

Climate related iceberg activity has massively altered life on the seabed

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An iceberg seen in front of western Adelaide Island. Credit: British Antarctic Survey

Researchers from the British Antarctic Survey have found evidence that climate change has fundamentally altered the way that life functions on an Antarctic seabed. A once diverse and complex biological system has become simplified and weak, due to frequent damage from icebergs. This example demonstrates how environmental change can alter the way

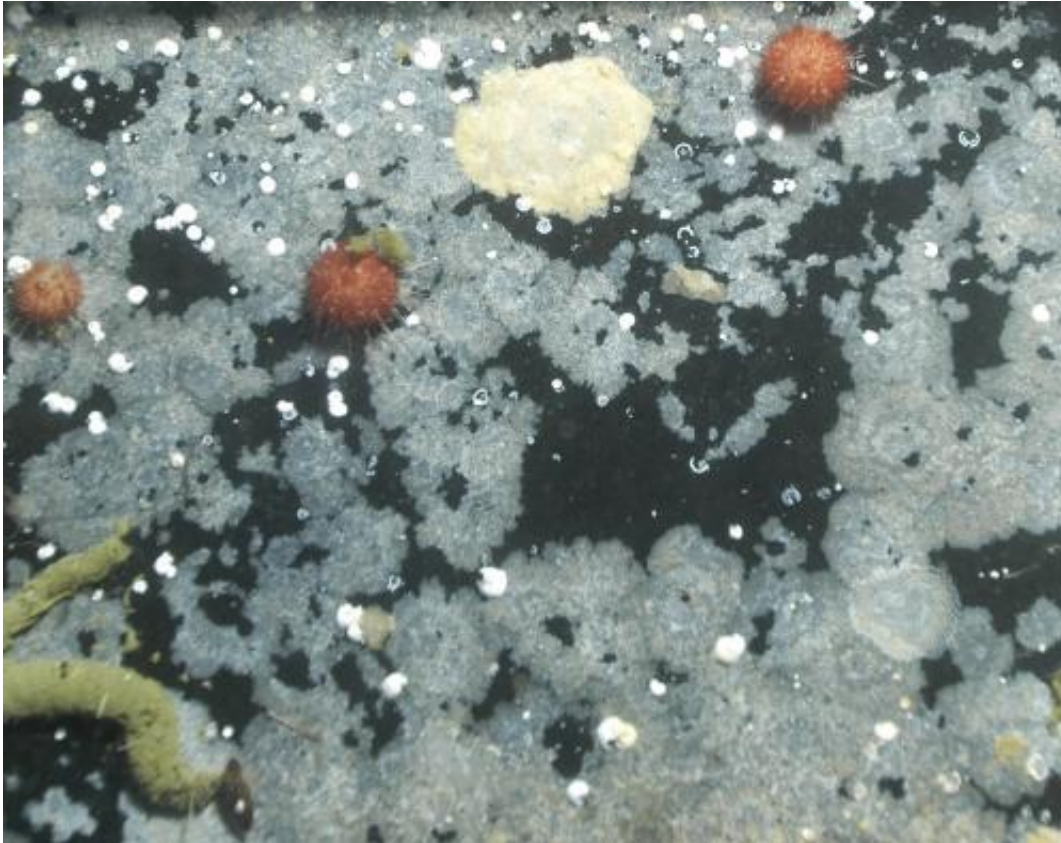
species interact with each other, affecting biodiversity and ecosystem stability.

The findings, published today in *Current Biology*, show the first indication that [climate change](#) is altering an entire biological system. The Antarctic Peninsula is a good place to observe the impacts of climate change. Physical changes there are amongst the most extreme in the world, and the biology is quite sensitive. It also experiences very little other [human impact](#) and so acts as a natural laboratory.

Over the last two decades regional warming has caused the sea to freeze for less and less time each winter. This allows drifting icebergs to move around more freely, increasing the number of collisions between them and the seabed, and making it harder for life on the seabed to recover, grow and breed. The result is that one particularly fast growing species is overtaking the others and is now dominating the environment, reducing a once complex network of many competing species to one of the simplest systems found anywhere on the seabed. In general, more competition between species in a system makes it stable and so it functions better. A good functioning biological system is needed to maintain biodiversity and productivity.

Lead author, Dr David Barnes from the British Antarctic Survey said:

"A decade ago life in the shallows beside Rothera Research Station on the Antarctic Peninsula was a [complex network](#) of many species competing for space, but gradually this patchwork quilt of life has involved fewer and fewer competitors. Now it all revolves around a single species. This means specialist predators will now have less food and the biological system is less stable, and thus more susceptible to environmental change."



Fenestrulina rugula - the study found this species to be dominating the seabed.
Credit: David Barnes

The impacts seen here are likely to be replicated elsewhere as more widespread and intense physical change occurs; throughout the world we can already see some form of climate change 'squeeze' on biological systems. For example, drier land in Australia makes bushfires more likely. The species that can cope with frequent burning are more likely to do well and dominate, changing the way the [species](#) in this system interact.

Studying the Antarctic seabed gives an indication of how the rest of the world will be affected by [environmental change](#). This research allows scientists to see what happens when a biological system collapses due to

climate change.

More information: "Climate-linked iceberg activity massively reduces spatial competition in Antarctic shallow waters." David K.A. Barnes, Mairi Fenton, Ashley Cordingley, *Current Biology* Volume 24, Issue 12, pR553–R554, 16 June 2014. DOI: [dx.doi.org/10.1016/j.cub.2014.04.040](https://doi.org/10.1016/j.cub.2014.04.040)

Provided by British Antarctic Survey

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