

Life without ice

For millions of years, Arctic sea ice has expanded and retracted in a rhythmic dance with the summer sun. Humans evolved in this icy world, and civilization relied on it for climatic, ecological, and political stability. But the world creeps ever closer to a future without ice. Last year, new reports documented how record Arctic warmth is rapidly eroding sea ice, and the United Nations Intergovernmental Panel on Climate Change detailed the manifold impacts from declining sea ice in a Special Report on the Ocean and Cryosphere in a Changing Climate. As the northern sea ice declines, the world must unite to preserve what remains of the Arctic.

The National Snow and Ice Data Center reported that last year's minimum Arctic sea ice extent was the second lowest on record. Similarly, the Polar Science Center found that 2019 ended with the second lowest Arctic sea ice volume on record. The sea ice is now 40% smaller than it was 40 years ago, and the remaining ice is younger, thinner, and more temporary. Arctic summers could become mostly ice-free in 30 years, and possibly sooner if current trends continue.

Although most people have never seen the sea ice, its effects are never far away. By reflecting sunlight, Arctic ice acts as Earth's air conditioner. Once dark water replaces brilliant ice, Earth could warm substantially, equivalent to the warming triggered by the additional release of a trillion tons of carbon dioxide into the atmosphere. The ice also determines who gets rain. Loss of Arctic sea ice can make it rain in Spain, dry out Scandinavian hydropower, and set California ablaze. And declining sea ice threatens wildlife, from the iconic polar bear to algae that grow beneath the sea ice, supporting an abundance of marine life.

Unfortunately, the sea ice conceals not just algae, but also 90 billion barrels of oil and 1.7 trillion cubic feet of natural gas that neighboring countries would like to claim. If extracted and burned, these fossil fuels would exacerbate climate change greatly. Arctic nations are now racing to find undersea evidence that extends their continental shelves poleward, which would allow them to

control these resources and substantiate military claims. If conflicts over Arctic ownership intensify, the thawing ice cap could spark a new—more aptly named—cold war.

To avoid these consequences, the scientific community should advocate not just for lowering greenhouse gas emissions, but also for protecting the Arctic from exploitation. The Antarctic shows the way. In the 1950s, countries raced to claim the Antarctic continent for resources and military installations. Enter the scientists. The 1957–1958 International Geophysical Year brought together scientists from competing countries to study Antarctica, and countries temporarily suspended their territorial

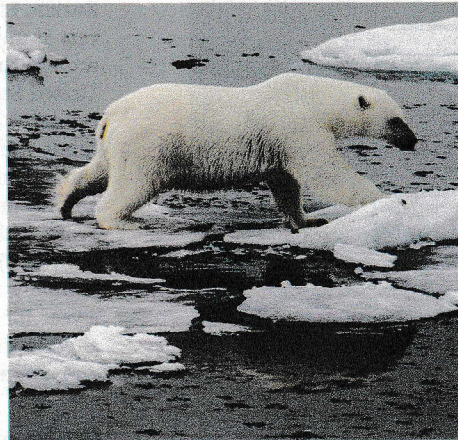
disputes. Afterward, scientists lobbied national leaders to protect Antarctica in perpetuity. In 1959, 12 countries signed the Antarctic Treaty to preserve the continent for peaceful scientific discovery rather than territorial and military gain.

Sixty years later, we must now save the Arctic. A new Marine Arctic Peace Sanctuary (MAPS) Treaty—a proposed addendum to the United Nations Convention on the Law of the Sea—would protect the Arctic Ocean as a scientific preserve for peaceful purposes only. Similar to Antarctica, MAPS would prohibit resource extraction, commercial fishing and shipping, seismic testing, and military exercises. So far, only 2 non-Arctic countries have signed MAPS; 97 more need to sign on to enact

it into law. Scientists can help—just as they did for the Antarctic—by giving statements of support (at signmaps.org), asking scientific organizations to endorse the treaty, communicating the importance of protecting the Arctic to the public and policy-makers, and ultimately by convincing national leaders to sign the treaty. In particular, Arctic nations must agree that designating the Arctic as an international preserve is better than fighting over it. In 2018, these countries successfully negotiated a 16-year moratorium on commercial fishing in the Arctic high seas, demonstrating that such agreements are possible.

Humans have only ever lived in a world topped by ice. Can we now work together to protect Arctic ecosystems, keep the northern peace, and allow the sea ice to return?

—Mark C. Urban



“...designating the Arctic as an international preserve is better than fighting over it.”



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