



## Social research to support responsible adaptation

The Reef Restoration and Adaptation Program (RRAP) is a multi-institutional research and development program to develop, test and risk-assess novel interventions to help keep the Great Barrier Reef resilient and sustain its critical functions and values. It aims to provide reef managers and decision-makers with safe, acceptable and cost-effective strategies to help protect the Reef from the impacts of climate change in conjunction with best-practice reef management and the reduction of carbon emissions.

RRAP's Traditional Owner and Stakeholder Engagement subprogram brings together social scientists from James Cook University (JCU), Queensland University of Technology (QUT), the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the University of Queensland (UQ). It works to build collaborative relationships with Reef Traditional Owners, Reef communities and stakeholders, and to ensure that they are meaningfully involved in the design and implementation of RRAP strategies designed to help the Reef.

An important part of this work has been gaining a thorough understanding of the perspectives and expectations of rights-holders, local communities and the broader Australian public.

Two social research activities have been undertaken to build this understanding. Together, these represent a substantial knowledge base for understanding Great Barrier Reef communities and their expectations around assisted adaptation.

### Deep Dive interviews

- 117 interviews conducted with 140 members of Reef communities including Traditional Owners, tourism operators, other reef industries, scientists, recreational users, community bodies, conservationists, and institutional stakeholders.
- Interviews conducted mostly face-to-face, yielding over 130 hours of candid dialogue about community connections to the Great Barrier Reef (GBR), expectations for its future, aspirations for its management and initial responses to the prospect of technologically assisted adaptation.

### Biennial surveys

- Large-scale surveys were conducted in 2018, 2022 and 2024. These were completed by approximately 12,000 Australian residents living within the GBR region and beyond.
- Detailed questions were used to assess knowledge, perceptions and attitudes towards the GBR, its management, and novel strategies to accelerate coral adaptation to climate change and/or recovery from disturbance in the GBR.

**This factsheet outlines key insights gained to date from this research and shares how these are being used to inform RRAP research and development.**

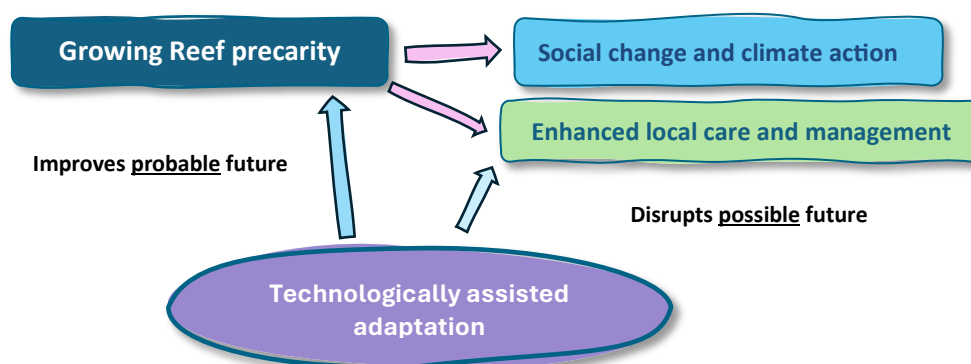
## Insights from the social research

Through the Deep Dive interviews and biennial surveys research, RRAP social scientists have connected with a broad cohort of people and discussed the Great Barrier Reef in detail. Analysis of the interview and survey data is ongoing. Important insights yielded to date are outlined below.

### 1. Articulating possibilities for the Great Barrier Reef

Deep Dive participants provided rich accounts of the ways they imagined the future of the Great Barrier Reef and the prospect of active restoration and adaptation. To analyse these, researchers mapped out the different storylines that participants formed as they spoke about the Reef.

These storylines showed that the majority of participants imagined a probable future of increased precarity in the GBR. However, they imagined the Reef's loss mobilizing the social change needed to address climate change and greater care, respect and protection of the Reef. They acknowledged the need to consider assisted adaptation interventions, but also feared it would disrupt these possibilities.



Storying probable, possible and technologically assisted Reef futures

### Key insight

While participants recognised that assisted adaptation interventions might offer practical options for helping the Reef, they still expressed hope for alternatives. This shows that, if it is to be effective and responsible, assisted adaptation must be designed and implemented in ways that is consistent with expectations and aspirations for broader action on climate change and enhanced local management.

### Want to know more?

Paxton, G., Lockie, S. & Backhaus, V. (2024) Articulating futures: Community storylines and assisted ecosystem adaptation in the Great Barrier Reef, *Environmental Science and Policy*, 162 is available open access via <https://doi.org/10.1016/j.envsci.2024.103944>



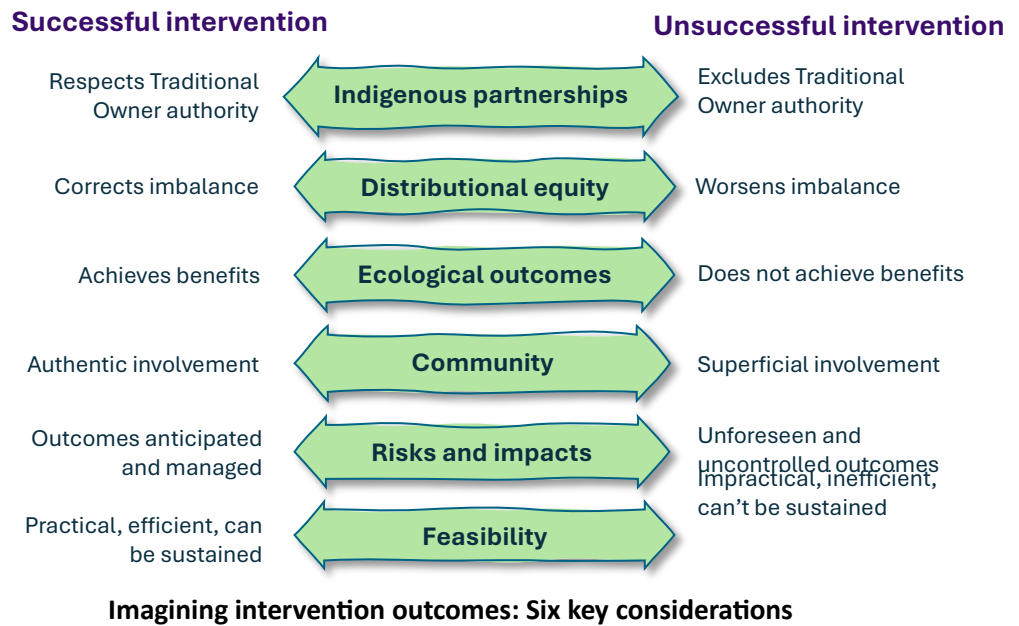
Monitoring reef habitats.  
Credit: Matt Curnock, CSIRO





## 2. Imagining technological interventions to assist the Great Barrier Reef

As Deep Dive participants were asked to share their initial responses and thoughts about the assisted adaptation technologies being considered under RRAP to help the Great Barrier Reef. This often required them to speculate about the possible outcomes of the scientific interventions, offering researchers valuable information about the kinds of things they considered as they formed these early views. As researchers analysed their accounts, they identified six common themes around which interventions were imagined having successful or unsuccessful outcomes.



### Key insight

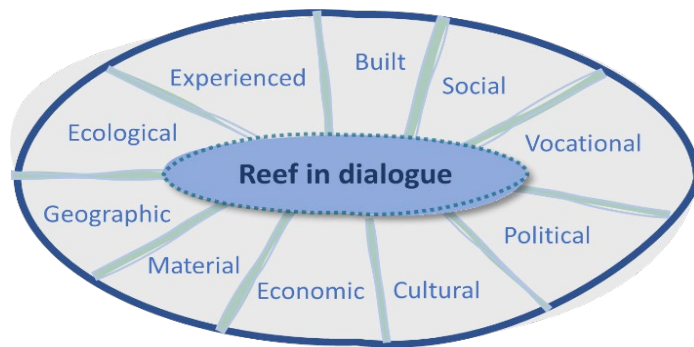
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### 3. The Reef's community values

For Deep Dive participants, the Reef is not simply a natural asset or a set of ecological functions. It is the place where they live and work, encounter a rich community of other living beings, gain unique knowledge, experience and skills, conduct business and build livelihoods. It is something to protect and care for, to enjoy and share, and an environmental icon that can inspire and mobilise change.



#### How does this help?

Recognising the diverse and overlapping roles that the Reef plays in the lives of communities is critical to anticipating the impacts, managing the risks and maximising the benefits of assisted adaptation.

### 4. Broad support for adaptation research and intervention in the GBR

The three biennial surveys measuring the knowledge and attitudes of Australian residents indicated strong public support for research into assisted adaptation in the GBR and for small-scale trials of all six interventions surveyed (marine cloud brightening, fogging, rubble stabilization, coral seeding, natural breeding for heat tolerance, and genetic engineering). Support for large-scale deployment of novel interventions across the Great Barrier Reef was more moderate, reflecting their early stage of development.

Levels of trust in science to deliver solutions was a consistently strong predictor of support for both research into interventions and large-scale deployment of interventions. Perceived climate threat, trust in the Reef's management authority, and ethics were also consistently associated with support for intervention R&D and implementation.

#### Key insight

The surveys show us that, while the majority of Australian residents support strong action to protect and restore coral reefs, building strong relationships with rightsholders and communities and maintaining public trust in scientists and scientific institutions will be critical to continued support for the implementation of novel interventions at scale.

#### Want to know more?

Lockie, S., Bartelet, H. A., Ritchie, B. W., Demeter, C., Taylor, B., & Sie, L. (2024). Australians support multi-pronged action to build ecosystem resilience in the Great Barrier Reef. *Biological Conservation*, 299, 110789 is available open access via <https://doi.org/10.1016/j.biocon.2024.110789>.

Bartelet, H. A., Lockie, S., Ritchie, B. W., Demeter, C., Sie, L., & Taylor, B. (2025). Public support for novel interventions to protect, restore, and accelerate adaptation to climate change in the Great Barrier Reef. *Ocean & Coastal Management*, 260, 107489 is available open access via <https://doi.org/10.1016/j.ocecoaman.2024.107489>



Monitoring reef habitats.  
Credit: Matt Curnock, CSIRO





## Applying these insights

Given the complex nature of the technical, social and ecological research taking place under RRAP, rights holders, stakeholders, and communities must have clear avenues for involvement in, and leadership of, the futures being made possible through assisted adaptation in the Reef. The knowledge gained through the Regional Deep Dive interviews and the Biennial survey have been instrumental in ensuring early 'voice' for communities and stakeholders in RRAP research. Here are some of the ways it is being used:

### Supporting Traditional Owner, stakeholder and community engagement

Insights gained from the Deep Dive and biennial surveys have complemented and enhanced activities taking place under the RRAP Stakeholder and Traditional Owner Engagement subprogram including:

- The establishment of the Cairns-Port Douglas Reef Hub and the development of citizen science activities and Community panels on Novel Reef Interventions to enhance collaboration between scientists and community members about RRAP interventions
- The establishment and recruitment of a Stakeholder Advisory Group to guide RRAP engagement
- The design and implementation of the Partnerships for Scaling Up co-benefits activity
- Assisting Traditional Owner groups to develop tools for assessing biocultural risks and benefits from restoration and adaptation actions.

### Enhancing RRAP decision-making

Insights from the Deep Dive and survey research are regularly communicated to the RRAP Board and Steering committee, its management team, its advisory bodies and its partners and collaborators. This research has also informed the development of a broader RRAP engagement and communication strategy and via ongoing meetings and collaborations, has also been shared with researchers across the Regulatory subprogram, Translation to Deployment and the Modelling and Decision Support Programs.

### Assessing and managing social risks

Assessing and managing risks is critical to the successful and ethical development and design of new technologies and management strategies. Drawing on existing knowledge and insights from the social research, RRAP social scientists are contributing to a comprehensive assessment of the potential risks associated with the implementation of assisted adaptation interventions. Part of this has been the conceptualization of a suite of high-level social risks to inform risk management, program governance and community consultation.

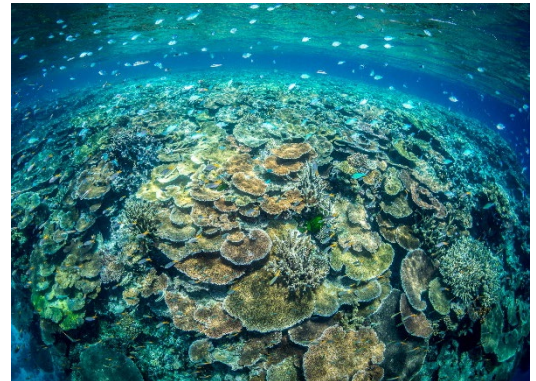
#### Want to know more?

Lockie, S., Graham, V., Taylor, B., Baresi, U., Maclean, K., Paxton, G., & Vella, K. (2024). Conceptualizing social risk in relation to climate change and assisted ecosystem adaptation. *Risk Analysis* is available open access at <https://doi.org/10.1111/risa.17635>

**We extend our warmest thanks to our research participants for their insights, generosity and candour.**

**The Reef Restoration and Adaptation Program acknowledges Aboriginal and Torres Strait Islander Peoples as the first reef scientists and carers of Country.**

**We acknowledge the Traditional Owners of the places where RRAP works, both on land and in sea Country. We pay our respects to elders; past, present, and future; and their continuing culture, knowledge, beliefs, and spiritual connections to land and sea Country.**



The RRAP Regional Deep Dive is led through the Cairns Institute at James Cook University. The RRAP Biennial Survey is a collaboration involving researchers from the Cairns Institute, the University of Queensland, and CSIRO. If you would like to discuss these findings or would like us to present this work to your organization, please get in touch via the contacts below.

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tropical societies

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All publicly available reports and journal articles written by RRAP scientists, researchers and partners can be found on the RRAP website. Analysis of the Deep Dive and survey data is ongoing and new publications will be added to this webpage when available.

This research has been conducted in accordance with the Australian Code for the Responsible Conduct of Research, the National Statement on Ethical Conduct in Human Research, and the AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research.

All participation in this research is confidential and voluntary. If you have participated in a Deep Dive interview and would like to withdraw or discuss your consent, please contact Dr Gillian Paxton on [gillian.paxton@jcu.edu.au](mailto:gillian.paxton@jcu.edu.au)

If you have questions or concerns, please contact the researchers or the JCU Human Ethics team on [ethics@jcu.edu.au](mailto:ethics@jcu.edu.au). Approval numbers: JCU H8435 (Deep Dive) and H9172 (Survey), UQ HE001183 & HE002586 (Survey).



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