

Geoengineering experiments to protect the Great Barrier Reef highlight the need for Australian law to catch up, research

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Credit: Taylor & Francis

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More robust rules are needed to ensure the public acceptability of new technologies which aim to protect Australia's Great Barrier Reef from further [coral bleaching](#) due to climate change, researchers argue. This includes a policy on where geoengineering fits in the overall response to [climate change](#).

In a new paper released today in the peer reviewed journal *Climate Policy*, academics from the University of Tasmania are calling for robust governance including ensuring proper risk assessments are carried out and the public are fully consulted.

The Intergovernmental Panel on Climate Change (IPCC) projects that up to 99 percent of the world's coral reefs will be lost with 2C of warming. Even if the Paris Agreement's most optimistic target of capping warming at 1.5C is met, the world is still facing the loss of 70 to 90 percent of the world's coral reefs. The gradual rise in ocean temperatures will contribute to this loss. But the main driver is the increased frequency and intensity of marine heatwaves. Warm water temperatures cause coral to expel zooxanthellae, leading to coral bleaching. Australia's Great Barrier Reef – a national and international icon – has lost 50 percent of its coral cover in the past 3 years as a result of just two consecutive bleaching events.

Proposals to protect the reef include two which involve "shading" the [reef](#) to reduce warming of shallow waters from direct exposure to the sun. One proposal is the application of a biodegradable polymer film that can act like a 'sunscreen' for coral. The other involves increasing the brightness of clouds over the GBR so they reflect more solar energy back into space. This marine cloud brightening proposal is a type of local solar radiation management. This proposal involves spraying minute salt particles into low-lying marine clouds to increase their brightness. The third approach involves reducing the temperature of shallow waters near corals by mixing them with cooler waters pumped from 10-30 metres below.

Lead author of the paper in *Climate Policy*, Professor of Environmental and Climate Law at the University of Tasmania, Professor Jan McDonald, said she and her colleagues supported such trials but said they could have implications beyond the Great Barrier Reef and better

regulation was needed.

"We think they need to be governed as part of a coherent policy that articulates the role for such interventions alongside Australia's climate mitigation and adaptation agendas," she said.

She said experience in the UK with the SPICE project—a United Kingdom government-funded geoengineering research project that aimed to assess the feasibility of injecting particles into the stratosphere from a tethered balloon for the purposes of solar radiation management – had shown there could be public backlash without adequate public consultation and engagement. The field testing of the project had to be cancelled in 2012, and one of the concerns cited was the lack of government regulation of such trials.

Professor McDonald said: "Australia's current laws do not guarantee robust governance for field testing or eventual deployment of these technologies. We should have clear processes of risk assessment and public engagement early on, to build legitimacy and trust in this suite of [climate](#) interventions."

The issue of geoengineering governance has been considered for some time at an international level, but in March 2019, efforts to pass a United Nations Environment Assembly resolution calling for a detailed report on solar radiation management and carbon dioxide removal—a key first step toward developing more robust governance mechanisms – failed.

More information: Jan McDonald et al. Governing geoengineering research for the Great Barrier Reef, *Climate Policy* (2019). [DOI: 10.1080/14693062.2019.1592742](https://doi.org/10.1080/14693062.2019.1592742)

Provided by Taylor & Francis

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