

Leading scientists warn of global impacts as Antarctic nears tipping points

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Leonie Island and Mount Liotard, Adelaide Island, Antarctic Peninsula. Credit: Iain Rudkin

As governments convene for the annual Antarctic Treaty Consultative Meeting (ATCM) June 14-24, 2021, an Expert Working Group of

leading Antarctic scientists warns that climate change is pushing this remote polar region, which connects all our ocean basins and keeps our planet habitable, towards numerous tipping points with global ramifications for humanity and biodiversity.

"Antarctica is reaching critical thresholds and life around the world is in direct line of the cascading effects. Protecting areas that are most at risk due to [climate](#) change, like the Antarctic Peninsula, will not only help us revive biodiversity there but will help boost the resilience of far-flung [marine ecosystems](#). It will also enable us to monitor the long-term effects of other human stressors, like fishing. By nurturing its health in this way, we nurture our own. By building its resilience to climate change, we boost our own," said Andrea Capurro, Visiting Research Fellow at Boston University and co-author of the report.

The report, "Climate Change and Southern Ocean Resilience," the result of the Expert Working Group discussions, is a unique collaboration across scientific disciplines, and identifies key interconnected Southern Ocean processes that are being impacted by climate change, and which will result in widespread changes well beyond the Antarctic region.

These include:

- Increases in ocean temperatures leading to ice shelf collapse and global sea level rise;
- Changes to ocean chemistry, with increased uptake of carbon dioxide causing acidification and possible disruption of food webs;
- Changes to regional carbon storage and sequestration through the exchange of carbon between the atmosphere, plants and animals, and the [ocean](#) (a process known as the biological carbon pump);
- Impacts on species and ecosystem dynamics leading to biodiversity loss, altered biological processes, shifts in species' geographical distributions and changes in food-web dynamics,

regionally and globally.

BAS Ecosystem Scientist Rachel Cavanagh, who, along with BAS Marine Biogeographer Susie Grant, participated in the Expert Working Group added "It is imperative that climate-focused actions are built into conservation and management strategies for the Southern Ocean without delay. Discussions at this month's ATCM precede the 26th UN Climate Change Conference of the Parties (COP26), to be held in November this year, at which addressing the implications of climate change in Antarctica should be a high priority."

The report underlines that the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the multilateral organization responsible for managing and conserving the region's marine life, can better take climate change into account in measures it adopts under the Antarctic Treaty System by:

- Expanding habitat protection by creating a network of marine protected areas around Antarctica;
- Incorporating climate change considerations into existing fisheries management policies;
- Implementing a Climate Change Response Work Program to build resilience and integrate [climate change](#) into all conservation measures;
- Re-emphasizing the precautionary approach in its decision making to prevent irreversible changes to species found in its waters.

More information: Polar Perspectives No. 5 | Climate Change and Southern Ocean Resilience. [www.wilsoncenter.org/publicati ... ern-ocean-resilience](http://www.wilsoncenter.org/publications/ern-ocean-resilience)

Provided by British Antarctic Survey

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