Beware the business opportunists: Climate breakdown is increasing the economic value of polar seas

October 3 2019, by Alex Rogers

Credit: Paul Carroll/Unsplash, CC BY-SA

Our polar regions are in trouble. Sea ice is retreating, ice shelves are collapsing and the oceans are heating and acidifying.

But what lies in store for these regions isn't a simple story of doom and gloom. In the short term, Arctic and Antarctic waters are actually set to increase in economic value to humans—and this brings a different kind

of threat to their future. Understanding how the polar boom fits into the bigger picture is essential to ensure these areas are given the protection they need.

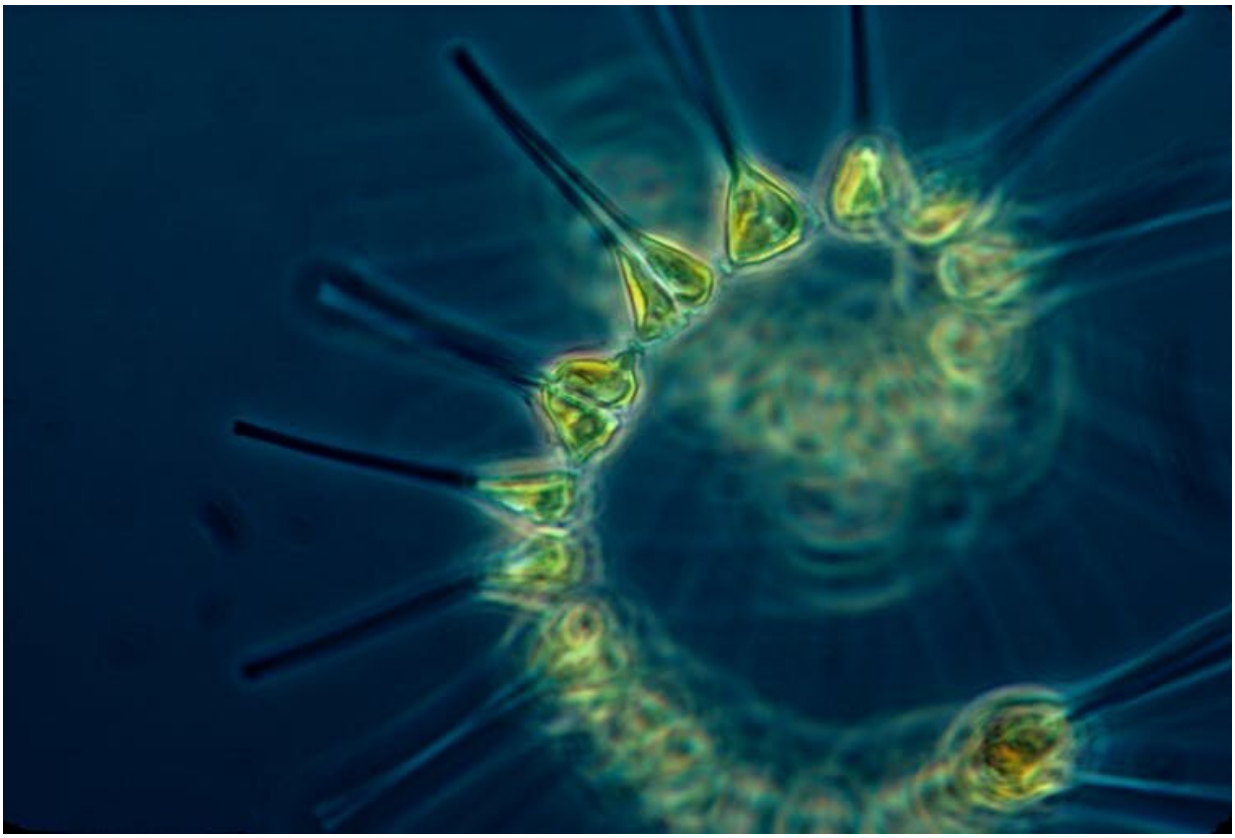
The Antarctic Ocean is the fourth-largest of the five major oceans, yet it alone accounts for more than one-third of heat gain across the top two kilometers of the world's seas in the past 50 years. Temperatures there are rising much faster than the global average.

Along with a multi-disciplinary team of scientists from around the world, I recently reviewed what these changes mean for the Antarctic's future. Some of the findings may appear surprisingly positive at first glance.

As ice sheets retreat and the sea freezes for shorter periods, more water will be exposed in liquid form. As a result, microscopic algae—also known as phytoplankton, the critical base of the marine food chain—will actually increase in number. As photoysnthesizing organisms, this means that Antarctic ecosystems are likely to remove more carbon dioxide from the atmosphere than they could before.

They may also support more fish – and with Antarctic waters freer of ice, fishing vessels will be able to catch them for more of the year. In the Arctic, fishers in the Barents Sea north of Norway are already benefiting from historically high numbers of Atlantic cod, which have moved north in search of cooler water.

The poles are increasingly popular tourist destinations too. Small Inuit villages are regularly inundated with cruise ship passengers, and retreating sea ice will allow more vessels to explore previously inaccessible areas.



Phytoplankton - the microscopic foundation of the marine food chain. Credit: NOAA/Unsplash, CC BY-SA

The big picture

If this makes climate breakdown sound rosy, be wary. Some quarters are bound to try to cash in on the increase in economic value of the polar regions—and perhaps even weaken the will to take urgent climate action by selling this warming as beneficial.

To arm ourselves against these efforts, its important to understand that the "benefits" come with far more severe costs.

First, while aspects of polar ecosystems that make humans money may strengthen in the short-term, many animals of less direct benefit will pay the price. Numerous studies show that Antarctic species dependent on krill and icy conditions, such as Adélie and macaroni penguins, are already declining. In the future, ice-dependent minke whales and pack-ice seals may lose much of the sea ice they depend on for foraging and reproduction.

In the Arctic, harp seals and polar bears are likely to suffer the same fate, while narwhals may be exposed to new predators such as killer whales moving north. Increased fishing and tourism would put more pressure on these forms of life precisely when they most need protection from climate breakdown.

Second, any benefits accruing to humans at the poles are coming at the expense of other ocean regions. For example, greater numbers of phytoplankton in the surface waters of the Antarctic will consume more nutrients, leaving less for currents to carry to ocean regions further north. Similarly, warmer surface oceans in these regions mix less with nutrient-rich deeper waters. Together, this means that any increase in phytoplankton and fish stocks at the poles will be more than counterbalanced by decreases elsewhere.

And, while many species are migrating to cooler waters as oceans become uncomfortably warm, where there are large stretches of deep water in the way, species that live in coastal habitats are left with nowhere to go. Many species inhabiting Australia's south coast such as the harlequin fish, are at risk of extinction for this reason.

Sub-Antarctic islands such as South Georgia, which provides a home to the largest King penguin colonies on the planet, are especially vulnerable to climate breakdown. Credit: Sascha Grabow/Wikimedia Commons, CC BY-SA

Protecting the poles

The coming decades pose an extremely challenging management scenario for those who wish to see the Antarctic and Arctic oceans healthy and protected. But there are a number of things the global community can do to help conserve the extraordinary marine life of polar ecosystems.

First, we need to know more. Protecting marine species and ecosystems is extremely difficult, in part because we still don't fully understand

which species live where in the Antarctic and Arctic seas. More knowledge means better decision making.

Second, governments and regulators need to send firm statements that the poles are not for sale. British and French sub-Antarctic territories such as the South Sandwich Islands and St Paul and Amsterdam are still not comprehensively protected. Rectifying this would be a good start.

Similarly, organizations that manage fisheries and other marine industries should start quantifying how their activities affect wildlife. Where fishing and climate breakdown cause a species to decline in number, fisheries must be directed to reduce their exploitation to safe levels.

Finally, governments need to work together. Different areas of the polar oceans are managed by different nations, and a lack of communication is preventing them from being properly protected. A unified conservation effort could establish vast uninterrupted networks of protected areas. These would make it much easier for species and even entire ecosystems to move polewards as waters warm.

But this won't be enough to protect polar life in some cases. We may have to take radical measures to actively assist the migration of some species. And as species are already shifting across ocean boundaries, its not just polar ocean authorities that will need to link up, but authorities across the world.

This in itself is a mark of just how severe and widespread our impact on marine ecosystems is. So let's not make things worse by treating the polar oceans as a burgeoning economic resource. Instead, let's give the life they contain the respect it deserves.

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