

An aerial photograph of a coastline. On the left, turquoise water meets a sandy beach with white foam from waves. To the right of the beach is a wide, flat sandy area, possibly a dune or a large beach. Further right, there is a dense area of low-lying, brownish-green vegetation, likely coastal scrub or dune plants. The overall scene is captured from a high angle, looking down at the landscape.

# PROJECTS THAT BUILD RESILIENCE

An Overview of the Resilient Reef  
Initiative's Co-Designed Solutions

# AN OVERVIEW

The Resilient Reefs Initiative (RRI) is a global partnership working to build the resilience of reef ecosystems and the communities that depend on them. We work closely with reef managers globally to assess threats to resilience, co-design projects that address those threats, and build local capacity for resilience-based-management. The projects we co-design always build on local and traditional knowledge and leverage global best practice.

The topics RRI projects are tackling are of global concern, and include:

- Advance Knowledge Exchange and Co-management with First Nations Communities
- Update Local Management Plans to Be Nimble and Adaptive
- Diagnose Restoration and Adaptation Needs and Strengthen Local Capacity to Respond
- Build Socio-economic Resilience of Reef Communities
- Better Value Reefs and Adjacent Ecosystems
- Address Coastal Risks

This document provides an overview of projects RRI is implementing with its partner sites (as of April 2023). As we deliver these solutions, we are committed to sharing lessons learned and developing partnerships for greater impact. If you would like to learn more or collaborate on this work, please reach out at [info@barrierreef.org](mailto:info@barrierreef.org).



## Partners Sites

Resilient Reefs partners with local Reef management organisations in each of the Initiative's pilot Reef sites: Department of Biodiversity, Conservation and Attractions in Ningaloo, Australia, Agence néo-Calédonienne de la Biodiversité in New Caledonia, Coastal Zone Management Authority and Institute in Belize, and Koror State Government in Palau.

# ADVANCE KNOWLEDGE EXCHANGE AND CO-MANAGEMENT WITH FIRST NATIONS COMMUNITIES

In **New Caledonia**, RRI has funded two projects to support deeper partnership around marine management with First Nations groups. The first was a three-day event in 2021 on the sustainable management of turtles where **eight tribal groups reconciled the importance of maintaining traditional customs with the critical need to protect and preserve the dwindling green turtle population. The result was the signing of eight new accords between the management agencies and tribal groups.** Local partners include Agence néo-Calédonienne de la Biodiversité, The Southern Province and eight tribes within the Djubea-Kapone customary area (Gadji, Youati, Touété, Wapan, Comagna, Kéré, Vao and Ouatchia).

Deepening our partnership with Kanak managers in **New Caledonia**, RRI will fund a second project in 2023 which seeks to **formalize Customary Reserves within the Loyalty Island Province as a Protected National Area. This would be a first for the territory of New Caledonia.** The project will bring together local communities and Customary Authorities to map Customary Reserves and document Traditional Knowledge relating to natural resource management. A Customary Act defining the extent of the reserves and the management rules proposed by the tribes will be produced. This Act will be sent to the president of the province for consideration and integration into the legal framework.



Local partners include Agence néo-Calédonienne de la Biodiversité, The Loyalty Islands Province and Customary Authorities.

Along the **Ningaloo Coast** in Western Australia, RRI has funded **cultural mapping with Traditional Owners that documented tens of thousands of years of local Indigenous knowledge in Western Australia.** In addition, in partnership with Columbia University's Center for Resilient Cities and Landscapes, RRI led a workshop on "Healing Sea Country and Restoring the Reef" with Traditional Owners to discuss their aspirations for reef healing and management, and to ensure that reef restoration work meaningfully engages and is designed in partnership with Traditional Owners. The engagement process was one part of a Resilience accelerator that informed the Reef Restoration Framework for the Ningaloo Coast (below).

In **Ningaloo**, Traditional Owners have also expressed an interest in sharing their knowledge with school students and communities. To help explore this concept, RRI has funded a local marine education provider, OceanWise, in partnership with Exmouth District High School, to accelerate youth engagement in the region.

The total amount of funding toward this work so far equals approximately AUD \$233,000.



# UPDATE LOCAL MANAGEMENT PLANS TO BE **NIMBLE AND ADAPTIVE**

Resilience-based management (RBM) seeks to empower management agencies to become nimble and adaptive in response to rapidly changing conditions and to be more proactive in planning for threats. It seeks to make managers more aware of the fundamental role that human behaviour, socio-economic issues and community wellbeing play in achieving effective and holistic management outcomes. Delivering RBM is complex because it requires system level change to move from the business-as-usual management approaches. RRI has provided significant support to our partners site in delivering RBM.

In **New Caledonia**, reef managers in the Northern Province asked RRI for support embedding resilience principles into their management plans and projects. This challenge--how to update management plans and include practical strategies for making them more holistic, adaptive, and climate aware—is shared across RRI sites and beyond. Over 2021 and 2022, RRI delivered analysis and trainings to support the managers. The analysis reviewed the local plan and actions using the Reef Resilience Framework, identifying opportunities for redesigning actions to deliver more co-benefits, as well as recommendations for how communication, M&E and funding gaps could be addressed. Trainings included review of best available climate data to ensure likely climate impacts were integrated into action development. Building on all of this work and in response to local demand, RRI will partner with more managers across New Caledonia in 2023 to deliver a territory-wide training.

Similarly in **Palau**, RRI has been working with local government and NGO partners to build capacity to deliver the fisheries management plan in Koror State. The fisheries management plan seeks to recover valued reef fish and invertebrates from over-harvesting, rebuild the populations for sustainable harvesting alongside healthy ecosystems, and ensure the Koror community is sustainably benefitting from its coastal fisheries. In partnership with Koror State Government (KSG), Palau Conservation Society and Palau International Coral Reef Center, RRI is supporting outreach and advocacy around the need for the first ever fisheries management plan in Koror, as well as an assessment of local capacity to deliver on it. In particular, RRI is working with KGS to understand opportunities for building institutional capacity to implement the plan and helping to establish baselines and ongoing impact monitoring, as well as training and work planning with KSG and KSG rangers.

These efforts enable management agencies to be more proactive in planning for threats, and more aware of the fundamental role that human behaviour, socio-economic issues and community wellbeing play in achieving effective and holistic management outcomes. The total amount of funding to date is approximately AUD \$344,000.

# DIAGNOSE RESTORATION AND ADAPTATION NEEDS AND **STRENGTHEN LOCAL CAPACITY TO RESPOND**

In **Ningaloo**, as part of our partnership with Columbia University's Center for Resilient Cities and Landscapes RRI developed a [“Trialling Coral Restoration to Building Resilience: A Framework for Experimental Research, Co-Design, and Management in the Case of Ningaloo.”](#) Reefs are expected to experience bleaching events twice-per-decade by 2040, which may be beyond the natural rate of recovery and adaptation for the reef. Local governments and stewards of the reef often feel overwhelmed by this prediction, and aren't sure how to approach restoration activities, or how to know which activities will have the best results in their context. The Resilience Accelerator in Ningaloo produced a framework to help managers answer these questions, provided detailed implementation case studies, and make decisions on trial prioritization, engagement, and permitting. [This framework sets the stage for coordinated research and learning, mitigates risks of restoration, and ensures that trials are meaningfully engaged and designed in partnership with Traditional Owners, tourism operators, and community members.](#)

Bills Bay, within the **Ningaloo** World Heritage area, is a pivotal site for maintaining resilience of the adjacent lagoonal ecosystem, and well as local tourism. In response to a recent catastrophic anoxic event that resulted in high coral death within the bay, RRI funded an action put forward by the Coral Bay Progress Association to capture community and tourist concerns about the health of the local coral ecosystem, and provide opportunities for interactive education and monitoring activities, which will lead to improved understanding of coral reef health and management options, including

ecosystem restoration.

RRI has funded two new projects commencing in 2023, both of which will accelerate understanding of ecological reef resilience to climate events and will build more adaptive management approaches and partnerships to enable that information to be used by managers.

In **Belize**, we have [funded an action to strengthen adaptive management and stakeholder engagement to respond to long-term threats and build restoration solutions](#). Partnering with a range of local organizations, including government, researchers, and managers (Coastal Zone Management Authority & Institute, the Fisheries Department, the University of Belize Environmental Research Institute, Turneffe Atoll Sustainability Association), this approach will build national capacity in data analysis and data dissemination as well as stakeholder capacity to respond to reef threats. It will test both disease response and coral restoration activities, delivering them together with a range of reef partners and users.

In **New Caledonia**, RRI is funding a similar project to track the health and resilience of coastal marine ecosystems and quantify thresholds. These will inform sustainable adaptive management approaches towards system resilience. Local partners include government, research, and management organisations (Agence néo-Calédonienne de la Biodiversité and IRD).

The total amount of funding toward work on capacity building for reef restoration so far equals approximately AUD \$850,000

# BUILD SOCIO-ECONOMIC RESILIENCE OF REEF COMMUNITIES

Across reef sites, there is a clear need to develop economic opportunities which are less reliant on the reef. Coastal communities that are highly dependent on fishing for income are more vulnerable if these specific fish species catches decline and, likewise, overreliance on fishing can have a negative impact on reef biodiversity. In **Belize**, we will be funding work in 2023 to diversify and improve the sustainability of fisherfolk's livelihoods. Partnering with Wildlife Conservation Society and Coastal Zone Management Authority & Institute, this project aims to improve economic resilience to climate change for fishing communities in Glover's Reef Marine Reserve and South Water Caye Marine Reserve (with lessons for the broader country). Belize has had numerous alternative livelihood initiatives in the past, but impacts haven't been enduring. This project will identify the barriers to success from past initiatives and fund new training and partnerships driven by local communities.

In **Ningaloo**, the ability to interact with marine megafauna has become a critical economic activity for the region, however increased vessel strikes are resulting in blunt trauma, laceration, amputation, or death for marine megafauna. To address this issue, RRI funded a local community group, Ningaloo Marine Interactions, to explore the human behaviours that drive this impact and to identify and prioritise what behaviour change tools may work best to address this issue. Changing visitors' behaviour to reduce vessel strikes will ensure resilience of both marine megafauna populations and the economic activity of the region.

To date the total funding to build more resilience coastal communities is approximately AUD \$310,000



This funding empowers the local communities to undertake practical, on-ground actions that will catalyse the next steps in broader resilience building efforts.



# BETTER VALUE REEFS AND ADJACENT ECOSYSTEMS

Across our partners, there is a need to better understand the value of ecosystem services to underpin decision making and build the capacity to deliver innovative financial approaches to protect them.

In **Ningaloo**, RRI funded an economic contribution study of **Ningaloo's reef demonstrating that it contributes >\$100m annually to the Western Australian economy and over 1000 full time jobs.**

In **New Caledonia**, RRI funded a study with Blue Finance that investigated opportunities for a payment mechanism for Marine Protected Areas in New Caledonia. The study explored a range of potential innovative user pays fee options for MPAs. Partners include Agence néo-Calédonienne de la Biodiversité, The Southern Province, Blue Finance.

In **Belize**, RRI is working with government and NGO partners (The Lands Department, Coastal Zone Management Authority & Institute and World Wildlife Fund) to update a coastal-marine land tenure inventory. While this isn't a typical valuation study, **it is a key building block for a national blue carbon framework and will enable engagement with coastal-marine land stakeholders (public and private) on the development of better policies, plans, practices, and actions to protect and restore coastal habitats.**

The total amount of funding towards this work is approximately AUD \$410,000.

# ADDRESSING COASTAL RISK

Coastal risks are intensifying due to climate-driven extreme coastal physical processes. In New Caledonia, even if communities are aware of this intensification, there has been limited communication on effective management and prevention of these risks. To address this, RRI has funded **New Caledonia** Coastal Observatory and the Observatoire du Littoral de Nouvelle-Calédonie [to develop an effective communication strategy on coastal risk to raise awareness, train, and educate local communities so they can prepare and adapt to future coastal risk caused by climate change.](#)

In **Belize**, in partnership with Columbia University's Climate School and [GSAPP Water Urbanisms Urban Design Studio](#), RRI ran a [resilient accelerator and urban design studio](#) to define resilience coastal development. The accelerator included a week-long virtual convening of local stakeholders, students, scholars, practitioners, and policy makers. Participants uncovered systematic challenges and opportunities related to coastal development and impacts on the reef, water quality, infrastructure, and livelihoods in six areas along Belize's coast. Local partners = CZMAI, University of Belize, Department of Fisheries and Ministry for the Blue Economy.

The total amount of funding towards work on addressing coastal risks is approximately AUD \$163,000

# NETWORK WIDE SUPPORT

In addition to direct support to local managers and funding on-ground actions, RRI organises, develops, and funds network wide products and events to help build the capacity of our partners. This is done by sharing learnings across sites, connecting them with experts on common challenges, and supporting sites in diagnosing opportunities for local actions and planning next steps. For more information, please see the following links to our [Insight Report](#) and articles on our [2020](#), [2021](#) and [2022](#) Solution Exchange events.



*The Resilient Reefs Initiative is partnering with communities across four World Heritage Reef sites to respond to climate change and local threats. This six-year, AUD\$14 million program is a collaboration between the Great Barrier Reef Foundation, UNESCO, The Nature Conservancy's Reef Resilience Network, Columbia University's Center for Resilient Cities and Landscapes, Resilient Cities Catalyst and AECOM. The project is enabled by the BHP Foundation.*



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