

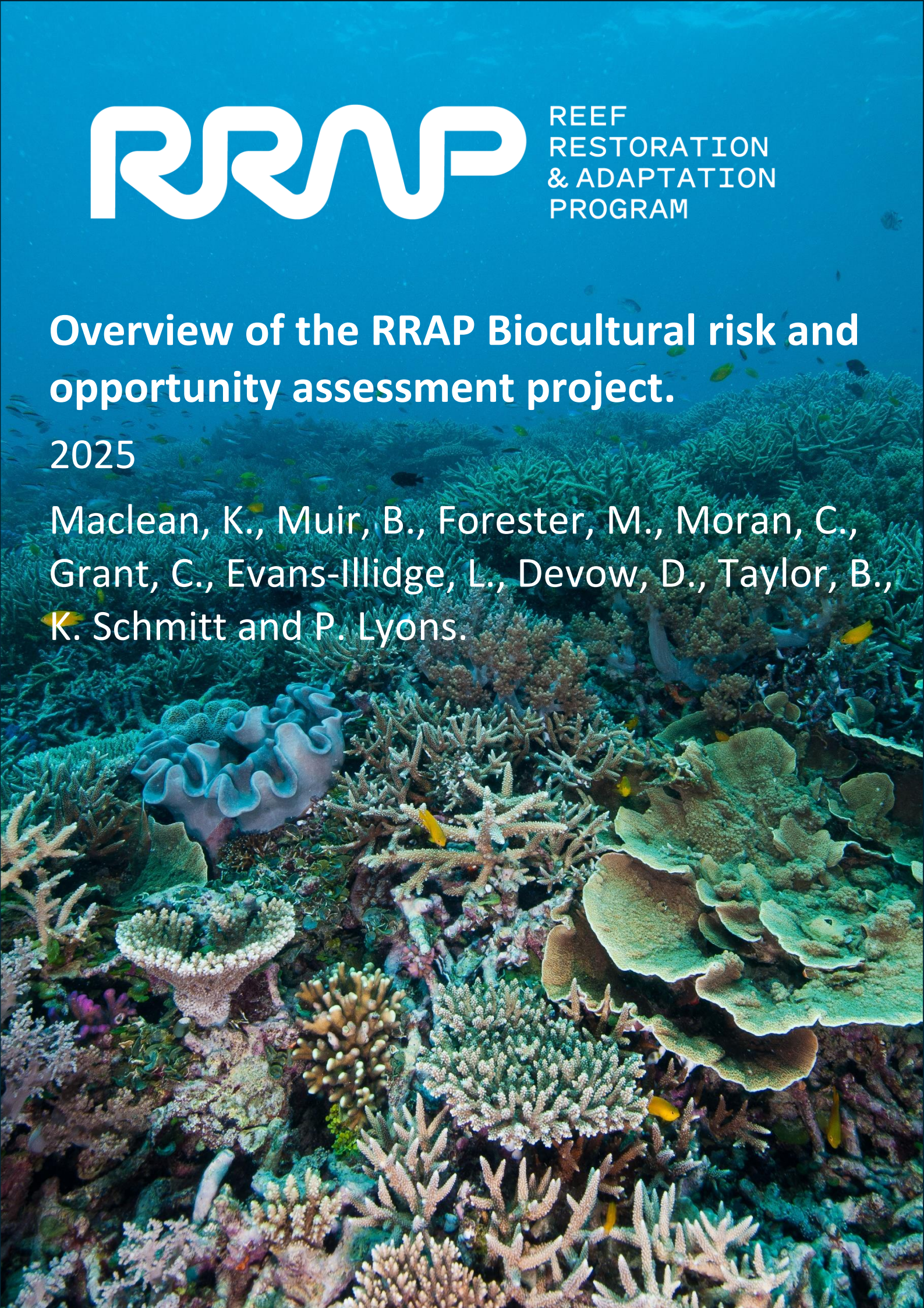


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RESTORATION
& ADAPTATION
PROGRAM

Overview of the RRAP Biocultural risk and opportunity assessment project.

2025

Maclea, K., Muir, B., Forester, M., Moran, C., Grant, C., Evans-Illidge, L., Devow, D., Taylor, B., K. Schmitt and P. Lyons.



Overview of the RRAP Biocultural risk and opportunity assessment project

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Overview of the RRAP BIOCULTURAL RISK AND OPPORTUNITY ASSESSMENT PROJECT.

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The authors of this document have published it to provide an overview of the RRAP Biocultural risk and opportunity assessment project. It includes a summary overview of the Biocultural is Framework. The Framework is designed to assist the Traditional Owners of the Great Barrier Reef to undertake an assessment of the biocultural risks and opportunities of Reef Restoration and Adaption Program (RRAP) research and development work or any other proposals. It must not be used by others, including researchers, consultants or government, to undertake an assessment of biocultural risk and opportunities. The intention of the Framework is to promote meaningful, early and ongoing collaboration with Traditional Owners in proposals relating to the Great Barrier Reef. Any use of the Framework without engag-

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The Framework may be used by other First Nations people in Australia and overseas to assist them to develop their own protocols for collaborative research and development.

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Acknowledgement

This document was developed by the co-authors in collaboration with the Australian Institute of Marine Science (AIMS) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) under the Reef Restoration and Adaptation Program and funded by the Great Barrier Reef Foundation. Valuable contributions were made by AIMS and CSIRO subject matter experts (SMEs) for comments and material provision.

The RRAP partners acknowledge Aboriginal and Torres Strait Islander Peoples as the first marine 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.

We respectfully acknowledge the co-leadership and contributions of the members of the Traditional Owner Technical Working Group for Reef Restoration and Adaptation Science and Crown of Thorns Starfish (TWG) of the Great Barrier Reef Foundation: Bob Muir (chair), Manuwuri Forester, Brian Singleton, Dawn Harrigan, Libby Evans-Illidge, Vincent Baukhaus and Nekaya Smith, their guidance in project design and conduct, and in the collaborative development of the workshops for the future development of a biocultural assessment framework, was key to the success of this project. We also recognise and thank: Karin Gerhardt, M'Lis Flynn and Kirsten Walpole Sinnamon from the Great Barrier Reef Foundation (GBRF) and Malachi Johnson (past member of the TWG), for their expert guidance and support to the project team. We also thank Liz Wren (past member of the GBRF), for her significant leadership in the inception and establishment of this project.

We thank all the workshop participants who gave their time to join the six workshops that form the basis of this research project. These people generously shared their experiences and concerns about Reef Restoration and Adaptation Program technologies, as well as their hopes and aspirations for both future deployment partnerships, and implementation pathways for the Biocultural Framework. This work would not have been possible without each and every one of them. All those who gave their consent to be listed are named in Table 1.

Further thanks to four workshop participants who contributed their expertise but declined to be named as co-authors. We also acknowledge Drs. Emma Woodward and Samantha Stone-Jovicich (both CSIRO) for reviewing an earlier version of this report; their comments greatly improved the final report.

Acknowledgement of Country

AIMS, CSIRO and all authors acknowledge Aboriginal and Torres Strait Islander peoples as Australia's first scientists. We pay our deepest respects to Elders past, present and future, and the custodians of the land and sea country on which we work.

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Table 1 Workshops participants who gave their consent to be named in workshop and final reports

Participant name	Clan group	Workshop(s) attended
Charmaine Koroi	Eastern Kuku Yalanji Ngaro	1 & 2
Sesoni Koroi	Eastern Kuku Yalanji Ngaro	1 & 2
Kini Koroi	Ngaro	1 & 2
Chrissy Grant	Eastern Kuku Yalanji	1
Alison Liddy	Lama Lama	1& Lama Lama workshop
Elaine Liddy	Lama Lama	1 & Lama Lama workshop
Seppi Bassani	Lama Lama	1
Johnson Chippendale	Wuthathi	1
Christabel Warren	Bromley Aboriginal Corporation RNTBC / Wuthathi	1 & DREAMS workshop
Norma Hobson	Kuuku Ya'u	1
Greg Pascoe	Kuuku Ya'u	1
(the late) Mr Fourmile	Gimuy Walubara Yidinji	1
Barbara Fourmile	Gimuy Walubara Yidinji	1
Thudu Thompson	Dingaal - Walmbaar	1
Elias Thompson	Dingaal - Walmbaar	1
Melisa Anderson	Nywaigi	2
Alkere Forester	Nywaigi, Lama Lama	2 & Lama Lama workshop
Richard Cassady	Manbarra	2 & Manbarra Elders meeting
John Cassady	Manbarra	2 & Manbarra Elders meeting
(the late) Mr Devow	Manbarra	2 & Manbarra Elders meeting
Dion Devow	Manbarra	2, Manbarra Elders meeting & DREAMS team workshop
Dante Devow	Manbarra	2 & Manbarra Elders workshop
Ebenese Oui	Manbarra	2
Mick Eggmolesse	Bailai	3

Participant name	Clan group	Workshop(s) attended
Desmond Purcell	Taribelang Bunda	3
Kelvin Rowe	Taribelang Bunda	3
Howard (Joe) Butler	Gooreng Gooreng	3
Meaghan Cummins	Woppaburra	3 & DREAMS team workshop
Debra Witteman	Woppaburra	3
Danielle Sheehan	Woppaburra	3
Julie Blair	Woppaburra	3
Malcolm Mann	Darumbal	3
Roeina Edmund	Darumbal	3
Gavin Bassani	Lama Lama	Lama Lama workshop
Lachlan Bassani	Lama Lama	Lama Lama workshop
Manuwuri Forester	Lama Lama	1 & Lama Lama workshop
Natasha Spratt	Lama Lama	Lama Lama workshop
Uncle Paddy Bassani	Lama Lama	Lama Lama workshop
Schascle Bassani	Lama Lama	Lama Lama workshop
Sharelle Spratt	Lama Lama	Lama Lama workshop
Cheryl Prestipino	Executive Officer of YAC	Lama Lama workshop
Brian Johnson	Wulgurukaba	DREAMS team workshop
Sherill (Dawnie) Harrigan	Eastern Kuku Yalanji	DREAMS team workshop
Della Gibson	Wulgurukaba, Woppaburra	DREAMS team workshop
Eddie Savage	Bindal	DREAMS team workshop
Phillip (Phil) Rist	Nywaigi	DREAMS team workshop
Robert Muir	Woppaburra	DREAMS team workshop
Virginia Wyles	Wulgurukaba	DREAMS team workshop
Harry (Sonny) Van Issum	Woppaburra	DREAMS team workshop

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The Great Barrier Reef

Visible from outer space, the Great Barrier Reef is the world's largest living structure and one of the seven natural wonders of the world, with more than 600 coral species, and 1600 types of fish. The Reef is of deep cultural value, and an important part of Australia's national identity. It underpins industries such as tourism and fishing, contributing more than \$6 billion a year to the economy and supporting an estimated 64,000 jobs.

Why does the Reef need help?

Despite being one of the best-managed coral reef ecosystems in the world; there is broad scientific consensus the long-term survival of the Great Barrier Reef is under threat from climate change. In addition to strong global action to reduce carbon emissions, and continued management of local pressures, bold action is needed. Important decisions need to be made about priorities and acceptable risk. Resulting actions must be understood and co-designed by Traditional Owners, Reef stakeholders and the broader community.

What is the Reef Restoration and Adaptation Program?

The Reef Restoration and Adaptation Program (RRAP) is a collaboration of Australia's leading experts to create a suite of innovative and targeted measures to help preserve and restore the Great Barrier Reef. These interventions must have strong potential for positive impact, be socially- and culturally-acceptable, ecologically-sound, ethical and financially-responsible. They would be implemented if, when and where it is decided action is needed – and only after rigorous assessment and testing.

RRAP is the largest, most comprehensive program of its type in the world; a collaboration of leading experts in reef ecology, water and land management, engineering, innovation and social sciences, drawing on expertise from around the world. It aims to strike a balance between minimising risk and maximising opportunity to save Reef species and values.

RRAP is working with Traditional Owners and groups with a stake in the reef – as well as the general public - to discuss why these actions are needed, and to better understand how these groups see the risks and benefits of proposed interventions. This will help inform planning and prioritisation, to ensure the proposed actions meet community expectations. Coral bleaching is a global issue. The resulting reef restoration technology could be shared for use in other coral reefs around the world, helping to build Australia's international reputation for innovation.

RRAP is being progressed by a partnership including: the Australian Institute of Marine Science, CSIRO, Great Barrier Reef Foundation, James Cook University, The University of Queensland, Queensland University of Technology, Southern Cross University as well as researchers and expert from other organisations around the world.

1 Introduction

The report provides a summary of the origin and aim of the RRAP Biocultural risk and opportunity assessment project, as well as the methods used to co-develop the Framework. Importantly, it explains the principles that underpin the Framework, with Lore as the foundation, and provides a high-level overview of the Framework.

This project is part of the Stakeholder and Traditional Owner Engagement Sub-Program of work of the Reef Restoration and Adaptation Program (RRAP). This sub-program of work is led by Bruce Taylor (CSIRO), Karen Vella (QUT) and Stuart Lockie (JCU). This project falls within the research and development phase of RRAP work (2021-24). The Biocultural project team (CSIRO and the AIMS Indigenous Partnerships team) has worked closely with the Traditional Owner Technical Working Group for Reef Restoration and Adaptation Science and Crown of Thorns Starfish (hereafter TWG) of the Great Barrier Reef Foundation to co-design the Biocultural project (2021-2024). The project team has worked with Traditional Owners of the GBR to co-develop the Biocultural Framework (hereafter the Framework). The Framework is intended as a tool for Traditional Owners to put a cultural lens over decisions about potential future deployment of RRAP technology on their sea Country in the GBR. The Framework is intended as a tool for decision-making to be used by Traditional Owners only. It is separate but equally important to other tools being developed within RRAP, for example prioritisation of reefs for deployment of interventions.

The information shared in this report are the result of collaborative designed research with Traditional Owners of the Great Barrier Reef (GBR) (see Table 1) involved with the *Biocultural risk and opportunity assessment project* (see DREAMS Team et al, 2024; Lama Lama people et al, 2024; Maclean et al, 2023 a, b, c).

It includes an overview of:

- the methods used to develop, test and improve the Biocultural Framework (Chapter 1).
- the Biocultural Framework (hereon referred to as ‘the Framework’) (Chapter 2).
- The outputs of the RRAP Biocultural risk and opportunity assessment project and where to find them (Chapter 3).

1.1 Origin of the Biocultural risk and opportunity assessment project

The need for a mechanism to support Traditional Owners to consider the risks and opportunities of potential future deployment of RRAP technologies on their sea Country, was identified by Traditional Owners who attended Reef Trust Partnerships Traditional Owner workshop at AIMS, May 2019 where they articulated:

“Traditional Owners think of the reef differently – it’s a cultural landscape not a ‘biology’ landscape. Conversations are needed to build this understanding. Traditional Owner knowledge from the past needs to be brought forward. Deep engagement is needed with Traditional Owners to build a strong mutual understanding of risks and benefits, and respect for biocultural ethics. Governance needs to ensure Traditional Owners are at the heart of decision making for this component.” (RTP Traditional Owner Workshop, Summary Report, 2019:25-26).

In response to this call, funds were provided from RRAP to the CSIRO team (as part of the Stakeholder and Traditional Owner Engagement Sub-Program) and the AIMS Indigenous Partnership team to develop a collaborative research project.

1.2 Aim of the project

The aim of the project was for CSIRO researchers, AIMS Indigenous Partnerships team and with guidance from the Traditional Owner Technical Working Group for Reef Restoration and Adaptation Science and Crown of Thorns Starfish of the Great Barrier Reef Foundation (hereon referred to as TWG), to collaboratively develop a biocultural assessment framework (Framework). The aim is that the Framework be used by Traditional Owners of the Great Barrier Reef to assess the potential risks and opportunity pathways related to the potential future deployment of RRAP technologies on their sea Country.

1.3 Establishment of the project team

The CSIRO team worked closely with members of the TWG to collaboratively design the project, including the selection of culturally appropriate methods (workshops, case studies). In particular, the TWG requested that a 'collaborative design team' (the project team) be formed by the CSIRO team and the Indigenous Partnerships team of the Australian Institute of Marine Science (AIMS) (also members of the TWG). This project team worked closely for: workshop design and conduct, selection of potential workshop participants, case study design, to seek AIATSIS ethics approval (in addition to the CSIRO Human Ethics clearance), and to draw on workshop data to create, test and improve the Biocultural Framework. The TWG provided guidance to the project team throughout the project, including input into and feedback about the Framework.

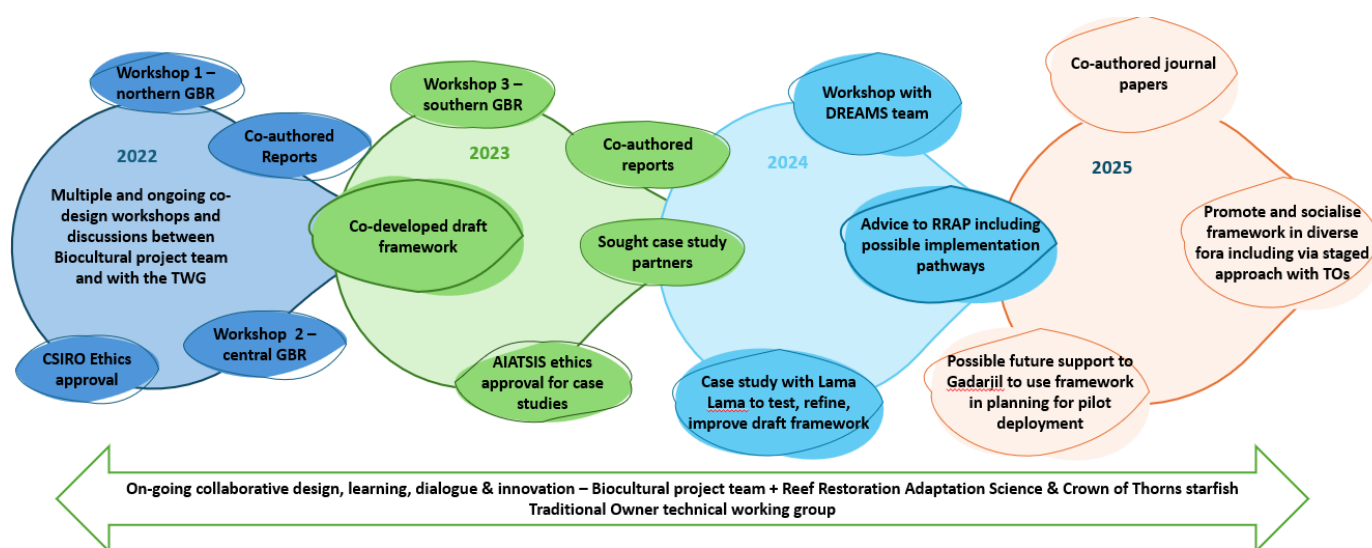


Figure 1 Diagram that shows project co-design and co-conduct between 2022 and 2024 and possible work planned for 2025.

1.4 Literature review and needs assessment

Prior to the establishment of the project team (outlined above), the CSIRO researchers conducted a review of the published literature from Canada, Aotearoa-New Zealand and Australia, as well as a needs assessment to better understand how a biocultural risk and opportunity assessment framework could contribute to Traditional Owner leadership for decision-making within and about the Great Barrier Reef Marine Park.

Literature review

The literature review focussed on 1) Indigenous perspectives of risks with regards to the management of changing social ecological systems; and 2) the role and components of biocultural frameworks in the context of changing social ecological systems.

The literature review method followed a three-part systematic approach of searching, screening, critical appraisal and review (a similar process was followed by Jarvis et al, 2022). The Web of Science (WoS) database and search engine was used to locate journal articles that were conducted in: Australia, Aotearoa-New Zealand and Canada; were published between 1 January 2000 and 1 February 2021; were broadly focused on the involvement of Indigenous people in natural resource management; and were written in English (see Maclean and Lyons, 2021 for full details). Two research searches were conducted to identify papers of relevance to the project with regards to:

The overarching insight previously provided to RRAP (see Maclean and Lyons, 2021), was that biocultural frameworks can provide a way to support Indigenous strengths-based narrative of care and responsibility for social ecological systems undergoing change. Any such framework must ensure that it appropriately represents the interests and knowledges of the relevant Indigenous people and can be developed to be useful and applicable to the chosen contexts.

Usable and applicable biocultural frameworks appear to be comprised of three specific components:

- A central organising concept around what constitutes ‘biocultural’. This organising concept represents a specific management approach with particular and desired management futures and outcomes, that represent the interests and knowledges that are associated with the governance system from which the framework emerged.
- The management approach is explained and articulated via a linked set of principles, values, goals and/or themes.
- The management approach is then put into action via a linked set of indicators (data collection), questions (to focus evaluation) and/or activities (on-ground management practice).

These insights informed the structure of the Biocultural Framework.

Needs assessment

The needs assessment reviewed grey literature, strategies and policy related to research and deployment of Reef Restoration and Adaptation technology for the Great Barrier Reef. The key outcome, also provided to RRAP (see Macleans and Lyons, 2021) identified how a biocultural framework could provide a tool to support Traditional Owner leadership for decision-making within and about the Great Barrier Reef.

1.5 Workshops with Traditional Owners to scope and design the Framework

As outlined above, the project team worked to develop and deliver workshops as a key method for this research. The intentions of the workshops were to:

1. Work with Traditional Owners from the GBR to better understand and document their concerns regarding the potential risks to sea Country from deployment of RRAP technologies, as well as potential opportunities for Traditional Owners associated with RRAP activities.
2. Scope a culturally appropriate tool that could build on this information to support decision-making by Traditional Owners about the risks and opportunities associated with RRAP.
3. Seek expressions of interest in the co-design of case studies to test and improve the tool.

To allow appropriate controls to mitigate the risk of COVID-19, it was determined that three small and separate workshops would be held (instead of one large, combined workshop) – one each for Traditional Owners from the northern, central, and southern parts of the GBR. These were held between September 2022 and July 2023.

Members of the TWG provided guidance about workshop invitees, suggesting that Traditional Owner groups who had already worked with the AIMS Indigenous Partnerships team in a Free, Prior and Informed Consent (FPIC) process for RRAP would be invited to participate in the workshops. Members of these Traditional Owner groups had already had discussions with RRAP scientists in relation to the conduct of RRAP-related research on specific areas of Country in the GBR. It was anticipated that these groups would be able to participate in the workshops on an informed basis, having prior knowledge of one or more RRAP technologies and the RRAP program in general. These groups would then be able to draw on their knowledge to consider the potential risks and opportunities that could result from those technologies being deployed in their Country and more broadly in the GBR.

For reasons of privacy, the AIMS Indigenous Partnerships team managed the workshop invitation process. An invitation was developed by the collaborative design team (CSIRO and AIMS) which was then emailed by the AIMS Indigenous Partnerships team to the selected groups of Traditional Owner organisations and enterprises. These organisations and enterprises were requested to nominate up to two participants for the workshops. The email invitation included details about the aim of the project and workshop, and information about travel, accommodation and remuneration for participants' time.

Workshop 1 was held in September 2022 at James Cook University, Gimuy (Cairns) at the Nguma-bada campus in Yirrganydji Country. It included 13 participants from six Traditional Owner groups from the northern part of the GBR, including representatives from Lama Lama, Eastern Kuku Yalanji, Wuthathi, Kuuku Ya'u, Dingaal Walmbaar, and Gimuy Walubara Yidinji (see Maclean et al, 2023a).

Workshop 2 was held in October 2022 at Nilgoolerburdda (AIMS site at Cape Cleveland), Bindal Country. It included 15 participants from four Traditional Owner groups from the middle section of the GBR, including representatives from Ngaro, Nywaigi, Manbarra, and Wulgurukaba (see Maclean et al, 2023a).

Workshop 3 was held in July 2023 and on Konomie, Woppaburra Country. It included 11 participants from five Traditional Owner groups from the southern part of the GBR, including representatives from Woppaburra, Darumbal, Bailai, Taribelang Bunda, Gurang and Gooreng Gooreng (see Maclean et al, 2024).

Each workshop ran for at least two days, and although the sequencing and timing of each workshop may have been slightly different, the aims and intentions of each workshop were the same. An Indigenous facilitator supported the workshop aims and conduct. The first half of each workshop focussed on information sharing about the RRAP research and technologies being tested in the laboratory and in the field. These included coral-centric, cooling and shading, cryopreservation and other methods. The aim of this part of the workshop was to ensure Traditional Owner participants were informed about what these interventions might look like, so they could consider the potential risks and opportunities to their sea Country and community. The remainder of the workshop supported group discussions regarding how their concerns and proposed opportunities might be captured in a draft Biocultural Framework, their interest in working with the Project Team, via a co-designed case study, to test and improve the Biocultural Framework.

Each workshop included the following sessions:

- Background information about the project.
- Pre-recorded videos of RRAP scientists talking about the different RRAP technologies
- Workshop session to better understand and document:
 - Concerns, worries and the potential risks that could result from the future deployment of RRAP technologies on their sea Country
 - Opportunities that could result for them from future deployment

- Support they would require to enable such opportunities
- Discussion about the potential to develop a mechanism (e.g., a biocultural framework) to identify/discuss/assess the risks and opportunities that could result from future deployment of RRAP technologies including:
 - What kind of mechanism
 - Future /potential uses of this mechanism by Traditional Owners
 - Cultural values as the foundation
 - Who else might want to use it and how to manage their use?
- Seek expressions of interest from Traditional Owner groups to be involved in the co-design of case studies that would test and improve the preliminary biocultural framework that would be developed from input at workshops (and drawing on international literature on biocultural frameworks).

Data shared at the workshops was analysed and included in workshop reports. The workshop reports were shared with the workshop participants to ensure information was accurate and appropriate and each individual still wished to be listed as a co-author.

A full report, that included all information shared at each workshop, was created for each workshop and is only intended for those individuals who attended that workshop. Two summary workshop reports were created, that can be shared with anyone outside of those workshops. The first summary report provided key insights shared at workshops 1 and 2 (both conducted in 2022), the second summary report includes key insights shared at workshop 3 (conducted in 2023). These reports were previously delivered to workshop participants and RRAP (see Maclean et al., 2023 a, b).

1.6 Workshops to develop the draft Biocultural Framework

Based on discussions in the workshops it was determined to develop a draft Framework. As also suggested by Traditional Owners at workshops, the Framework was drafted with the idea that it would be used by Traditional Owners to guide discussions either in response to a proposal from RRAP or to support them to proactively identify the work they would like to be involved in.

The development of the draft Framework included drawing on insights from the review of the international literature on biocultural frameworks (see Maclean and Lyons, 2021), as well as the detailed information provided by participants in the three initial workshops (see Maclean et al, 2023a, b). The Project Team worked via a set of steps to co-develop and draft the Framework.

In terms of the structure of the Framework, the information contributed by participants in the workshops was grouped into 6 themes and, over time, further organised into discussion topics within each theme (

Figure 2). Within each discussion topic, more detailed considerations were framed as specific questions. Finally, any examples of existing or potential resources or approaches were listed as supporting tools and strategies that could assist in deliberations associated with each specific question (see Figure 2). Some specific questions were repeated under more than one discussion topic and several tools and strategies were included for multiple specific questions.

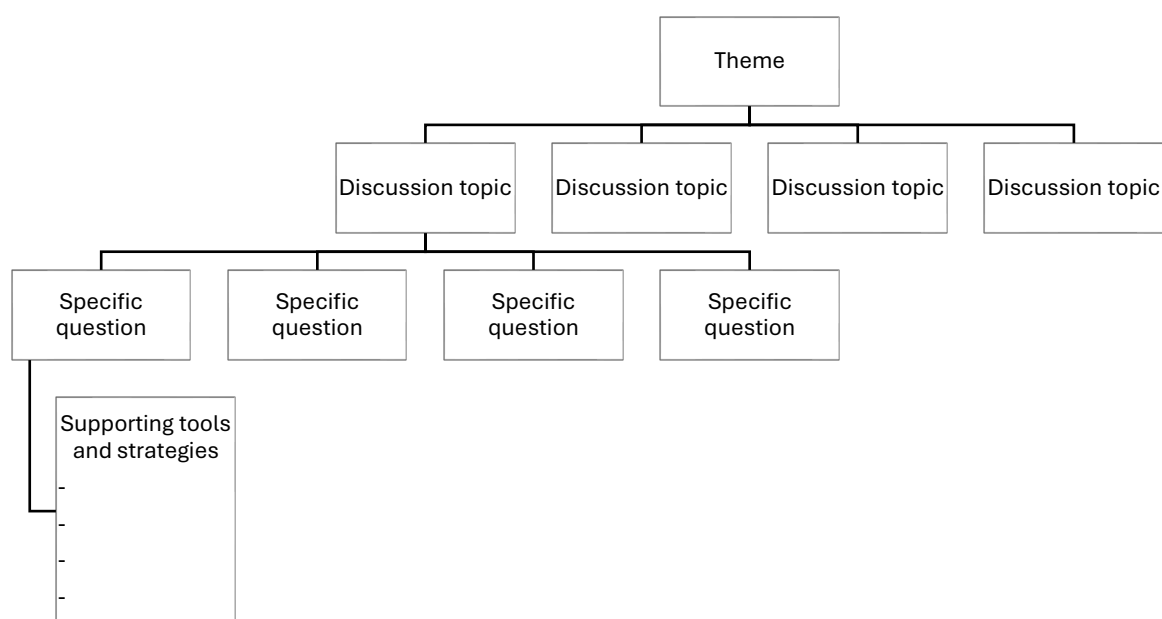


Figure 2. Schematic of the approach used to organise the information contributed by Traditional Owner participants at the workshops.

The draft Framework was developed and improved via a set of Project team workshops including:

- December 2022: the CSIRO team (Maclean, Lyons, Schmitt) had a two-day workshop, held at the CSIRO office in Cairns, to develop the first early draft of the biocultural risk and opportunity assessment framework. They used social science approaches, insights and data from Biocultural workshops 1 and 2, and the earlier international literature review (see Maclean and Lyons, 2022) to draft the Framework.
- March 2023: The entire Project Team (CSIRO and AIMS staff) met at CSIRO in Townsville for a full day workshop to improve the draft Framework. The CSIRO team provided an overview of the draft Framework, the materials they had used to develop it and the methods they used to design it, and the AIMS team provided a critique of the Framework, noting that it was missing a ‘front piece’ to locate it in cultural lore, and to better indicate the intention of the Framework as a tool to put a cultural lens over the Great Barrier Reef.
- May, Nov 2023: The draft Framework was presented to the TWG for input and feedback.
- Apr – Nov 2024: the draft Framework was further improved by the project team who drew on with insights from Biocultural Workshop 3 (2023), the Lama Lama case study workshop (April 2024) and insights from the DREAMS team workshop (Sept 2024).
- May, Nov 2024: The Framework was presented to the TWG for input and feedback.

1.7 Workshops with Traditional Owners to test and improve the draft Framework

The project design included a set of case studies with Traditional Owner groups, who had attended one of the three workshops, to test, refine and improve the draft Biocultural Framework. Several groups indicated their interest to co-design a case study. The project team had discussions with three Traditional Owner groups (Manbarra, Darumbal and Lama Lama) as well as a regional corporation (Port Curtis Coral Coast Aboriginal Corporation – who represent Bailai, Gurang, Gooreng Gooreng and Taribelang Bunda peoples). The

team held a one-day meeting with Manbarra to explain the potential case study and to better understand how they might like to work together (see Attachment F). Due to competing priorities and other demands, only Lama Lama people were in the position to work with the project team to co-develop a case study.

Meeting with Manbarra Elders council

The project team met with the Manbarra Elders group to discuss working together (see Attachment D) and although the Manbarra group were keen, a change in circumstances meant this did not happen.

Workshop with Lama Lama people

Three members of the Lama Lama community (Alision Liddy, Elaine Liddy and Manuwuri Forester) were participants at the first Biocultural project workshop (Workshop 1, held at JCU, Cairns, September 2022). At the end of that workshop, Lama Lama participants showed interest to co-design a case study with the Biocultural project team, to test and improve the draft Biocultural Framework. Following Workshop 1, Lama Lama people invited a member of the Biocultural project team to present information about the potential case study co-design at a meeting, via video-link on 31 August 2023. Next, after email correspondence and discussion, it was decided to hold the workshop in Gimuy (Cairns) at a venue (Ryldges on the Esplanade) often used by the Yintjingga Aboriginal Corporation (YAC), rather than on Lama Lama Country due to restrictions of weather and travel. YAC decided the date for the workshop and were happy for the Biocultural project team to develop the workshop agenda.

The workshop was held in Cairns (18-19 April 2024) with 11 people from the Lama Lama community, including a Lama Lama Elder, senior staff from the YAC and members of the Board of Directors, Lama Lama Rangers, as well as members of the Lama Lama TUMRA Steering Committee and Lama Lama Land Trust. Three members of the Biocultural project team (all from CSIRO) facilitated the workshop (see Lama Lama people et al, 2024). See Attachment E for the co-authored case study report.

The Lama Lama participants decided to consider the draft Biocultural Framework from the perspective of their research partnership protocol that they intended to update during 2024. This decision arose during preliminary discussions about the purpose of the draft Biocultural Framework to support Traditional Owners to make decisions about RRAP technologies, including whether and how research takes place in their Country and Traditional Owners' involvement in research partnerships. This aligned with the intention of the research partnership protocol developed by YAC, which is to ensure that researchers working on Lama Lama Country or with Lama Lama people operate in ways that respect and appropriately involve Lama Lama people and address shared research interests.

CSIRO project team members facilitated the workshop discussion, taking each theme of the draft Biocultural Framework in turn. First, they provided an overview of the origin of the theme, and the relevant definition, and used a set of 'workshop cards' to facilitate discussion which regards to each part of the Framework (see Fig 3).

The information shared at the workshop was analysed and included in a co-authored report (see Lama Lama et al, 2024). Insights were used to improve the Biocultural Framework. Importantly, Lama Lama people suggested a list or set of guidelines should be developed for researchers who may wish to work with Traditional Owners of sea Country. The information they shared was used, along with information shared at the other workshops for Attachment C: Guidance for prospective partners to discuss deployment opportunities for RRAP technology with Traditional Owners of sea Country.

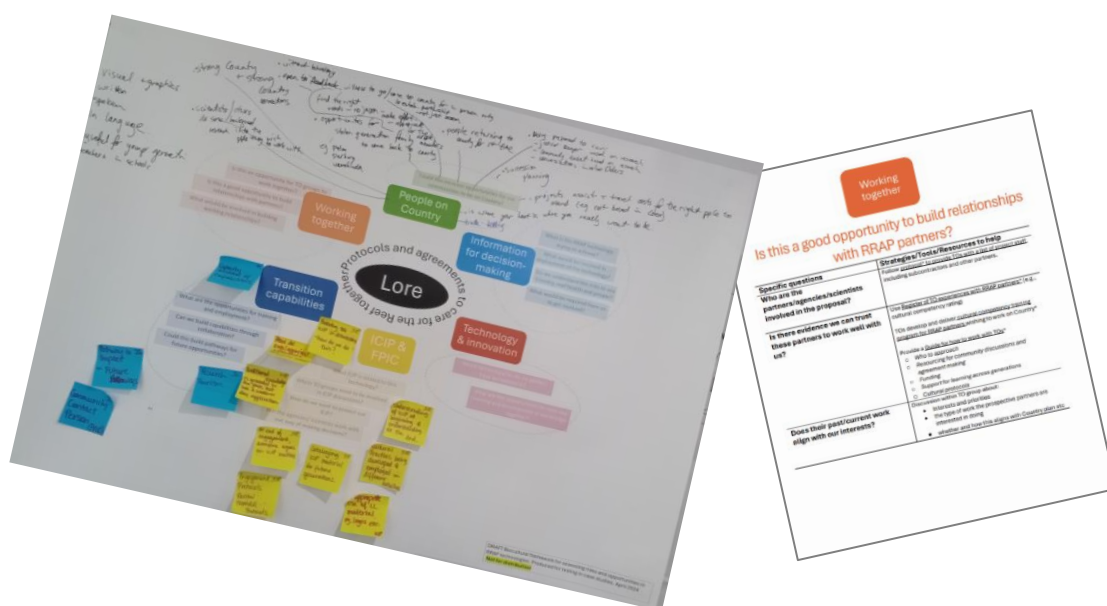


Figure 3. Materials used to test and revise the draft Framework with Lama Lama workshop participants. The themes and draft discussion topics were printed out on an A0 sized poster. Participants added notes during the workshop. Draft specific questions and associated tools and strategies were printed out on separate A4 cards for each discussion topic.

DREAMS team workshop

In the time since workshops 1, 2, and 3 were held, a Traditional Owner working group had been set up to inform the next phase of RRAP (RRAP 2.0): the Deadly Reef Ecological Adaptation Murri Scientists' (DREAMS) team¹, including future deployment decision making. Following guidance from the TWG, and in lieu of further case study opportunities, the project team requested a workshop with the DREAMS Team. This was perceived as an opportunity to socialise the Framework with Traditional Owners who are likely to play key roles in ongoing work in RRAP and to seek advice and feedback from this highly experienced group about the draft Framework.

The workshop was held in Townsville at Rydges Hotel, 31st August – 1st September 2024. 8 out of the 10 current members of DREAMS were able to join the workshop including: Brian Johnson, Meaghan Cummins, Sherrill (Dawnie) Harrigan, Della Gibson, Dion Devow, Eddie Savage, Robert Muir, Virginia Wyles, Harry (Sonny) Van Issum, Christabel (Chrissy) Warren, Phillip (Phil) Rist). Sonny Van Issum and Chrissy Warren are also members of the RRAP Steering Committee, and Phil Rist is also a member of the Independent Risk Review Group. Five members of the Project team (Manuwuri Forester, Carl Grant, Libby Evans-Illidge, Kirsten Maclean and Bruce Taylor) facilitated the workshop, and a representative from the AIMS Indigenous Futures program (Toby Wright) also attended the workshop (see DREAMS et al, 2024). See Attachment F for the co-authored workshop report.

The aims of the workshop were to:

- Share an overview of the draft Biocultural Framework with the DREAMS team.

¹ In the Biocultural Project November 2023 Milestone Report the Biocultural project team provided 'indicative considerations for RRAP' (see Maclean et al, 2023b:32) including advice to support the Operation of a Traditional Owner Working Group for RRAP 2.0. Subsequently, AIMS managed an EOJ process for this working group and the recently named 'Deadly Reef Ecological Adaptation Murri Scientists' (DREAMS) team held their first meeting, 20 June 2024.

- Gain insights and guidance from the DREAMS team on:
 - existing themes and discussion topics of the Biocultural Framework
 - possible implementation pathways for the Biocultural Framework
 - practical tools/methods that would enable the future use of the Biocultural Framework.

The information shared at the workshop was analysed and included in a co-authored report (see DREAMS et al, 2024). Insights were used to improve the Biocultural Framework, and, in particular, the ‘Recommendations for implementation pathways of the Framework to inform RRAP decision-making in the Great Barrier Reef’.

Important to note and as per the deed of assignment of copyright (see verso of Report):

1. The Framework **may be used by other First Nations people** in Australia and overseas to assist them to develop their own protocols for collaborative research and development.
2. The Framework **must not be *used* by others**, including researchers, consultants or government, to undertake an assessment of biocultural risk and opportunities.
3. The Framework **may only be *read*** by others, including researchers, consultants or government to help them understand the wide range of considerations that are important to Traditional Owners of the Great Barrier Reef.

The intention of the Framework is to promote meaningful, early and ongoing collaboration with Traditional Owners in proposals relating to the Great Barrier Reef. Any use of the Framework without engaging with Traditional Owners falls short of ethical research standards and industry practice.

2 The Biocultural Framework

In this chapter we present the high-level overview of the Framework, including explanatory text. The full Framework can be found here ([weblink to finalised](#)).

2.1 Principles underpinning the Framework

In all workshops, participants highlighted how Lore is at the centre of all decision-making. Lore was explained as being related to and as the foundation of:

- cultural obligation and responsibilities to care for the Reef
- customary heritage, connections, knowledge
- caring for Country and values.

Lore underpins and influences decision making, management approaches and practices. Key to Lore is an acknowledgement of 'healthy Country healthy people': if Country is healthy then so are its people. **Figure 4** highlights Lore as the foundation and the centre of existing Indigenous-led governance mechanisms and decision-making approaches (both customary and mainstream) to enact caring for Country to ensure healthy Country and healthy people. Figure 4 also shows the Framework as a tool that Traditional Owners can use for decision-making about potential future deployment of RRAP technology. This tool complements other existing tools that Traditional Owners use to support their decision-making in the GBR (e.g., Reef 2050 Traditional Owner Implementation Plan, Strong Peoples-Strong Country Framework).

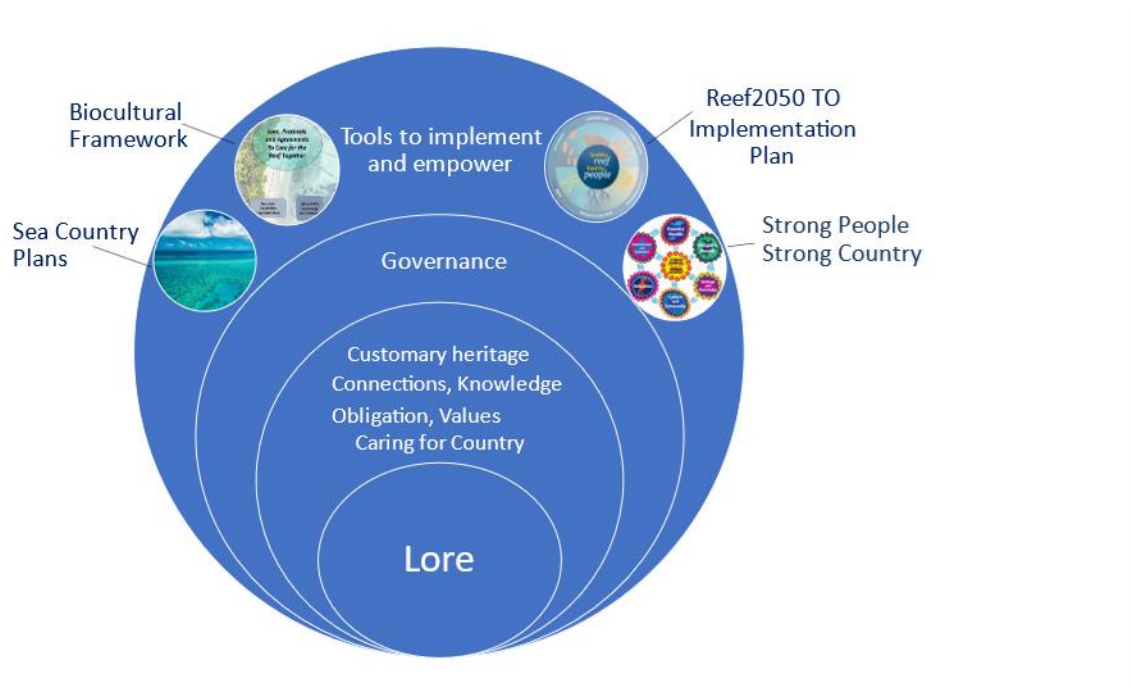


Figure 4: A graphic depiction of components of Traditional Owners' decision-making in relation to reef Country, with Lore as the foundation. Lore is also the core organising concept of the Framework. Custom, heritage, knowledge and values also inform decision-making, then cultural governance. Finally, a range of Traditional Owner-led tools – including the Framework - implement and empower Indigenous-led decision making on the reef. This graphic is in development and may be redrawn following with in the project team and with case study partners.

Lore is the foundation of the Framework

As such, workshop participants strongly expressed the need to situate Lore at the centre of the Framework due to its fundamental role in any decision-making process and to acknowledge that use of the Framework by Traditional Owners is additional to any processes related to Lore. They also explained that agreements and protocols are key enablers of partnerships with Traditional Owners. These are also represented towards the centre of the Framework (see Figure 5).

The Framework takes a strengths-based approach

Workshop participants had questions about RRAP technologies, and the potential impacts deployment might have to Country, culture, and people. They were also very interested to learn about and discuss the opportunities that could result from potential future technology deployment on their Country. As such, the focus of the Framework is on a 'strengths-based' approach in which consideration is given to opportunities, working together, and processes for ensuring protection of ICIP and FPIC, rather than a focus on risks and concerns (i.e., a 'deficit model', as characterised by one of the participants at workshop 2). This is why the Framework does not specifically mention Traditional Owners' concerns about potential risks, rather the focus is on opportunities. These opportunities are represented in the six linked themes of the Framework (see Figure 5). Importantly, this finding also corresponds to insights gleaned from the review of the international literature into the emerging strengths-based narrative of Indigenous care and responsibility for social ecological systems undergoing change (see Maclean and Lyons, 2021).

2.2 The Framework is a tool to put a biocultural lens over the GBR

The intention of the Framework is to put a cultural lens over the GBR and use it to inform decision-making for improved management of the GBR.

The Framework clearly identifies Lore and Traditional Owner governance systems as crucial components of decision making on the GBR and specifically asks that potential RRAP partners recognise and respect this. Workshop participants outlined ways that outcomes can be operationalised in decision-making processes, including:

- join Traditional Owners at their decision-making table and consider how to enable decisions that use Traditional Owners' cultural lens.
- take the time to 'walk in the shoes' of Traditional Owners.
- acknowledge and listen to the voices of Traditional Owners (who have always been there) so they are better positioned to fulfil cultural obligations.
- acknowledge Traditional Owners' influence, impact and leadership, to improve governance in the GBR.
- support the development of place-based protocols and agreements to guide partnership development, for example for deployment of RRAP technologies on Country. This can include FPIC processes but also augment and expand on those processes.
- develop positive partnerships to care for the reef together.

In this context, the Framework provides a tool that Traditional Owners can use to assess potential partnerships, including those involving the deployment of RRAP technologies on their Country.

2.3 High level overview of the Biocultural Framework

Figure 5 shows the high-level summary of the Framework, including:

- six linked themes that identify important considerations in decision-making by Traditional Owners: Working together; People on Country; Indigenous Cultural and Intellectual Property; Information for decision-making; Technology & innovation; and Transition capacity.
- a set of discussion topics associated with each theme, intended to guide Traditional Owners' initial assessments of potential risks and opportunities related to RRAP activities. For every theme, the

Framework includes a discussion topic focussed on the development of appropriate indicators or criteria to support monitoring and evaluation of that aspect of a partnership.

The full Framework ([weblink to finalised](#)) contains additional elements including:

- specific questions associated with each discussion topic that support more detailed deliberations about topics that are of most interest to the Traditional Owners using the Framework or which are most relevant to the matter under consideration.
- a list of suggested information or other resources and strategies or approaches that could be used support Traditional Owners' discussions.

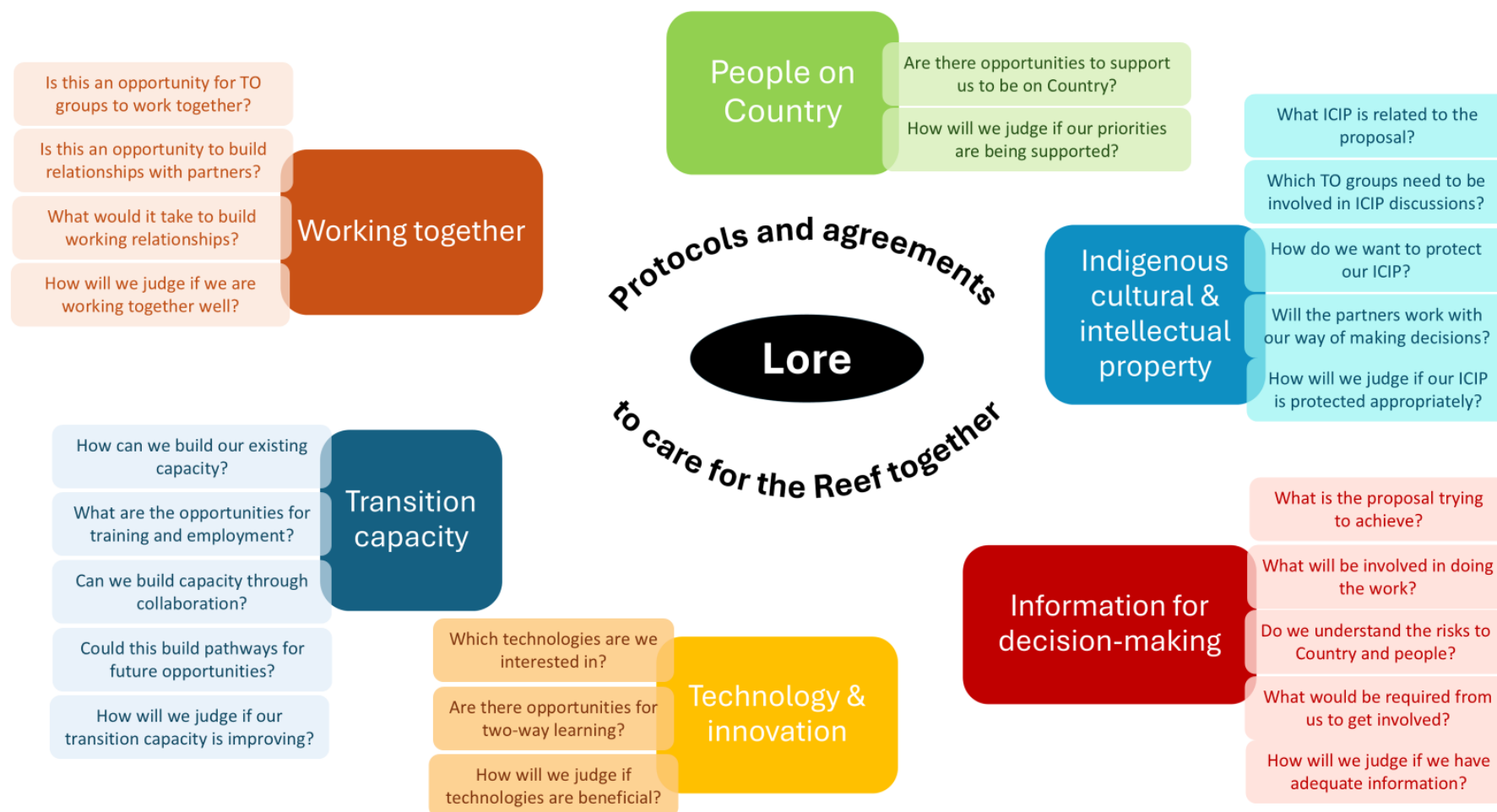


Figure 5. The Biocultural Framework showing linked themes and discussion topics. The Framework emphasises the central importance of Lore to decision making by Traditional Owners and the crucial role of protocols and agreements to care for the Reef together in implementing the Framework. Within each discussion topic, Traditional Owners identified sets of specific questions to help groups to probe more deeply into the matter, together with a list of tools and strategies that could support groups in their deliberations. The full Framework with explanatory text can be found at [\(weblink to be finalised\)](#).

3 The key outputs of the RRAP Biocultural risk and opportunity assessment project

This Chapter presents an overview of the outputs of the key outputs of the RRAP Biocultural risk and opportunity assessment project, and recommendations for future research and development to support implementation and improvement of Framework for RRAP.

The outputs of the RRAP Biocultural risk and opportunity assessment project include:

- **‘The RRAP Biocultural Framework’ (Muir et al, 2025a).** The Framework is to only be used by Traditional Owners. The document provides background to Biocultural project, and the Framework. As per the legal DEED of assignment of copyright, this Framework is being held on behalf of Traditional Owners of the Great Barrier Reef by the Australian Institute of Marine Science, pending further assignment to a future legal entity representing Traditional Owners of the Great Barrier Reef ([weblink to finalised](#)).
- **‘Guidance for Traditional Owners to use the Biocultural Framework to assess risks and opportunities’.** It has been written for Traditional Owners to provide background into the Framework and guidance to its use. As per the legal DEED agreement, this Guidance document is being held on behalf of Traditional Owners of the Great Barrier Reef by the Australian Institute of Marine Science, pending further assignment to a future legal entity representing Traditional Owners of the Great Barrier Reef ([weblink](#)).
- **‘Guidance for prospective partners to discuss deployment opportunities for RRAP technology with Traditional Owners of sea Country’ (Muir et al, 2025b).** This guidance was derived from information shared at the Lama Lama workshop (see Lama Lama et al, 2024) and the DREAMS team workshop (DREAMS et al, 2024). It is designed as a ‘stand-alone’ document to be used by RRAP researchers and those involved in technology deployment and decision making. Individuals who are interested to enter into a partnership with Traditional Owners for future research and or deployment of RRAP technologies on their sea Country. It provides a snapshot background to the Framework project, a high-level overview of the Framework with explanatory text, and a set of activities that RRAP researchers and those involved in technology deployment and decision making. It is located on the RRAP website and can be found here: ([weblink to be updated](#)).

Important to note, as per the DEED of assignment of copyright, *this document*

- has been published for access and use by researchers, consultants and government who wish to discuss options with Traditional Owners for deployment of RRAP technology (and other projects/research) on their sea Country. It is designed to assist these individuals and groups with suggested activities that might be considered prior to initial discussion with a Traditional Owner group, in follow up meetings, in early days of agreement making and as part of the ongoing review process of the potential partnership.
- includes a summary overview of the Biocultural Framework. The Framework is designed to assist the Traditional Owners of the Great Barrier Reef to undertake an assessment of the biocultural risks and opportunities of Reef Restoration and Adaption Program (RRAP) research and development work or any other proposals. It must not be used by others, including researchers, consultants or government, to undertake an assessment of biocultural risk and opportunities. The Framework may only be read by researchers, consultants or government to help them understand the wide range of considerations that are important to Traditional Owners of the Great Barrier Reef.
- **‘Testing, improving and refining the RRAP draft Biocultural Framework. A case study with members of the Lama Lama community’ (Lama Lama People et al, 2025).** The case study was developed between

the research team and Lama Lama people, who used, tested and provided insights to improve the Framework. It is an example of a local scale implementation pathway for the Framework. It will be located on the Lama Lama website.

Future research and development to support implementation and improvement of Framework for RRAP.

As RRAP 1.0 draws to a close, and planning for RRAP 2.0 is progressing. We advocate for the important role of future research and development to assist with the implementation and monitoring of the Framework in-use and to improve its application within the RRAP, RRAP pilot deployment program more broadly, and its application to other decision-making processes that would benefit from consideration of biocultural risk and opportunity.

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