

# NEWS IN FOCUS

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PAUL NICKLEN/NATIONAL GEOGRAPHIC/GETTY



The Ross Sea in the Southern Ocean is one of the least-altered ecosystems on Earth and teems with a diverse array of marine life.

## CONSERVATION

# Giant ocean reserve is a go

*International agreement to create world's largest marine protected area near Antarctica is hailed as a diplomatic breakthrough.*

BY QUIRIN SCHIERMEIER

It is a milestone for ocean conservation and Russia's relationship with the rest of the world. After years of unsuccessful talks, 24 nations and the European Union agreed on 28 October to create the largest marine reserve on Earth, around twice the size of Texas, in the Southern Ocean off the coast of Antarctica.

The international deal sets aside 1.55 million square kilometres of the Ross Sea, a deep Antarctic bay 3,500 kilometres south of New Zealand, from commercial fishing and mineral

exploitation. It is the first time that countries have joined together to protect a major chunk of the high seas — the areas of ocean that are largely unregulated because they do not fall under the jurisdiction of any one nation. The deal takes effect in December 2017.

Signed by members of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) amid cheering at a meeting in Hobart, Australia, the deal became possible because of assent from Russia, which had long blocked the agreement. "Russian support of any agreement is a very positive signal

in the current political situation," says Peter Jones, a specialist in marine environmental governance at University College London.

Scientists hope now to see an acceleration of efforts to protect marine areas, in particular other ecologically precious regions around Antarctica. The designated reserve is a "first dent into the notion that we can't do anything to protect the high seas", says Daniel Pauly, a marine biologist at the University of British Columbia in Vancouver, Canada, who has long sounded the alarm over the state of the world's oceans. ▶

► CCAMLR members had discussed the Ross Sea reserve since the United States and New Zealand proposed it in 2012. Observers say that Russia's change of heart might have been the result of behind-the-scenes discussions on the issue in recent months between the US secretary of state, John Kerry, and his Russian counterpart, Sergey Lavrov.

The Ross Sea is relatively healthy, but fishing activity is increasing — and that has begun to affect stocks of the predatory Antarctic toothfish (*Dissostichus mawsoni*). Also in decline is the Antarctic krill (*Euphausia superba*), a shrimp-like crustacean and a key creature in the marine food web off Antarctica.

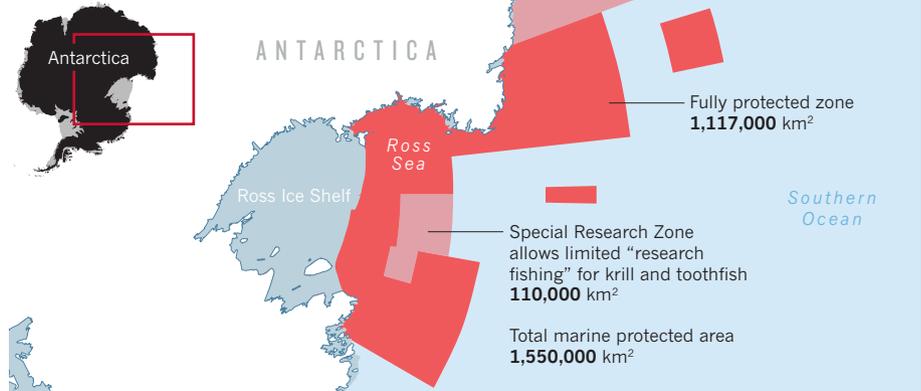
The deal includes some compromises. These might have been necessary to win the support of Russia, which operates a large fishing fleet in the region, says Jones.

Most of the reserve — 1.2 million km<sup>2</sup> — will be closed to all commercial marine activities. But a further 322,000-km<sup>2</sup> Krill Research Zone will allow controlled fishing, known as “research fishing”, and another 110,000 km<sup>2</sup> will be a Special Research Zone open for limited fishing of both krill and toothfish (‘see ‘Safeguarding the sea’). So although the total area of the marine reserve is bigger than the next-largest — Papahānaumokuākea Marine National Monument near Hawaii — the region that is completely restricted is slightly smaller.

And for now, a ‘sunset clause’ specifies that the designated zone will expire in 35 years, meaning that it does not fully qualify as a marine protected area (MPA) under the strict rules set by the International Union for Conservation of Nature. “We do regret this,” says Mike Walker, project director of the Antarctic Ocean Alliance, an environmental group in Washington DC.

## SAFEGUARDING THE SEA

The newly created marine reserve in the Ross Sea near Antarctica includes different levels of protection.



“But we are confident that decision-makers will come to realize that the best way to conserve the ocean is to protect it forever.”

## SCIENTIFIC PRAISE

On the whole, scientists reacted enthusiastically to the decision. The Ross Sea contains one of the least-altered ecosystems on Earth, says Kirsten Grorud-Colvert, a marine biologist at Oregon State University in Corvallis. But that ecosystem is vulnerable to human disturbance and the effects of climate change. “Setting aside an area free from fishing stresses in this marine reserve provides a reference point and a place for research to evaluate how systems respond to climate change, and to learn how to foster resilience,” she says.

Pauly adds, “It means we will protect one of the last parts of the world with a functioning natural ecosystem, with a complete array

of marine mammals, seabirds and other marine life.”

But others caution that ocean protection zones alone will not stop the decline in marine biodiversity, and that they do not provide a solution to overfishing because they may just move fishing to another spot. “If fishing is the problem, then they should reduce fishing pressure, not move it around,” says Ray Hilborn, a fisheries specialist at the University of Washington in Seattle. “Indeed, MPA might also stand for ‘Move Problems Elsewhere.’”

Next year, the CCAMLR will discuss further proposals to create protected zones of roughly similar size off the coast of East Antarctica and in the Weddell Sea. Chile and Argentina, meanwhile, are working on a proposal to protect the high seas surrounding the Antarctic Peninsula, the most rapidly warming part of the frozen continent. ■

## BUSINESS

# Young scientists gamble on biotech start-ups

*Many are founding their own firms as venture capitalists show increased interest in science.*

BY ERIKA CHECK HAYDEN

Vindication was three years coming for Ethan Perlstein. On 19 October, his California biotechnology company, Perlara, announced a deal with Novartis. The Swiss drug giant will test a compound that Perlara has identified as a possible treatment for a rare childhood disease, and will invest an undisclosed sum in the smaller firm.

Numerous biotech investors turned Perlstein away before he started Perlara in

San Francisco in 2014, because he wasn't the tenured professor that most venture capitalists saw as founder material. “They pretty much told me to take a hike,” he recalls.

But he persevered, and is now part of the vanguard of young biomedical scientists who have started companies instead of taking the conventional academic path and pursuing postdoctoral studies after their PhDs. Among the factors driving this change are an infusion of money into early-stage biotech investing, the emergence of biotech incubators and the

scarcity of academic jobs in science.

“We're starting to see a renaissance of investors embracing the idea that scientists can build businesses,” says Ryan Bethencourt, programme director of IndieBio, a biotech accelerator in San Francisco that began in 2014.

Previously, Bethencourt says, investors preferred to fund companies started by established professors who focused on the science, while investors installed a management team to take care of the business side. But that has changed as crucial technologies,