

2021- 2022

YEAR IN REVIEW

Creating a better
future for coral reefs



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.

Cover image credit: Jordan Robins, Ocean Image Bank.



HEALING COUNTRY STATEMENT BY GREAT BARRIER REEF TRADITIONAL CUSTODIANS



Heart of the Reef – A Call for Healing

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.

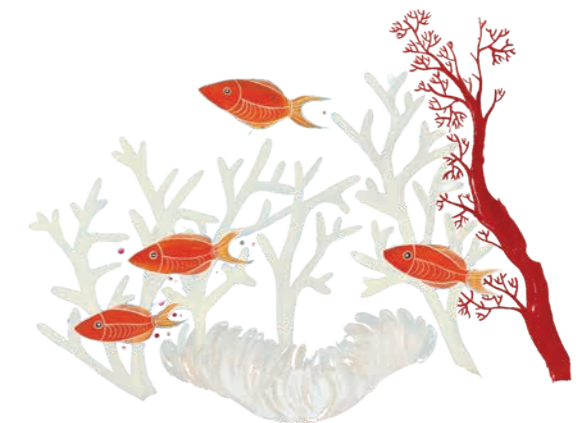
And heal.

You can view the Healing Country Statement video here:



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'Great Barrier Reef' artwork by Melanie Hava

THE TASK AT HAND

Coral reefs are the beating heart of our oceans. They give life to a quarter of all marine animals – providing safe havens and breeding grounds – and support a billion people worldwide.

At the Great Barrier Reef Foundation we are privileged to witness the extraordinary spectacle of the Great Barrier Reef in our daily work. The Reef is a sanctuary for a bewildering array of animals, from the microscopic to the mammoth – the corals that spawn in a yearly synchronised event under a full moon to the whales that shelter in its calm seas to birth and rear their young – the Reef protects and nourishes the animals that call it home.

In our daily work we are also witness to the threats facing our Reef, and coral reefs globally. We see firsthand the impacts of climate change, poor water quality and crown-of-thorns starfish outbreaks on the health of the Reef. The science is clear, we have 10 years left to act for coral reefs on our planet. Over the next decade, we will create a lifeline by restoring coral reefs, helping them adapt to climate change and protecting critical ocean habitats.

Our goals are achievable, but the challenge of time means we must do more, faster. We will continue to raise funds, invest in innovative ideas and design real-world, scalable conservation programs. And we will work in close partnership with communities, scientists, businesses and governments to do our work, in Australia and in the Pacific.

Over the past year our ambition and impact have scaled to meet the challenges ahead; on the ground and in the water, we are fast-tracking and deploying solutions with our partners. We made critical headway in being able to deploy the first generation of climate-ready corals by 2025, which will enable us to restore coral reefs at a previously unimaginable scale. We have revegetated the equivalent of over 18 football fields worth of critical habitat on Lady Elliot Island and collected over 45,000 seagrass seeds to scale the restoration of seagrass meadows, critically important carbon sinks.

We have rehabilitated 42 gullies and we are working with more than 3,000 farmers to improve water quality across 580,000 hectares of cane and grazing land. And for the first time ever, we are on the front foot managing an emerging outbreak of crown-of-thorns starfish.

On the global stage we are spearheading the effort to bring together local communities, reef managers and climate resilience experts to protect UNESCO World Heritage sites. And we are sharing our knowledge through our global networks to promote collaboration and unified effort.

This Year in Review celebrates the unwavering passion, grit and determination of a remarkable team – our people here at the Foundation, our incredible partners, First Nations people and frontline communities. By working together, we know we can create a better future for coral reefs and for our planet. We thank you for your continued support of our work.



David Thodey
David Thodey AO,
Co-chair



Martin Parkinson
Dr Martin Parkinson
AC PSM, Co-chair



Anna Marsden
Anna Marsden,
Managing Director

OUR 2022 IMPACT

CORAL HEALTH



Over **3 million** coral larvae grown in aquaculture
Successful deployment of **8 million** coral larvae on targeted reefs via Coral IVF in the 2021/2022 spawning season

188 tonnes of dissolved inorganic nitrogen, **229 kilograms** of pesticide and **37 kilotonnes** of sediment prevented from entering the Reef each year

42 gullies and **9 kilometres** of streambank rehabilitated to prevent sediment run-off

215,053 hectares of Reef habitat protected from crown-of-thorns starfish predation

CLIMATE ACTION



More than **30,000** people participated in Reef protection activities

4 global Resilient Reefs Initiative sites set up with Resilience Strategies in progress



INNOVATION



Over **350** people involved in Reef restoration and adaptation research and development

880 restoration and adaptation in-water fieldwork days completed, including over 550 dive days

Proof of concept established for the first generation of **climate-ready corals** to be deployed at scale by 2025

Proof of concept established for **fogging and marine cloud brightening** techniques

World-first insurance product – prototype nitrogen (N) insurance – now available to help farmers manage the risk of reduced yields from reduced fertiliser

FIRST NATIONS AND COMMUNITY

More than **1,200 Traditional Owners** from 49 of the Reef's 72 Traditional Owner groups engaged, including **500+** Traditional Owner youth participants

1 winner of the **Earthshot Prize**



BIODIVERSITY AND HABITAT IMPROVEMENTS

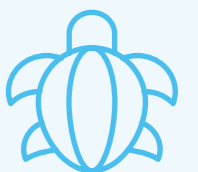


Restoring and protecting critical island habitats home to over **40 threatened species** through the Reef Islands Initiative

12.4 hectares revegetated on Lady Elliot Island

7,000 plants of 27 different species stocked in the Lady Elliot Island nursery, the only native coral cay nursery on a Great Barrier Reef island

Over 500,000 seagrass seeds collected for nurseries to support seagrass restoration at Pioneer Bay in the Whitsundays



46,000 hours of community volunteering

48% of community members engaged were participating for the first time and **31%** of community members were under 25

RESTORING THE WORLD'S REEFS AND HELPING THEM ADAPT TO CLIMATE CHANGE

Climate change is the biggest threat to the survival of the Great Barrier Reef and coral reefs around the world. Warmer water temperatures are causing more frequent and severe mass coral bleaching events and forcing marine species to move to cooler habitats, disrupting food supplies and breeding cycles and threatening entire ecosystems.

Ocean acidification is making it more difficult for corals to build skeletons and form reefs, while more frequent and intense weather events like cyclones, flooding and storms are battering the reefs that remain. A range of other local threats are impacting coral reefs around the world such as poor water quality, crown-of-thorns starfish outbreaks, unsustainable fishing practices and coastal development.

Reducing global emissions is no longer enough to safeguard coral reefs. We must also urgently scale global coral restoration efforts and help reefs adapt to climate change, on the Great Barrier Reef and in the Pacific. Over the past year we have scaled our efforts and grown our global network to support and deliver this critical work.

*Spawning at Heron Island.
Image credit: Gary Cranitch.*

Resilient Reefs Initiative

Pioneered by the Great Barrier Reef Foundation, the Resilient Reefs Initiative (RRI) is a global partnership bringing together local communities, reef managers and resilience experts to develop new solutions for reefs and communities to adapt to the effects of climate change and local threats.

To do this, we build local capacity and partner on design and delivery of solutions that build the resilience of coral reefs and the communities that depend on them. This work is led and delivered by local governments and communities and informed by global experts and the best science available.

The RRI's sites currently include four UNESCO World Heritage Marine sites of incredible beauty and biodiversity – the Rock Islands of Palau, Lagoons of New Caledonia, Belize Barrier Reef and the Ningaloo Coast in Western Australia.

As a result of their partnership with RRI, these World Heritage sites benefit from:



A better understanding of both the threats and opportunities they face.



Engaged communities that can support this work moving forward.



A pipeline of projects and clear plan of action for mitigating risk and building resilience.



Greater local government capacity to develop partnerships with global funders and innovators.



Heron Island. Image credit: Gary Cranitch.

These are just a couple of examples of how the Resilient Reefs sites are leading the way to creating a better, more resilient future for coral reefs and the communities that call them home.

Historic agreement to protect green turtles

The Lagoons of New Caledonia are among the most pristine coral reefs in the world. A UNESCO World Heritage site, the Lagoons provide habitat to an incredible diversity of marine life including whales, dugongs, rare crabs and the green, hawksbill, loggerhead and leatherback turtles.

New Caledonia's First Nations people, the Kanak people, are the Customary Authorities of the land in the region and make up almost half the archipelago's total population. There are 292 tribes across New Caledonia's 60 districts, which are split into eight customary areas.

Turtles are sacred to Kanak people and are an important part of their culture and traditions, as they are to many First Nations peoples globally, including on the Great Barrier Reef. For centuries, Kanak people have consumed turtles to mark key ceremonies and celebrations. In recent decades however, over-fishing has become a serious issue. Concerned about the impact this was having, Customary Authorities, in partnership with provincial managers, identified a need to return to the sustainable fishing practices their ancestors had built up over centuries.

As part of local turtle celebrations on the Southern Province's Isle of Pines in July 2021, RRI funded a three-day event on the sustainable management of turtles to bring all parties together to decide a way forward. The aim was to balance the importance of maintaining traditional customs with the critical need to protect and preserve the dwindling green turtle population. In an historic show of solidarity, all eight local tribes came together and agreed on their own sustainable management plans for their area to protect the species against over-fishing.

“The turtle is an endangered species. We have to adapt our habits and customs. Listen to our children, they don't want us to threaten the species anymore and this protocol brings a solution so that we can continue our customs.”

Charles Vakié, first Deputy Mayor in charge of the environment of Vao, Isle Of Pines, and youth representative to the Grand Chiefdom.



Image credit: Michael Wigram.



Kanak Elders and provincial managers. Image credit: Matthias Balagny.



The Rock Islands of Palau.

Resilient Reefs launches in Palau

This year, we launched the Resilient Reefs Initiative in Palau. The World Heritage-listed Rock Islands Southern Lagoon in the state of Koror covers 100,200 hectares including over 300 uninhabited limestone islands of great beauty. The reef supports a huge diversity of plants, birds and marine life, including the endangered hawksbill turtle and Napoleon wrasse.

Palau provides a unique opportunity as a pilot site with its rich ties to culture and traditional knowledge and progressive leadership who have worked tirelessly to conserve the environment and share these learnings globally. This large ocean state is a fierce advocate for ocean conservation and climate justice. Tourists pay a US\$100 “green fee” on entering Palau and sign a pledge written by the children of Palau to “tread lightly, act kindly, and explore mindfully.” Palau is also the only nation on Earth to have protected 80% of its offshore marine environment.

There is so much to be learned from Palau's progressive approach, but despite this, Palau is still facing the impacts of climate change, declines in seagrass coverage, over-fishing in inshore areas, bleaching events and a need to rebuild the economy after COVID, including livelihood diversification to alleviate pressure on the natural environment.

Through the Resilient Reefs Initiative, we have already hired a Chief Resilience Officer and Resilience Advisor. This team is setting up local governance and progressing through development of a Resilience Strategy, which will help identify the priority challenges we will tackle together.

Palau, like so many island nations, is facing the challenge of how to manage declining fish stocks in a way that both responsibly manages the ecosystem and ensures local communities are able to maintain their cultural ties and access to fish. To support them, we funded a partnership between a local research centre (Palau International Coral Reef Center), a long-standing local NGO (Palau Conservation Society), and the Koror State Government. This partnership is delivering strong community engagement, as well as training for the rangers and conservation officers at Koror State who will be instrumental to implementing the multispecies Fisheries Management Plan.

“...it's empowering for our communities when we can articulate or incorporate traditional knowledge and science together. Our local people [are] realising that the knowledge they have is really powerful.”

Andrea Uchel, Chief Resilience Officer, Palau.

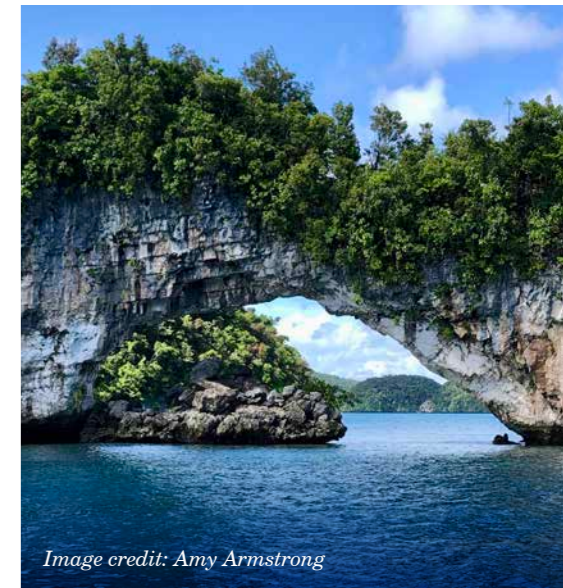


Image credit: Amy Armstrong



CRO Andrea Uchel, RRI Director Amy Armstrong and Governor Eynos Rudimich.

Reef Restoration and Adaptation Program

Funded through the partnership between the Australian Government’s Reef Trust and the Great Barrier Reef Foundation, this program is enabling the acceleration of the critical research and development needed to design and test novel solutions. This will form a new intervention toolkit and scale-up of reef restoration and adaptation science at a scale never seen before.

Lasting benefits at a meaningful scale

The science is clear – for us to help the Reef adapt to climate change we need to be planting 10-100 million corals per year over the next 20 years. Critically, these corals need to be heat tolerant and climate ready to be able to withstand warming ocean temperatures.

The scaling and breakthroughs that are needed to help the Reef adapt for a warming future are being powered by the Reef Restoration and Adaptation Program (RRAP).

As the Program progresses into its third year of the Research and Development phase, we are now planning for real-world deployment by 2025, scaling to over 10 million corals per year by 2030.

The Program is also taking steps to ensure interventions are safe and acceptable to regulators and the public, and that Reef community and Traditional Owners are involved in the development, decision-making and design of Reef restoration.

This year has seen an acceleration in research and development and a shift to in-water trials, in partnership with six leading research institutions; the Australian Institute of Marine Science, CSIRO, James Cook University, QUT, Southern Cross University and the University of Queensland.



Coral spawning in Sea Simulator. Image credit: Carly Randall, AIMS.

Automating coral propagation

One of the bottlenecks large-scale reef restoration faces is the propagation and survival of young corals at meaningful scale to have an impact on Reef health. To unlock a step-change it is critical that we accelerate our understanding of coral reproductive biology and ecology. With this knowledge, we will have the capacity to design and scale-up coral aquaculture systems and production pipelines, with the aim of propagating, growing and deploying millions of new climate ready corals onto the Reef each year.

After extensive research and trials, a prototype ‘autospawner’ has now been developed to automate coral propagation, accelerating the production of corals grown in aquaculture. Traditionally the process is very labour-intensive, with researchers collecting and fertilising coral sperm and eggs by hand.

Early results show that by using the autospawner system, it is possible to collect and fertilise corals at a scale never seen before, generating millions of healthy coral larvae.



Coral spawning in Sea Simulator. Image credit: Dorian Tsai.

Over 350 researchers, including ecologists, mathematicians, engineers, and geneticists have now collectively spent over 880 days at sea, with 550 days in-water, to develop and test over 30 targeted interventions.

The Program’s unique approach is focused on three integrated tiers:

Protecting

remaining reefs from the threat of coral bleaching by investigating, developing and deploying cooling and shading interventions.



Coral spawning in Sea Simulator. Image credit: Carly Randall, AIMS.

Restoring

lost diversity by deploying stabilising reef structures, and by transferring large numbers of corals onto highly connected priority reefs.

Assisting

corals to adapt to the rapidly changing environment. This involves selectively breeding and seeding thermally-tolerant corals using engineering, as well as automation, to achieve a scale never before accomplished.

Tourism and research partnership fast-tracking Reef recovery

This year, in a major breakthrough for world-first local reef restoration partnership – the Coral Nurture Program – the first coral fragments planted on the Great Barrier Reef have reproduced, just three years after being planted.

In 2018, program partners salvaged 5cm coral fragments from the seafloor that had broken off due to storm activity and planted them at Opal Reef, near Port Douglas.

In a first for the Reef, these corals have rapidly grown to maturity (up to 41cm) and spawned early in 2022, giving fresh hope that they’ll produce thousands of new corals over the course of their lives and help repopulate damaged reefs.

The Coral Nurture Program is a unique partnership between tourism providers and researchers, which aims to rehabilitate damaged reefs and boost the resilience of healthy areas by pioneering rapid re-planting methods and cost-effective coral nurseries.

Over 18 months, the program has out-planted 48,000 corals.

These corals are attached to the Reef using the innovative Coraclip device, a simple metal clip which is the key to rapid re-planting methods. The device joins the corals to the Reef without the need for chemical bonding agents. It’s faster and cheaper than traditional methods and has contributed to an impressive coral survival rate of 85%.

“Witnessing corals that were planted only three years ago now successfully reproducing is not only a huge milestone for reef rehabilitation efforts on the Great Barrier Reef, but also demonstrates the efficacy of the program and the potential for reef regeneration to buy us valuable time while we address critical climate change issues”

Christine Roper, Coral Nurture Program researcher, University of Technology Sydney.



Coral outplants. Credit: Wavelength Reef Cruises.

PROTECTING OCEAN HABITATS

Globally, we know there can be no healthy oceans without healthy reef ecosystems – they are a nursery for over a quarter of all marine life.

We must conserve and protect our critical ocean habitats, from the islands and seas that support some of the highest biodiversity on the planet, to our coastal ecosystems that protect our coasts and store vast amounts of carbon.

Our work on the ground and in the water to protect ocean habitats is supporting a future for these diverse and unique habitats and the animals that rely on them for shelter, food, safety and breeding grounds.

Image credit: Gary Cranitch.



COTS Control Program vessel leaders from INLOC ready to set sail to respond to early warning signs of a new COTS outbreak. Image credit: INLOC.

Early detection and rapid mobilisation to protect corals from emerging outbreak

Crown-of-thorns starfish (COTS) have long been a major threat to the Great Barrier Reef's survival. The Reef has experienced numerous outbreaks of COTS, with the current outbreak wave still spreading across the Reef right now. COTS are a robust and persistent predator, able to live for up to nine months without a meal. During an outbreak, they can have a devastating impact, stripping a reef of around 90% of its living coral cover.

For the first time ever, through the Reef Trust Partnership, we have brought together the resources, capability and expertise to respond to the early signs of an outbreak and protect corals, putting us on the front foot in the battle to control COTS numbers.

Researchers and managers identified a critical need to undertake pre-outbreak monitoring of reefs in the Northern and Far Northern Great Barrier Reef where outbreaks are thought to initiate. This monitoring revealed that COTS numbers were already beginning to increase in these regions and provided an early warning of the next outbreak.

This new field intelligence led to the rapid mobilisation of two additional vessels, accelerating the COTS Control Program's capacity to suppress the emerging outbreak and protect corals. This critical work is one of the lifelines we are providing to protect breeding corals that are essential to supporting Reef resilience.

If these efforts are successful, we will look back at this moment as the crucial point where researchers and managers came together under the Partnership to rapidly detect and suppress an emerging outbreak for the first time.



A COTS feeding on coral.

Reef Islands Initiative

The Great Barrier Reef is under increasing pressure from climate change and local threats. And as these threats continue to build, Reef islands and their adjoining reefs are likely to play an increasingly important role as habitat refuges for diverse and vulnerable wildlife populations.

Through the Reef Islands Initiative we are working to establish a network of climate change refuges to protect critical habitats on the Reef. This \$14m, 10-year program is the largest reef island habitat rehabilitation project of its kind in the Southern Hemisphere.

It combines science and Indigenous knowledge to build resilience in reef island habitats to create a network of climate change arks for the Great Barrier Reef. These islands provide land and water for wildlife to rest, feed, shelter and breed, and they can't be allowed to fail.



Volunteers at Lady Elliot Island. Image credit: Carolyn Trewin.

Conserving Lady Elliot Island

This beautiful 42-hectare coral cay is a sanctuary for over 1,200 species of marine life, including whales, manta rays, turtles, dolphins and coral and has the second highest diversity of breeding seabirds of any island on the Great Barrier Reef.

In its fourth year of operation, the project has gone from strength to strength with around 30% of the Island now revegetated with weeds cleared and native coral cay species planted.

This colossal task has been accomplished with the help of around 400 incredible volunteers – all contributing to this staggering achievement by planting more than 9,000 native coral cay trees, shrubs, vines, ground covers and grasses.

At the heart of Lady Elliot Island is the nursery. It is the only native coral cay nursery on a Great Barrier Reef island with a capacity of around 7,000 plants.

In late 2021, the revegetation team, QPWS staff and Traditional Owners conducted an expedition to the other coral cay islands in the Capricorn-Bunker Group to conduct vital research and obtain seeds for propagating in the nursery.

This will continue to build the genetic diversity of the nursery to support a thriving ecosystem on Lady Elliot Island.



An ornate eagle ray spotted at Lady Elliot Island. Image credit: Asia Haines.

The Whitsundays hits full stride

The Whitsundays region is a marine paradise and global icon, attracting almost half of all visitors to the Great Barrier Reef. Home to the Ngaro people for millennia, the Whitsundays have deeply significant cultural value and meaning.

In the face of climate change, the Whitsundays, adjoining reefs and supporting ecosystems need our help to recover from recurring major stressors like poor water quality and the impact of cyclones.

Following the launch of the Initiative in the Whitsundays in early 2020, the Foundation worked closely with the local Reef community, including Traditional Owners, Reef managers and tourism operators, to co-design the project vision and priority local actions.

This year, all four on-ground restoration projects in the Whitsundays are officially up and running:

- 1** Led by Australian Institute of Marine Science (AIMS) and Southern Cross University (SCU), **Boats4Corals** is advancing coral larval re-seeding as a routine, safe, sustainable and effective way for local community members to carry out reef restoration.
- 2** The **Coral Nurture Program** will collect, propagate and plant corals. Led by University of Technology Sydney (UTS), the Coral Nurture Program is a unique partnership between researchers and local tourism operators to assist the recovery of coral reefs and enhance ecological and social resilience.
- 3** The **Seagrass Restoration Program** led by Central Queensland University (CQU) is trialing and testing a suite of tools and techniques for assisting the recovery of critical seagrass habitats at Pioneer Bay. So far, more than 500,000 seagrass seeds have been collected for nurseries to support this work.
- 4** The **Whitsundays Healthy Heart Project**, led by the Whitsundays Regional Council, is working to reduce the region's carbon footprint, partnering with the Whitsundays tourism industry with 34 local businesses recruited so far.



Larval re-seeding.



Seagrass monitoring.

Blue carbon partnership launches

Coles and the Great Barrier Reef Foundation announced a 10-year, \$10m partnership to help strengthen the regeneration and resilience of the Great Barrier Reef.

Together, we're helping mitigate the impacts of climate change by unlocking the Reef's potential as one of the world's most valuable blue carbon sinks and protecting vulnerable marine life by restoring critical ecosystems.

Wetlands, mangrove forests and seagrass meadows have a carbon-fixing superpower. The Australian Bureau of Statistics estimated that in 2021, in Australia alone, mangroves and seagrass sequestered over 14 million tonnes of carbon – equivalent to the amount of carbon emitted by over 4 million cars.

Despite the incredible service they provide, up to 50 percent of global coastal ecosystems have been lost over the last century. Blue carbon ecosystems support marine life, contribute to coastal livelihoods, and provide protection from storm surges. They also absorb carbon from the atmosphere and store it in their soils, roots and plants.

Through the partnership with Coles, the Foundation will fund two pilot projects designed to unlock the Reef's blue carbon potential, increase biodiversity, accelerate scientific research and support communities along the Reef.

Coastal habitat restoration

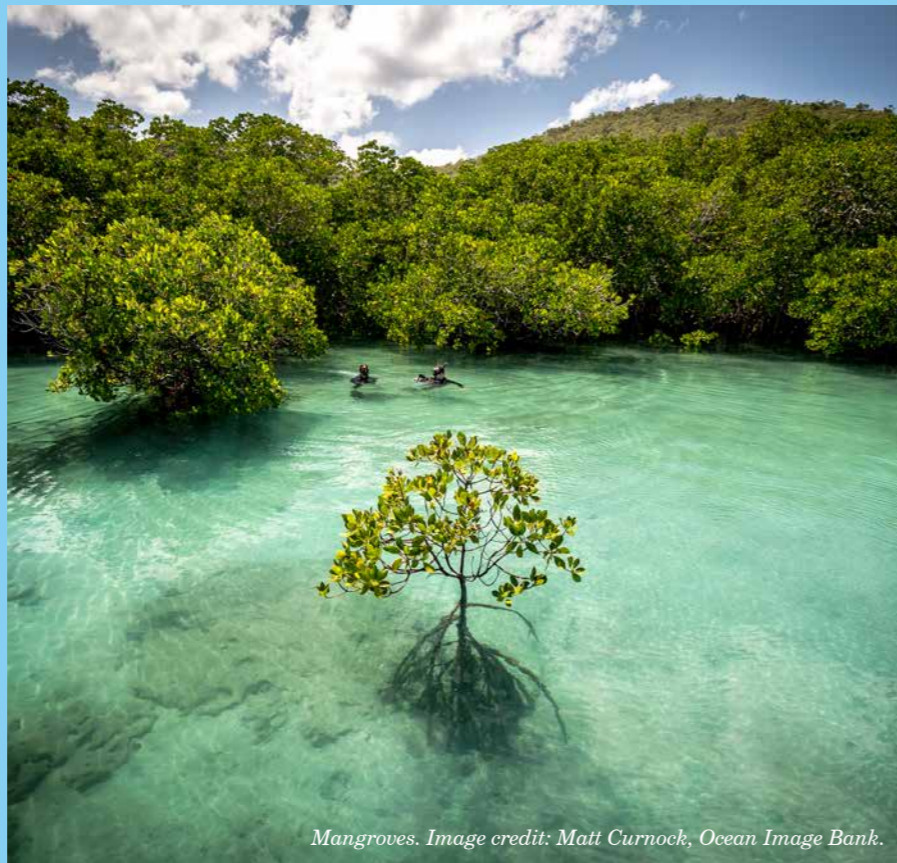
Working with farmers to reinstate a significant coastal wetland in the Great Barrier Reef catchment. This will be the largest blue carbon project to date in the Great Barrier Reef catchment and is designed to deliver benefits to the ecosystem. Restoring these wetlands will also help reintroduce highly effective carbon sinks to capture and store atmospheric carbon. Wetland restoration boosts water quality, supports biodiversity and builds the resilience of coastal habitats in the face of climate change.

Seagrass nurseries

We're developing the first large-scale seagrass nursery in partnership with leading seagrass researchers and Traditional Owners of the Reef. Seagrass meadows reduce the impact of catchment run-off, provide breeding grounds for fish and shellfish, and capture and store carbon. The creation of a seagrass nursery and a demonstration site will help unlock the science needed to support seagrass restoration at a scale that makes a meaningful difference. It also supports a healthier marine ecosystem, increases blue carbon capture and fosters long-term job creation.

“ *Australians value the Great Barrier Reef as one of our most iconic natural assets and Coles wants to contribute to efforts that will help ensure it can be enjoyed for generations to come.*

Steven Cain, CEO, Coles.



Mangroves. Image credit: Matt Curnock, Ocean Image Bank.

Insurance for farmers ensuring a future for the Reef

Over 800 farmers and graziers are already working hard to improve land management to support sustainable and productive farming. This shift has contributed to the 187 tonnes of nitrogen, 229 kilograms of pesticides and up to 37 kilotonnes of fine sediment prevented from entering the Reef each year so far.

Unafraid of navigating unknown territory, the Foundation is also testing how a new product could further catalyse behaviour change and have a positive, lasting impact for the Reef.

The Partnership is testing a world-first insurance product – prototype nitrogen (N) insurance – to help farmers manage the risk of reduced yields from reduced fertiliser application. If successful, it will overcome a significant barrier to the adoption of reduced nitrogen rates.

The project worked with sugarcane farmers and industry in the Wet Tropics to build knowledge, understanding and trust in the N insurance product and evaluate its commercial viability.

The potential for such insurance to drive water quality improvement is huge – it could result in a 30 kilograms per hectare reduction in nitrogen applied to half of the cane area in Great Barrier Reef catchments.

This would see a reduction of dissolved inorganic nitrogen discharge of up to 1,000 tonnes per year and substantial improvements in water quality.

A commercial insurance product is now available to sugarcane farmers for ratoon crops in specified sugarcane growing regions from Northern Cairns to Southern Tully in Queensland. Farmers can insure one, some, or all their blocks providing complete control over the buying decision. The program covers early, mid and late season ratoon crops.

Over the next year, we will be exploring opportunities to scale this product to other Reef catchments.

A win for farmers, a win for the Reef

Ian Mackie owns a 50-acre riverfront farm in the Noosa hinterland where he keeps around 50 Lowline angus cattle. The land is fertile but has suffered damage from previous floods, which washed hundreds of tonnes of sediment from the riverbank downstream and carved cliffs up to 3 metres high.

This damage, which made parts of his land dangerous for Ian, his family and his cattle, was likely to get worse with each flooding event.

Ian decided to take part in the Mary River Recovery Project's bank stabilisation program, which reshapes cliffs caused by erosion into gentle slopes that are fortified by wooden piles. Native vegetation with vast root networks was also planted to keep soil on the farm where it belongs, instead of washing down waterways.

Ian had to sacrifice a couple of acres of usable land to batter the bank, but he believes the work will prevent an even larger area from being washed away in future floods.

The stabilisation work on his property was completed in July 2021. When floodwaters inundated his property just seven months later in February this year, Ian's riverbank held firm. The areas that had been stabilised lost significantly less sediment in the floods than those that hadn't been stabilised.

In addition to saving his land from severe erosion, Ian's choice to participate in the Mary River Recovery Project has contributed to preserving the Great Barrier Reef by helping stem the flow of sediment out onto the Reef.

The Mary Water Quality Program, funded by the partnership between the Australian Government's Reef Trust and the Great Barrier Reef Foundation, aims to stop 26,000 tonnes of sediment from entering the Reef every year.

The program is run by the Mary River Recovery Consortium — a group of dedicated organisations that connect with landholders across the Mary River catchment — to implement projects that stabilise and revegetate badly eroded sections of the Mary River.

“ *We're miles from the Great Barrier Reef. To think there is potential for our land and our neighbour's land to end up polluting the Great Barrier Reef was horrendous. I feel like we've assisted in making a contribution to the protection of the Reef and stabilisation of the whole Mary River system. That's a good feeling.*

Ian Mackie, landholder.

HEALING COUNTRY WITH FIRST NATIONS PEOPLES AND COMMUNITY

For thousands of years, Indigenous peoples have cared for the environment using Traditional Knowledge passed down through generations. And although Indigenous peoples make up only about 6% of the world's population, they protect 80% of the biodiversity left on Earth.

Central to all our work at the Great Barrier Reef Foundation is a commitment to walking alongside Traditional Owners, learning from their more than 60,000 years of experience caring for Country, firm in the knowledge that we must work in partnership with First Nations people and communities to deliver coral conservation and restoration activities.

*Madjandji community tree planting.
Image credit: Wanyurr-Majay
Aboriginal Corporation.*



Walking in step with Traditional Owners

The World Heritage-listed Great Barrier Reef is one of the most complex natural ecosystems on Earth with deep cultural significance for Aboriginal and Torres Strait Islander peoples.

Traditional Owners hold inherent rights to the Reef and have successfully cared for their traditional homeland estates since time immemorial.

Every day, we see incredible leadership from Traditional Owners using their voices, actions and cultural knowledge to care for land and sea Country and protect the Reef.

Through the Reef Trust Partnership, we are engaging with 49 of 72 Traditional Owner groups, and are committed to supporting and enabling Traditional Owner aspirations for caring for Country.

Indigenous women are vital to climate action and the future of the Great Barrier Reef

Indigenous women play a critical role as ancestral knowledge-holders and caretakers of Country. Through the Partnership, the Foundation is supporting several initiatives to increase the participation of Indigenous women in land and sea Country management roles and elevate and amplify their voices.

These initiatives include:

WomanSpeak

This three-day intensive public speaking and leadership course for Reef Traditional Owner women focuses on empowering them to develop the tools and ability to share their knowledge and stories. These women further build on their communication skills and confidence through a 12-month virtual leadership circle. Thirteen women participated in the initial pilot program, with many becoming mentors for the next cohort that commenced in the second half of 2022.



WomanSpeak circle group November 2021.

“ It gave me a lot more courage to break down the walls and to trust myself, giving me that shield to hold.

Participant, WomanSpeak.

“ This has given me skills to apply at work and to also teach my kids. We need to create strong Indigenous leaders.

Participant, WomanSpeak.

Queensland Indigenous Women's Ranger Network

“ We are there as protectors of the land because the land can't speak for itself, so that's why it utilises us to be able to speak for it.

Shantal Miller.

Jointly funded by the Queensland Government and WWF, and delivered by Yuka Baja Muliku, this network provides a space for women Indigenous rangers to share their experiences, provide support and advice, undertake training in shared priority areas and

enable connections in remote and isolated communities. We provide funding to support training needs and ensure that all women rangers in this rapidly growing network can attend the bi-annual forums.

Drone and spatial technology training

This scalable pilot program is training women Indigenous rangers in drone piloting, geospatial mapping and image processing in Far North Queensland. These digital technology skills are supporting enhanced land and sea Country management and provide a unique on-Country business enterprise opportunity.



Reef Traditional Owner drone training participants. Credit: Yuka Baja Muliku.

Indigenous women win Earthshot Prize

An inspiring women-led program that combines 60,000 years of Indigenous knowledge with digital technologies to protect precious land and sea Country including the Great Barrier Reef has won the 2022 Earthshot Prize to Revive our Oceans.

The awards, launched in 2020 by HRH Prince William, centre around five 'Earthshots' – simple, ambitious and aspirational goals defining the world we wish to build for future generations.

The Great Barrier Reef Foundation's Traditional Owner Advisory Group Chair and proud Yuka Baja Muliku woman Larissa Hale accepted the

prestigious £1 million (AU\$1.78m) prize on behalf of the Indigenous women who are leading the charge to build the next generation of female Indigenous rangers with the ancient knowledge, skills and modern conservation tools needed to better protect the Great Barrier Reef.

“ This place has always been our home, but today we risk losing it and the unique culture that has existed here for millennia. Our Women's Ranger Network exists to protect our home and continue our traditions.

Larissa Hale.



Image credit: Earthshot Prize.

Grant Programs designed by Traditional Owners, for Traditional Owners

The Partnership's Traditional Owner grant programs have been co-designed with Traditional Owners and are staged to provide funding for land and sea Country activities spanning planning, implementation and scaling.

Groups progressing through this staged process are reporting a maturation of governance, enhanced business readiness, greater capacity and capability, and an unlocking of funding opportunities previously out of reach, enabling enhanced outcomes for Country, culture and community.

These grants provide Traditional Owner groups with the opportunity to further capacity and capabilities to stand on their own feet and meet their aspirations for the future.

Healthy Water - Healthy People

Enabled by a Healthy Water grant, Wanyurr-Majay Aboriginal Corporation (WMAC) have developed a Country Plan for Madjandji people to take increasing responsibility and care of Wanyurr-Majay waters, working in partnership with government bodies, Mulgrave Landcare and Catchment Group and private landholders.

Together they are returning degraded farming land to its previous wetland state, improving water quality and restoring critical ecological and cultural values in the process. The grant has enabled Wayurr-Majay Traditional Owners to be employed on-Country, and be trained in conservation and land management to support longer-term employment opportunities to care for Country.



Seed collection for restoration planting. Image credit: Wanyurr-Majay Aboriginal Corporation.

The next stage of WMAC's plan sees them working with partners to co-design a monitoring program for culturally significant watercourses, develop a water quality report card incorporating Madjandji values, survey flora and fauna on their Country and develop an action plan for prioritising works to improve the health of target sites.

Through this work, WMAC are building and extending their network of partners including farmers, local and state government, agricultural and environmental NGOs, NRMs, research organisations and private enterprise. Madjandji Traditional Owners are also participating in the \$6m Mulgrave-Russell regional water quality program, funded through the RTP Water Quality Component as cultural advisors.

With the support of their Healthy Water grant, WMAC together with their partners, are revitalising and protecting their cultural values and Country, while contributing to improved water quality and environmental outcomes in a priority agricultural catchment.

The next generation of Reef champions

HOPE. That's what we feel at the Foundation every time we see the incredible work and passion of young Australians to protect the Reef. The next generation of Australians are laser-focused on protecting the environment, and every day they inspire us to work harder and do more.

It's easy to become overwhelmed by the sheer scale of the challenge facing the Reef. Climate change and local stressors can seem insurmountable. Well, not to us. Especially when we see young people across the Great Barrier Reef and its catchments, and all across Australia, lending their hands, voices and even their running legs to action to help the Reef.

Never before has there been a generation so engaged and determined to shift the dial on climate change. They are bringing their smarts, climate awareness and drive to shift the status quo, and translating that into real action.

Here are some of the ways young people are taking action to protect the Reef:

Getting Reef smart

Across Reef communities, young Australians and their teachers have taken it upon themselves to learn how to make a real difference to the Reef by becoming citizen scientists. So far, over 247 high school students and 20 teachers have upskilled to carry out hands-on citizen science data collection.

Inspiring examples of this are the boys from St Teresa's Abergowrie, an Indigenous boys boarding school. These young men, aged 16-18, set off to Orpheus Island where they helped conduct coral and seagrass surveys through the Science Under Sail Australia project. Not only were they contributing to essential data collection to understand the condition of the Reef, but they also saw first-hand the incredibly diverse ecology of the Reef and gained an understanding of the pressures it's experiencing.



Image credit: Science Under Sail.

On returning to school, the students wanted to learn more about the Reef and marine science – leading to the establishment of an internship program at the school to provide marine science monitoring skills and work experience to students keen to pursue their newfound passion.

Making sustainable choices

Young Australians are ready to challenge the status quo when it comes to everyday actions and choices that have a destructive impact on the Reef.

Over 30 schools participated in #Lessismore, where students and teachers learned how to make sustainable everyday choices by eliminating single-use plastics from their routine and replacing these with sustainable choices like paper straws and bees wax wraps.

In collaboration with local businesses, this program contributed to preventing 125,626 plastic straws from ending up in landfills or on our beaches.



Students participating in a beeswax wrap workshop. Image credit: Less is More.

Students learned how to make their own beeswax wraps and even created videos to educate others on the need for sustainable action on a global scale.

The #Lessismore project is just one example of how a youth program can leave a legacy and help school students and teachers make changes for good.

The program has turned teachers and pupils into advocates who are determined to make sustainable choices and encourage others to take action for the Great Barrier Reef.

Driving change in communities

We are constantly inspired by the determination of young people to drive change in their own communities to protect the Reef. Part of the work we support at the Foundation through the

Community Partnerships team is to empower youth to act as stewards of the Reef – driving locally-led change by building youth leadership and capacity.

Team Hatchlings, a youth-led marine turtle conservation and stewardship program run through the Fitzroy Basin Association, is helping Capricorn Coast youth become community leaders in conservation.



Team Hatchling.

The program supports young people to share their marine turtle conservation ideas and passion with their community while supporting the existing Team Turtle CQ project. Through community-based marine turtle education and awareness-raising activities, these young leaders are educating their communities about negative human impacts on marine life and inspiring positive stewardship.

Becoming decision makers

Young Australians aren't just lending a helping hand to Reef protection efforts, they're also stepping into the driver's seat and helping make the decisions that will impact their communities and the Reef into the future.

We're committed to making it easier for communities to get involved in Reef conservation and discover how, by combining their efforts, they can have an even greater impact for the Reef.

One of the ways we're doing this is through Community Action Plans. Through the planning process, communities come together to develop a shared vision for Reef protection in their community, decide on critical projects and develop a clear plan to support real outcomes.

Young people are stepping up to join in this process and are shaping the goals and actions for their communities – driving decision making that will result in a better future for their communities and the Reef.



School students participating in a CAP workshop. Image credit: Reef Ecologic.

Funding restoration efforts

From Melbourne to Mareeba on the doorstep of the Reef, young Australians are signing up for colour runs to fundraise to plant corals on the Reef. So far this year, students have raised funds to support the planting of more than 11,000 corals. These colour runs and slime spectaculars may be a lot of fun, but these kids are serious about protecting the Reef.



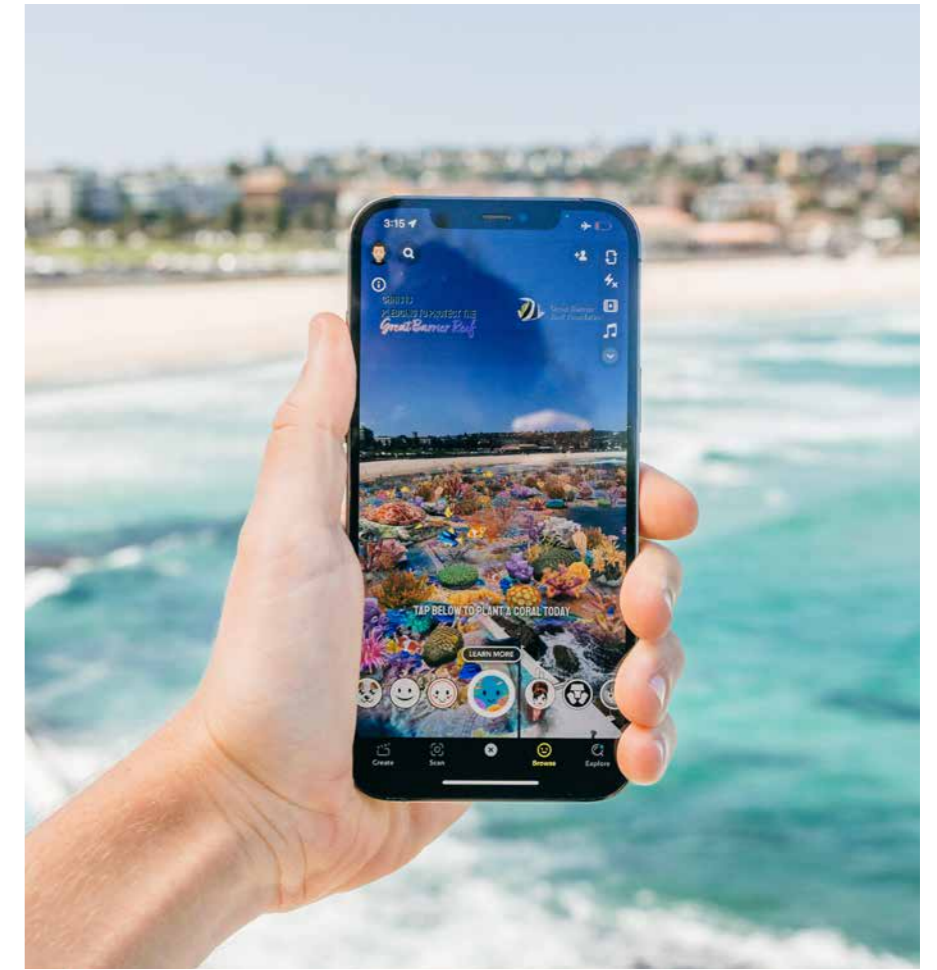
Addison and Arlo from Belmont State School. Their school has raised \$3,664 to plant 916 corals.

Building online communities

Young people aren't just showing up for the Reef in person, they are doing it online too – in the millions! In 2021-2022, we collaborated with Snapchat on a world-first augmented reality experience to raise awareness around the impacts of climate change on the Great Barrier Reef.

Through Snapchat, users could swim amongst turtles, clownfish and a whole array of Reef wildlife while helping us achieve our goal to plant one million corals during summer.

The campaign was a huge success, directly reaching over 47 million predominantly Gen Z users, with 840,000 signing a branded climate pledge and 160,000 clicking through to learn more at barrierreef.org.



Snapchat partnership launch at Bondi. Image credit: Snapchat.



THANK YOU FOR YOUR SUPPORT

The Great Barrier Reef holds a special place in the hearts of all Australians, and together we are all responsible for its care.

The challenge to save the Reef is truly the challenge of our time. The progress we make in the next five years is critical to the future of the world's reefs and we will need your support to achieve our goals.

We remain grateful to all of our partners - Traditional Owners, scientists, researchers, reef managers, tourism operators, community groups and many more - for helping us achieve our mission to create a better future for coral reefs.

This year saw remarkable leadership from corporate Australia investing in and promoting greater action on environmental protection. Some of our most trusted brands identified the Reef as a critical investment and we were thrilled to announce new partnerships throughout 2022, including Coles, Life-Space Probiotics, XXXX, AECOM and Snapchat.

Major donors also came to the table in a big way with organisations such as Tiffany and Co. and Ocean Kind making significant contributions to enable critical reef restoration and protection work.

Individuals and communities continued to turn up for the Reef in their droves - with school kids pounding the pavements through colour runs, and Australians from all walks of life digging deep to give what they could to support us to plant corals.

To all our partners and supporters, thank you for your important contributions to the long-term resilience of our extraordinary Reef. Your support continues to enable us to rise to the environmental challenges the Reef faces with renewed confidence and determination.

Quite simply, we can't do this without you all.

Thank you.





Great Barrier
Reef Foundation