

Climate change impacts on the Great Barrier Reef could become irreversible

August 7 2023



Credit: Australian Academy of Science

The Great Barrier Reef is likely to face impacts from climate change that could become irreversible around mid-century regardless of whether global emissions stabilize. That is the conclusion of a report published today by the Australian Academy of Science.

The report explores possible futures for the Great Barrier Reef (GBR) under different emissions scenarios. It also identifies evidence-based

strategies and areas of opportunity to manage the [reef](#) ecosystem in the face of unrelenting climate change.

It found flow-on effects from climate impacts to cultures and customs are rapidly changing and mostly unknown, making it difficult to prioritize where to intervene to protect areas of high cultural value to Traditional Owners.

The report says this could be improved by ensuring transdisciplinary knowledge is integrated into prioritization processes.

The Department of Climate Change, Energy, the Environment and Water engaged the Academy as an independent scientific adviser to convene three roundtable discussions to assess the likely outcomes for the Great Barrier Reef in three climate scenarios: near term, and both low-emissions and high-emissions trajectories in the medium term.

A total of 84 multidisciplinary experts joined the roundtable discussions: the first on climate impacts on functions of the GBR, the second on interventions and the third on the future of the GBR.

The report has been delivered to the Reef 2050 Plan Independent Expert Panel. They have considered it in their advice to government on the current and likely health and resilience of the GBR in the face of climate impacts and potential reef interventions.

President of the Australian Academy of Science, Professor Chennupati Jagadish, said the report makes clear that climate change is the primary threat to this global icon and its connected systems.

"It reminds us that sticking to that path we are currently on, simply because we started on it, will not offer the best solution for the Great Barrier Reef," Professor Jagadish said.

"It highlights that in the medium-term, there are opportunities to slow the decline in the health of the reef, however this requires Australia to take further action now."

The report also identifies other opportunities including:

- A comprehensive review of GBR management—this may offer opportunities to streamline processes that are currently decentralized to create a management setting that is fit for purpose and agile enough to react to a changing [climate](#). The report highlights that the management system was established before there was understanding of how [climate change](#) would impact the GBR.
- Relevant research organizations could form a consortium to agree on sector-wide data standards and sharing arrangements. Such agreements would support better integration of existing and future research efforts.
- Filling gaps in knowledge in the high emissions scenario—if these gaps were filled, including an improved understanding of how different ecological functions might be impacted, communities could be better prepared for the anticipated disruptions to lives and livelihoods.
- Standardizing and centralizing socio-ecological data could aid GBR management. Of particular importance will be understanding differing opinions between groups as to what values, regions or functions are most important for preservation or protection. If we can't save everything, what we can save needs to be communicated and understood by all.
- Developing suitable regulations and laws which do not rely on political involvement to be implemented in full. Doing so will secure a more evidence-informed system for the benefit of the GBR.
- Traditional knowledge could provide a framework for managing

a changing and adapting GBR. Indigenous peoples have adapted to a changing GBR, however, the rate of change that is being and will be experienced is unprecedented. Indigenous participants suggested that there is an opportunity to address the decline of GBR values in a more profound and connected way, using a collaborative approach founded in traditional knowledge.

The Reef Traditional Owners are supported by the Australian and Queensland governments to build a taskforce to operationalize the Reef 2050 Traditional Owner Implementation Plan's actions in a collaborative co-design approach.

The [report](#) concludes:

"Truthful, open, and clear communication with the public is needed to prepare Australians for what is to come, given the GBR will continue to change as the environment becomes more challenging for its habitats and species.

Clear communication is also important to garner support for necessary management interventions to protect the GBR to the greatest extent possible."

More information: Reef Futures Roundtables Report:
www.science.org.au/supporting-...s-roundtables-report

Provided by Australian Academy of Science

Citation: Climate change impacts on the Great Barrier Reef could become irreversible (2023, August 7) retrieved 2 May 2024 from <https://phys.org/news/2023-08-climate-impacts-great-barrier-reef.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.