

REEF TRUST PARTNERSHIP

YEAR IN REVIEW 2020-2021



Australian Government



Great Barrier
Reef Foundation

ACKNOWLEDGEMENT OF COUNTRY



The Great Barrier Reef Foundation extends its deepest respect and recognition to all Traditional Owners of the Great Barrier Reef and its Catchments, as First Nations Peoples holding the hopes, dreams, traditions and cultures of the Reef.

More than 70 Traditional Owner groups have deep and enduring connections spanning the length of the Reef along the Queensland coastline and beyond, from the Torres Strait Islands in the north to Bundaberg in the south.



'Great Barrier Reef' artwork by Melanie Hava, Mamu Aboriginal woman, Dugulbarra and Waribarra family groups, from the Johnstone River catchment of the Wet Tropics of Far North Queensland and the adjoining Great Barrier Reef Sea Country.

Front cover – Gary Cranitch, Queensland Museum

MESSAGE FROM TRADITIONAL OWNERS



Heart of the Reef – A Call for Healing

Healing Country Statement by Great Barrier Reef Traditional Custodians

If there was ever a time for us to come together that time is now.

If there was ever a time for the voice of Traditional Custodians to be heard - this is that time.

There has been so much damage to our Country and she is struggling to recover from threats on a scale never faced before.

Country is stressed, Country is crying.

Country is land, sea, air, stars, rocks, plants and animals – all things living and non-living. She is our spirituality. Country is Us.

*The Reef is Country.
The Reef is our Heart
and the water is the
life-blood that connects
us all.*

She is our Family. The Reef is an extension of Us and we are an extension of Her.

The Reef looks after us, feeds and protects us, and keeps us healthy.

She's the keeper of our stories, our Lore.

Without her we will suffer irreversible effects to our identity.

For millennia, Country and People were healthy.

We lived harmoniously according to our cultural Lore.

Our collective connections were strong and balanced through our songlines and interactions with each other.

We looked after Country according to our seasonal calendars and she looked after us.

Today Country is sick.

We are losing our culturally significant plants and animals and places.

For many of us, separation from Country has meant a loss in intricate connections and knowledge.

The imbalanced condition of Country is the result of the ongoing impacts of colonisation and climate change.

The seasons are changing beyond our control no matter how hard we try to help Country heal.

We are all suffering and we can't continue this way.

The world is now turning to Us, as Traditional Custodians, for our unique leadership, traditional knowledge and cultural practices.

And we call on you to listen to Us.

To learn from Us and to do it our way.

To recognise, respect and accept our LORES.

To understand that healing is about the relationship between Country and its People. That one can't heal without the other.

Country needs to hear our children running around – hear our laughter and happiness.

In some places this has been missing from our Country for many generations. This was not our choice and never will be.

We call on you to stop using the poison frameworks that have made Country and People sick. Frameworks that fragment Country and split families.

Learn how to holistically manage Country, People.

To honour everything as one.

We recognise that healing Country means starting with ourselves.

We need to rebuild pathways of connection between ourselves and Country.

There must be presence of mob on Country.

Families and Elders must come together. Hold each other dear.

It means placing our young ones at the heart of change.

It means using our own languages that tie us to our place on Country, where we belong and who we are.

It means recognising education, justice and health are all crucial parts of healing.

It means employment and opportunities that get you close to Country, to homeland and saltwater.

It's about being honest and seeing that we can't do it all on our own.

We need to see the real threats posed by climate change and face these challenges head on.

All Australians need to come together and show the Reef the respect she deserves. To help her heal and to make us who we are all meant to be.

We call on our Saltwater brothers and sisters across the Pacific and throughout the world to join and support us.

We need everyone's feet and mouth pointing in the same direction and we need talk to be followed by action.

The time to save our future is now.

We need to stand up as one mob, one Country, one spirit, one voice.

And heal.

MINISTER'S FOREWORD

The Morrison Government is resolute in its commitment to protecting the natural wonders of the Great Barrier Reef, and the communities who rely on the reef economy.

Our \$443 million Reef Trust Partnership with the Great Barrier Reef Foundation is delivering world leading, practical initiatives to help this precious marine ecosystem, and to lead the way for Reef systems around the world.

This 'Year in Review' gives an insight into the incredible work being undertaken through the Partnership with scientists, Universities, businesses, Traditional Owners, and local communities.

The Reef Trust Partnership has more than 200 projects underway through more than 400 delivery partners, helping to deliver the strategies laid out in Australia's Reef 2050 plan.

We are seeing improvements in water quality, in Crown of Thorns starfish control, reef island initiatives, and world leading research into Reef Recovery and Adaptation Program (RRAP).

As rising sea temperatures present a significant challenge to Reefs across the globe, the Foundation's RRAP program, supported by \$100 million of Morrison Government Funding, is unlocking the secrets of corals and their resilience in the face of changing climates.

Our Great Barrier Reef is made up of more than 3,000 individual coral reefs, 600 continental islands, 1,625 types of fish, 133 varieties of sharks and rays and 600 types of hard and soft corals.

It is a vast and complex ecosystem that is being supported through more than \$3 billion of Commonwealth and State investment to support the Reef 2050 plan.

The Great Barrier Reef is the best managed reef in the world, and it is in no small part due to the work of the Reef Trust Partnership.

I congratulate the 'Partnership' on its efforts over this reporting period. I look forward to its continued efforts in ensuring a healthy reef for future generations.



The Hon Sussan Ley MP
Minister for the Environment



MESSAGE FROM THE CHAIRMAN AND MANAGING DIRECTOR

The Great Barrier Reef Foundation is proud to share the 2020-2021 Year in Review for the Reef Trust Partnership.

The Reef Trust Partnership (RTP, the Partnership) is a landmark \$443m partnership between the Australian Government's Reef Trust and the Foundation. The Partnership reached its halfway point this year and is a vital proving ground for the power of collaboration and acceleration of effort. Sharing the stories of impact and achievement in the year that's been is a celebration of the thousands of people along the length of the Reef and beyond that every day are out on the water, in research labs or playing their part in the largest collective effort ever for the Reef.

At the Partnership midway point, we are on track to achieve end-of-Partnership outcomes, improving the health of the Reef in this critical decade of action. The scale of the Partnership is unprecedented, this is the largest effort globally to help an ecosystem withstand the impacts of climate change and local stresses. Much more than a collection of projects, the Partnership is a highly integrated program focused on delivering maximum impact and enduring outcomes, creating synergies across components and regions to deliver more than just the sum of its parts. The acceleration of effort and focus on innovation across the Partnership is to be commended, our partners are united in their effort to deliver hope for the future of the Great Barrier Reef.

A key tenet of the Partnership is the Foundation's commitment to leveraging the government grant. This year saw the Foundation's contribution at a global level intensify as we became founding members of the United Nations Decade of Ocean Science for Sustainable Development, and our Reef Recovery 2030 initiative was endorsed as a flagship action. The Foundation is proud to spearhead this fundraising effort and invite donors and investors globally to consider the role they can play in helping restore the Great Barrier Reef, and coral reefs globally, and enabling them to adapt to a changing climate.

At the halfway point of the Partnership as we reach full pace and scale, I would like to acknowledge the work of the Great Barrier Reef Foundation team and our volunteers. Our team members are passionate, impatient optimists who are focused on impact and measurable outcomes. We extend our deepest thanks to the members of the Partnership Management Committee, the Traditional Owner Advisory Group, our Component-level working groups and cross-cutting co-design groups who have helped shape the Partnership for greatest impact and best practice.

While delivering this program, our team works closely with our partners to develop projects that foster acceleration, collaboration and legacy. I am pleased to showcase some of these stories in this Year in Review.



In line with the Partnership itself, this Year in Review is structured around three core pillars:

Acceleration

Recognising the Reef cannot wait and the task is urgent, we need to scale what we know and is proven, develop or adapt solutions where none exist and be prepared to take big, bold steps.

Collaboration

Understanding that no single group can tackle this alone, we need to embed partnerships as a founding ethos, grow the \$443m in public funds, create local ownership of projects through co-design and co-delivery and bring in new ideas and fresh perspectives.

Legacy

Giving the Reef outcomes that live beyond the end of the Partnership, we need to grow and strengthen capacity, drive long-term behavioural change, implement sustainable financing solutions, and create new business and delivery models.



Gary Cranitch, Queensland Museum

While we reflect on the year that's been, we look forward to continuing to work in partnership with the Government, Traditional Owners, Reef management, scientists, researchers, community groups and more in the Partnership's third year of full scale and implementation.

If the COVID-19 pandemic has shown us anything, it is what can

be achieved when governments, businesses, not-for-profits and community unite with a shared purpose. It is this model of public-private partnership that is in the DNA of the Foundation, and the heart of this unique and ground-breaking Partnership.

Thank you for your ongoing support of the Partnership.

Dr John Schubert AO, Chair



**Anna Marsden,
Managing Director**



PARTNERSHIP PROGRESS

Lockhart



19,194 community members taking part in local action, 71% for the first time and 40% under the age of 25

Cairns



Highest priority catchments under water quality management (equivalent to the size of Ireland)

100 divers protecting 253 high-value reefs from COTS, 276,615 coral-eating starfish culled



22 field trips with 270 days at sea for the Reef Restoration and Adaptation program



150 reefs surveyed, over 40 vessels and citizen scientists collecting 13,000 images

Townsville



35 Traditional Owner groups engaged

570 children engaged in Junior Ranger activities



Mackay



800 farmers and graziers working across 1.28m hectares have improved management to support sustainable and productive farming

41 gullies and 6.95km of streambank rehabilitated to prevent sediment run-off



Rockhampton

Bundaberg

Sunshine Coast

The Reef Trust Partnership is a six-year \$443m partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation and is the largest collective effort ever for the Great Barrier Reef.

At the Partnership midway point, 203 projects are underway with 425 partners. And we are on track to deliver against the Partnership's objective of achieving significant, measurable improvement in the health of the Great Barrier Reef.

Partnership duration

50%

Grant funding committed

65%

Leveraging target

44%

The Partnership is tackling the threats facing the Reef by:

- Delivering the world's largest Reef restoration program, buying the Reef time to recover from the impacts of a changing climate by developing a toolkit of scalable coral restoration and adaptation activities.
- Improving the quality of water flowing onto the Reef by accelerating the scale and pace of investment into proven on-ground measures to reduce pollutants across the Reef's highest priority catchments.
- Protecting coral from predation by crown-of-thorns starfish (COTS) outbreaks, with a team of 100 divers protecting 253 high-value reefs.
- Investing in on-ground, community-led local action to protect and restore the Reef, working with hundreds of community groups to accelerate effort and inform Reef management.
- Supporting Reef decision-making by filling critical monitoring gaps, building a system to integrate Reef data and developing next generation monitoring technologies.
- Recognising the significance of Traditional Owners' inherent rights, interests and capacity, we are working in partnership with Traditional Owners to co-design and deliver the largest ever investment in Traditional Owner-led Reef protection activities.
- Inviting investors and donors around the globe to take an active part in Reef conservation efforts by contributing to Reef Recovery 2030, the Foundation's fundraising campaign to turn the tide on coral reef decline.

Figures as at 30 September 2021

FOCUS AREA OVERVIEW

Transparency and accountability are key guiding principles for the Foundation in delivering the Reef Trust Partnership.

The following pages are an overview of the dashboards that have been developed to track progress against end-of-Partnership outcomes. Data provided is as at 30 September 2021.

Gary Cranitch, Queensland Museum

FOCUS AREA OVERVIEW

PARTNERSHIP OVERVIEW

\$258M*

committed

\$157M

co-invested

425

partners

203

projects



WATER QUALITY			RRAP			TRADITIONAL OWNERS		
Pollutant load reduction			\$56.5M			42		
187.7	26.1		Contracted RRAP	270	Grant recipients	22		
DIN (t)	Sediment (kt)		R&D activities	days at sea conducting	governance	positions for		
229.4			13	22 field trips and	570+	Traditional		
Pesticide (kg)			Individual subprograms	establishing	Children involved in	Owners		
			6 reference reefs		junior ranger activities			
\$139.3M	109	64	\$61M	32	\$17.3M	35	45	
Committed	Partners	Projects	Committed	Partners	Committed	Partners	Projects	
COTS CONTROL			COMMUNITY			IMR		
253	276,615		47 Instances of	2510 Total	Critical monitoring			
High-value reefs	COTS culled		community data being	communication activities	\$7.9M	168		
			used to inform planning or		Co-contribution	Reefs surveyed		
\$1.3M	43		management activities	585 Community	13,195	40+ Vessels and island		
Innovation Program	Experts engaged in		19,194 Community	training, education and	Reef data points	operations contributing to		
	Innovation Program		member engagements	awareness initiatives	generated	data collection		
\$31.4M	13	6	\$2.9M	308	\$5.7M	15	7	
Committed	Partners	Projects	Committed	Partners	Committed	Partners	Projects	

*Excluding component 1 administration costs

FOCUS AREA OVERVIEW

IMPROVING WATER QUALITY

\$139.3M

committed

\$75.8M

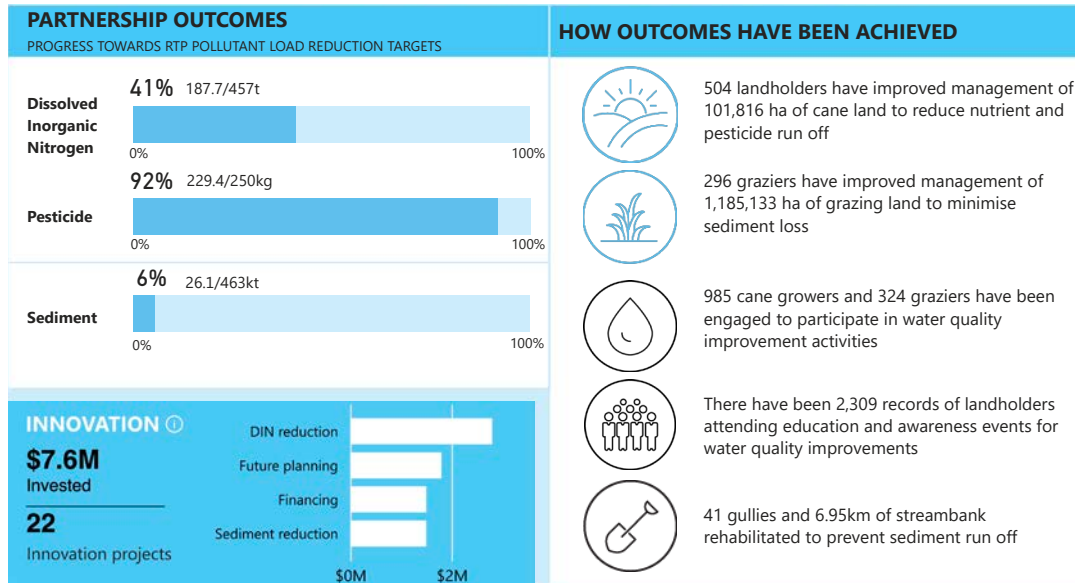
co-contributions

109

partners

64

projects



FOCUS AREA OVERVIEW

REEF RESTORATION AND ADAPTATION PROGRAM

\$61M

committed

\$62.6M

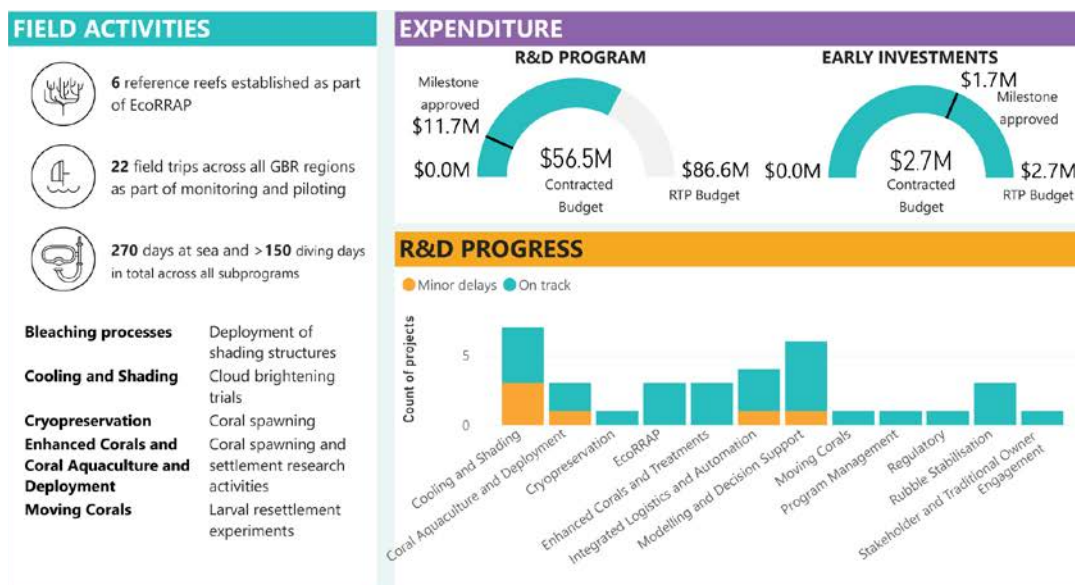
co-contributions

32

partners

38

projects



FOCUS AREA OVERVIEW

TRADITIONAL OWNER REEF PROTECTION

\$17.3M

committed

\$2.8M

co-contributions

35

partners

45

projects

\$10M

future fund commitment



Traditional Owner participation in Reef governance

3
Traditional Owner Technical Working groups

14
Traditional Owners in technical working groups

4
Members in Traditional Owner Advisory Group

1
Traditional Owners in Partnership Management Committee or board positions

327+
Hours spent co-designing programs and delivery processes with Traditional Owners

Leadership & capacity-building projects for Traditional Owners

- Women's communication and leadership program - 13 Participants

These projects will commence in late 2021

- Youth leadership
- Youth communication
- Workforce planning - career mapping

Traditional Owner-led Grants

18
Early Investment - Stage 1 grants valued at \$1.8m

17
Healthy Water Round 1 grants valued at \$3.5m

7
Stage 2 TO grants valued at \$1.38m

570+
Children involved in junior ranger activities

Traditional Owner engagement

80
Traditional Owners engaged

35
Traditional Owner groups engaged

Collaborative Partnerships AIMS CSIRO DES OGBR

FOCUS AREA OVERVIEW

COTS CONTROL

\$31.4M

committed

\$1.9M

co-invested

13

partners

6

projects



COTS CONTROL PROGRAM

Delivering targeted action to protect coral from COTS predation by surveying reefs of high economic and ecological value, culling COTS to ecologically sustainable levels for coral to recover and monitoring cull sites to ensure sustainable levels are maintained for coral.

CUMULATIVE ACTIVITIES SINCE 2018

253
High-value reefs managed to protect coral

13,630 ha
reef culled to protect coral from COTS

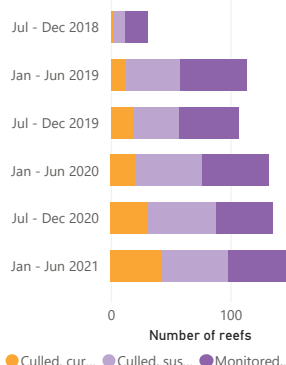
1,366 hours research support delivered by COTS vessel crew

11,342 ha
High-value reef surveyed

276,615
Coral-eating starfish culled

112 people employed annually, including **7** Indigenous people

HIGH-VALUE REEF STATUS OVER TIME



COTS CONTROL INNOVATION

43
Technical experts involved

11
Research institutions

6
Areas of innovation

INVESTMENTS IN INNOVATION PROJECTS

\$1.3M
Committed

\$1.5M
Investment Strategy budget for Phase 1 – Feasibility and Design (12 months)

\$8.3M
Investment Strategy budget for Phase 2 – Targeted Research and Development (36 months)



COTS FORUM

HELD ON 29-31 MARCH 2021

17 Australian institutions actively participating

4 International experts attending to provide perspectives from overseas

8 Topics including COTS control on the GBR today, Traditional Owners and tourism operators, opportunities for innovation, ecology/biology of COTS and dealing with causes/suspected outbreaks

FOCUS AREA OVERVIEW

COMMUNITY REEF PROTECTION

\$2.9M

committed

\$9.2M

co-contributions

308

partners

43

projects



PARTNERSHIP OUTCOMES

Shared knowledge and decision-making enhances governance and delivery models



47
Instances of community data being used to inform planning or management

103
Leadership development activities for community leaders/champions

250
Activities to enhance community and partner engagement in information exchange, collaborative planning and project data uses

Community action is delivering effective outcomes for the Reef and community



19,194
Community member engagements

71%
Community members participated in project activities for the first time

585
Community training, education, and outreach initiatives

156,659
Data points collected

Community action is recognised, valued and celebrated



40%
Engaged community members were youth under 25

747
Engagements or consultations with indigenous people

71
Community group and participant recognition initiatives

41,525
Hours of community volunteering

A dynamic suite of tools for enduring funding and partnerships



32
Collaborative design with GBRF

4
New community program delivery models

FOCUS AREA OVERVIEW

INTEGRATED MONITORING AND REPORTING

\$5.7M

committed

\$7.9M

co-contributions

15

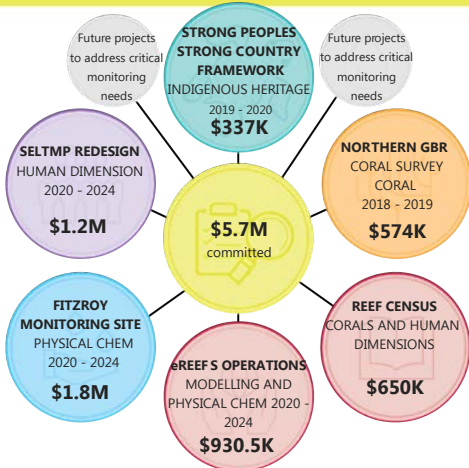
partners

7

projects



CRITICAL REEF MONITORING ACTIVITIES



DECISION SUPPORT SYSTEM

	2020	2021	2022	2023	2024
Planning					
Engagement with RIMPeP					
Scoping of DSS options					
Engagement on DMS					
Design of DMS					
Implementation of DMS					
Engagement on DSS					

TECHNICAL TRANSFORMATION FUND

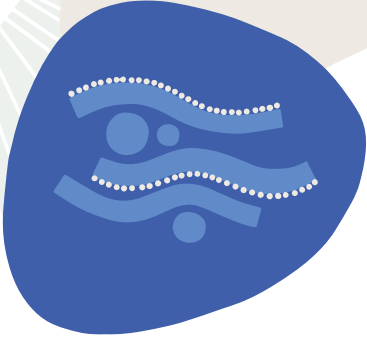
Activities will commence late 2021

REEF MONITORING HIGHLIGHTS

168	13,195	40
Reefs surveyed	Reef data points generated	Vessels and island operations contributing to data collection

CASE STUDIES:

ACCELERATION



Recognising the Reef cannot wait and the task is urgent, we need to scale what we know and is proven, develop or adapt solutions where none exist and be prepared to take big, bold steps.

Landholders within adjacent catchments play a crucial role in the health of the Great Barrier Reef. Improving the quality of water entering the Reef from the mainland is one of the greatest impacts we can make locally for the Reef's health.

Through leveraging the extensive work undertaken by the Australian and Queensland governments, the Partnership is scaling up proven methods to deliver the greatest impact for the health of the Reef, implementing 10 major water quality improvement programs simultaneously across the most critical Reef catchments. A total of 26 on-ground projects in eight regional programs are now underway. These programs are not only improving the quality of water running off the land across an area of 11 million hectares – roughly the size of Ireland – but also providing a unique opportunity for learnings to be shared quickly across a huge catchment area to adaptively guide the ongoing activities of each program.

The collective efforts of these 10 programs are expected to result in significant water quality improvements, with 456 fewer tonnes of dissolved inorganic nitrogen (DIN), 250 fewer kilograms of pesticides and 462 fewer kilotonnes of sediment entering the Reef every year from 2024. Already, the Partnership has made significant progress:



Justin Stout, Griffith University

> **187.7**

tonnes of DIN (41% of the 456t target)

> **26.1**

kilotonnes of fine sediment (6% of the 462kt target)

> **229.4**

kilograms of pesticides (92% of the 250kg target)

stopped from entering the Reef

The Water Quality Investment Strategy is a first. The strategy incorporates water quality improvement targets across each catchment, a structured decision-making process, and funding allocations based on the cost-effectiveness of interventions. Targets for all projects are transparent and agreed with partners prior to contracting. This approach is improving local buy-in from landowners and building the capacity of the organisations and people in the Reef regions to continue delivering the programs long after the life of the Partnership.

Early investments in water quality wrap up

As the year closed, the first round of grants focusing on maintaining or building on-ground delivery capacity to improve water quality throughout the Reef's catchments concluded. Underway from early 2019 to mid-2021, these 11 projects helped lay the foundation for the Partnership's 10 major regional water quality programs and directly contributed to reducing pollutants entering the Reef.

These 11 early investment projects have:

- engaged **316 graziers** and **658 cane growers** across 24 of the 35 Reef catchments
- prevented an average of up to **122 tonnes of nitrogen** and **224 kilograms of pesticides** from entering the Reef every year by working with cane growers to implement sustainable farming techniques based on the latest science
- remediated **41 gully sites** and **seven kilometres** of streambank
- hosted education and awareness events that reached **1,901 landholders**, paving the way for increased participation in the Partnership's 10 regional water quality programs
- supported **770 landholders** to change farming practices for the long-term



Innovation in improving water quality

Water quality is a significant threat to the long-term health of the Reef, and a step change is needed in how we design, fund and deliver water quality improvements.

Some \$10m has been set aside to invest in new ways of designing, funding and implementing water quality management through the use of new and novel technologies, funding prioritisation systems and examining how innovative finance may broaden funding sources.

Twenty-two projects are now underway to test new and improved practices, tools and approaches for farming, grazing and catchment restoration that can achieve better outcomes for both the Reef and landholders; investing in new systems that will help funders make better investment decisions;

and creating more funding sources to support water quality improvement.

Our innovation projects are focused on:

- **Finding nature-based solutions to big problems**, like the Seaweed Biofilter project, developed in partnership with the Australian Seaweed Institute of Australia, which was recognised at the World Economic Forum in early 2021 as one of the top 10 innovations for protecting oceans. Removing nitrogen and carbon dioxide from the water by using seaweed biofilters may be a nature-based solution to decreasing pollutant run-off on the Reef, with the potential to generate an estimated \$200m in revenue and 2,500 jobs.
- **Unleashing global capital from sustainable finance markets**, like the Farmland to Reef regeneration project. A partnership with The Nature Conservancy and Kilter Rural, together we are working to scope and catalyse a globally significant impact investment fund for the Reef, with a potential deployment of up to \$1bn to deliver Reef health protection outcomes.
- **Using science to deliver best practice on-ground management**, like the Robotic Weed Control program, which is trialing the use of smart weed detection to better target herbicide application. This project could reduce herbicide usage on cane farms by up to 80%.

CASE STUDIES:

ACCELERATION

Great Reef Census

The Great Reef Census is a ground-breaking citizen science effort to survey the Great Barrier Reef at scale. The Census mobilises a global community to establish a broad snapshot of the status of the Great Barrier Reef in a way that is credible, scientifically sound and provides valuable insights for Reef management. The initiative has been designed to trial new ways of capturing large-scale reconnaissance data from across the Reef, helping to support research and Reef management in the face of climate change.

In 2020-2021, a research flotilla of more than 40 tourism boats, superyachts, fishing vessels and even a tugboat mobilised to capture data from across the 2,300km length of the Reef. More than 13,000 images were collected from over 150 reefs – including locations from the tip of Cape York to the remote southern Swains. At the close of 2020-2021, images were being analysed online by citizen scientists and researchers across the globe to identify how the data complements and strengthens existing monitoring and modelling programs.



> 13,000
images collected

150
reefs surveyed from the tip of Cape York to the remote southern Swains

over 40
tourism boats, superyachts, fishing vessels and a tugboat captured data



“The first Great Reef Census this year taught us a lot about what works well, and we exceeded our expectations on how much data we collected. I have no doubt that the results from Census 2021 will be even more impactful in helping direct management efforts that support reef resilience and recovery.”

*Professor Peter Mumby,
University of Queensland Marine
Spatial Ecology Lab*



Gary Cranitch, Queensland Museum



Phil Warring



Phil Warring

CASE STUDIES:

COLLABORATION



Understanding that no single group can tackle this alone, we need to embed partnerships as a founding ethos, grow the \$443m in public funds, create local ownership of projects through co-design and co-delivery and bring in new ideas and fresh perspectives.

The Partnership is a vital proving ground for the power of collaboration and collective impact.

Australia is leading the world effort to create a toolbox of techniques to build ecosystem resilience and help coral reefs resist, adapt to and recover from the impacts of climate change.



Gary Cranitch, Queensland Museum

Through the Reef Restoration and Adaptation program the Partnership is investing in:

- **Accelerating and coordinating effort**
The program is delivering scientific breakthroughs in Reef adaptation and restoration techniques. At its peak this integrated R&D program will have 250 scientists from 32 different research bodies working to develop and deploy restoration techniques on the Reef, at a pace never before seen in reef science, with a goal of planting 10 million thermally-tolerant corals by 2030.
- **Scaling for impact**
Current coral restoration efforts have yet to solve the problem of large-scale deployment on reefs. The program is tackling the problem of scale through innovating and automating restoration and adaptation techniques; catalysing a new reef restoration industry, creating sustainable jobs and improving the health of the Reef. Through the Reef Restoration and Adaptation Program, we're developing, scaling up and deploying known and radically new interventions and technologies to help coral reefs survive. This is the most ambitious program of its kind and the world's largest program to help a significant ecosystem survive climate change.



Katerina Katopis, Ocean Image Bank

This year, the Reef Restoration and Adaptation Program has successfully transitioned out of the concept feasibility phase to kick-start a four-year integrated research and development program in a partnership between the Australian Institute of Marine Science, CSIRO, The University of Queensland, QUT, Southern Cross University and James Cook University.

At the peak of the program more than 250 scientists and engineers will be working to urgently understand how to:

- increase our ability to predict how interventions can be deployed and monitored, the benefits of doing so, and the associated risk and mitigation strategies
- develop and test interventions across the spectrum of coral protection, adaptation and restoration
- create an enabling environment for a future large-scale Reef restoration and adaptation effort, by working with Reef managers, policy makers and investors to build the foundations of regulatory and social licence, share knowledge and methods with communities and industry and implement best practice decision support

Cloud brightening

One of the interventions being trialled is an innovative new technique to prevent coral bleaching by spraying microscopic seawater particles into the air.

Known as “cloud brightening”, this technique enhances the clouds, helping them to reflect solar energy away from the Reef which protects coral from bleaching.

An initial trial of the prototype cloud brightening equipment in 2020 has proved it is feasible to pump seawater and atomise it into tiny droplets at a rate of hundreds of trillions per second.

This summer, a second trial gathered critical data on the behaviour of the atmosphere over the Reef during these peak months when corals are most at risk of bleaching. They also mapped the movement of the atomised sea salt plume to better understand how cloud brightening could be most effectively deployed over the Reef.



Alejandro Tagliafico, SCU

CASE STUDIES:

COLLABORATION

COTS control

Outbreaks of coral-eating crown-of-thorns starfish (COTS) cause significant coral decline and are a major threat to the long-term health of the Great Barrier Reef. Culling COTS is one of the most scalable and feasible interventions available today to enhance the Reef's resilience in the face of climate change. With increasing frequency of mass bleaching events, a current outbreak still spreading across the central and southern regions of the Reef, and the next outbreak already beginning to develop in the northern region, there is an urgent need to invest in protecting coral from COTS now and into the future.

The COTS Control Program, in partnership with the Great Barrier Reef Marine Park Authority and the Reef and Rainforest Research Centre, is the largest scale on-ground intervention program on the Great Barrier Reef aimed at directly protecting coral. From its beginnings culling at a small number of reefs critical to the tourism industry, it has since transformed into a strategic and sophisticated intervention program employing more than 100 professionally-trained crew across five vessels that survey and cull at more than 250 high-value reefs.

The COTS Control Program is also supporting research aimed at improving COTS management. As a routine part of operations, the program's five vessels have delivered 1,366 hours of research support activities to date, across a range of research types.

Innovation in detecting and managing COTS outbreaks

This year, the Partnership established a collaborative research and development program partnering with Australian research institutions with leading expertise in delivering innovations in COTS surveillance and control. A feasibility study was conducted involving more than 40 technical experts working collaboratively to identify, develop and prioritise innovations in COTS control and surveillance, considering the benefits, costs, feasibility and risks of potential research opportunities. Full proposals have now been developed for 21 research projects across three themes, prioritised from over 300 knowledge and capability gaps identified.

The Partnership is investing \$8.3m in projects that will catalyse a step change in how COTS are detected and managed, focusing on:

- **Detecting outbreaks early**, like the COTS eDNA project, developed in partnership with AIMS, to apply a novel way of using environmental DNA sampling for early detection of COTS. If successful, this method will be one of the most sensitive early-warning monitoring tool in our toolbox for fighting COTS outbreaks.
- **Managing outbreaks using new technology**, like the COTS pheromone project, developed in partnership with AIMS and UQ. This project will understand and exploit the chemical communication between COTS, uncovering their Achilles Heel to enable the development of COTS-attracting baits.

Community Action Plans

Hundreds of thousands of community volunteer hours are dedicated to protecting the Reef each year, with community-led Reef conservation and citizen science playing an essential role in Reef health.

The Partnership is galvanising and growing the army of community volunteers that take action every day to protect the Reef, providing the backbone for community groups to work together in new and meaningful ways. Community-led conservation under the Partnership is being designed to address priority Reef health needs and Reef management data gaps.

In 2020-2021, eight organisations from Cape York in the north to Bundaberg in the south had hundreds of discussions and 26 workshops with community partners, Traditional Owners, scientists and Reef managers to create Community Action Plans for their regions. The plans connect community aspirations with regional and Reef-wide priorities to help design better ways to work together. This collaborative planning approach empowers communities to tackle the complex

issues facing the future of the Reef and the communities that rely on it - ranging from local climate action to habitat rehabilitation and protecting cultural values. In the second half of 2021, a series of community and Traditional Owner-led projects will be launched to translate these plans into action.

This is the first time that community groups have been connected in a planning process that aims to coordinate effort, avoid duplication and connect community action groups with Reef management to better protect the Reef.



Coral Nurture Program

Research and tourism partnering for corals

The brainchild of scientists at the University of Technology Sydney, the Coral Nurture Program launched in 2018 to support widespread coral planting following mass bleaching across the Great Barrier Reef. It focused on sites that are critical to overall Reef health, as well as the tourism industry.

The innovative Coral Nurture Program is currently working with six local tourism operators to plant 100,000 healthy corals on reefs in the Cairns and Port

Douglas region. The corals, grown in underwater nurseries from salvaged broken fragments, are being attached using Coralclip® – an innovative device that fast-tracks coral restoration. The specially designed device joins corals to the Reef so they can attach and grow, without the need for chemical bonding agents. It is faster and cheaper than traditional out-planting methods and contributes to an impressive planted coral survival rate of 85%.

Bringing together science and tourism is key to the program's success. It's through combining the knowledge of marine science experts and the resources and experience of the tourism industry that local coral restoration is being delivered.

CASE STUDIES:

LEGACY

Giving the Reef outcomes that live beyond the end of the Partnership, we need to grow and strengthen capacity, drive long-term behavioural change, implement sustainable financing solutions and create new business and delivery models.

The Partnership has made the largest ever single investment in Traditional Owner-led Reef Protection activities.

Recognising the inherent rights held by Traditional Owners means respecting Traditional Owners' right to design programs that care for Country.

Through this world-leading collaboration we are working together and learning from one another. Lived experience and knowledge is being shared, considered and incorporated at all levels of decision-making in the Partnership.

Funding is being directed to programs that meet Traditional Owner aspirations, provide opportunities for Traditional Owners to care for Country, build capabilities and help develop new industries, ensuring an enduring impact.

To date, the Partnership has seen the design, implementation and ongoing testing and refinement of a Traditional Owner co-design action framework which includes 22 remunerated and supported Reef Traditional Owner positions across Partnership governance.

Forty-three projects are currently underway with 28 Traditional Owner groups to support Traditional Owner-led Reef protection activities that contribute to Reef biocultural health.

By embedding co-design and co-delivery into the DNA of the Partnership, new practices, standards and expectations are emerging that are creating new ways of working together. The impact of this is being felt across the Partnership.

"I used to think I knew what co-design is, but I think here I've seen real sharing of decision making, sharing of power, sharing of information and that's happened through (the governance arrangements) It's about walking the talk"

- Traditional Owner Representative, Partnership Co-Design Group.



45 projects underway

22 fully-remunerated Reef Traditional Owner positions across Partnership governance

28 Traditional Owner groups to support Traditional Owner-led Reef protection activities

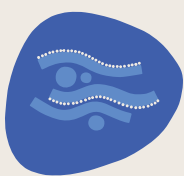
“By virtue of our grants being co-designed by Traditional Owners for Traditional Owners, we are seeing new groups succeed in obtaining funding for their projects and that’s really important. Every time we design something, we design it so that yes, the groups who have high capacity may apply, but we’re also designing it for Traditional Owner groups that have aspirations for new and emerging partnerships, so that they are able to see their ideas, hopes and dreams start to catalyse.”

– Partnership Component Director



The overarching design of the symbols is to reflect a thriving Reef. This is reflected in the natural shape of coral bommies. The symbols connect organically to work together to create a thriving Reef.

Traditional Owner symbols were developed as a visual representation of the Traditional Owner Reef Protection Program.



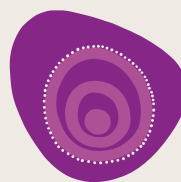
Healthy water



Reef Restoration and Adaptation



Integrated Monitoring and Reporting



Futures Fund



Innovation, Leadership and Collaboration



Crown-of-thorns Starfish Control

LOOKING AHEAD

As we enter the second half of the Partnership, 2021-2022 sees continued full-scale implementation across the portfolio and the third year of on-ground and on-water action.

Improving Water Quality

2021-2022 Budget:
\$45.35m

- Continued implementation of 10 major regional water quality improvement programs
- Commencement of conservation and protection activities in less disturbed catchments including an \$8m integrated catchment management pilot project in south-eastern Cape York and a wetland prioritisation tool
- Continued delivery of the \$10m water quality innovation program

Controlling COTS

2021-2022 Budget:
\$8.7m

- Launch of the research and development phase of the COTS Control Innovation Program (\$10m)
- Continued implementation of the COTS Control Program

Across the Portfolio

- Continued focus on transparency through updating public-facing dashboards every six months and regular communications to a variety of audiences
- Strong focus on integration between and across the Partnership and with other Reef 2050 activities.

Gary Cranitch, Queensland Museum

Full-scale implementation of the Reef Restoration and Adaptation Program

Community Reef Protection

2021-2022 Budget:
\$3.57m

- Implementation of projects identified by Reef communities across six regional Community Action Plans
- Launch of a second citizen science grant round, and a new local climate action grant round championed through Local Marine Advisory Committees
- Continued implementation of existing citizen science and local action projects
- Continued delivery of the Cairns-Port Douglas Reef Hub and local coral restoration and stewardship projects

Traditional Owner Reef Protection

2021-2022 Budget:
\$12.16m

- Launch of a Healing Country grants round to support Traditional Owner-led restoration of coral reefs and associated mangrove and seagrass systems
- Continued delivery of 25 on-ground projects across Stage 2 and Healthy Water grant programs and implementation of Traditional Owner-led projects under Community Action Plans
- Piloting of the Strong People-Strong Country monitoring program across four to six Indigenous Reef communities
- Continuation of Reef Traditional Owner leadership program for women and launch of mens' and youth programs
- Launch of the COTS traineeship program

Integrated Monitoring and Reporting

2021-2022 Budget:
\$10.13m

- Continued implementation of Stage 1 Critical Monitoring projects
- Implementation of Stage 2 Critical Monitoring projects
- Scoping work on the design of a Data Management System and its subsequent implementation
- Launch of the Technology Transformation Fund

DELIVERY PARTNERS

The Reef Trust Partnership is the largest collective effort ever for the Great Barrier Reef, enabled by a leadership investment by the Australian Government.

Lead partners delivering programs or projects under the Partnership as of 30 June 2021 include:

- Agersens Pty Ltd
- Agro Group Pty Ltd
- Alluvium Consulting Australia Pty Ltd
- Aurecon Australasia Pty Ltd
- Australian Institute of Marine Science
- Australian Seaweed Institute Pty Ltd
- Australian Trust for Conservation Volunteers
- Babel-sbf Pty Ltd
- Balkanu Cape York Development Corporation Pty Ltd
- Bowen Tourism and Business
- BRIA Irrigators Ltd
- Bundaberg Fruit & Vegetable Growers Cooperative Limited
- Burnett Mary Regional Group for
- Cairns and Far North Environment Centre Inc.
- Cape York Natural Resource Management Ltd
- Capricornia Catchments Inc
- Catchment Solutions Pty Ltd
- Chantal Althea Roelofs
- Citizens of the Great Barrier Reef
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Cultivate Farms Pty Ltd
- Dawul Wuru Aboriginal Corporation
- Djarnda Enterprises Pty Ltd
- Djunbunji Limited
- Douglas Shire Council
- Farmacist Pty Ltd
- Fitzroy Basin Association Inc
- FNQ NRM Ltd t/a Terrain Natural Resource Management
- Gidarjil Development Corporation Ltd
- Girringun Aboriginal Corporation
- Great Barrier Reef Legacy
- Great Barrier Reef Marine Park Authority
- Greening Australia Ltd
- Griffith University
- Herbert Cane Productivity Services Limited
- Intellidesign Pty Ltd
- Ipima Ikaya Aboriginal Corporation RNTBC
- Jabalbina Yalanji Aboriginal Corporation RNTBC
- James Cook University
- Jaragun Pty Ltd
- Johnstone River Catchment Management Association Inc
- Liquaforce Pty Ltd
- Local Government Association of Queensland
- Mackay Area Productivity Services Limited
- Mackay Canegrowers Limited
- Magnetic Island Community Development Association Inc
- Mandubarra Aboriginal Land and Sea Inc.
- Marenray Pty Ltd
- Marine Discoveries Pty Ltd ATF Phillips Family Trust
- Mary River Catchment Coordination Association Inc
- Natural Resource Management Ltd
- NCEconomics Pty Ltd
- North Australian Indigenous La
- NQ Dry Tropics Ltd
- NQ NRM Alliance Ltd t/a Corporate Nature
- OzFish Unlimited
- Queensland Farmers' Federation Ltd
- Queensland Government Department
- Queensland Government Department of Environment and Science
- Queensland University of Technology
- Radiant Life Education Ltd
- Reef and Rainforest Research Centre Ltd (RRRC)
- Reef Catchments Ltd
- Reef Check Foundation Limited
- Reef Ecologic Pty Ltd
- Reef Magic Cruises Pty Ltd
- Resource Consulting Services Pty Ltd
- SeeSide Dialogue
- South Cape York Catchments Inc
- Southern Cross University
- Sugar Research Australia Ltd
- Taronga Conservation Society Australia
- Terrain Natural Resource Management
- The Nature Conservancy Limited as the Trustee for the Nature Conservancy Australia Trust
- The University of Queensland
- Townsville City Council
- Tree Crop Technologies Pty Ltd (T/A Verterra)
- Turtle Care Volunteers Queensland Inc
- University of Sydney
- University of Technology Sydney
- University of the Sunshine Coast
- Wanyurr-Majay Aboriginal Corporation RNTBC
- Water IP
- Wavelength Reef Cruises
- Whitsunday Regional Council
- Wuthathi Aboriginal Corporation RNTBC
- Yuku-Baja-Muliku Landowner & Reserves Ltd
- Yuwi Aboriginal Corporation RNTBC

Gary Cranitch, Queensland Museum

GOVERNANCE

Partnership Management Committee

The Partnership Management Committee, comprised of science, research, marine, industry and project management experts, is charged with overseeing the investment and tracking progress over the six-year program.

- John Gunn, former Chief Executive Officer of the Australian Institute of Marine Science
- Dr Paul Greenfield AO, Chair, International Scientific Advisory Committee, former Vice Chancellor University of Queensland
- Dr Geoff Garrett AO, former Chief Scientist of the State of Queensland
- Craig Rosner-Moore, Director, Reef Branch, Heritage, Reef, and Wildlife Trade Division, Department of Agriculture, Water and the Environment
- Wendy Morris, The Reef Society
- Theresa Fyffe, Executive Director Projects and Partnerships, Great Barrier Reef Foundation
- Elisa Nichols, Executive Director, Office of the Great Barrier Reef, Environmental Policy and Programs, Department of Environment and Science, Queensland Government
- Ove Hoegh-Guldberg, GBRF Chief Scientist, and ARC Centre for Excellence for Coral Reef Studies, School of Biological Sciences, The University of Queensland

- Larissa Hale, Managing Director, Yuku Baja Muliku Landowner & Reserves Ltd
- Jessica Hoey, Director, Science for Management, Strategic Policy and Partnerships Branch, GBRMPA

Traditional Owner Advisory Group

The purpose of the TOAG is to offer strategic advice to guide the co-design and co-delivery of activities under the RTP.

- Larissa Hale (Chair)
- Stan Lui
- Malcolm Mann
- Gavin Singleton
- Manuwuri Forester

Along with the Traditional Owner Advisory Group, there are three Traditional Owner Technical Working Groups that collaborate with the Foundation to co-design Component level work programs across the Partnership:

- Healthy Water Traditional Owner Technical Working Group
- Reef Restoration and Adaptation Science + Crown-of-Thorns Traditional Owner Technical Working Group
- Integrated Monitoring & Reporting Traditional Owner Technical Working Group.

Other governance arrangements:

- Water Quality Working Group
- Community Reef Protection Working Group
- Reef Restoration and Adaptation Program (RRAP) Board
- COTS Control Partnership Group
- COTS Control Innovation Program Steering Committee

'Great Barrier Reef' artwork by Melanie Hava, Mamu Aboriginal woman, Dugulbarra and Waribarra family groups, from the Johnstone River catchment of the Wet Tropics of Far North Queensland and the adjoining Great Barrier Reef Sea Country.

Back cover: Jordan Robins, Ocean Image Bank



