. Northeastern professor William Detrich, an expert in marine molecular biology and biochemistry, has led groundbreaking research on Antarctic fish. In March [a small island](#) near Palmer Station in Antarctica—where he's been making research trips for more than 30 years—was named in his honor. We asked him to explain the significance of establishing such a large reserve, what types of research will be conducted there, and how such a massive collaboration came about in the first place.

From a conservation perspective, what is the significance of establishing such a huge marine protected area in the Ross Sea in Antarctica? How does the reserve differ, besides its size, from other reserves?

Creation of an MPA ensures that the zone, in this case a substantial portion of the Ross Sea in Antarctica, is protected from human activities, such as [commercial fishing](#). The overall goal of an MPA is to limit or prohibit harvesting activities to maintain and protect ecosystem processes and areas of ecological significance.

The Ross Sea MPA will be the largest reserve on the planet, measuring some 600,000 square miles, and will be in effect for 35 years, with provisions for an extension. The Ross Sea region is home to a wide variety of marine life, including whales, seals, fish, penguins, and other birds, and many of these species are dependent on krill as a major food source. With respect to human exploitation, krill, which is valued for its oil, and the Antarctic toothfish, which is sold in the U.S. as Chilean sea bass, are particularly at risk of being overfished. Disruption of toothfish stocks by continued fishing pressure threatens the viability of the Ross Sea ecosystem.

The Ross Sea MPA creates three specific zones: a General Protection Zone, or GPZ; a Special Research Zone, or SRZ; and a Krill Research Zone, or KRZ. After it comes under protection in December, commercial harvesting of [marine life](#) in all zones will be prohibited. Limited fishing in support of science and monitoring will be allowed in the SRZ and the KRZ.

What types of studies will researchers be able to conduct in the new reserve that they can't conduct elsewhere?

A major benefit of the above restrictions is that scientists will be able to evaluate the effects of climate change on the Ross Sea ecosystem without the confounding and disruptive impacts of active fisheries for krill and toothfish. As one of a very few pristine marine ecosystems, the Ross Sea, under the MPA, will serve as a natural laboratory for assessing and forecasting climate change on Earth.

Negotiating the agreement was not easy, with some nations, including China and Russia, initially blocking the creation of the Ross Sea MPA. What are some of the obstacles that the Commission for the Conservation of Antarctic Marine Living Resources—where the agreement was reached—had to overcome, and how did it surmount them?

CCAMLR operates by consensus, so a lot of "head butting" can be anticipated in the process of striving for unanimity. Initially, the U.S. and New Zealand proposed the creation of the Ross Sea MPA in early 2011. According to Christopher Jones, a research fishery biologist in the

U.S. Antarctic Marine Living Resources program at the National Oceanic and Atmospheric Administration, a series of international workshops were held to ensure that the best available science underpinned the proposal, which was submitted to CCAMLR in 2012. By 2013 or 2014, most nations were on board, but China, Japan, Norway, Russia, and Ukraine had concerns regarding the fishing restrictions. By 2015, all CCAMLR members had agreed with the exception of Russia. Russia joined the agreement in 2016 after productive discussions between U.S. Secretary of State John Kerry and the Foreign Minister of Russia, Sergei Lavrov, which occurred shortly after Russia committed to expanding protected areas in the Arctic. As Jones says, "plain old perseverance" was an important factor in forging the agreement.

Provided by Northeastern University

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