

# 2019- 2020

## YEAR IN REVIEW

Saving our Reef and  
its marine life for  
future generations



Great Barrier  
Reef Foundation



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.

*'Reef Wonderland' 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.*

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# OUR MISSION

We bring together the best minds and technologies to help solve the challenges facing the *Great Barrier Reef*. And we challenge everyone — from the boardroom to the beach — to stand up, unite, and take an active part in its conservation.

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The Great Barrier Reef is an irreplaceable ecosystem, home to thousands of species of marine life, including fish, dolphins, and six of the world's seven species of marine turtle.

This unique icon is the largest living thing on Earth, with rich corals spanning an area visible from space. It's one of the seven natural wonders of the world and attracts two million visitors every year.

We should be proud that it's our responsibility to look after it.

But our Reef and its marine life are facing a growing combination of threats. We're already seeing the effects in many parts of our Reef, and without help the outlook is bleak.

Saving the Reef is a huge task, but there's hope.

Right now we're making an impact, but there's a lot more to do. That's why we need your help.





*Image credit: Tourism and Events Queensland.*



*Image credit: Tourism and Events Queensland.*

All of us are guardians of the Great Barrier Reef, the largest living thing on Earth – a unique icon and irreplaceable ecosystem. Protecting the Reef and the thousands of species of marine life who call it home is not just a challenge, it is a privilege. This task requires the best of us, from all of us. The Great Barrier Reef Foundation is proud to play its role in the pursuit of a dream held by many – to save our Reef for future generations.

This past year will be remembered as one of the most extraordinary in the history of our planet. Australians and people the world over were confronted with major challenges and forced to face a new normal. Climate change contributed to unprecedented bush fires and another summer of mass bleaching on the Great Barrier Reef, the third in five years and the most widespread yet. A once-in-a-century global pandemic took a devastating toll, changing our way of life and threatening the global economy.

These challenges show just how vulnerable and interconnected we are, how much we depend on each other, and how connected we are with the life-giving ecosystems we can't exist without.

In a year of so much change and disruption, the threats to our Great Barrier Reef remained. And most importantly, so did the Foundation's determination to deliver on our ambitious portfolio of projects, initiatives and partnerships to deliver a brighter outlook for the Reef and coral reefs around the world.

Through all the year's uncertainty and change, the Great Barrier Reef's lead charity remained steadfastly focused on its future, with people and science at the core of solutions, dedicated to saving the Reef and its marine life.



*Image credit: Tourism and Events Queensland.*

This year, the Foundation continued to deepen and expand the reach of its impact, coming together the world's best minds and technologies to launch the world's largest coral reefs program and progress more than 60 Reef-saving projects.

We are proud to work with so many individuals and institutions from science, conservation, First Nations, community and government to deliver a true Team Australia response to save our irreplaceable ecosystem. More than 60 project delivery partners including Australia's leading science institutions – the Australian Institute of Marine Science, CSIRO, universities, and the Great Barrier Reef Marine Park Authority included – helped us deliver critical Reef projects throughout the year.

Our research and project partners are the best and brightest in Australia and internationally. Our Board and committee members are esteemed leaders of business, science, community, Traditional Owners and industry, who have graciously given their time and expertise to guide and help us deliver our Reef-saving programs. And our dedicated team of staff has again risen to the challenge with unparalleled passion and commitment.



*Image credit: Tourism and Events Queensland.*

The year ahead will be one of the Foundation's boldest yet – reaching full pace and scale in our landmark partnership with the Australian Government's Reef Trust, and launching our Reef Recovery 2030 Campaign to turn the tide on coral reef decline over the next decade.



**Anna Marsden**  
Managing Director



**Dr John Schubert AO**  
Chair

As we look back on the year that's been, we stand ready to deliver what's next. Despite this history-making year of uncertainty and disruption, we are unwavering in our mission, and we are determined. The Foundation is, and always will be, the action station for the Reef, bringing together people and science to save the largest living thing on Earth.



*Image credit: Gary Cranitch, Queensland Museum, taken on Raine Island.*

# OUR IMPACT

Right now, the Great Barrier Reef Foundation is saving our Reef and its marine life for future generations through more than 60-Reef saving projects.

## AUSTRALIA'S LARGEST EVER REEF PARTNERSHIP

We're delivering a \$443 million portfolio across six Reef protection priority areas, bringing together science, innovation, community and Traditional Owner Reef protection.

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## SAVING THE REEF'S BIODIVERSITY

We're saving the Reef's vulnerable species – such as the endangered green turtle, by restoring the world's largest nesting area on Raine Island.

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## BUILDING GLOBAL REEF RESILIENCE

We're leading the world's first global program that brings local communities, Reef managers and global experts together to support five World Heritage sites – and the communities that depend on them – to respond and adapt to climate change and local threats.

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## INNOVATION IN ALL WE DO

We're working with Australia's – and the world's – brightest minds and pioneering cutting-edge science and technologies to find new and improved ways to save our Reef.

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## RESTORING CRITICAL REEF HABITATS

We're restoring critical Reef habitats to protect ecosystems and save the vulnerable species that depend on them.

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## THRIVING REEFS, THRIVING COMMUNITIES

We're partnering with Reef Traditional Owners to co-design actions that deliver on generations of Traditional Owner-led Reef management. And we're partnering with communities along the Reef to be actively involved in the Reef's protection.

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*Image credit: Tourism and Events Queensland.*



# AUSTRALIA'S LARGEST EVER REEF PARTNERSHIP

The partnership between the Foundation and the Australian Government's Reef Trust is a platform for science, innovation and communities to come together with the right conditions and resources to set a new pathway for Reef protection and recovery in Australia.

In response to the unprecedented coral loss of the previous summers, a landmark Commonwealth grant of \$443.3 million – the largest single grant to the Reef in Australia's history – saw the Foundation entrusted to deliver an integrated portfolio of six Reef protection components, designed to significantly and measurably improve the health of the Great Barrier Reef.

In the second year of the six-year program, we are making strong progress:

- More than 50 Delivery Partners and more than 200 organisations have been involved in the Partnership to date
- More than \$64 million contracted across 80 investments Partnership-wide

## Traditional Owner Reef Protection

- More than 80 Traditional Owners have been engaged from 35 Reef Traditional Owner groups
- 13 Traditional Owner groups have led priority projects identified by Traditional Owners:
  - Six Land and Sea Country based planning projects
  - Five projects implementing existing Country-based plans
  - Seven junior ranger projects

## Community Reef Protection

- Six Community Action Plans are underway from Bundaberg to Cooktown, led by eight local partners
- 15 citizen science projects have held 300 field days generating over 75,000 data points reporting on Reef habitat and wildlife
- Nine local action projects — championed through the Great Barrier Reef Marine Park Authority's Local Marine Advisory Committees — have focused on enabling local solutions to Reef threats, through a selection of community participation and capacity building initiatives, litter and marine debris source-reduction and local riparian restoration projects

## Water Quality

- 210 landholders and 289,165ha of land have demonstrated improved water quality practices to date (based on the Paddock to Reef framework)
- 134t of dissolved inorganic nitrogen (DIN), 6.3kt of sediment, and 4.2kg of pesticides have been prevented from entering the Reef so far.
- We've initiated eight out of 10 major regional water quality improvement programs, with more than \$50 million contracted (or in the process of being contracted) this year. This represents more than one third of the funding allocated for this cornerstone program in the Water Quality component.
- We've selected more than 20 potentially game-changing water quality innovation and system change projects to begin in 2020-21, spanning \$10 million of innovations in technology, finance, data and planning.

## Collective Action

>50

project partners and over 200 organisations involved in the Partnership to date

6

Community Action Plans are underway from Bundaberg to Cooktown, led by eight local partners

>80

Traditional Owners have been engaged from 35 Reef Traditional Owner groups

210

landholders and 289,165ha of land have demonstrated improved water quality practices to date (based on the Paddock to Reef framework).

*Image credit: Tourism and Events Queensland*

Two years into the Partnership, and we're already making a difference for the Reef. And it's by continuing to work together with scientists, researchers, tourism, community leaders, Reef Traditional Owners, government, and other Reef-dependent industries, that we'll make the greatest impact for the Reef.

Through the Reef Trust Partnership, we're bringing the Reef community together in new and meaningful ways for the benefit of the Reef's long-term future. More than 80% of Reef organisations and partners surveyed in March 2020 agreed the Foundation is making progress in creating a platform for science, innovation and community to come together and set a new pathway for Reef protection and recovery.



*Image credit: Tourism and Events Queensland.*

# SAVING ENDANGERED SPECIES

The Reef is home to thousands of species of marine life, including fish, dolphins, and six of the world's seven species of marine turtle. With our partners we are working to save the Reef's vulnerable and endangered species.



Images: Queensland Parks and Wildlife Service rangers and Traditional Owners inspecting nesting turtles and hatchlings as part of the Raine Island Recovery Project.

## Our mission to save Raine Island's green turtles

Through our work to restore the world's largest green turtle nesting area on Raine Island, together we delivered some spectacular achievements in 2019-20.

This summer nesting season, more than 64,000 green turtles nested, the largest number since the project began in 2015. Caught on drone camera, this spectacle went viral, bringing worldwide attention to the project and the important conservation work being done to protect endangered green turtles and other species.

Facing the risk of flooding at now low-lying nest sites, the research team completed the final stage of a major sand-moving mission this year. Scientists, rangers and Traditional Owners joined forces

right in time for peak turtle nesting season. Over the course of the project, 16 Olympic swimming pools of sand was moved, raising eggs and hatchlings well above ocean low-tide levels.

The mysteries of migration also became clearer this year, with 45 satellite-tracked female turtles revealing valuable insights into movement and behaviour.

This Reef-saving project is a multi year, \$7.95 million collaboration with BHP, the Queensland Government, the Great Barrier Reef Marine Park Authority, and the Wuthathi Nation and Meriam Nation (Ugar, Erub, Mer) Traditional Owners.

While two of the planned research trips to Raine Island had to be cancelled due to the outbreak of COVID-19, the silver lining is that this project will be extended to include another full nesting season in 2020-21.

“ I grew up with land and sea back home, so it feels natural to visit here. When I go home and tell my stories about the work and the island, it is having the effect of making other people in my community, younger ones, want to get involved too.

Jimmy Passi, a Meriam Nation (Ugar, Mer, Erub) Traditional Owner representative

“A marine paradise that plays host to one of the most spectacular ocean migrations on the planet.”

Sir David Attenborough

Drone footage of the 64,000 turtles counted this nesting season on Raine Island – the largest number since the project began.

## Our impact

**640,000**

more baby turtles have already begun life on the Great Barrier Reef because of our Raine Island Recovery Project.

### Tracking turtles

**64,000**

green turtles were counted this nesting season – the largest number since the project began

**13,683**

turtles counted on the beach in one night

**11,969**

turtles nesting each night on average

**1500**

nesting turtles flipper tagged

### Building up the turtle ‘nursery’

**15,000m<sup>3</sup>**

of sand moved to boost nesting beaches, raising the total sand moved to 40,000 m<sup>3</sup>

Nesting area above tidal inundation has been

**DOUBLED**

from 35,000m<sup>2</sup> to 70,000m<sup>2</sup>

### Preventing turtle deaths

**222** turtles rescued

Turtle deaths from cliff falls reduced from **30%** to **5%** due to 1750m of protective fencing.

### Protecting seabirds

Protective fencing is now safeguarding vulnerable seabirds, their nests and chicks from being disturbed by turtles.





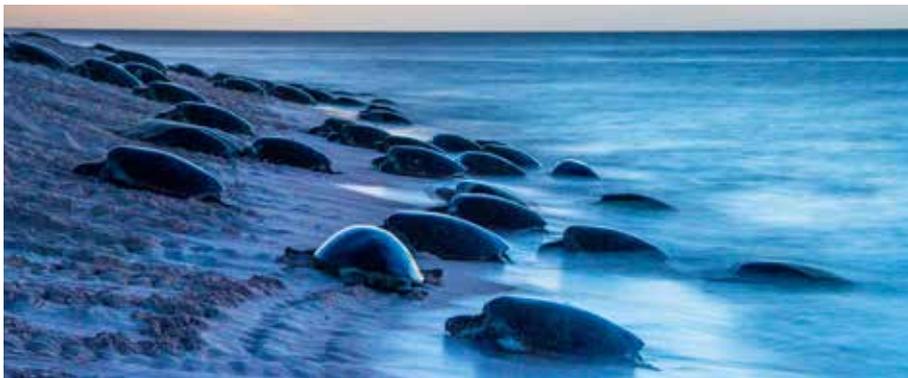
*Image: Raine Island from the air, photographed by Biopixel*

## About Raine Island

Raine Island is a remote, 27-hectare island sanctuary 620 km north west of Cairns that is one of the most highly protected areas in the entire 348,000 square kilometres of the Great Barrier Reef World Heritage Area. It's the largest green turtle rookery in the world – the focal point for one of the greatest animal

migrations on the planet. It's also the Reef's most important seabird nesting area, with 84 bird species recorded there. But research and monitoring over the last 30 years showed the northern Great Barrier Reef green turtle population was declining and that Raine Island was failing as a turtle rookery since the late 1990s.

That's why the Raine Island Recovery Project is restoring and maintaining Raine Island as a successful nursery for endangered green turtles, seabirds and other species to breed and thrive.



*Turtles arriving on the island to nest, photographed by Gary Cranitch.*



*Turtle returning to the ocean from nesting.*

## Traditional knowledge

Indigenous knowledge, culture and voice are embedded in the project's science, stewardship and on-ground conservation activities, ensuring the world's largest green turtle nesting area is being restored with the island's Traditional Owners – the Wuthathi Nation from Cape York and the Meriam Nation (Ugar, Mer, Erub) from the Torres Strait.

Traditional Owners participated in every field trip this year to care for Raine Island and its animals.

Since the project began, 50 individual Traditional Owners have travelled to Raine Island for the project, many attending multiple trips across the 115 positions available since 2015.



*Danielle (Wuthathi Traditional Owner) and Katharine (Queensland Parks and Wildlife Service) inspecting turtles nesting on Raine Island.*

“*As an Indigenous nation, our involvement helps us learn from the scientists, but it is good for them too, to learn from the Traditional Owners. My grandmothers and grandfathers, and many before them, used to go to this place, and for us, growing up in this modern world, it is pretty hard to get back to our history, so Raine Island is very important to us.*”

Wuthathi Nation Traditional Owner Peter Wallis



Image: Lady Elliot Island from the air.

## Leaf to Reef species study

Protecting Lady Elliot Island's precious and unique marine life from climate change is the focus of a new research project started during the year.

The Foundation is working with research partner University of the Sunshine Coast through the Reef Islands Initiative to set a benchmark to measure change from local and global climate pressures on habitats and critical reef species including seabirds, whales and turtles on Lady Elliot Island.

More than 1200 different animal species live in and around Lady Elliot Island's calm lagoons including manta rays, turtles, seabirds, dolphins and fish.

It's the southernmost island in the Great Barrier Reef and scientists predict it will be one of the last to experience the increasing effects of global climate change, making it an ideal location for this type of research.

The island's biodiversity is predicted to change over the next two decades as northern species drift south to escape rising ocean temperatures.

This critical research is generating comprehensive in-water species lists, making it possible to quantify future changes that may be caused by climate change.

Visitors to the island have also been invited to contribute as citizen scientists by sharing their photos and video images of marine life with the research team.

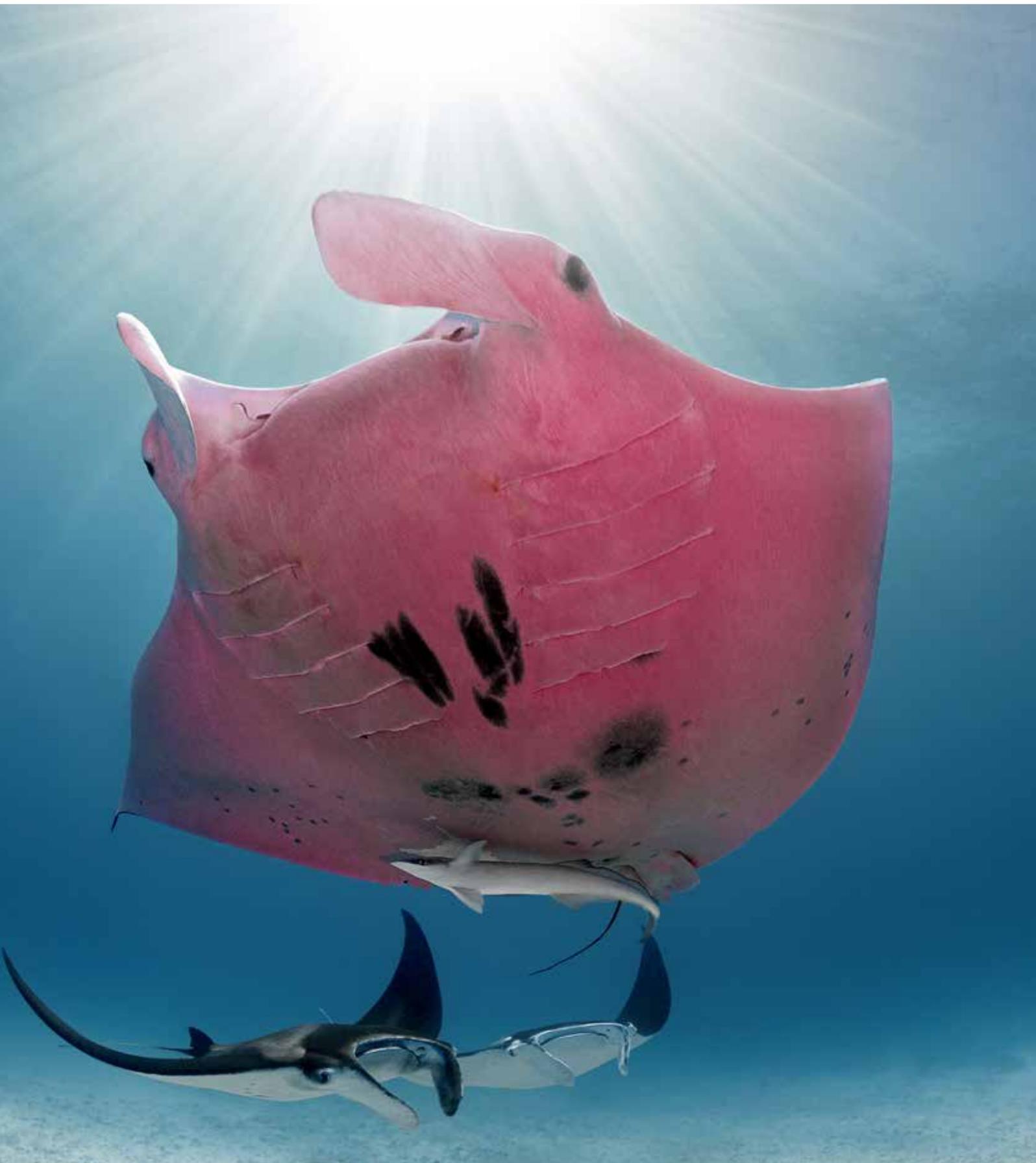
The four-year project will provide a research template for other reef islands.

Pioneered by the Great Barrier Reef Foundation, the Reef Islands Initiative is supported by funding from Lendlease, the Australian Government's Reef Trust, the Queensland Government and the Fitzgerald Family Foundation.



Image: Lady Elliot island has the second highest diversity of breeding seabirds of any island on the Great Barrier Reef. Pictured here is the endangered Red-Tailed Tropic Bird, nesting on the island.

Lady Elliot Island hosts an amazing diversity of wildlife both above and below the water, including the world's only pink manta ray which was sighted swimming off the island this year. The striking manta – affectionately dubbed Inspector Clouseau – has been spotted fewer than 10 times since its first sighting in 2015.



*Image credit: Kristian Lane*

# INNOVATION IN ALL WE DO

Pioneering science and technologies that provide hope for the future of the Reef.

## Restoring reefs with Coral IVF

Four years after first pioneering Coral IVF on the Great Barrier Reef in 2016, research teams scaled up the technology this year to rear and settle more baby corals to help restore damaged areas of the Reef.

During the Reef's spectacular annual mass coral spawning in November, researchers collected many millions of coral eggs and sperm using the unique spawn catcher and floating nursery pool systems designed by project co-lead scientist Professor Peter Harrison from Southern Cross University.

Professor Harrison also teamed up with QUT's Professor Matthew Dunbabin for a second year to bring in a scaled-up robotic design to help distribute the tiny coral babies onto local reefs near Cairns. This followed our successful trial of the world-first robotic coral delivery system in 2018.

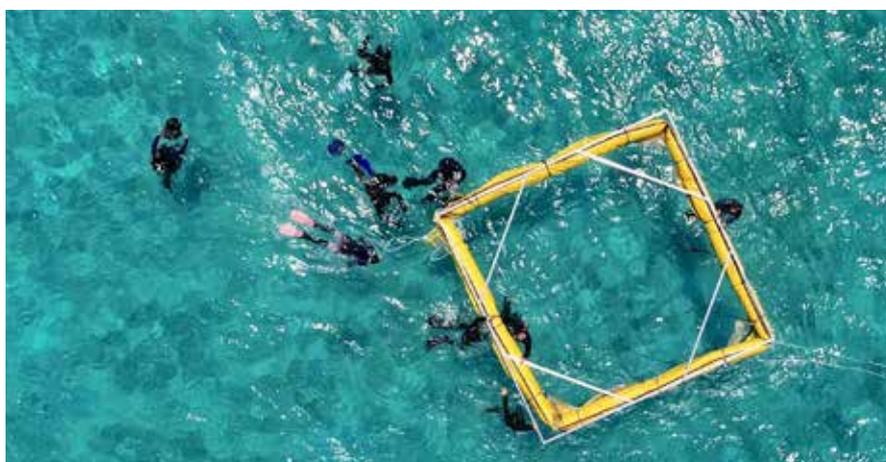
The innovative technique deployed this year involved capturing spawn from thermally tolerant corals that survived mass bleaching, and rearing millions of larvae in floating pools so they don't float away before they are capable of settling onto local reefs.

The combination of using large inflatable 'coral nurseries' to help grow millions of coral babies and a robotic fleet to deliver them – including two new modified Reef RangerBots, dubbed LarvalBots, and a new inflatable LarvalBoat – successfully released millions of coral larvae back onto the Reef. Nets were also used to disperse large-scale larval clouds onto damaged sections of reef.

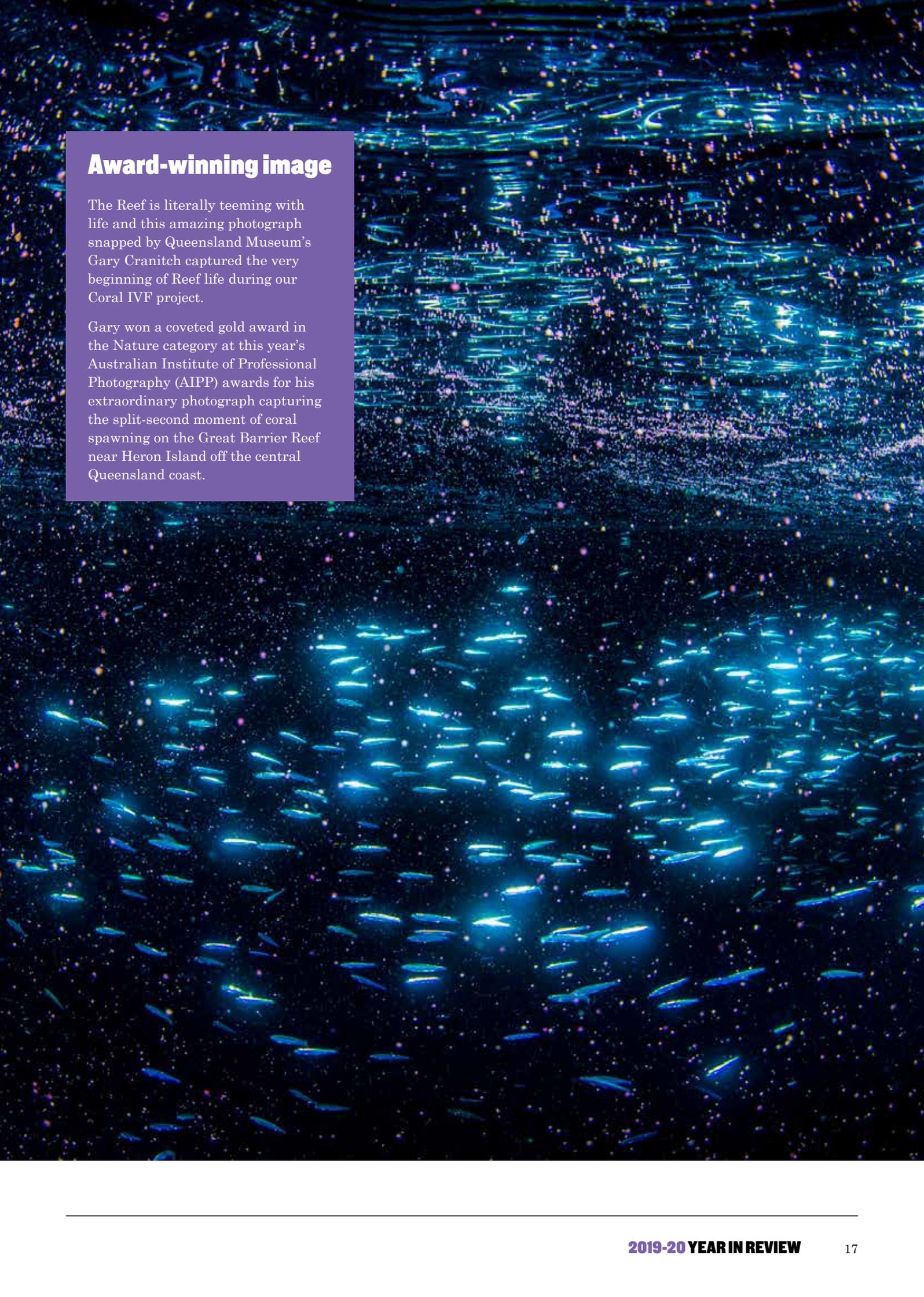
New to the project this year, the inflatable LarvalBoat was able to carry a large volume of coral larvae at the water surface for targeted dispersal, increasing the efficiency of the delivery.

Since the first LarvalBot trial, the reach of the robot's larval delivery system was increased significantly from just 500 square metres to one LarvalBot being able to cover three hectares of reef in six hours.

The world-first concept won the Foundation's global Out of the Blue Box Reef Innovation Challenge, created with the support of longstanding worldwide coral conservation supporter The Tiffany & Co. Foundation.



Coral IVF's unique spawn catcher and floating nursery pool in action. Image credit: Biopixel.



## Award-winning image

The Reef is literally teeming with life and this amazing photograph snapped by Queensland Museum's Gary Cranitch captured the very beginning of Reef life during our Coral IVF project.

Gary won a coveted gold award in the Nature category at this year's Australian Institute of Professional Photography (AIPP) awards for his extraordinary photograph capturing the split-second moment of coral spawning on the Great Barrier Reef near Heron Island off the central Queensland coast.

## Helping corals combat climate change

Back in 2018, Brazilian microbiologist Associate Professor Raquel Peixoto proposed a novel idea to help the world's coral reefs survive climate change impacts.

Through the Foundation's Out of the Blue Box Reef Innovation Challenge supported by The Tiffany & Co. Foundation, this year Raquel and her team at the Federal University of Rio de Janeiro were able to put that idea to the test with promising results.

Inspired by successful practices in both people and agriculture, Professor Peixoto's knowledge of microbiology and probiotics propelled her to pioneer a scientific discovery that could help save our Reef and its marine life.

Her innovative method of feeding probiotics, or good bacteria, to corals has been proven to increase their overall health and improve their chance of surviving during heat stress.

Just like people, corals rely on a host of good bacteria to help keep them healthy and that balance between good and bad bacteria is often disrupted in times of stress.

Corals that become stressed when water temperatures rise become prone to infections and less likely to survive.

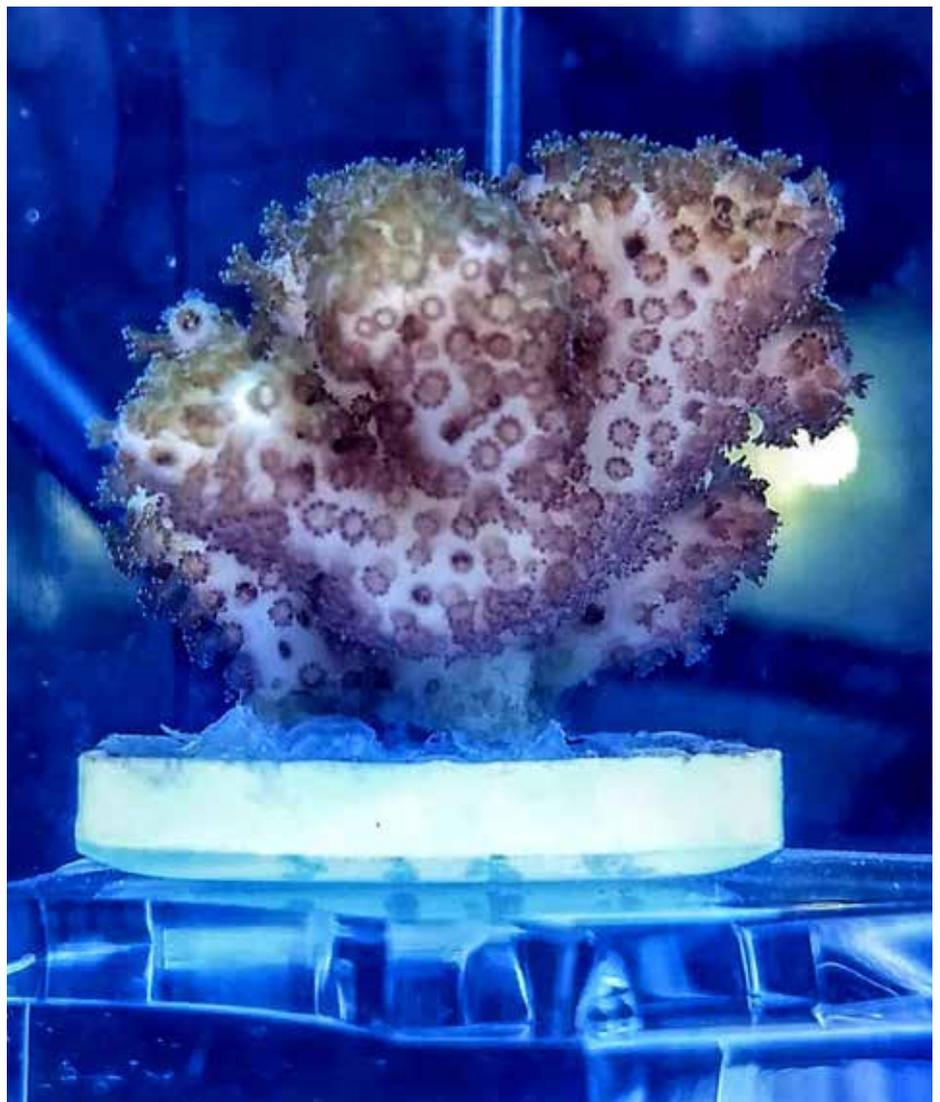
Feeding corals with beneficial microorganisms is like feeding them probiotic yoghurt full of good bacteria.

The research team was excited to discover that after running numerous stress tests on the corals, time and time again the corals that had received the probiotics were in better health than those that had not.

This is an exciting breakthrough in boosting the ability of coral species to survive in times of stress and helping them cope with a changing climate.



*Associate Professor Raquel Peixoto working in her lab in Brazil to discover probiotics can improve coral health.*



## Pioneering Reef forecasting

We're pioneering the world's largest Reef forecasting and modelling program to track and predict the condition of the Reef.

More than six years in the making, eReefs is like a diagnostic tool for the 'doctors' of the Reef.

This year, it combined satellite technology with powerful models and machine-learning to produce a suite of Reef-saving tools. These include a coral bleaching index to predict the combined impact of increased temperature, light, and nutrients on coral reefs, and water quality modelling in 3D across the entire Reef using data from NASA and the European Space Agency's Sentinel-3 satellite. The technology can also show the impact path of cyclones and how they mix the water, the ocean currents that disperse larvae of corals and crown-of-thorns starfish and track the freshwater plumes from flooded rivers that can damage inshore reefs.

In 2019-20, eReefs was a critical tool during summer for Reef managers and scientists to predict hot spots and bleaching risks. eReefs was also used by the Australian and Queensland Governments to develop the annual Reef report card to measure progress towards the Reef 2050 Water Quality Improvement Plan targets and outcomes.

The innovative eReefs technology was developed with Australia's leading science and marine agencies, including the Australian Bureau of Meteorology, CSIRO and Australian Institute of Marine Science, and the US National Oceanic and Atmospheric Administration.

## Mapping the world's coral reefs

For the first time in human history, we're mapping every single coral habitat on Earth.

The global Allen Coral Atlas project uses a ground-breaking method for mapping coral reefs from outer space using nanosatellites, cloud computing and machine learning. This year the Foundation worked with our partners including National Geographic, Vulcan Inc., The University of Queensland, The Nature Conservancy and Arizona State University to expand the Atlas which is the first detailed global map of the world's coral reefs.

## Coral DNA decoded

Genetic research has enabled scientists to see for the first time how corals collaborate with other microscopic life to build and grow.

This world-first coral genomics research revealed unique insights at the DNA level into how corals cooperate with their microscopic partners like algae and bacteria to share resources and build healthy, resilient coral.

By understanding what makes corals tick from the inside out, scientists hope to use the information to devise ways to make them more resilient and to help coral reefs globally.

This ground-breaking 'blue print for coral and their symbiotic communities' was published this year in the highly regarded scientific journal, Nature Microbiology, through the Foundation's research collaboration with The University of Queensland, James Cook University, ARC Centre of Excellence for Coral Reef Studies, Australian National University, Australian Institute of Marine Science, King Abdullah University For Science And Technology and Bioplatforms Australia.



*Coral larvae being settled on damaged reefs as part of Coral IVF.*

## Australia's mission to save the world's reefs

The Reef Restoration and Adaptation Program (RRAP) is at the cutting edge of science, and the results will have global impact for the world's coral reefs.

The ambitious program brings together leading experts from Australia and around the world to ensure that the Great Barrier Reef and coral reefs globally can resist, adapt to, and recover from the impacts of climate change.

A \$6 million feasibility study conducted with 150 experts from 20 international science organisations was submitted to the Australian Government in December 2019. The feasibility study concluded that coral reef protection, restoration and adaptation is possible and — if we act now — we can double the likelihood of sustaining healthy coral reefs.

With the feasibility study completed, the Great Barrier Reef Foundation, our partnership with the Australian Government's Reef Trust, is funding the first stage of the RRAP Research and Development program – being delivered by a consortium of partners including the Australian Institute of Marine Science, CSIRO, Queensland University of Technology, James Cook University, University of Queensland and Southern Cross University.

Find out more about the Reef Restoration and Adaptation Program at [www.gbrrestoration.org](http://www.gbrrestoration.org).



## Looking ahead

Innovation is at the core of what we do at the Foundation. From investing in, testing and scaling up the latest science and technologies, to fostering new partnerships across industry, government, science and Traditional Owners to push the boundaries in benefits that can be achieved, innovation is embedded across the Foundation's portfolio, from project design through feasibility, piloting and implementation stages.

This year we have built the foundations for our most ambitious innovation portfolio ever to kick off in 2020-2021. Innovation pilot projects and innovation-themed partnerships will encourage new approaches and perspectives, bold systems change and emerging technologies to respond to the challenges facing coral reefs and our oceans.

These include:

- Formal commencement of the most ambitious reef science initiative of our time – the Reef Restoration and Adaptation Program
- Launch of the COTS Control Innovation Program
- A portfolio of water quality innovation projects addressing innovation in finance, technology, data and planning.



*Installation of assisted gene flow corals on deployment racks at Davies Reef. Image credit: Kate Green, Australian Institute of Marine Science.*

# RESTORING CRITICAL REEF HABITATS

## Creating climate refuges

The Reef Islands Initiative is the largest reef habitat rehabilitation project of its kind in the Southern Hemisphere – bringing together scientists, local tourism leaders, governments, Traditional Owners and the community to protect and restore critical habitats.



### Lady Elliot Island

Lady Elliot Island is a sanctuary for more than 1,200 species of marine life, including whales, manta rays, turtles, dolphins and spectacular corals. It also has the second highest diversity of breeding seabirds of any island on the Great Barrier Reef and is an important stop for migrating seabirds.

This year we made great progress to restore the island’s natural habitat to create a safe haven for the Reef’s native animals and plants.

#### Our impact to date includes

**8 hectares**

revegetated – weeds cleared and native coral cay species planted

**5,775**

coral cay native trees, shrubs, vines, groundcovers and grasses planted in revegetated areas

**475**

highly invasive umbrella trees removed and 95% removal of dragon fruit, a tree climbing weed

**6,000**

native coral cay plants stocked in the 2,000 m<sup>2</sup> nursery

Host to the only nursery on a Great Barrier Reef island for native coral cay species

**125%** increase in turtle habitat at LEI’s main nesting beach

Resort food, cardboard and green waste composted to produce organic material for soil production

**100%**

renewable energy through the installation of 801 solar panels and 258 batteries<sup>1</sup>

**7,500**

automated and solar powered irrigation drippers in-nursery and in-field micro sprayer irrigation systems – significantly reducing water use

A Volunteer Program commenced this year, with three conservation groups participating in the program removing 3 hectares of invasive species and planting over 400 native species.

<sup>1</sup> Achieved in partnership with Lady Elliot Island Eco Resort and Queensland Government Rejuvenation Fund



## Whitsunday islands

This year, the Foundation announced the Whitsunday islands as the Reef Islands Initiative’s second major site.

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 — with strong connections to mainland Juru and Gia peoples and those of neighbouring country — the Whitsunday islands have deeply significant cultural values and meaning.

In March 2017, the region was hit by Category 4 Cyclone Debbie. Actions to accelerate the recovery of islands and their connected marine ecosystems are critical.

Following the launch of the Initiative in the region, the Foundation brought together tourism operators and industry representatives, local businesses, council, Traditional Owners, community groups, park rangers, reef managers and researchers to collaboratively develop and scope the project vision, which is for the Whitsundays to become a recognised hub for:

- **Reef restoration stewardship** – piloting new approaches to coral restoration, driven and led by local tourism, community and Traditional Owner partners.
  - **Reef industry sustainability** – investing in and showcasing climate-friendly Reef projects, technologies, and tourism activities that incentivise behaviour change.
- The first year of the initiative saw emerging coral restoration techniques trialled at Lovers Cove at Daydream Island, using all natural coral material.
  - Empowering local tourism operators to lead activities that help their Reef recover is a major theme of the Initiative. More than 30 tourism operators came together to support local restoration efforts around the Whitsundays, outplanting almost 1000 corals and upskilling in coral monitoring techniques while businesses were impacted by COVID-19 restrictions.

*Top and below: Tourism operators conducting coral outplanting and monitoring in the Whitsundays. Image credit: Grumpy Turtle Creative and Reef Ecologic.*



The Reef Islands Initiative is a 10-year program pioneered by the Foundation and supported by funding from Lendlease, the Australian Government’s Reef Trust, the Queensland Government and the Fitzgerald Family Foundation.



## Improving Water Quality

The Great Barrier Reef is an irreplaceable ecosystem, however poor water quality is one of a growing combination of threats to its health.

Working alongside farmers, we're improving water quality on the Reef by reducing run-off and ensuring sustainable agriculture with sediment and farming substances kept on farms.

By working with farmers and scientists, we're not only improving conditions for the Reef's precious corals, we're also supporting farming productivity, and saving critical habitats that need clean water to thrive, like seagrass beds where endangered turtles and dugongs feed.

## Project Bluewater

Sugarcane growers in north Queensland's Plane Creek, Pioneer and Lower Burdekin regions are helping the Reef and improving their businesses at the same time by reducing pesticide use.

With Project Bluewater's 74 growers adopting improved pesticide management plans and choosing better products across their collective 11,400 hectares of farmland, this will reduce pesticides in two priority Reef catchments by a massive 6,000 kg.

Bringing together farmers, scientists from James Cook University and The University of Queensland, and project partner Farmacist, the project's shed meetings where growers can share learnings and field-based workshops and demonstrations have delivered promising results.

The project is also trialling a new Pesticide Decision Support Tool to assist growers to better understand the environmental risks associated with different chemicals and to ultimately make more informed decisions in selecting pesticides.

Project Bluewater's success also means the method has the potential to scale up and expand into other areas in the future.

## Graziers on board for pioneering project

A healthy Reef needs healthy water which is why we're transforming an extra 300,000 hectares of grazing lands – an area equivalent to the size of Darwin or Adelaide – to stop damaging sediment from entering the Reef's waters.



Fifty grazing businesses from the Burdekin, Burnett, Fitzroy and Mary Rivers have been actively involved in Project Pioneer this year and 43 of those have completed a six month skills development program to help implement changes on their farms to stop erosion through gullies and streambanks and ultimately reduce the amount of fine sediment reaching the Reef.

Businesses have also received grazier specific on-farm consultations to help measure ground cover, map their properties and establish monitoring sites.

This year's work is building on the previous success of Resource Consulting Services' program which has already reported a total of 440,203 ha under improved management.

### **Innovative gully project stops sediment at source**

Every year, the equivalent of 32 rail freight carriages of sediment will be stopped from reaching the Great Barrier Reef thanks to an innovative project underway this year with our project partner Greening Australia.

Throughout the year we worked to rebuild eroding land as part of the program to reduce sediment run-off from the Burdekin's Strathalbyn Station. The Burdekin is a crucial area for improving the Reef's water quality, with the Burdekin River catchment estimated to deliver as much as half of the total sediment that flows into Great Barrier Reef waters. Eroding gullies and streambanks are responsible for the majority of the fine clay particles that end up in the Reef lagoon.

With the progress made on-ground this year, the project is well on track to reduce sediment by up to 3,200 tonnes each year.



*Image credit: Tourism and Events Queensland*

# THRIVING REEFS, THRIVING COMMUNITIES



*One of four community engagement events involving 66 community volunteers that counted and sorted debris from 12 gross pollutant traps under Reef Catchments' cigarette butt source-reduction project.*

The Foundation's 25 community Reef protection and 18 Traditional Owner Reef protection projects underway in 2019-20 included citizen science and local action projects in Reef communities and Land and Sea Country planning, junior ranger programs and maritime training.

Our Community Reef Protection projects have involved more than

# 7,000

participants and

# 18,000

 volunteer hours so far.

## Across our 9 community local action projects

➤ **27,000** **1,500**

pieces of litter and 700 kg of pollutants (including almost 14,000 cigarette butts) have been prevented from entering the Reef through one project alone – the Fitzroy Basin Association’s ‘What’s down our drains?’ project – through the installation of drain buddies.

native trees were planted by the Whitsundays community to address erosion and water quality issues, by restoring the riparian vegetation along the popular local Twin Creek, that feeds into the Reef – led by Whitsunday Regional Council.

The Bundaberg Fruit and Vegetable Growers Cooperative, through the #LessisMore project, has removed more than 17,000 plastic straws from local businesses and seen nearly 500 local teachers and students produce enough reusable beeswax food wraps to replace an estimated 38 kilometres of single-use plastic clingwrap over the next 12 months.



### Tourism-led citizen science

Tourism operators in the Whitsundays are helping keep tabs on water quality in their part of the Reef.

With training from James Cook University scientists, tourism operators deployed specialist data loggers and took water quality samples every six weeks.

The Foundation’s project partnership with Reef Catchments, the Whitsunday Charter Boat Industry Association and James Cook University is filling a vital knowledge gap in water quality monitoring data at key tourism locations which is needed for the area’s regional report card.

The water condition insights gained through this monitoring project will be used to make the best management decisions for the benefit of the environment and a sustainable tourism industry.

Lady Musgrave Experience designed and launched a new reef health data collection, education and training program now embedded in their regular reef visits. Reef Teach partnered with Great Barrier Reef Marine Park Authority and Australian Institute of Marine Science to launch a new data collection and storage system for a recently developed geo-tagged

photo transect method to record reef health imagery tailored for tourism operators. Reef Catchments partnered with the Whitsunday Charter Boat Industry Association and James Cook University to train Whitsunday tourism operators to address an identified gap in water quality monitoring data at key tourism locations for use in the regional report card.



## Traditional Owner governance

The Great Barrier Reef Foundation acknowledges and thanks the 17 Reef and Catchment Traditional Owners who are members of our Traditional Owner Advisory Group and Technical Working Groups.

We are privileged to work in partnership with a diverse group of Traditional Owners who provide perspectives from different geographic regions from the Torres Strait to Bundaberg, providing advice on both male and female Traditional Owner priorities, and with three emerging leaders provide a voice for Traditional Owner youth.

Among the familiar 'Reef' faces are new faces, providing novel insights from systems beyond the Great Barrier Reef such as the

Murray Darling Basin and whose collective expertise encompasses Traditional Knowledge systems, cultural heritage, science, on-ground conservation, policy and governance, education and training and executive leadership.

Together with input from Reef Traditional Owner communities up and down the Reef, these groups provide the vital backbone of the co-design and co-delivery processes.

“*Co-design is more than holding a participatory workshop. It is about the genuine willingness of agencies to fairly shift their behaviour and practices when ideas stretch them beyond their business-as-usual approach. This shifts mindsets from, 'We can't do that because it's too tricky' to 'let's discuss pathways for change'*”

Provided with permission, Traditional Owner Water Quality Technical Working Group member May 2020.

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## Junior ranger programs

More than 500 junior rangers have been involved in seven junior ranger programs across 20 Traditional Owner groups this year – with four of these programs supporting first-time junior rangers.

These programs extend from the northern reaches of Cape York down to Bundaberg and are delivered by Traditional Owner Elders, rangers and other community members.

Activities being implemented include assisting rangers, being Welcomed to Country by Elders, helping with turtle protection measures, seagrass and coral monitoring, revegetation projects, camps on Country, beach clean-ups and cultural activities such as dance, music, art, spear-making, storytelling and language.

Junior ranger programs provide an opportunity to bring Traditional Owners together on their Country.

For some it may be the only opportunity they have had in a long time. Participants can experience a profound emotional connection from the experience.

Projects not only influence or affect children. Junior ranger programs are a priority for Traditional Owners because of the positive outcomes

for both people and Country. The wider community becomes involved in some of the activities being conducted and so the learning and community awareness increases around areas such as the impact of marine debris or the importance of mangroves for the ecosystem.





## Girringun maritime training program

The Girringun Aboriginal Corporation collaborated with key partners Jina Gunday and the Tribal Warrior Aboriginal Corporation to deliver a maritime training and education program as part of the stage 1 Traditional Owner grant round.

Traditional Owners designed the project to increase awareness of Girringun's Sea Country and build the boating skills and qualifications of their people. Elders and other interested Traditional Owners worked together early in the project to plan and design the best process to achieve the highest possible completion rates for the training.

The initial target included supporting 10 Traditional Owners through the training, but given the high interest and excitement in the project, 17 Traditional Owners obtained their Certificate 1 in Maritime Operations. To capitalise on the enthusiasm of participants from the first training

round, the decision was made to bring forward the second round of training in Certificate II Maritime Operations, which was completed in September 2019, instead of early 2020 as planned. Eleven Traditional Owners signed on and completed this second level certificate.



# BUILDING GLOBAL REEF RESILIENCE

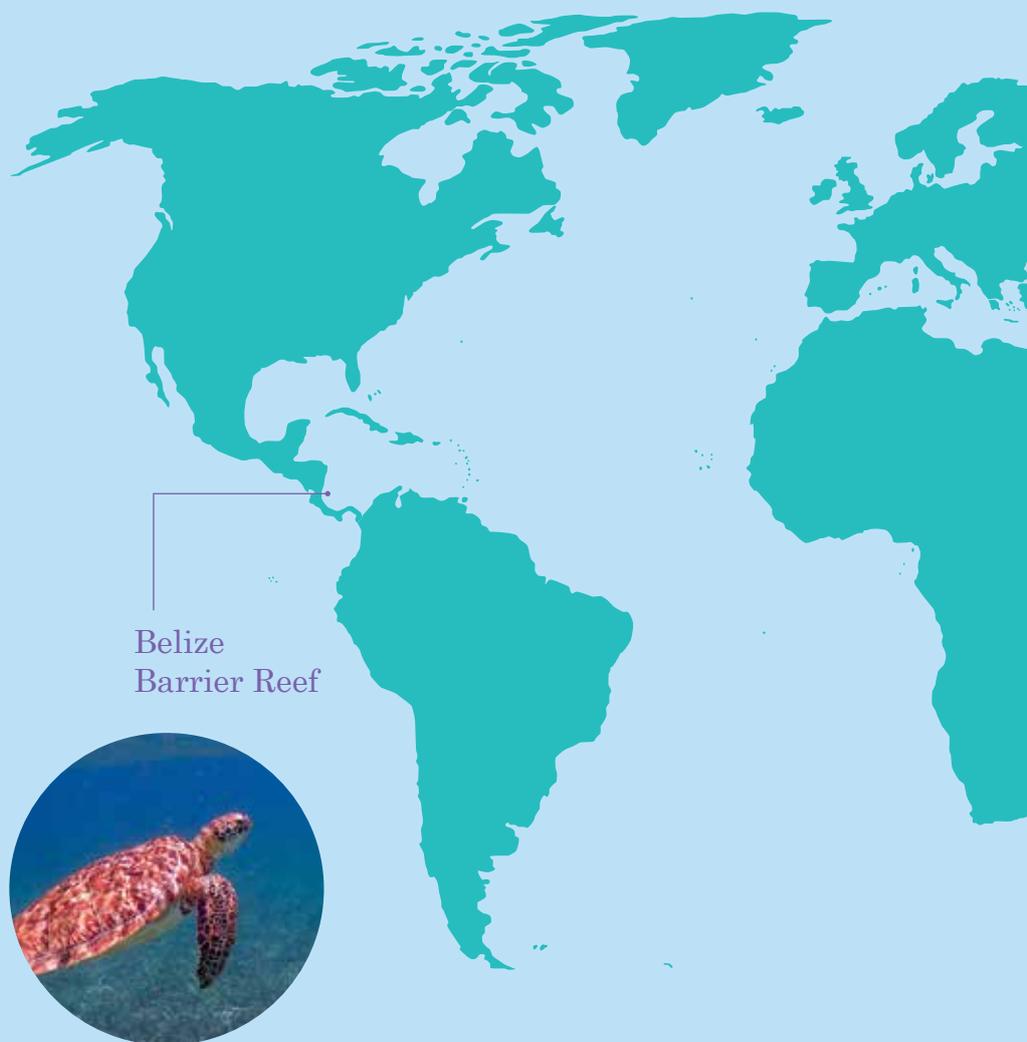
## Our Global Impact Program

Resilient Reefs is a global partnership that brings together Reef managers, resilience experts and local communities across five World Heritage Reef sites to develop solutions that combat the effects of climate change and local threats.

A world first, Resilient Reefs directly responds to the call to action from those charged with managing the world's most treasured Reefs – recognising that communities depending on these Reefs are also threatened and need to be part of the solution.

While the interdependency of Reefs and their communities has long been recognised, Resilient Reefs is the first global program to deliver integrated Reef and community resilience planning, at scale.

Next year, the first two pilot sites of the Resilient Reefs program will release comprehensive strategies for building the resilience of the reefs and the communities that depend on them. We look forward to sharing what a new approach to resilience-based management can deliver and to engage with communities around the world on bold action for a more resilient future.



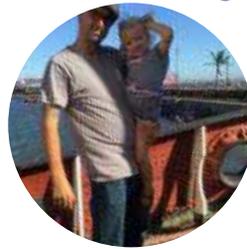
## World's first Chief Resilience Officers

This year we appointed the project's first two Chief Resilience Officers to work on the ground in New Caledonia and Ningaloo with their reef communities and local management authorities to develop the strategies needed to address the immediate threats facing both reefs and communities.



“It's clear that many of the people living along the Ningaloo Coast are very passionate about the marine environment with a strong sense of stewardship towards the environment. The resilience approach is an inclusive way of bringing everyone into the conversation.”

**Joel Johnsson**  
Chief Resilience Officer  
Ningaloo Reef



“As Chief Resilience Officer I am looking forward on how to provide a better understanding on resilience to managers in New Caledonia, while capitalizing on amazing projects previously conducted.”

**Pierre Bouvais**  
Chief Resilience Officer  
Lagoons of New Caledonia

## Global Expertise: Local Support

Never before has a consortium of resilience, climate change and Reef experts and organisations come together in such a way as the Resilient Reefs Initiative.

A core component of the Initiative is its Knowledge Network – a taskforce of experts formed to help unlock the capacity of the Initiative's site partners, support the development of integrated solutions to each site's challenges, and share, educate, and scale knowledge beyond the pilot sites to Reef managers globally.

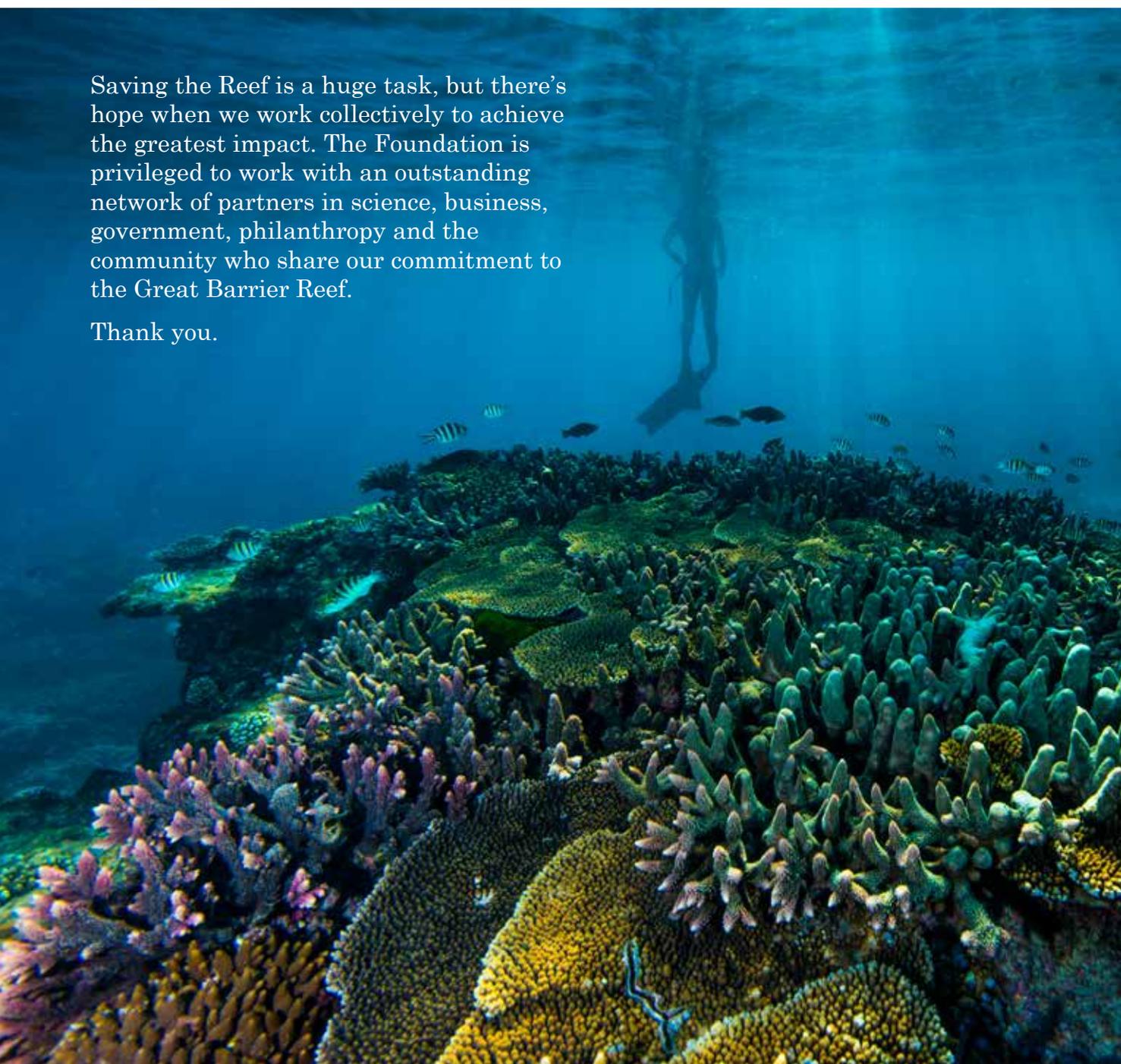
Resilient Reefs receives advice and partners with leading experts including:

- UNESCO World Heritage Programme
- The Nature Conservancy's Reef Resilience Network
- Columbia University's Center for Resilient Cities and Landscapes (CRCL)
- Resilient Cities Catalyst
- AECOM
- BHP Foundation
- Great Barrier Reef Marine Park Authority
- Reef Restoration and Adaptation Program
- The Foundation's Traditional Owner Advisory Group
- RARE
- Coral Triangle Center

# OUR SUPPORTERS

Saving the Reef is a huge task, but there's hope when we work collectively to achieve the greatest impact. The Foundation is privileged to work with an outstanding network of partners in science, business, government, philanthropy and the community who share our commitment to the Great Barrier Reef.

Thank you.



*Image credit: Gary Cranitch, Queensland Museum*

## Research and Delivery Partners

In 2019-20, we worked with, and supported, more than 60 science and project delivery partners to deliver Reef-saving projects

- AECOM Australia
- Alluvium Consulting
- Australian Institute of Marine Science
- Balkanu Cape York Development Corporation Pty Ltd
- BRIA (Burdekin River Irrigation Area) Irrigators Ltd
- Bureau of Meteorology
- Burnett Mary Regional Group for NRM Ltd
- C2O Consulting
- Cairns and Far North Environment Centre
- Catchment Solutions Pty Limited
- Conservation Management
- Conservatoire d'espaces naturels de Nouvelle-Caledonie
- CSIRO
- Dawul Wuru Aboriginal Corporation
- Department of Biodiversity, Conservation & Attractions (WA)
- Department of Environment and Science (Qld)
- Digital Storytellers Limited
- Earthwatch Institute
- Ecosure
- Evidn Pty Ltd
- Farmacist Pty Ltd
- Federal University of Rio De Janeiro
- Fitzroy Basin Association Inc
- Gidarjil Development Corporation Ltd
- Girringun Aboriginal Corporation
- Great Barrier Reef Marine Park Authority
- Great Barrier Reef Legacy
- Greening Australia Ltd
- Ipima Ikaya Aboriginal Corporation RNTBC
- James Cook University
- Kiorion Pty Ltd
- Lady Elliot Island Eco Resort
- Lady Musgrave Experience
- Mandubarra Aboriginal Land and Sea Inc
- Reef Teach
- Mary River Catchment Coordination Association Inc
- Murdoch University
- NQ Dry Tropics Ltd
- Port Douglas Daintree Tourism
- Queensland Cane Growers Organisation Ltd
- Queensland Farmers Federation
- Radiant Life Education Ltd
- Reef & Rainforest Research Centre
- Reef Catchments Ltd
- Reef Check Australia
- Reef Ecologic
- Resource Consulting Services Pty Ltd
- Science Under Sail Australia
- South Cape York Catchments Inc
- Southern Cross University
- Star Economics Pty Ltd
- Sugar Research Australia Ltd
- TerraForm Design
- Terrain Natural Resource Management
- The Nature Conservancy
- The University of Newcastle Australia
- The University of Queensland
- Turtle Care Volunteers Queensland Inc
- UNESCO World Heritage Centre
- University of the Sunshine Coast
- Wuthathi Aboriginal Corporation
- Yuku Baja Muliku Landowner & Reserves Ltd

## Project Funding Partners

- Australian Government
- BHP
- BHP Foundation
- Boeing
- Fitzgerald Family Foundation
- Lendlease
- Orica
- Queensland Government
- The Tiffany & Co. Foundation

## Pro Bono Partners

- Allens Linklaters
- Biopixel
- Creating Value Group
- Google
- Guintabel
- JSA Creative
- KPMG
- PwC Australia

## Chairman's Panel

We thank the members of our Chairman's panel during 2019-20 whose contributions enable the Foundation to manage and implement the Reef projects underway this year.

**Dr John Schubert AO, Chair**

*Great Barrier Reef Foundation*

**Chris Ashton**

*Worley Parsons*

**Frank Calabria**

*Origin*

**Alberto Calderon**

*Orica*

**Gert-Jan De Graaff**

*Brisbane Airport Corporation*

**Ron Delia**

*Ancor*

**Stephen Fitzgerald AO**

*Affirmative Investment Management*

**Melinda Geertz**

*Leo Burnett*

**Dr Paul Greenfield AO**

*GBRF International Scientific Advisory Committee*

**Andrew Harding**

*Aurizon*

**Professor Sandra Harding AO**

*James Cook University*

**Dr Paul Hardisty**

*Australian Institute of Marine Science*

**Professor Peter Hoj AC**

*The University of Queensland*

**Cindy Hook**

*Deloitte*

**Timothy Jackson**

*PwC Strategy&*

**Alan Joyce AC**

*Qantas*

**Mike Kane**

*Boral*

**Grant King**

*Individual Membership*

**Seng Huang Lee**

*Mulpha Australia*

**Steve McCann**

*Lendlease*

**Stephen McIntosh**

*Rio Tinto*

**Nick McKenna**

*Conoco Phillips*

**Ken MacKenzie**

*BHP*

**Dr Larry Marshall**

*CSIRO*

**Jeremy Maycock**

*Port of Brisbane*

**Zimi Meka**

*Ausenco Services*

**John Mullen**

*Telstra*

**Jacques Nasser**

*Individual Membership*

**Dr Brendan Nelson AO**

*Boeing*

**Tony Nunan**

*Shell Australia*

**John O'Neill, AO**

*Star Entertainment*

**Tim Reed**

*Business Council of Australia*

**Patrick Regan**

*QBE Insurance Group*

**Luke Sayers**

*PwC*

**Brian Sheahan**

*Morgans*

**Professor Margaret Sheil AO**

*Queensland University of Technology*

**Bevan Slattery**

*CapitalB*

**Richard Spurio**

*Allens*

**Phillip Strachan**

*Individual Membership*

*The fleshy folds of the soft coral Sarcophyton, Horseshoe Reef, Lizard Island. Image credit: Andy Lewis.*

## Community Fundraisers

We are honoured to be part of a caring and gracious community from all over Australia and the world who are committed to saving our natural wonder by raising funds for the Reef. This year our community fundraisers included schools and community organisations.

- Bellaire Primary School
- Cairns State High School
- Cathedral College Wangaratta
- Chatham Primary School
- Darlington Primary School
- Eastern Suburbs Montessori Association
- Emu Park Lions Club
- Godolphin and Latymer School
- Kenmore Girl Guides
- Nowra Anglican College
- Overnewton Anglican Community College
- Penrhos College
- PLC Perth
- St Andrew's Primary School (Marayong)
- St Gabriel's School
- St Joseph's School Renmark
- The River School (Piccabeens Class)
- Victoria College Preparatory School
- Wonga Park Primary School
- Yeppoon Lions



### Community effort funds Reef-saving science

The regional town of Yeppoon on Queensland's central coast may not be large in size, with a population of less than 20,000, but this Reef community has had a huge impact in helping the Foundation deliver more than 60 Reef-saving projects this year, thanks to one inspiring young lady.

Sixteen-year-old Yeppoon High School student Camille Gallais entered the Capricorn coast's famed Tropical Pinefest Ambassador event with the goal of raising \$10,000 for the Great Barrier Reef and the Yeppoon Lions Club. Hosting no less than 27 events during the year, her dedication saw her smash that goal to raise more than \$21,000 – a total that also earned Camille both the Tropical Pinefest Ambassador and Charity Ambassador titles for 2019. And all this while also completing year 11 at school!

Camille and her family love to sail and it was this connection to the Reef and ocean that inspired her.

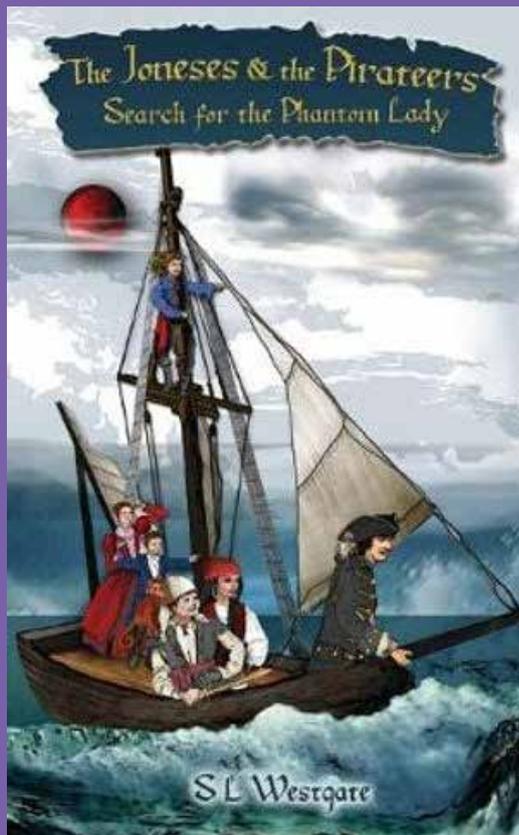
“A healthy and resilient Reef increases local biodiversity, brings protected waters for fishing and water sports and makes the Capricorn region even more attractive to visitors,” Camille said.

All fundraising activities were generously supported by the local community including her sponsor the Keppel Bay Sailing Club, and the Lions Clubs of Yeppoon and Emu Park.

## Business and Foundation Supporters

These corporate, retail and consumer businesses and charitable foundations generously supported our Reef projects in 2019-20.

- Botanica
- CSL Australia
- Dowd Foundation
- Esperance & Co.
- iMedX Australia
- Johnston Project Management & Consulting
- Kevin Murphy
- Marmalade Lion
- Michele Canci Foundation
- Pacific Coast Eco Bananas
- Pedal Group (99 Bikes)
- Queensland Tissue Products
- Rawson Care Foundation
- Sonja Plitt Ceramics Studio
- Suzanne Westgate, Children's Author
- WridgWays



### Pirates' Reef rescue

An unlikely pairing of pirates and the Reef shows one of the many creative ways that our wonderful Reef supporters put the fun into fundraising this year.

Children's author Suzanne Westgate is a mother and lawyer who never let go of her inner pirate. She generously donated a portion of sales from her book *The Joneses & the Pirateers* to help invest in Reef-saving science.

Suzanne's own adventures backpacking through South America and Asia—sailing, caving, mountaineering, surfing, diving in the Caribbean with a crew of prisoners on parole, abseiling, skiing down a live volcano, and very nearly getting kidnapped—helped inspire her swashbuckling stories for ages 9 and up. She and her family love the Great Barrier Reef and are proud to support conservation and protection efforts.

# BOARD AND COMMITTEES

## Board of Directors

Representing Australian business, science and philanthropy, the Foundation's directors at the date of this review are:

- Dr John Schubert AO Chair
- Michael Cameron
- Maureen Dougherty
- Stephen Fitzgerald AO
- Dr Paul Greenfield AO
- John Gunn
- Cindy Hook
- Grant King
- Anna Marsden
- Dr Russell Reichelt
- Steven Sargent
- Phillip Strachan
- Olivia Wirth

## International Scientific Advisory Committee

- Dr Paul Greenfield AO Chair
- Prof. Chris Cocklin
- Prof. Bronwyn Harch
- Dr Paul Hardisty
- Anna Marsden
- Prof. Peter Mumby
- Dr Russell Reichelt (until 03/10/19)
- Dr Christian Roth (until 03/10/19)
- Steve Sargent
- Dr John Schubert AO
- Dr David Wachenfeld (from 03/10/19)
- Dr Tony Worby (from 03/10/19)

## Audit, Risk and Compliance Committee

- Phillip Strachan, Chair
- Ruth Coulson (from 13/02/20)
- Clayton Herbert (until 03/02/20)
- Trevor Mahony (until 25/02/20)
- Tendai Mkwanzani
- Anthony Rose
- Anna Marsden
- Helen Moore (from 13/08/20)
- Erin Strang (from 13/08/20)

## Independent Auditors

- Rowena Craze, KPMG
- Mike Reid, EY

## Partnership Management Committee

- John Gunn, Co-chair
- Steve Sargent, Co-chair
- Deb Callister
- Theresa Fyffe
- Dr Geoff Garrett AO
- Dr Paul Greenfield AO
- Larissa Hale
- Prof. Ove Hoegh-Guldberg
- Jessica Hoey (from 13/02/20)
- Margaret Johnson (until 13/02/20)
- Wendy Morris
- Elisa Nichols

More than 70 Traditional Owner groups have deep and enduring connections to the Great Barrier Reef and its Catchments. The governance, co-design and co-delivery framework established through the Reef Trust Partnership ensures Traditional Owners are engaged and have a strong voice in protecting the Great Barrier Reef. The Foundation is grateful to be advised by a diverse group of Traditional Owners who provide perspectives from different geographic regions, advice on both male and female Traditional Owner priorities and offer voices on emerging leadership issues.

## Traditional Owner Advisory Group

- Larissa Hale (Chair), Yuku Baja Muliku Traditional Owner from Cape York
- Traceylee Forester, Lama Lama Traditional Owner from Cape York (Port Stewart/Princess Charlotte Bay) and Nywaigi Traditional Owner (Herbert River to Rolling Stone)
- Stan Lui, Torres Strait Islander from Erub (Darnley Island)
- Malcolm Mann, Darumbal Traditional Owner
- Gavin Singleton, Yirrganydji Traditional Owner

Saving our Reef and  
its marine life for  
future generations.

There will always  
be hope when we  
work together.

Level 11, 300 Ann Street, Brisbane QLD 4000

P 07 3171 0427

W [barrierreef.org](http://barrierreef.org)



Great Barrier  
Reef Foundation