

Reef Trust Partnership



Annual Work Plan 2020-2021



Australian Government

REEF TRUST



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.

This Annual Work Plan 2020-2021 has been developed with consultation from the Reef 2050 Advisory Bodies and organisations in accordance with the approved [Investment Strategy and Annual Work Plan Consultation Plan](#). The Foundation would like to thank the Reef 2050 Independent Expert Panel, the Reef 2050 Advisory Committee, the Reef Branch of the Department of Agriculture, Water and the Environment, the Queensland Office of the Great Barrier Reef, and the Great Barrier Reef Marine Park Authority for their contributions.

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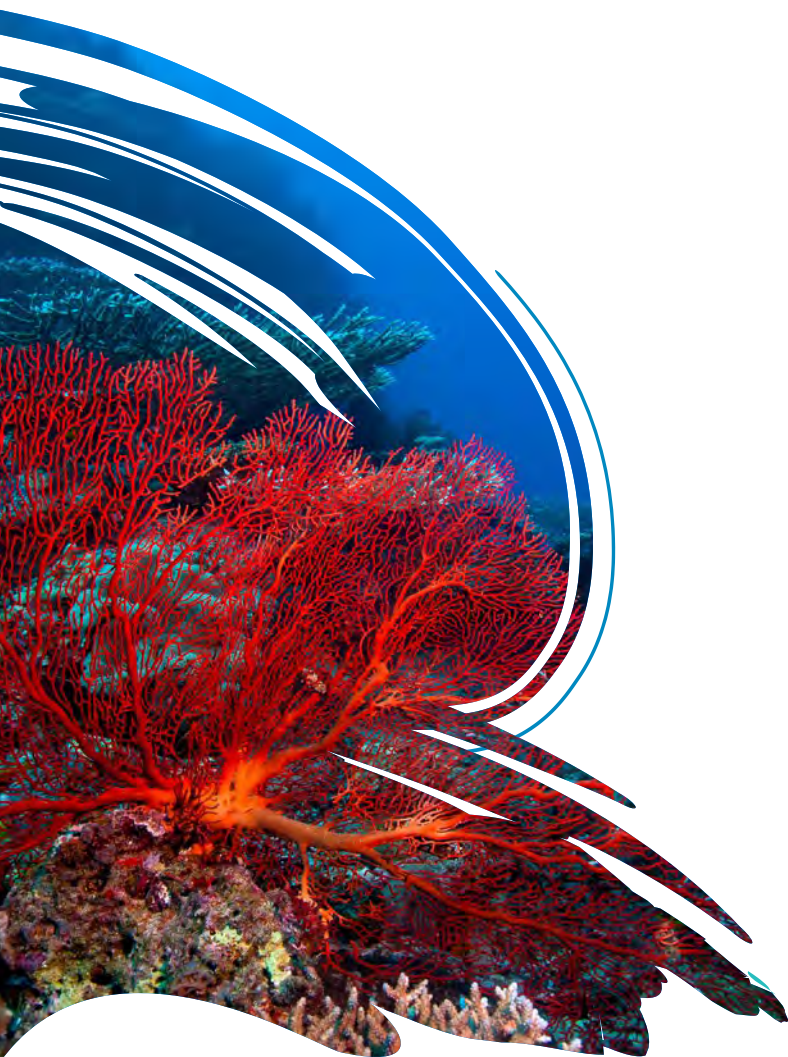


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Acronyms

AIMS	Australian Institute of Marine Science
COTS	Crown-of-thorns starfish
DIN	Dissolved inorganic nitrogen
GBRF	Great Barrier Reef Foundation
GBRMPA	Great Barrier Reef Marine Park Authority
IMR	Integrated Monitoring and Reporting
JCU	James Cook University
QUT	Queensland University of Technology
R&D	Research and Development
RIMREP	Reef 2050 Integrated Monitoring and Reporting Program
RRAP	Reef Restoration and Adaptation Program
RRAS	Reef Restoration and Adaptation Science Note: The work undertaken as part of the Reef Restoration and Adaptation Science (RRAS) component essentially represents the next stage of the Reef Restoration and Adaptation Program (RRAP), and is largely referred to throughout the document as RRAP.
RRRC	Reef and Rainforest Research Centre
RTP	Reef Trust Partnership
SCU	Southern Cross University
UJV	Unincorporated Joint Venture
UQ	The University of Queensland

1. Introduction

A new normal

This past year, Australians—and citizens around the world—were confronted with major challenges and forced to face a new normal. Climate change contributed to unprecedented bush fires and another round of severe bleaching on the Great Barrier Reef, while a global pandemic took a devastating toll—changing our way of life and threatening the global economy.

These challenges have reminded us how vulnerable and interconnected we are; how much we depend on each other, and how inter-related our lives are with the ecosystems we cherish and rely on. And while we have witnessed great tragedy through these events, they have also shone a light on the determination of the human spirit and the ability of that spirit to seed a new level of cooperation and achievement.

These themes are also the tenets of the Reef Trust Partnership (the Partnership), a landmark government investment in response to the summers of 2016 and 2017 where we saw unprecedented coral loss due to climate change. The Partnership is a platform for science, innovation and community to come together with the conditions and the resources to set a new pathway for Reef protection and recovery in Australia.

About the Annual Work Plan 2020-2021

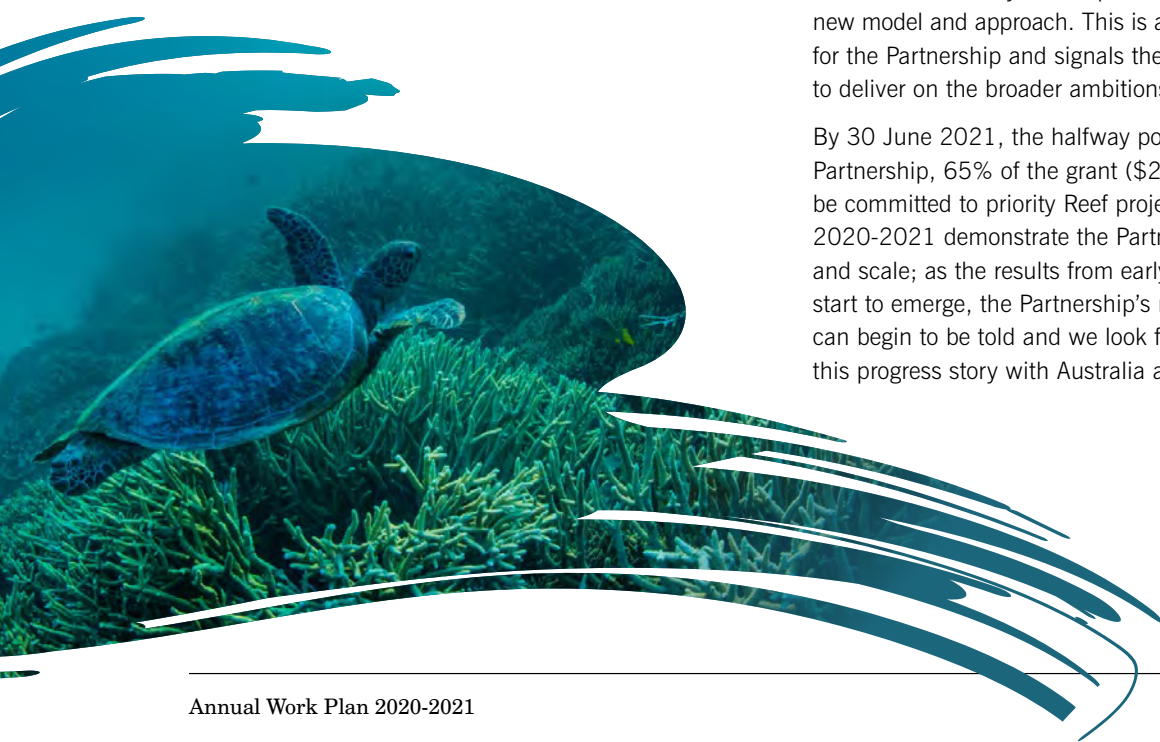
This Annual Work Plan describes the activities and investments planned for the 2020-2021 year to deliver on each of the components described in the Partnership Grant Agreement. This plan represents one year of a five-year strategy, and we encourage readers to refer to the [Partnership Investment Strategy](#) (released 2019) for the full strategic context. As the activities of 2020-2021 build on projects and planning of the previous year, a summary of progress within the five-year journey is included for each component.

A Year in Review outlining Partnership activities and investments in 2019-2020 will be published separately as part of year-end reporting.

This is the second Annual Work Plan presented by the Great Barrier Reef Foundation (GBRF), and appropriately signals the completion of all the building and planning, moving the Partnership into full execution and on-ground implementation. This is very much a doing and achieving plan.

The significance of putting in place the underpinning enabling conditions for success of the Partnership should not be underestimated. The Partnership was not intended to fund a business as usual approach. True, enduring impact in Reef health requires a collective approach, an appetite and platform for system change, and the window to embed new thinking and new practice. The Foundation is deeply proud that at the time of preparing this plan (June 2020) there is already evidence across the Reef community of acceptance and belief in this new model and approach. This is a key early achievement for the Partnership and signals the right conditions to deliver on the broader ambitions of this program.

By 30 June 2021, the halfway point of the six-year Partnership, 65% of the grant (\$275 million) will be committed to priority Reef projects. Not only will 2020-2021 demonstrate the Partnership at full pace and scale; as the results from early investment projects start to emerge, the Partnership's measurable impact can begin to be told and we look forward to sharing this progress story with Australia and with the world.





Impacts of COVID-19

Launching this Annual Work Plan during a global pandemic presents a unique challenge as the full extent of the COVID-19 impacts remains uncertain at this stage. We will continue to monitor and assess risk and provide updates to this work plan if and when required. To date however, we have witnessed incredible resilience and adaptability from Partnership delivery partners, and mostly only minor impacts across our project portfolio. The International COTS Control Forum and the Traditional Owner regional co-design workshops have been rescheduled, with interim online arrangements sufficient so far to fill any gaps arising from their postponement. The Foundation, like most charities in Australia, has had a decline in revenue from donations and corporate partners, and philanthropy experts predict the market to remain slow for some time. Coupled with travel restrictions, fundraising efforts will be challenging.

To our partners and critical friends in the hardest hit sectors including tourism and higher education, and our remote Traditional Owner partners in lockdown, we continue to stand by you. Throughout this situation we remain true to three priorities:

- First and foremost, the safety and wellbeing of our people and our partners.
- Secondly, the resilience and security of our businesses and our partnerships.
- Thirdly, our responsibility to improve the health of the Great Barrier Reef.

It is only if we are focused on the first two priorities that, once the crisis subsides, we can quickly bounce back. And that is critical, as the Reef needs us more than ever and cannot afford any further delays.

The Partnership as a platform for innovation

Innovation is a key principle of the Partnership and is embedded throughout the lifecycle of all our projects from project design through feasibility, piloting and implementation stages. It includes innovation not only in WHAT is delivered but HOW it's delivered, with innovation in delivery models, governance arrangements, and monitoring and evaluation.

Following investments in workshops, forums, open grant rounds, and the finalisation of planning separate to the Partnership, the Foundation can now confidently roll out its innovation portfolio. The response and the quality of ideas generated through these processes from individuals and organisations beyond just the Reef space has been heartening, and shows the need to encourage new approaches and perspectives, bold systems change and emerging technologies to respond to the challenges facing coral reefs and our oceans.

We are pleased that this year we will launch innovation pilot projects and innovation-themed partnerships across all Partnership components, including:

- Formal commencement of the most ambitious reef science initiative of our time – the \$300 million Reef Restoration and Adaptation Program kickstarted by \$100 million from the Partnership
- Launch of the \$10+ million COTS Control Innovation Program
- Delivery of a \$10 million portfolio of water quality innovation projects addressing innovation in finance, technology, data and planning
- Design and initiation of a \$5 million technology transformation fund focused on step-change in reef monitoring
- Activation of a novel Traditional Owner-led co-design action framework supported by a recently established governance structure that is giving a strong voice to Aboriginal and Torres Strait Islander peoples
- Kick-off of new delivery models to support, strengthen and connect community-led Reef programs.

A national mission

Really big problems present opportunities for innovation and nowhere is that more apparent than in our efforts to achieve reef recovery, adaption and restoration at scale. The Reef Restoration and Adaptation Program (RRAP) is being led by our nation's great science and research institutions and sits proudly as a centrepiece of the Partnership. With the successful completion of a concept feasibility study, RRAP can now confidently begin.

In ambitious undertakings there are no guarantees, but if the RRAP succeeds in developing innovative and effective new reef technologies and tools, it will buy the Reef time, enabling corals to cope and adapt to warmer waters, as we tackle the root cause of climate change and transition to cleaner and lower emission energy. It will also demonstrate innovation in action, harnessing the excellence of our own science and implementation skills. And it will lead the world with breakthrough technologies for reefs globally.

Co-benefits and a portfolio approach

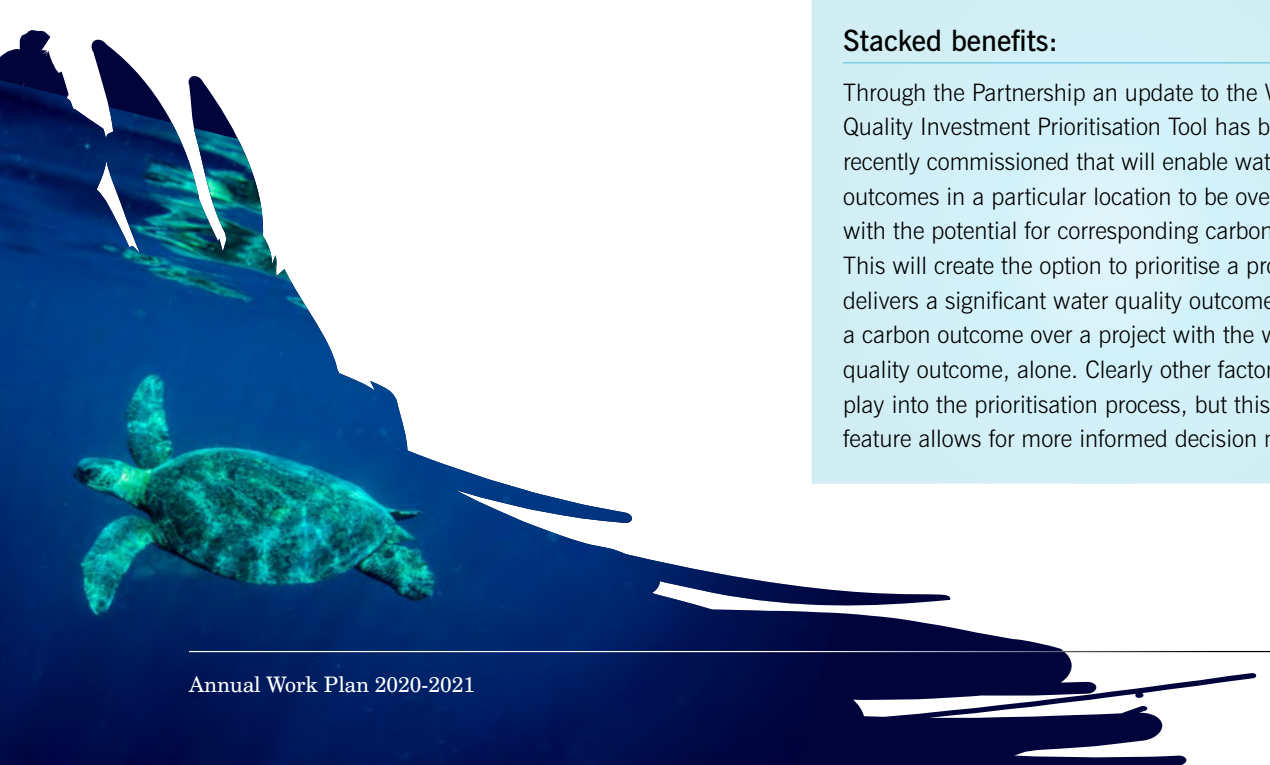
Under the Partnership, a suite of important components come together into a single portfolio. This provides the opportunity for the project portfolio to be designed and delivered in an integrated way, maximising the co-benefits that can be achieved and providing considerable efficiency and effectiveness dividends, as outcomes from one component inform and strengthen the outcomes of others. Entering its third year, the Partnership is now at a sufficient maturity level for these co-benefits to begin to be realised.

Local-scale Reef Restoration Hub:

Over the first three months of 2020-2021, Australia's first integrated Reef Restoration Hub will be established. The Hub will connect the large-scale and ambitious Reef Restoration and Adaptation Program (RRAP) led by Australia's leading marine science institutions with in-water local restoration projects underway in Cairns and Port Douglas. Cutting across the Community- and Traditional Owner-led Reef Protection components and the Reef Restoration and Adaptation Science component of the Partnership, the hub will be a vehicle for coordinating, trialling and amplifying local-scale reef restoration approaches being undertaken by Traditional Owners, community groups and tourism operators while providing the connection to cutting-edge science.

Stacked benefits:

Through the Partnership an update to the Water Quality Investment Prioritisation Tool has been recently commissioned that will enable water quality outcomes in a particular location to be overlaid with the potential for corresponding carbon benefits. This will create the option to prioritise a project that delivers a significant water quality outcome plus a carbon outcome over a project with the water quality outcome, alone. Clearly other factors also play into the prioritisation process, but this new feature allows for more informed decision making.



Measuring Partnership performance

A detailed and robust set of performance measures have been developed to assess the effectiveness of the Partnership (refer to Partnership [Monitoring and Evaluation Plan](#)). However, as the most advanced projects within the Partnership are only just moving into their second year there has been limited performance data collected to date. Despite this limited data, the Partnership's first independent evaluation (to be completed in July 2020) has revealed that good progress has been made across many of the change pathways described in the component-level program logics. Initial findings also support the potential of the Partnership model itself to deliver additional value and co-benefits due in part to its integrated design which can serve to drive systems-level change. This has triggered the development of a Partnership-level logic model and evaluation framework which will be finalised towards the end of 2020, to ensure that this additional value can be effectively monitored and measured.

In parallel to the independent evaluation process, an interactive data dashboard is near completion. This will enable the reporting and visualisation of Partnership performance data in near real time, providing a new benchmark for transparency and accountability, not only for the Foundation, but also for all Partnership delivery providers. Available initially as an internal tool, a public version is proposed for the first quarter of 2021.

A role for all

As the Partnership Investment Strategy matures, so too do the proof points demonstrating the vital and powerful relationship between human communities and the Reef. There is no doubt healthy ecosystems depend on healthy communities and healthy communities depend on healthy ecosystems. At the heart of the Partnership is the empowerment, acceleration and amplification of local action.

The Partnership is privileged to be playing a role in responding to the aspirations of the Traditional Owners of the Great Barrier Reef. The activities included in 2020-2021 continue to set forward a new pathway of genuine co-design and co-delivery. We are 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.

2020-2021 will see the elevation of community-facing activities through the launch of a new initiative that provides an opportunity for Australians to unite and engage in positive collective action for the long-term benefit of the Reef.

Even against the unsettling backdrop of 2020, we can find hope for our Reef. Twenty-four months on from the announcement of the investment, the Partnership and its emerging success belongs to many. This plan and the resulting activity and impacts are collective action at its best. From Traditional Owners, to tourism operators, to conservation groups, to our nation's premier research institutions – each one continues to guide the intent and focus of the Partnership and take a responsibility in its implementation and in delivering positive outcomes for the Great Barrier Reef.

The Foundation is grateful for the support and advice of many individuals, associations and institutions in the development of this plan and acknowledges the contribution of the Partnership Management Committee in its oversight and governance of the program.

The 2020-2021 year will be about working together to make the difference required to set a new pathway of hope for this global icon and coral reefs around the world.



2. Partnership Progress to Date

2020-2021 is the third year of the six-year, \$443 million landmark Reef Trust Partnership. A high-level overview of progress over the first two years of the Partnership is provided below.

Year 1 (2018–2019): Planning and early investments



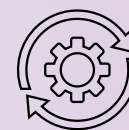
In accordance with the Partnership Grant Agreement and the approved 2018-2019 Activity Gantt Chart, year 1 of the Partnership focused on Partnership planning and contracting a suite of projects across all components for the purpose of maintaining the existing momentum and capacity in the system and creating the enabling conditions for broader implementation of the Partnership in the following years. Key achievements over the first year include:

- Completed plans and strategies encompassing strategic investment priorities, year to year activities, fundraising objectives and targets, communication and engagement, risk, and monitoring and evaluation
- Implemented robust decision-making frameworks and comprehensive governance arrangements, including the Partnership Management Committee, the Traditional Owner Advisory Group, and component-level working groups, all nested within the broader Reef 2050 governance arrangements
- Delivered \$25 million of on-ground early investment projects across all Partnership components including:
 - 18 Traditional Owner projects for Land and Sea Country planning, on-ground Land and Sea actions and junior ranger programs
 - 11 on-ground water quality projects and the design of a Reef-wide modelling framework for investment in water quality improvements
 - 25 citizen science and community-driven local action projects
 - A northern Great Barrier Reef monitoring project (through the AIMS Long Term Monitoring Program) to assess the condition of northern reefs post the 2016 and 2017 bleaching events
 - 3 reef restoration and adaptation science projects including in-water reef restoration trials and regulatory support



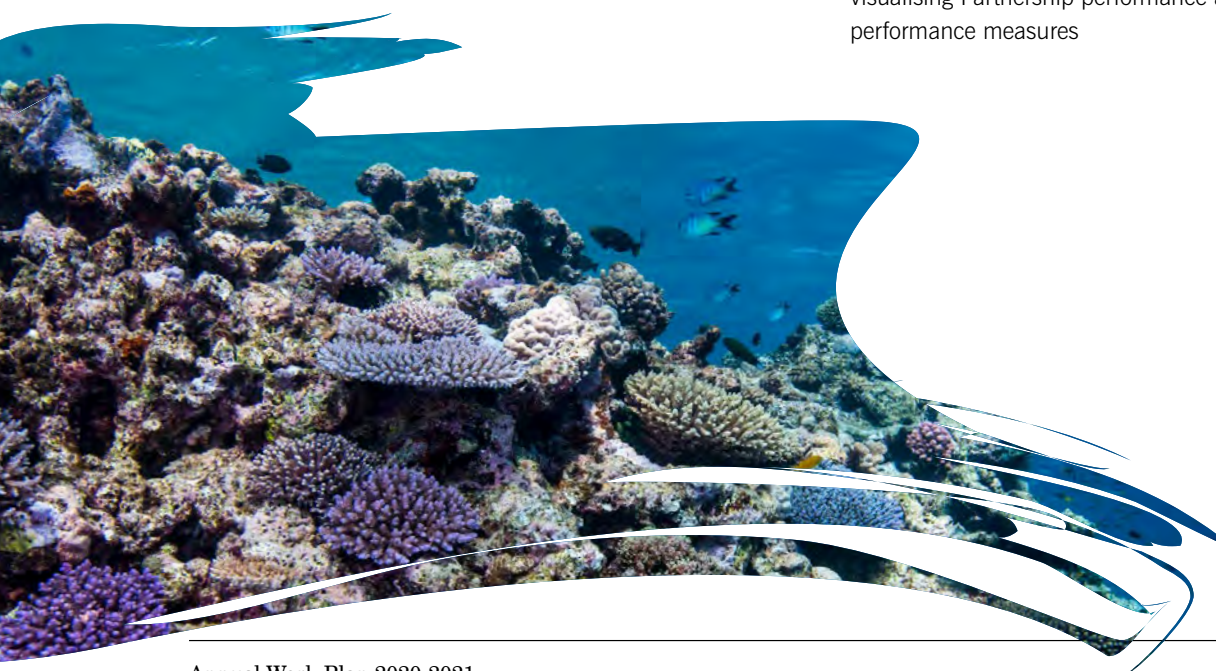
Year 2 (2019–2020):

Transition from Partnership planning to project and program set-up and implementation



The Partnership changed gears in year 2, using the Partnership-level plans and strategies to guide the implementation of projects across all components. Key achievements in year 2 include:

- Initiating eight (of a total of 10) major regional water quality programs. With each program in the order of \$10–\$20 million over three to four years, this has involved considerable program design and contracting work, with full on-ground implementation of programs rolling out from July to December 2020
- Assessment and prioritisation of a suite of over 20 water quality innovation projects spanning innovation in finance, technology, data and planning (\$10 million)
- Establishment of the governance, scope and strategic partnership arrangements for a new \$10 million COTS Control Innovation Program to launch early in 2020-2021
- Augmenting delivery of the 2019-2020 in-water COTS control program to enable the full complement of vessels (\$1.4 million) and establishing a new partnership between GBRMPA, Reef and Rainforest Research Centre (RRRC) and GBRF for the full delivery of the COTS Control Program for the next two years (\$28.6 million)
- Establishment of the governance framework for RRAP with RRAP partners
- Identifying and contracting four projects addressing critical Reef Integrated Monitoring and Reporting Program (RIMREP) needs set to commence early in 2020-2021
- Commencing work, in partnership with GBRMPA, on a decision support system that builds on the learnings from the first phase of RIMREP
- Designing a \$2 million Traditional Owner grants round supporting activities across all Partnership components to launch early in 2020-2021
- Commencement of community action planning in five Reef regions from Bundaberg to Cooktown, being led by local partners
- Release of an open funding round for a local-scale Reef restoration program in Cairns-Port Douglas, bringing together tourism operators, community groups, Traditional Owners and scientists
- Implementing a governance and co-design framework within the Traditional Owner component with 17 Traditional Owners formally engaged through expert technical working groups and an overarching advisory group
- Completion of an interactive data dashboard for visualising Partnership performance against key performance measures



The Year Ahead

Year 3 (2020-2021): Full implementation

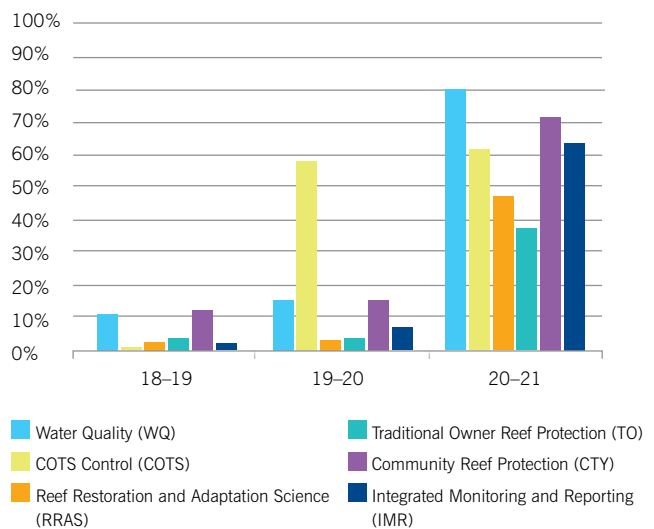


This Annual Work Plan 2020-2021 describes in detail the specific activities that will be undertaken over these 12 months. Much of the activity in the plan is a continuation or scaling of projects and programs established in the previous year. Highlights in the Annual Work Plan 2020-2021 include:

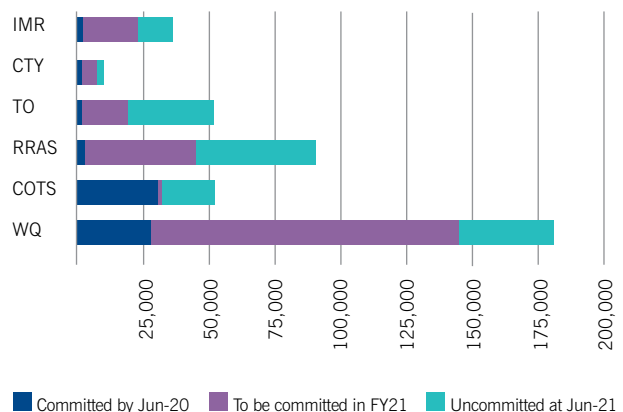
- Formal commencement of the Reef Restoration and Adaptation Program, upon execution of the unincorporated joint venture agreement expected to be signed in August 2020
- Commencement of a COTS in-water control training program for Reef Traditional Owners
- Launch of the four-year COTS Control Innovation Program
- Establishment of a reef restoration hub in Cairns-Port Douglas – connecting local and large scale projects
- Launch of the National Reef Protection Challenge
- Commencement of the first phase of a Traditional Owner-led Water Quality Program (\$4 million)
- Launch of the Technology Transformation Fund (\$5 million) – a critical innovation platform for tackling key bottlenecks limiting cost-effective monitoring at scale
- Further investment in addressing RIMREP critical monitoring needs
- Commencement of indigenous heritage monitoring pilot programs in at least four Reef regions
- Initiation of the remaining 2 (out of 10) regional water quality programs
- Scoping of the \$10 million conservation and protection program (within the Water Quality component) to understand the costs and benefits of taking action in less disturbed catchments, as the basis for prioritising investments in those catchments
- Launch second round of citizen science grants
- Commencement of the 20+ water quality innovation projects designed to improve the effectiveness, efficiency and sustainability of on-ground water quality actions and remove barriers to change.

Projects and programs are designed to achieve the right balance between sufficient continuity of funds to attract and retain the best delivery partners, while maintaining the flexibility to change course. To facilitate this flexibility, projects and programs are designed either with stand-alone phases such as feasibility or pilot phases, or include stage gates and review processes within the contractual arrangements.

Commitments by 30 June 2021 (% of total)^{1,2}



Commitments (\$,000)^{1,2}



By 30 June 2021, 65% of total Partnership funds will be committed to Reef projects (refer to following graphs). However this will not prevent the opportunity for adaptive and agile management of the Partnership project portfolio.

1 Graphs do not reflect co-contributions.

2 Given the strategic decision in year 1 to allocate 10% of the WQ, COTS, RRAS and IMR funds to Traditional Owner-led activities, totals for these four components have been reduced by 10% in these graphs with these '10%' funds captured in the Traditional Owner Reef Protection components of the graphs.

3. Water Quality Annual Work Plan

Budget: \$201 million.

Purpose: To address water quality improvement targets impacting the Great Barrier Reef World Heritage Area through activities such as improved farming practices, reduced fertiliser usage, and uptake of new technology and land management practices.

Priorities under the Partnership Investment Strategy:

●	Investment in on-ground actions
●	Systems-level change and innovation

The 2020-2021 year will see work undertaken to identify priorities for how and where these funds can be invested to achieve the best water quality outcome in Reef catchments.

Ten percent (\$20 million) of funding under the Water Quality component is allocated to Traditional Owner-led projects. Processes and progress related to this funding is addressed in this Annual Work Plan under Traditional Owner Reef Protection.

2020-2021 in the context of the five-year strategy

In partnership with the major water quality program funders, the Queensland and Australian governments, the Water Quality component aims to make meaningful progress towards improved water quality for the Reef, support the sustainability of the agricultural sector, while at the same time improving the way we make change happen.

The five-year plan prioritises funding for proven, on-ground measures aimed at addressing priority pollutants – dissolved inorganic nitrogen or DIN, pesticides, and fine sediment. Around \$160 million will be invested through a series of targeted four-year regional programs focused on the highest priority catchments to maximise impact. Priorities for the regional programs were informed by a detailed technical and values-based process (further details [here](#)), with target pollutant load reductions set for each regional investment. This process is being updated to include the potential for the consideration of co-benefits, particularly those related to carbon.

At the end of June 2020, 8 out of 10 regional programs were underway (Figure 2. Status of water quality improvement regional programs), \$50 million committed, which represents over a third of the total investment allocated to this activity.

In addition to the regional programs, \$10 million has been allocated for innovation and system change. An open funding call conducted in the second half of 2019-2020 across four priority innovation themes resulted in a suite of 22 two-year projects being identified for commencement from July 2020.

A further \$10 million has been allocated under the five-year plan to catchment conservation and protection measures in less disturbed catchments. This work stream has been paused while the major regional programs commence.

Across both the regional programs and the innovation and system change work, 2020-2021 will see the completion of the planning and procurement phase and a shift to project implementation, coupled with ongoing monitoring, evaluation, and improvement of projects through close participation of project partners.

On-ground projects should be underway in nearly all regions by the end of 2020. By that time, the vast majority of the funds allocated to regional programs will have been committed, although contractual arrangements will retain flexibility for adjustments based on performance at major review points and to ensure an adaptive management approach. Similarly, contracts representing more than 90% of the \$10 million allocated to innovation and system change should be in place by October 2020. The remaining funds will be retained as a contingency to support further work under successful innovation projects, or to fund other high priority initiatives that may emerge.

Regional programs

There are 10 regional water quality improvement programs across the Reef catchments (Figure 2. Status of water quality improvement regional programs). The roll out of the programs is being staggered, to align with the timing of existing programs outside the Partnership (such as the Major Integrated Projects [MIPs]) and to manage internal capacity. At 30 June 2020, 8 out of the 10 regional programs were underway, with the last two programs to commence in the first half of 2020-2021.

A unique model is being implemented for the procurement and delivery of the larger regional programs. Three separate roles have been identified (Regional Program Manager,

Regional Partnership Coordinator and delivery providers) to encourage participation, drive accountability, and manage actual or perceived conflicts of interest in a transparent way.

Open processes are being used to identify providers for each regional program, followed by a rigorous assessment and selection process which includes cost-effectiveness of proposed on-ground actions as a key criterion. This is delivering value for money and allows an integration process to take place at the regional level to foster partnerships and instill a sense of common purpose among the program participants. On-ground projects are being aligned and synergies between projects identified as part of the design process to maximise water quality gains. For smaller regional programs, conventional open grant rounds are the preferred model to identify projects and providers.

Considering the rigour of the prioritisation and procurement processes, this represents a major achievement and reflects the component objective to drive on-ground action as early as possible, in order to achieve outcomes and make significant progress on the path to impact over the life of the Partnership.

Monitoring will occur at various levels and locations within the regional program, focusing on lead indicators and early system responses. Guided by a Technical Advisory Group to be established in the first half of 2020-2021, monitoring will address biophysical as well as behavioural and social indicators, seeking alignment with monitoring and evaluation processes established by our Australian and Queensland Government partners.

Innovation and system change

An open grant round received 120 proposals and was oversubscribed across all four priority themes:

- technology transformation through new tools and approaches to reducing priority pollutants;
- improved use and management of landholder and industry data;
- planning to support enhanced water quality interventions; and
- innovative financing and funding mechanisms.

At the time of developing this Annual Work Plan 2020-2021, the tiered assessment process, involving an independent panel as well as individual subject-matter experts, was still ongoing and specific projects could not be included. In general terms however, the panel

remarked on the strength of the field, with a number of highly innovative proposals that could have a significant impact on improving the way we enact change in the system.

These included advanced computational methods to increase the value of remote-sensing data, cutting-edge modelling to optimise the design of landscape remediation strategies, improved fertilisers and soil health management, robotic solutions, low-cost in situ integrated monitoring platforms, mobile platform apps to accelerate the uptake of science in farm management, and practical financing and insurance solutions to catalyse industry transformation and renewal. This list of examples is far from exhaustive, demonstrating the breadth and vitality of innovation in this sector.

Innovation projects will commence from July 2020 and, wherever possible, integration within and between innovation themes will be encouraged and effective innovation ideas trialled or incorporated into the regional programs.

Traditional Owner- and community-led water quality activities

Three water quality projects are currently being delivered through the Traditional Owner and Community Reef Protection components. These include a water quality monitoring project being implemented by the Gidardjil Development Corporation addressing a major knowledge gap in water quality impacts on the marine habitats of inshore coral reefs on the southern margin of the Great Barrier Reef Marine Park. The second Traditional Owner project, being undertaken by Yuka Baja Muliku Land Corporation, is monitoring water quality in the Annan River south of Cooktown.

The Whitsunday Water Quality Monitoring Blue Print for Tourism Operators is a collaborative project led by Reef Catchments and the Whitsunday Charter Boat Industry Association. The project is training tourism operators to undertake water quality monitoring at key tourism locations. This monitoring fills an identified gap in regional water quality data that will be used for the regional report card.

A second open call for proposals for Traditional Owner-led projects, including those focused on water quality, opened in June 2020 and projects will commence in 2020-2021. This round will be followed up by a dedicated Traditional Owner-led Water Quality Program to commence in the second half of 2020-2021.

2019–2020 highlights



8 regional programs underway



\$27m committed to on-ground actions



298 proposals received and assessed

Project Bluewater (\$1.4m)

This two-year project implemented by Farmacist aims to reduce pollution from pesticides in two priority catchments (Plane Creek/Pioneer and the Lower Burdekin).

The project involves working with landholders to develop pesticide management plans, including processes for better product selection. This is coupled with practical on-ground work to improve equipment function.

With partners from JCU and UQ, the aim is to reduce pesticide use in the project catchments by 6,000kg.

The project is supporting a total of 74 growers across 11,400 ha of sugarcane.

Results to date indicate that the methodology used is scalable and that both growers and resellers are highly engaged. In particular, the shed meetings where growers can share learnings and field-based workshops and demonstrations have been very well received. 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.



Growers participating in spray application demonstration (prior to COVID-19 restrictions)



Project Pioneer (\$2.9m)

Implemented by Resource Consulting Services (RCS), this project aims to support 50 grazing businesses from the Burdekin, Burnett, Fitzroy and Mary River catchments to improve farm management capacity, leading to the adoption of better land management practices and improved land condition. From the 50 businesses engaged in the project, 43 have already completed the RCS Next Steps Peer Mentor Program – a 6-month skills development program with a professional coach to help businesses implement changes on-farm.

Businesses have also received grazer specific on-farm consultations to conduct ground cover measurement, property mapping and establishment of monitoring sites.

The project aims to transition 300,000 ha of grazing lands to class A land condition, stopping erosion through gullies and streambanks and reducing the amount of fine sediment reaching the Reef. To date, Project Pioneer has already reported a total of 440,203 ha under improved management.

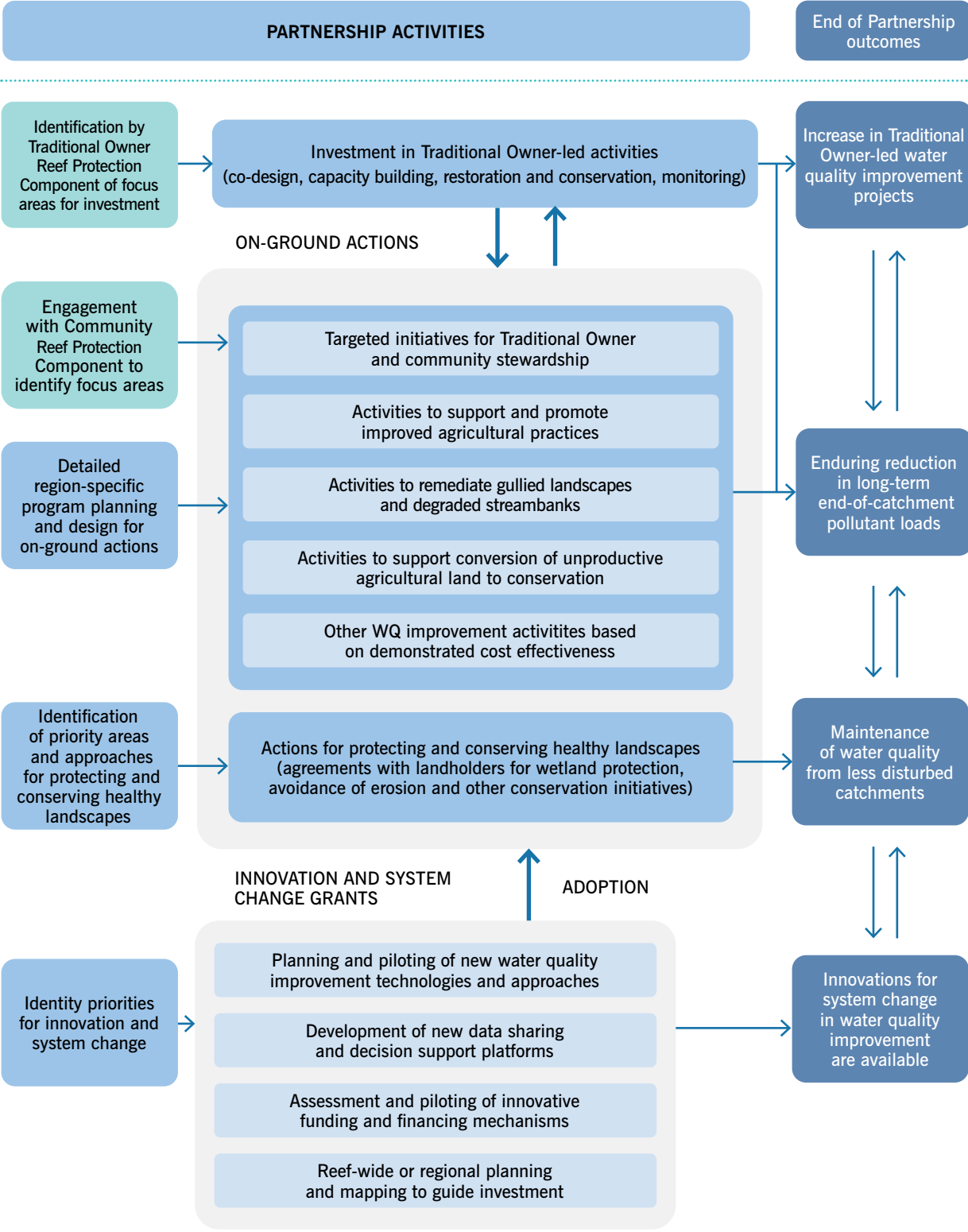
“ Project Pioneer has given us more tools than just managing grass and cattle, it has given us tools to manage communication.

Catriona Murdoch, project beneficiary



Participants at Emerald Grazing for Profit Schools field trip (prior to COVID-19 restrictions). Source: Resource Consulting Services.

Figure 1. Water Quality five-year program overview and end of Partnership outcomes



Five-year plan

Major categories of activity, rationale and budget for the five-year period are shown in Table 1 for reference.

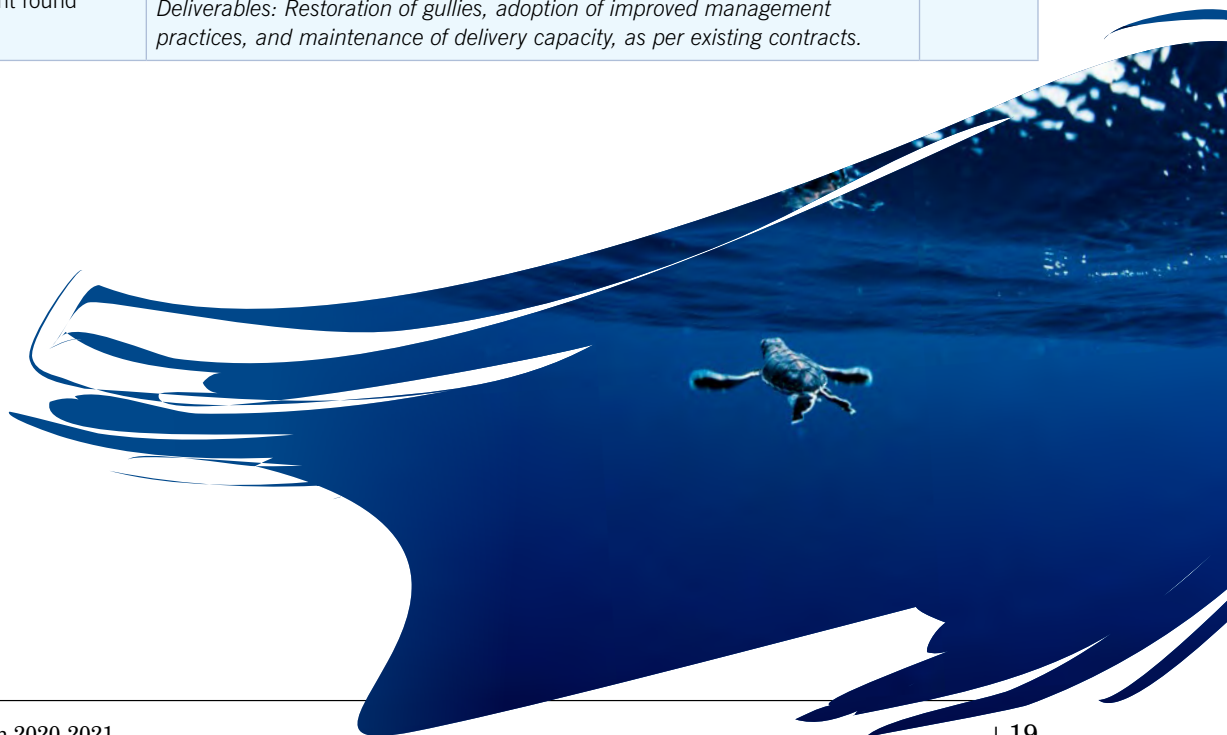
Table 1. Water Quality five-year investment areas and budget

Partnership Activity		Rationale	Outcome	Budget
			TOTAL INVESTMENT	\$200.6m
●	Early investment activities	A need was identified to address existing delivery capacity constraints for on-ground activities, as well as mitigate the risk of losing current extension and delivery staff during the program development phase. The need for catchment-level modelling of the cost and effectiveness of on-ground actions was an essential element of investment planning.	Maintain/build on-ground capacity across moderate, high and very high priority catchments to support program implementation, while also reducing pollutant run-off. Alluvium report on investment pathways and online interface for development and assessment of investment scenarios.	\$19.7m
● ●	Regionally-focussed on-ground actions	Limited funding relative to the total cost of achieving the Reef 2050 Water Quality Improvement Plan (WQIP) objectives requires a strategic and targeted approach to addressing the highest priority pollutants in the highest priority catchments. There is now significant experience in implementing water quality improvement activities, although a more targeted approach is required that adopts the most cost-effective actions, improves upon them, and extends adoption. Investments in specific catchments have been determined by a detailed technical assessment, supported by a decision-making process that considered a range of value drivers and objectives.	Reduce dissolved inorganic nitrogen (DIN) runoff in Wet Tropics (Johnstone, Tully, Mulgrave Russell, Herbert), Burdekin (Lower Burdekin/Haughton), and Mackay-Whitsunday (Plane Creek) regions, primarily via practice change related to fertiliser and irrigation management in the sugarcane industry.	\$62.1m
			Reduce anthropogenic fine sediment (FS) runoff from the Burdekin (Bowen Bogie, Upper and East Burdekin), Wet Tropics (Herbert River), Fitzroy (Lower Fitzroy and Mackenzie), and Burnett Mary (Mary River) regions, including through restoration of the landscape (gullies and streambanks) and improved management of grazing lands.	\$63.8m
			Reduce pesticide runoff in Burdekin (Lower Burdekin/Haughton), and Mackay-Whitsunday (Plane Creek and Pioneer River) regions, including through practice change, particularly in the sugarcane industry.	\$15m
●	Conservation and protection of less disturbed catchments	This mitigates the risk of degradation of less disturbed catchments and relies on the expectation that prevention and early intervention are more cost-effective than repair.	Avoid degradation of the quality of water entering the Reef, particularly from less disturbed catchments, and contribution to land stewardship objectives.	\$10m
● ●	Traditional Owner-led Reef protection initiatives	Protect and maintain culture and heritage values for water sources (including cultural flows). Diversification of skillsets/capacity building – improved inclusion. This budget figure is also accounted for in Traditional Owner Reef Protection.	Direct investment in Traditional Owner Country-based planning and management for improved water quality outcomes; improved capacity and opportunity for Traditional Owner enterprises to become engaged in water quality programs; cultural value recognised in protection and improvement efforts.	\$20m
●	Innovation and system change	There is a need for a transformational change in how water quality improvement activities are designed, funded, and implemented to support enduring and self-sustaining improvements at sufficient scale.	New systems, technologies, and financing options available to support water quality improvement activities and achieve enduring impact.	\$10m

2020-2021 work plan

Table 2. Water Quality investment areas and budget for 2020-2021

Activity	Description	Budget
(existing commitments are shaded)		TOTAL INVESTMENT
		\$39.04m
On-ground regional programs for Dissolved Inorganic Nitrogen (DIN) and pesticide reduction Implementation of major DIN and pesticide reduction programs in the Lower Herbert, Lower Burdekin, Plane Creek and Pioneer, Mulgrave, Russell, Tully and Johnstone catchments	Most programs are already underway, with program managers/partnership coordinators appointed (where relevant) and delivery providers short-listed. Next steps will involve finalising the detailed regional plan for each program and contracting the delivery providers, followed by implementation. Regional engagement and design processes will be undertaken for the Mulgrave, Russell, Tully and Johnstone catchments. The approach to Tully and Johnstone will be informed by Queensland Government decisions on the Wet Tropics Major Integrated Project. <i>Deliverables: Plans finalised and delivery providers contracted. Implementation of a suite of integrated projects targeting improved land management practices, construction of wetlands, etc., resulting in a long-term reduction in DIN and pesticides at end of catchment.</i>	\$13.954m
On-ground regional programs for fine sediment reduction Implementation of fine sediment reduction programs in the Fitzroy, Upper Herbert, Burdekin (Bowen, Broken Bogie, and Upper and East Burdekin) and Mary River catchments	Most programs are already underway, with program managers/partnership coordinators appointed (where relevant) and delivery providers short-listed. Next steps will involve finalising the detailed regional plan for each program and contracting of the delivery providers, followed by implementation. Regional engagement and design processes will be undertaken for the Bowen Broken Bogie catchment, with the approach to be informed by Queensland Government decisions on the Burdekin Major Integrated Project. <i>Deliverables: Plans finalised and delivery providers contracted. Implementation of a suite of integrated projects targeting gully and streambank restoration and improved land management practices resulting in a long-term reduction in fine sediment at end of catchment.</i>	\$15.284m
Ongoing water quality activities Continuation of contracted projects under the stage 1 water quality grant round	The delivery of 2018-2019 early investment projects, aimed at maintaining delivery capacity and supporting implementation of the WQ component, will continue in 2020-2021. These projects were awarded following an open and competitive process and are expected to be completed by 30 June 2021. <i>Deliverables: Restoration of gullies, adoption of improved management practices, and maintenance of delivery capacity, as per existing contracts.</i>	\$3.64m





Activity	Description	Budget
(existing commitments are shaded)		TOTAL INVESTMENT
		\$39.04m
Innovation and systems change Implementation of projects related to innovation and systems change	Technology transformation. Most projects have been selected, with contracts now being finalised. Implementation will commence in July 2020 on around 13 projects trialling a range of new technologies, methods and approaches for reducing dissolved inorganic nitrogen, fine sediments and pesticides, including new land management and land restoration techniques. <i>Deliverables: Trials of new technologies, methods, and approaches to reducing pollutant loads.</i>	\$2.25m
	Sharing and management of industry- and landholder-owned data. A short-list of proposals has already been selected. A review of the approaches identified through the previous expression of interest process, together with a scoping of other options and opportunities for data management, will be used to finalise a scope of works for one or more pilot projects. <i>Deliverables: Piloting of one or more initiatives aimed at establishing a new platform for collation, management, and use of industry- and landholder-owned data.</i>	\$0.85m
	Broad and local scale planning/mapping of future interventions. A range of projects have been selected that will develop a suite of mapping and planning tools to guide future water quality interventions. These include tools for prioritising site selection for streambank and gully restoration and soil mapping to support precision agriculture. <i>Deliverables: Maps, plans, and other tools to support water quality interventions.</i>	\$0.8m
	Innovative financing and funding initiatives. Implementation of the five projects selected for funding, aimed at trialling new approaches to using financial mechanisms to drive water quality improvement. <i>Deliverables: Trials of new approaches to funding and financing water quality improvement activities.</i>	\$1.0m
Conservation and protection of less disturbed catchments Scoping options and planning	Limited work has been done previously on the options, costs, and benefits of interventions aimed at maintaining water quality in less disturbed catchments. An initial consultancy is proposed to determine the priority locations for taking action, the types of actions, and expected outcomes from that work. This will form the basis for preparing a detailed program design for this work stream. This work has been deferred from 2019-2020. <i>Deliverables: Consultancy to identify options. Program design completed. Procurement commenced.</i>	\$0.5m
Technical advisory group (TAG) and technical panels	A small group of technical experts will be established to provide whole-of-partnership advice to inform the water quality component. The group will be consulted on strategic issues and inform guidelines and approaches for cross-cutting issues such as standards for water quality and social monitoring. Members of a larger technical panel will provide independent technical advice in support of the component, and particularly the regional programs, including through review of technical design documents, such as for major gully and streambank restoration projects. The Partnership acknowledges the role of existing advisory bodies such as the Reef 2050 Independent Expert Panel and its working group, the Independent Science Panel. Wherever possible the Technical Advisory Group will seek to complement existing groups and avoid duplication. <i>Deliverables: Provision of independent technical advice on project and program implementation; establishment of guidelines and standards for program and project activities.</i>	\$0.76
Traditional Owner-led water quality activities	Refer to Traditional Owner Reef Protection	

Figure 2. Status of water quality improvement regional programs.

Underway and *Starting* refer to the open process of identification and selection of program managers, partnership coordinators and providers (as applicable). Dollar values refer to the total amount allocated to each regional program.

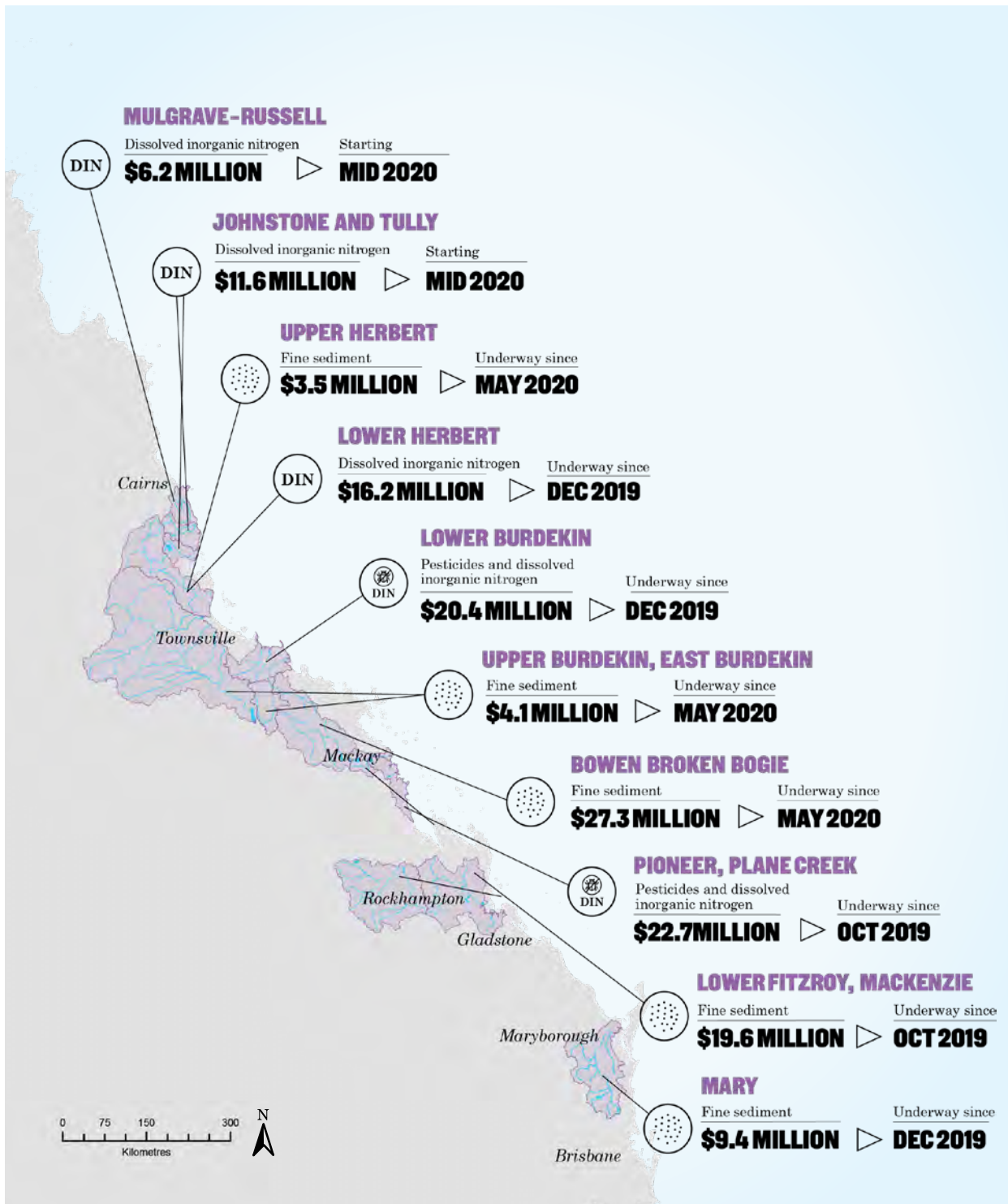


Table 3. Water Quality gantt chart 2020-2021

Activities	Description	Budget	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Early Investments		\$3.64m													
Ongoing delivery of existing water quality projects	Ongoing implementation of 10 projects contracted in 2018-2019. Focused on practice change and gully remediation.		Implementation												
Technical advisory group (TAG) and technical panels		\$0.76m													
Technical advisory	Provision of cross-cutting technical advice and guidance to programs and projects.		Implementation												
Innovation and system change		\$4.9m													
Technology transformation	Implementation of 12 projects focused on new technologies, tools, systems and methods for reducing pollution from DIN, fine sediment and pesticides.	\$2.25m	Contracting		Implementation										
New data sharing and management platform	Review of short list of EOLs for implementing data platforms, as well as additional options. Identification of preferred approach to pilot a landholder-owned data management system. Selection of one or more of short-listed proposals, contracting and inception of pilot/s.	\$0.85m	Review	Design	Contracting	Implementation									
Planning initiatives to support future interventions	Projects aimed at undertaking planning and mapping activities to inform future WQ investments and improvement activities.	\$0.8m	Contracting		Implementation										
Innovative financing and funding opportunities	Projects (5) aimed at piloting new measures and tools for funding and financing WQ improvement activities.	\$1.0m	Contracting		Implementation										
On-ground actions - Dissolved Inorganic Nitrogen (DIN) and Pesticides		\$13.954m													
Plane Creek and Pioneer	DIN and pesticide focused improvement programs. Staggered implementation across the five regions. Several programs already well progressed, with program managers/partnership coordinators appointed (where relevant) and only contracting required prior to implementation of on-ground activities. Others will involve initial design and procurement processes. Approach and timing to Tully and Johnstone will be dependent on Queensland Government decisions related to the Wet Tropics Major Integrated Project.	\$5.547m	Contracting		Implementation of on-ground projects										
Lower Herbert (DIN only)		\$3.205m	Design		Contracting		Implementation of on-ground projects								
Lower Burdekin		\$3.440m	Design		Contracting		Implementation of on-ground projects								
Mulgrave Russell (DIN only)		\$0.911m	Detailed design and engagement process				Procurement / contracting			Implementation					
Tully Johnstone (DIN only)		\$0.851m	Detailed design and engagement process				Procurement / contracting			Implementation					
On-ground actions - Fine sediments		\$15.284m													
Fitzroy River	Fine sediment focused improvement programs. Staggered implementation across the five regions. Most programs already well progressed with program managers/partnership coordinators identified (where relevant) and on-ground projects short-listed or selected. Initial steps will be finalising contracts followed by implementation. For Bowen Broken Bogie, \$5m of initial funding is being released to maintain momentum in the region. Release of the majority of the balance of funds for the region (\$27.3m in total) will occur following a detailed design and procurement process. The approach and timing will be dependent on Queensland Government decisions related to the Burdekin Major Integrated Project.	\$4.998m	Contracting		Implementation of on-ground projects										
Mary River		\$2.303m	Finalise design			Implementation of on-ground projects									
Upper Herbert		\$0.681m	Contracting		Implementation of on-ground projects										
Upper and East Burdekin		\$0.806m	Contracting		Implementation of on-ground projects										
Bowen Broken Bogie		\$6.496m	Contracting		Implementation of initial on-ground projects										
			Detailed design and engagement process				Procurement / contracting			Implementation					
Conservation and protection of less disturbed catchments		\$0.5m													
Scoping options	Consultancy to identify potential interventions, including priority locations, costs, and benefits.		Consultancy and design												
Planning and procurement	Develop program plan and commence procurement and contracting.								Develop program plan			Procurement / contracting			

4. Crown-of-Thorns Starfish (COTS) Control — Annual Work Plan

Budget: \$57.8 million

Purpose: The purpose of this component is to expand efforts to control COTS to reduce coral mortality from COTS outbreaks in order to protect high ecological and economic value coral reefs in line with GBRMPA's COTS Control Strategy.

Priorities under the Partnership Investment Strategy:

●	Support existing in-water COTS control and drive improved efficiency
●	Lead a step change in surveillance for early COTS detection and early intervention
●	Explore alternative control methods to address COTS management at a broad scale in the future

Science Program managed by the Reef and Rainforest Research Centre). This approach relies on understanding COTS distribution, movement and population dynamics, targeting critical locations, and exploring new and more effective control methods.

Research and innovation are major elements of the COTS Integrated Pest Management (IPM) strategy as it provides a pathway for continuous improvement and adaptive management. Linking back to that overarching strategy, the Partnership has established the COTS Control Innovation Program (CCIP), managed as a consortium, to create a step change and accelerate the development of innovative control and surveillance methods, continuing to improve the efficacy and efficiency of current methods and finding new ways to limit future outbreaks and their impact.

In accordance with Partnership principles, investments are designed to be delivered through a partnership approach. This is reflected in governance arrangements for the delivery of in-water COTS control as well as the newly established COTS Control Innovation Program.

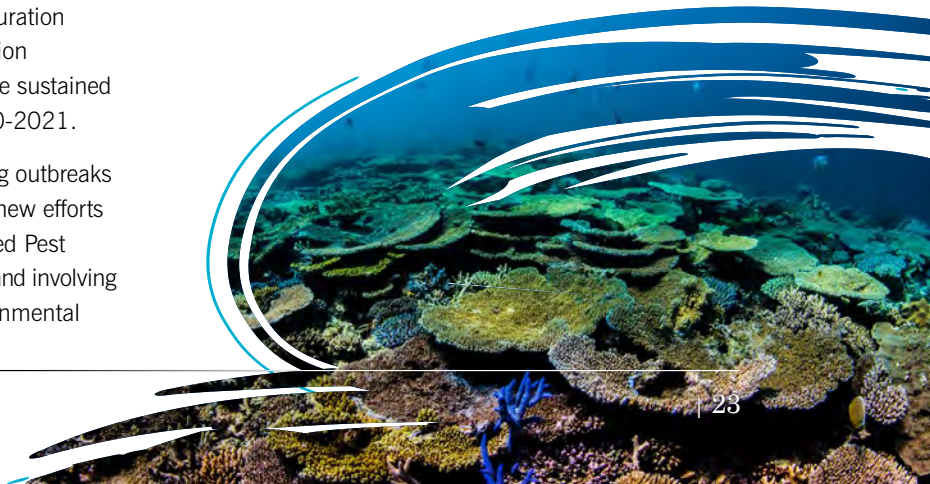
The COTS Forum scheduled for 18-20 March 2020 was postponed due to the high risk posed by the rapidly evolving COVID-19 outbreak. It is anticipated that this event will be run in the first quarter of 2021, for the most part building on the governance, program and logistics that were put in place for the original event.

2020-2021 in the context of the five-year strategy

Future COTS outbreaks on the Reef are almost certain and reducing the incidence or severity of these outbreaks will continue to be a critical management priority. This is particularly important given the cumulative impacts from other threats, such as coral bleaching, tropical cyclones and decreased water quality. The Partnership is well on its way to deliver on its five-year plan, with progress across all three Investment Strategy priorities.

To date, management of COTS has been largely focused on surveillance to detect outbreaks and culling adult starfish during an outbreak phase, targeting a small number of reefs identified as high priority based on their economic (tourism) or ecological value. This remained a priority in 2019-2020, and the Partnership conducted an independent scientific review of the effectiveness of the current in-water COTS control program managed by GBRMPA. In parallel to this review, \$1.409 million was contributed to this program to optimise its capacity and ensure five vessels could operate for the duration of the financial year. A two-year, \$28.639 million program was also successfully negotiated for the sustained delivery of COTS control, commencing in 2020-2021.

Recognising that manual control of COTS during outbreaks is not, on its own, an ideal long-term solution, new efforts were launched in 2016 to develop an Integrated Pest Management approach for COTS, led by CSIRO and involving numerous partners (under the National Environmental



In-water control program

From 1 July 2020, in-water COTS control will be delivered as a strategic partnership between GBRF, GBRMPA and RRRC, overseen by a COTS Partnership Group comprised of an independent chairperson and senior members of partner organisations. This group will focus on strategic matters relating to the control program, the COTS partnership, and relationships with key stakeholders and initiatives. It will be responsible for ensuring that the in-water COTS control program is underpinned by the best available science, is managed in an adaptive way, and leverages the latest innovations where appropriate (including those generated through the COTS Control Innovation Program).

GBRF has entered into two-year contracts with GBRMPA and RRRC who will oversee the operations of regional vessel operators. GBRMPA will retain the responsibilities of tactical planning and guidance including the preparation of an annual work program for endorsement by the COTS Partnership Group. Data will be made available to the Partnership as it is generated, but GBRMPA will remain responsible for data management, quality assurance and training, thereby maintaining the integrity of the Integrated Pest Management approach.

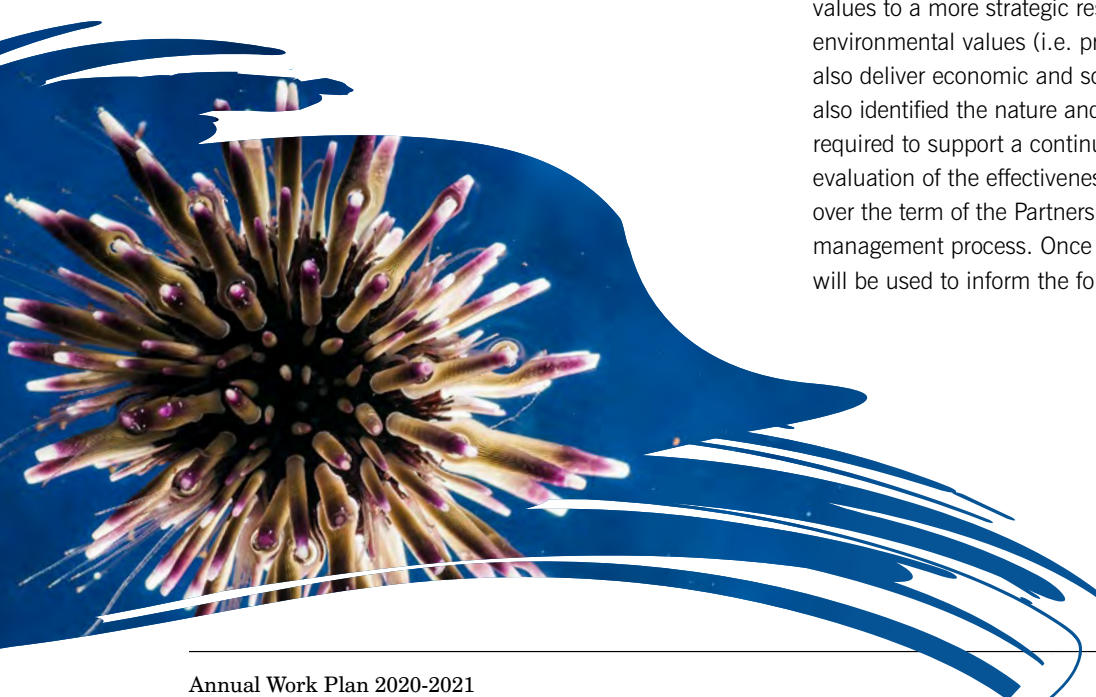
Partnerships to deliver training programs for Traditional Owners in COTS control, surveillance, marine monitoring and leadership are also being finalised, through a co-design process with Reef Traditional Owners. These will be implemented in 2020-2021.

International COTS Forum

Co-designed by a consortium of experts and managed through the RRRC, the International COTS Forum aimed to bring together international and domestic experts and researchers, tourism industry and vessel operators, managers, and Traditional Owners. The goal of the forum was to review and discuss the current state of knowledge for COTS Integrated Pest Management and identify opportunities for innovation. Scheduled for 18-20 March 2020, the event had attracted more than 90 guests and developed a program with 40 speakers, representing 21 organisations including research institutions, tourism and vessel operators, Aboriginal Corporations and community groups. Across the two-day event, seven technical sessions were planned covering biology, modelling and decision support, population control, surveillance technologies and Traditional Owner and community perspectives. A week before the event, the increased public health risk posed by the rapidly evolving COVID-19 outbreak situation led to its postponement to the first quarter of 2021.

Independent scientific review

Prof Chad Hewitt and Dr Marnie Campbell, from Murdoch University, conducted an independent scientific assessment of the effectiveness of the COTS Control Program over the period 2012 to 2019. The review considered the continuous and adaptive changes undergone by the program, resulting in refinements of objectives, locations, scales and timing of efforts driven by changes in strategy, application of best available scientific evidence, and increasing incorporation of data-driven decision making. Program objectives were found to have shifted from a reactionary (tactical) response mostly focused on economic values to a more strategic response focused on core environmental values (i.e. protecting coral cover) that also deliver economic and social benefits. The reviewers also identified the nature and frequency of monitoring data required to support a continuous and statistically robust evaluation of the effectiveness of the control program over the term of the Partnership, underpinning an adaptive management process. Once finalised, review findings will be used to inform the forward delivery of the program.



COTS Control Innovation Program

The COTS Control Innovation Program (CCIP) has been established as a strategic collaboration between GBRF and research providers AIMS, CSIRO, JCU and UQ as core partners. The program is overseen by a steering committee, chaired by GBRF, that includes representation from each core partner, the Reef and Rainforest Research Centre (providing a key link to the COTS research funded under the National Environmental Science Program), and a Traditional Owner member. In addition, the committee includes observers from GBRMPA (based on its role as a manager and regulator), the Australian Government and the tourism industry.

A Program Director position has been advertised and is in the process of being filled. To ensure the program remains inclusive and open to new ideas, a call for expressions of interest was made, allowing for the identification and integration of scientists and experts from institutions outside the core partners, into the CCIP technical team.

The program will be delivered as a multidisciplinary collaboration with cross-institutional teams focusing on a small number of program areas (biology and ecology of COTS; proximal causes of outbreaks; population control; monitoring and surveillance; modelling and decision support; social acceptability, regulatory, and institutional arrangements). Over 12 months, the feasibility and design phase will:

- Systematically review and identify emerging approaches and technologies that can be applied to the surveillance and control of COTS at a scale commensurate with the challenge faced by the Great Barrier Reef;
- Establish a robust and transparent modelling framework to predict the impact of deploying these approaches at a range of scales, in isolation or in combination;
- Assess, using a consistent approach, the level of readiness and feasibility of these approaches, including technical, social and regulatory considerations;
- Identify and assess strategies for the deployment and operational implementation at scale of these approaches (including cost estimates);
- Combine the analyses of feasibility, cost and impact to systematically compare scenarios where individual or combination of approaches are deployed at various scales and identify priority approaches for further development which present the highest potential to make a significant impact over a 5-10 year horizon;
- Identify research and development gaps to be addressed to progress these innovative methods from their current state to a deployment stage, including the knowledge required to reduce the uncertainty in the assessment of feasibility and value. Based on this data, provide recommendations for a long-term R&D program and an initial three-year program to be funded by the Partnership.

To date meetings and workshops involving more than 50 experts have been held to commence initial design and identification of key innovation concepts for inclusion in this innovation program.

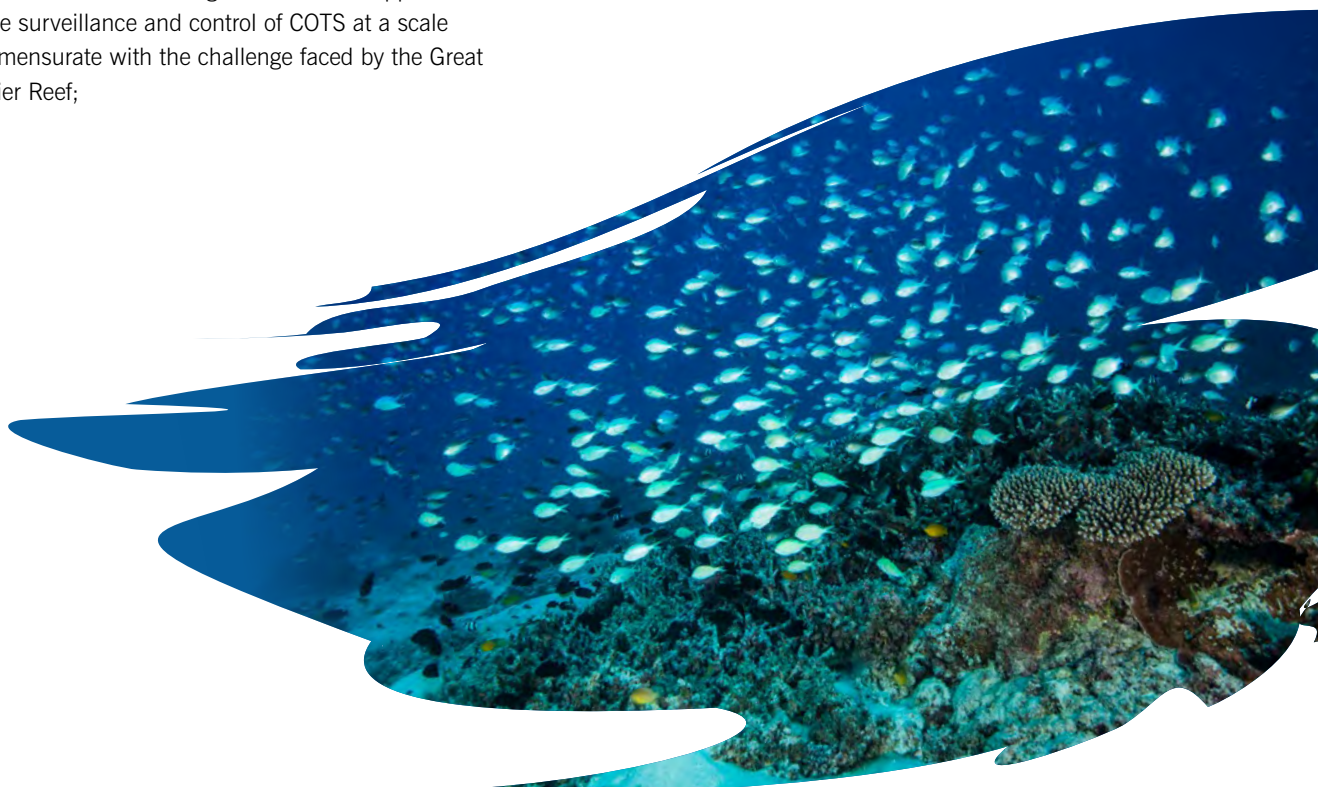
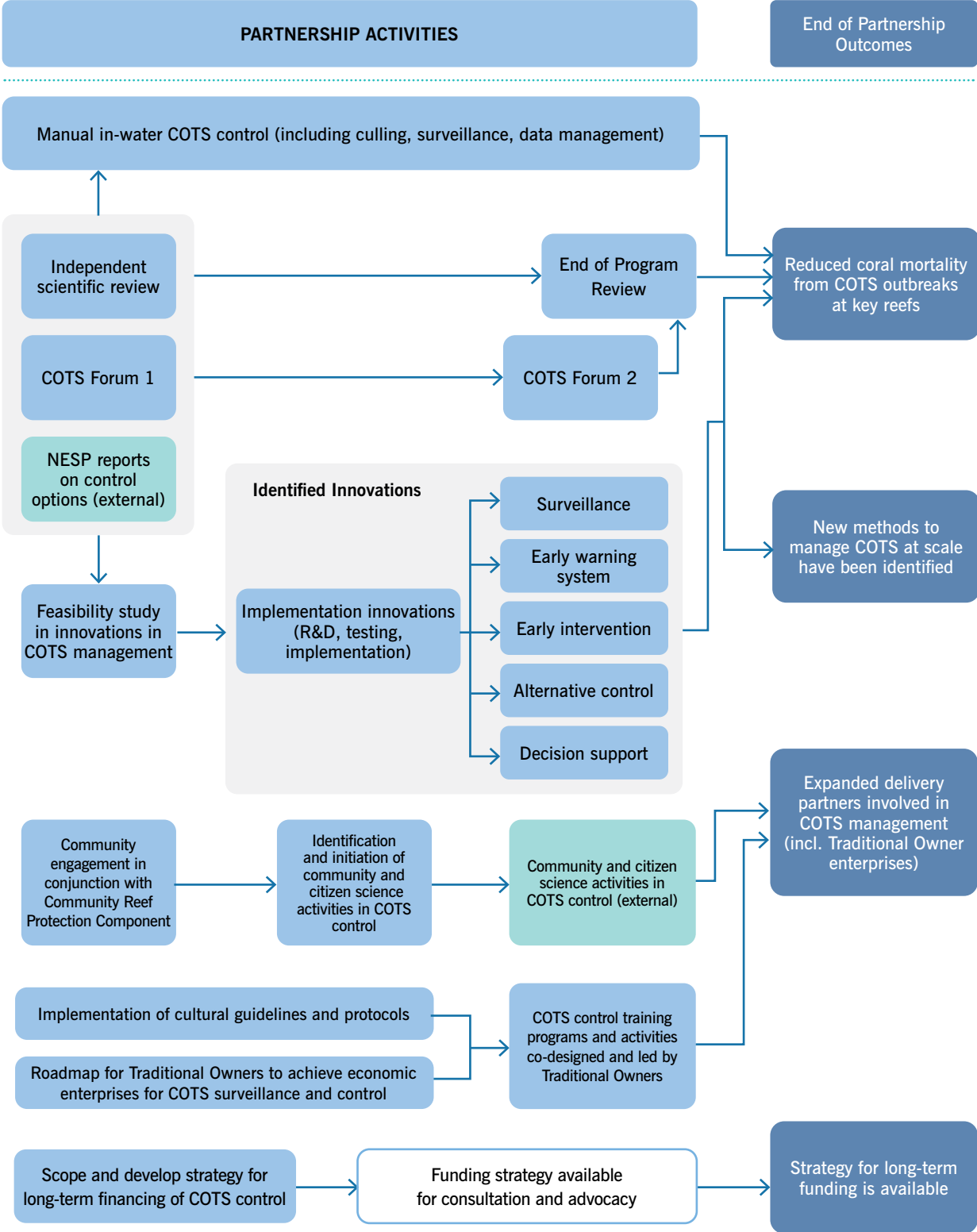


Figure 3. COTS five-year program overview and end of Partnership outcomes



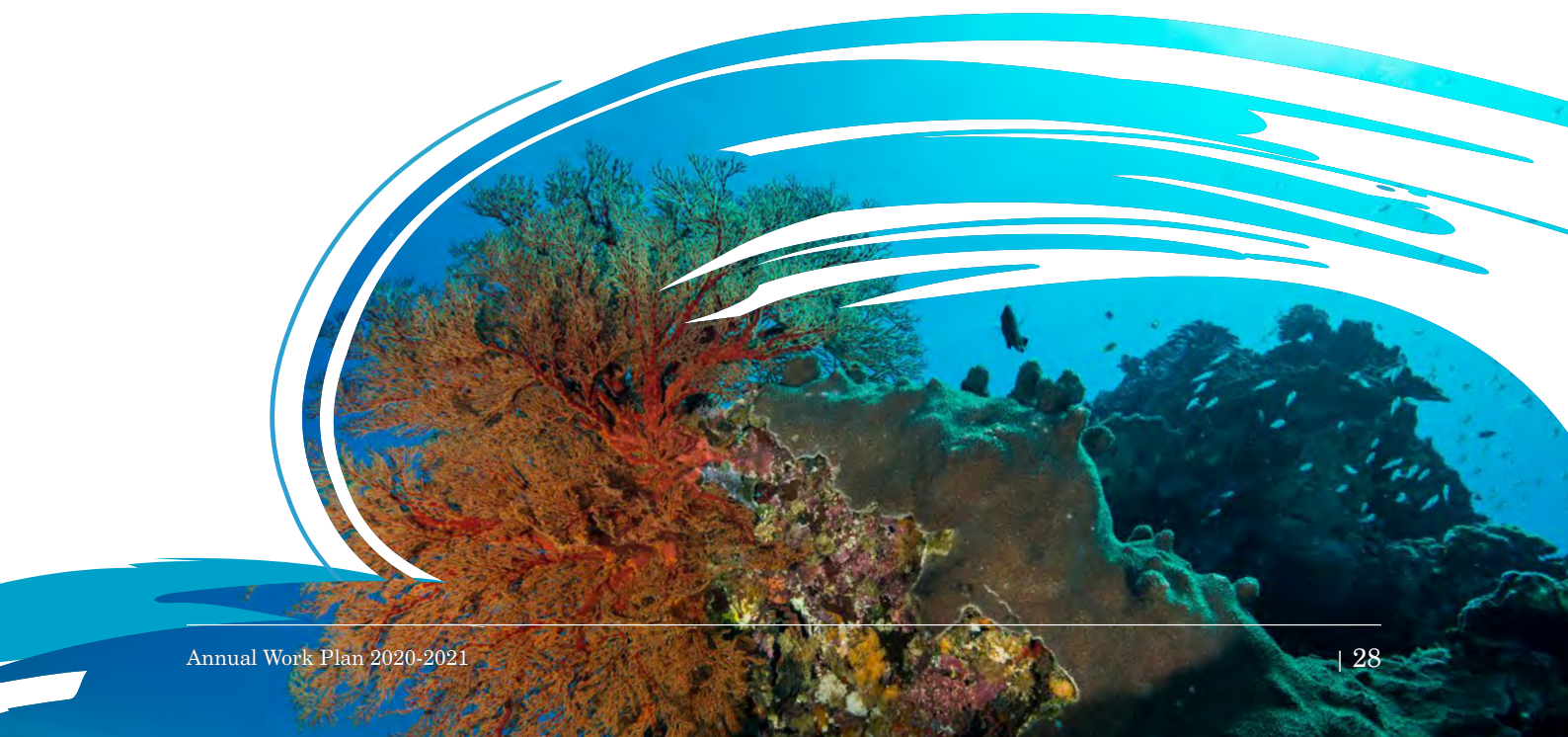
Five-year plan

Major categories of activity, rationale and budget for the five-year period are shown in Table 4 for reference.

Table 4. COTS Control five-year investment areas and budget

Partnership Activity	Rationale	Outcome	Budget
			TOTAL INVESTMENT
			\$57.8m
<ul style="list-style-type: none"> Manual in-water COTS control to be maintained at a level consistent with scientific advice and intensity of the current outbreak 	<p>Until new large scale control methods become available, manual in-water control of COTS remains the only practical option available to Reef managers to reduce COTS densities and protect coral cover at high ecological and economic value sites.</p>	<p>Reduced COTS mortality from current COTS outbreaks at high ecological and economic value coral reefs.</p>	\$41.5m
<ul style="list-style-type: none"> Collaborative feasibility study to assess opportunities for innovations in COTS management 	<p>There has been limited funding for activities focusing on innovations in COTS control and these activities have been disjointed. Recent National Environmental Science Program (NESP) investments, through the Reef and Rainforest Research Centre (RRRC), have led to significant progress in this area with the development of an integrated pest management strategy. Targeted investment is needed for a collaborative feasibility study involving key scientific agencies to systematically investigate the potential of new COTS control options, and to prioritise future investment in R&D and enabling social and regulatory areas.</p>	<p>Recommendations on priority innovation areas in COTS management with the goal of an enhanced ability to predict and detect primary outbreaks and more effectively control the spread and impact of these outbreaks.</p>	\$1.5m
<ul style="list-style-type: none"> Implementation of feasibility study recommendations into innovations in COTS management 	<p>Future outbreaks on the Reef are almost certain and the immediate need to control secondary outbreaks using manual in-water control needs to be balanced with the identification and suppression of future primary outbreaks and innovative methods and technologies that can complement existing manual in-water control. Targeted investment in transformational innovations, based on outcomes of the feasibility study, can provide a pathway towards a step change in COTS control.</p>	<p>R&D, testing and implementation of new methods including early warning systems, early intervention options, alternative control technologies, and improved prediction and decision making. Innovative methods and technologies that can complement existing manual in-water control are ready for implementation.</p>	\$8.3m
<ul style="list-style-type: none"> Independent scientific reviews of COTS control program effectiveness 	<p>The need for an independent review of COTS control was highlighted during Partnership consultations (including with the Reef 2050 Independent Expert Panel). The COTS control program is continuously evolving, and its effectiveness will benefit from regular independent reviews (2020 and 2024).</p>	<p>Recommendations for improvements to monitoring and control activities, and to facilitate future planning and investments in COTS control.</p>	\$0.25m

Partnership Activity	Rationale	Outcome	Budget
<ul style="list-style-type: none"> ● COTS forums to identify ● gaps and opportunities ● in innovation and ● contribute to ● Partnership progress 	<p>There is a recognised need by stakeholders for regular forums dedicated to COTS research and management in 2020 and 2024, focused on identifying innovation priorities and to address the long-term challenge of COTS control.</p>	<p>Enabling cross-sector dialogue and supporting long-term planning of innovation in COTS management.</p>	\$0.20m
<ul style="list-style-type: none"> ● Long-term funding ● strategy for COTS ● control 	<p>Effective action on COTS predation will be one of the strongest levers to protect coral cover in the coming decades, therefore a long-term approach to sustained funding is imperative.</p>	<p>A funding strategy that presents a comprehensive business case and real options to support planning and policy development for long-term funding of COTS management.</p>	\$0.15m
<ul style="list-style-type: none"> ● Community-driven ● activities for expanded ● involvement in COTS ● control 	<p>Through stakeholder consultation and the Community Reef Protection component, the role of community and citizen science to engage more widely in COTS control has been identified as an opportunity to expand partner delivery capacity.</p>	<p>Identification of opportunities to support community and citizen science participation in COTS control and implementation of pilot community programs.</p>	\$0.10m
<ul style="list-style-type: none"> ● Traditional Owner ● activities (to be defined ● under Traditional Owner ● Reef Protection) 	<p>There is a need to promote positive engagement to protect and maintain culture and heritage values and to support the transition into sunrise industries for increased business enterprise opportunities, alongside the diversification of skillsets and capacity building.</p> <p>This budget figure is also accounted for in the Traditional Owner Reef Protection component.</p>	<p>Scoping of business-ready Traditional Owner groups to transition to manual in-water control activities.</p> <p>Identification and delivery of training to upskill Traditional Owners and funding of viable groups directly to enable contributions to manual in-water control activities.</p>	\$5.8m



2020-2021 work plan

Table 5. COTS Control investment areas and budget for 2020-2021

Activity	Description	Budget
TOTAL INVESTMENT		\$15.04m
Manual in-water COTS control Maintain at a level consistent with the progression of the secondary outbreak	<p>From 1 July 2020, in-water COTS control will be delivered as a strategic partnership between GBRF, GBRMPA and the Reef and Rainforest Research Centre (RRRC), overseen by a COTS Partnership Group comprised of an independent chairperson and senior members of partner organisations including GBRMPA General Manager Reef Protection Branch, GBRF Executive Director Projects and Partnerships, and RRRC Chief Executive Officer.</p> <p>Five vessels will continue to be deployed across the length of the Great Barrier Reef, subject to reviews based on field monitoring information and data analysis. The budget information in this table relates to payment milestones anticipated over 2020-2021.</p> <p><i>Deliverables: In-water control of COTS population at priority locations</i></p>	\$13.24m
COTS Control Innovation Program Feasibility and Design Phase Collaborative investigation of the feasibility (technical, regulatory, social) of innovations in COTS management and development of an investment case for a dedicated R&D program to deliver these innovations	<p>A dedicated innovation program is required to improve and expand COTS management beyond manual in-water control, to address this issue and protect coral cover at the scale of the Reef. While a number of potential solutions have been researched and published, these are still a long way from being investment ready from a technical, social licence and regulatory point of view.</p> <p>In a manner not dissimilar to the Reef Restoration and Adaptation Program Concept Feasibility Study, albeit at a smaller scale, a consortium has been established to systematically review and assess innovative COTS surveillance and control options and to identify pathways to implementation of the most promising options.</p> <p>The multi-institutional collaboration will create a shared vision and understanding to support and contribute to the long-term Partnership COTS control activities.</p> <p><i>Deliverables: Recommendations for a R&D program to progress new opportunities for COTS surveillance and management.</i></p>	\$1.5m
COTS Forum Identify gaps and opportunities to feed into the innovation feasibility study	<p>The two-day event was originally scheduled on 18-20 March 2020 and has been rescheduled to late February 2021 due to the public health risk associated with the COVID-19 outbreak.</p> <p>The broad purpose remains to stimulate cross-sector dialogue, foster collaborations, and provide a networking opportunity for Australian and international experts to discuss innovations in COTS management. However, the revised timing for the COTS Forum will allow stronger links to be established with the feasibility and design phase of the COTS Control Innovation Program.</p>	\$0.12m
Community activities Scope community and citizen science opportunities for expanded delivery in COTS control	<p><i>Note: This activity was not conducted in 2019-2020 and is carried over from the Annual Work Plan 2019-2020.</i></p> <p>A consultation and planning process with the Community Reef Protection Working Group will identify areas of strategic alignment with community and citizen science needs, and in particular opportunities for community participation in COTS surveillance and control. This will result in a strategy to enable these opportunities and further engagement and co-investment across the life of the Partnership.</p>	\$0.03m

Activity	Description	Budget
<p>Long-term funding strategy</p> <p>Scope and develop a strategy for identification of long-term funding options for COTS control</p>	<p><i>Note: This activity was placed on hold until a long-term governance and delivery model for in-water COTS control had been identified and is carried over from the Annual Work Plan 2019-2020.</i></p> <p>Sustained funding of COTS control is imperative if future outbreaks are to be detected and acted upon as early as possible. Even though we are still dealing with an existing secondary outbreak, there is a need to proactively consider long-term funding model options to ensure we are ready to tackle new outbreaks and avoid repeating mistakes of the past. A consultancy will be procured this year to engage with key stakeholders, review potential funding models and provide recommendations (roadmap). This will form the basis of further engagement between providers and funders and facilitate future planning and policy decisions for long-term stable investments in COTS control.</p> <p><i>Deliverables: Development and analysis of options for long-term funding of COTS control and management</i></p>	<p>\$0.15m</p>
<p>Traditional Owner-led COTS Control activities</p>	<p>Refer to Traditional Owner Reef Protection</p>	



Table 6. COTS Control gantt chart 2020-2021

Activities	Description	Budget	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Manual In-water COTS control		\$13.24m												
COTS Partnership governance establishment	Delivery of in-water COTS control as a strategic partnership between GBRF, GBRMPA and the Reef and Rainforest Research Centre, overseen by a COTS Partnership Group.		Governance establishment											
Delivery of COTS control program			Program delivery (GBRMPA and RRR)											
COTS Control Innovation Program - Feasibility and Design Phase		\$1.5m												
Program delivery	The study will lead to technical reports and recommendations on methods/technologies that offer the most prospect and for which further investigations should be prioritised.		Program delivery											
Synthesis and recommendations													Recommendations	
COTS Forum		\$0.12m												
Program refresh	Refreshing program and delivering COTS Forum with links to COTS Control Innovation Program.			Program										
Communication and delivery					Communication and registration		Forum							
Long-term funding strategy		\$0.15m												
Scoping and procurement	Terms of reference will be developed for a consultancy to review funding model options, engage with key stakeholders and provide recommendations (roadmap). These recommendations will form basis of further engagement between providers and funders.			Scoping		Procurement								
Delivery and engagement									Delivery					
Review and recommendations														Recommendations
Community activities		\$0.03m												
Scoping with Community Reef Protection Working Group	The Community Reef Protection Working Group will identify opportunities and strategic alignment with community and citizen science needs to identify a preferred strategy to engage with and identify opportunities for community and citizen science involvement in Reef management through participation in COTS control.			Working group					Working group					
Engagement activities and recommendations						Engagement							Recommendations	

5. Reef Restoration and Adaptation Science (RRAS) Annual Work Plan

Budget: \$100 million

Purpose: The purpose of this component is to conduct and implement science activities to deliver and support reef restoration and adaptation for the Great Barrier Reef World Heritage Area.

Priorities under the Partnership Investment Strategy:

●	Social licence to operate
●	The right science and models underpinning the right decisions
●	Research and development to boost new intervention methods
●	Making interventions a reality on the Reef

In January 2020, Ministers Ley and Andrews congratulated consortium members on the comprehensive work undertaken to develop the investment case and recommended that this investment case inform the RRAS activities under the Reef Trust Partnership. The work undertaken as part of the RRAS component essentially represents the next stage of RRAP and will now be referred to as RRAP.

The submission of the RRAP concept feasibility findings and subsequent endorsement occurred significantly later than was originally anticipated in the Annual Work Plan 2019-2020. Nevertheless, the consortium (now augmented to include SCU) maintained momentum through the transition and ensured RRAP is in a strong position to start operations early in 2020-2021 by:

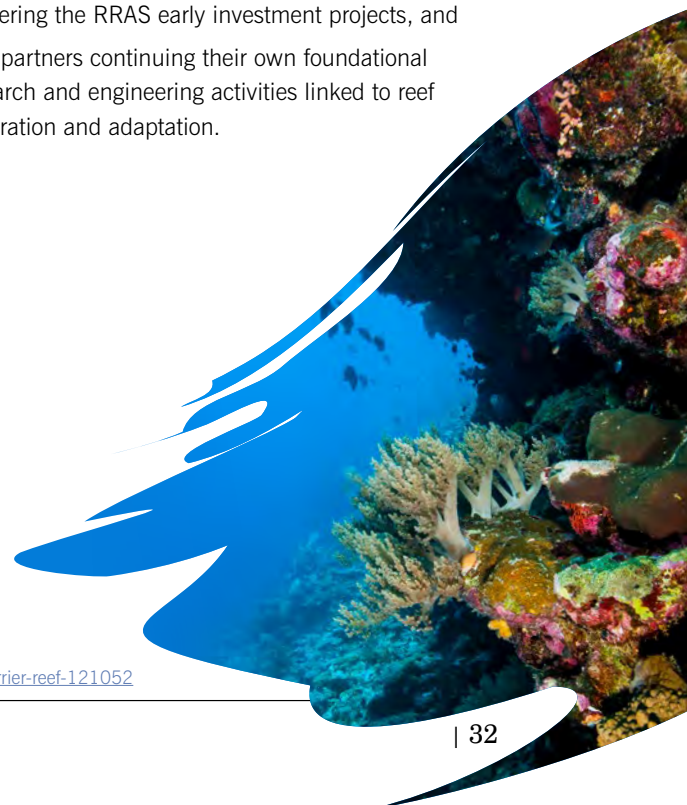
- implementing transitional governance arrangements,
- establishing the RRAP Unincorporated Joint Venture (UJV) and associated principles and contractual framework,
- prioritising the recommended R&D program to align with the available budget under Partnership,
- delivering the RRAS early investment projects, and
- core partners continuing their own foundational research and engineering activities linked to reef restoration and adaptation.

2020-2021 in the context of the five-year strategy

While strong action on reducing greenhouse gas emissions is critical, the world is locked into a trajectory of global warming for at least the next 30 years. This means that there is an urgent need to explore and develop techniques and strategies to limit coral loss, support coral recovery and restore coral cover. The mass bleaching event experienced on the Reef over the 2019-2020 summer, making this the third such event in five years, emphasises the significance of the threat and need for urgent action in Australia and globally.

The RRAP concept feasibility study findings — a comprehensive investment case and recommended research program — were peer-reviewed and submitted to the Australian Government in December 2019 by the consortium of seven core partner organisations (AIMS, CSIRO, JCU, UQ, QUT, GBRMPA and GBRF) and associated key experts from Australia and internationally. The study³ found that Australia could feasibly, and with reasonable probability of success, intervene to help the Reef adapt to and recover from the effects of climate change. The degree of success that can be achieved will depend on a wide range of factors, including appropriate funding, stakeholder and Traditional Owner support, regulatory capacity building, collaboration of key agencies and research providers, inclusion of private sector capability in the effort, and critically, global action on climate change.

³ <https://theconversation.com/if-we-can-put-a-man-on-the-moon-we-can-save-the-great-barrier-reef-121052>



Release of the RRAP investment case and recommendations

In April 2020, the findings of the RRAP concept feasibility study were publicly released, including the [investment case](#), six recommendation reports and 13 detailed technical reports. Despite occurring during the COVID-19 outbreak, this release led to a large number of generally positive reports in the media (a total of 111 mentions over a two-week period). The study showed how new and existing interventions, supported by the best available research and development, could help secure a future for the Reef, provided global greenhouse emissions are reduced as quickly as possible. It identified 160 possible interventions and narrowed these down to the 43 most realistic interventions that have the potential to help revive the Reef and build on its natural resilience, and should therefore be considered for further research and development. These include brightening clouds with salt crystals to shade and cool corals; increasing the abundance of naturally heat-tolerant corals in local populations, such as through aquarium-based selective breeding and release; and methods to promote faster recovery on damaged reefs, such as deploying structures designed to stabilise reef rubble. But there will be no single silver bullet solution. The feasibility study showed that methods working in combination, along with best practice management, water quality improvement and COTS control, will provide the best results.

Establishment of the RRAP Unincorporated Joint Venture

The spirit of collaboration which made the RRAP concept feasibility study a success was evident in the transition to the RRAP R&D phase, with core partners reaching agreement on governance principles and instruments, and progressing the development of a best practice collaboration agreement to give effect to the UJV. Building on the recommendations of the RRAP concept feasibility study and in alignment with the Reef Trust Partnership guiding principles:

- a board is being established which includes an independent chairperson (Prof. Rob Vertessy), representatives from all core partners, three independent members (including a Traditional Owner member), and observers from the Australian Government and GBRMPA;
- a steering committee was established, chaired by the independent RRAP Executive Director who reports to the board and chairperson and who was appointed in May 2020 following an international recruitment process;
- AIMS was selected as the RRAP managing entity, led by the RRAP Program Director, to manage the delivery of the program and report to the steering committee;
- a RRAP UJV collaboration agreement is being negotiated which complies with the Reef Trust Partnership Grant Agreement and sets out roles and responsibilities as well as principles in relation to resourcing, decision making, intellectual property and communication. The UJV reaffirms the commitment of core partners to a co-investment of approximately 50% of the Partnership funding (1:2 ratio). It also deals with specific RRAP R&D work programs via individual project agreement schedules between core partners delivering said work programs, thereby creating a dynamic and adaptive platform able to efficiently accommodate new projects and investments.

At the time of writing this Annual Work Plan 2020-2021, final negotiations in relation to the UJV collaboration agreement were occurring and it is anticipated that the RRAP R&D phase will start in the first quarter of 2020-2021.



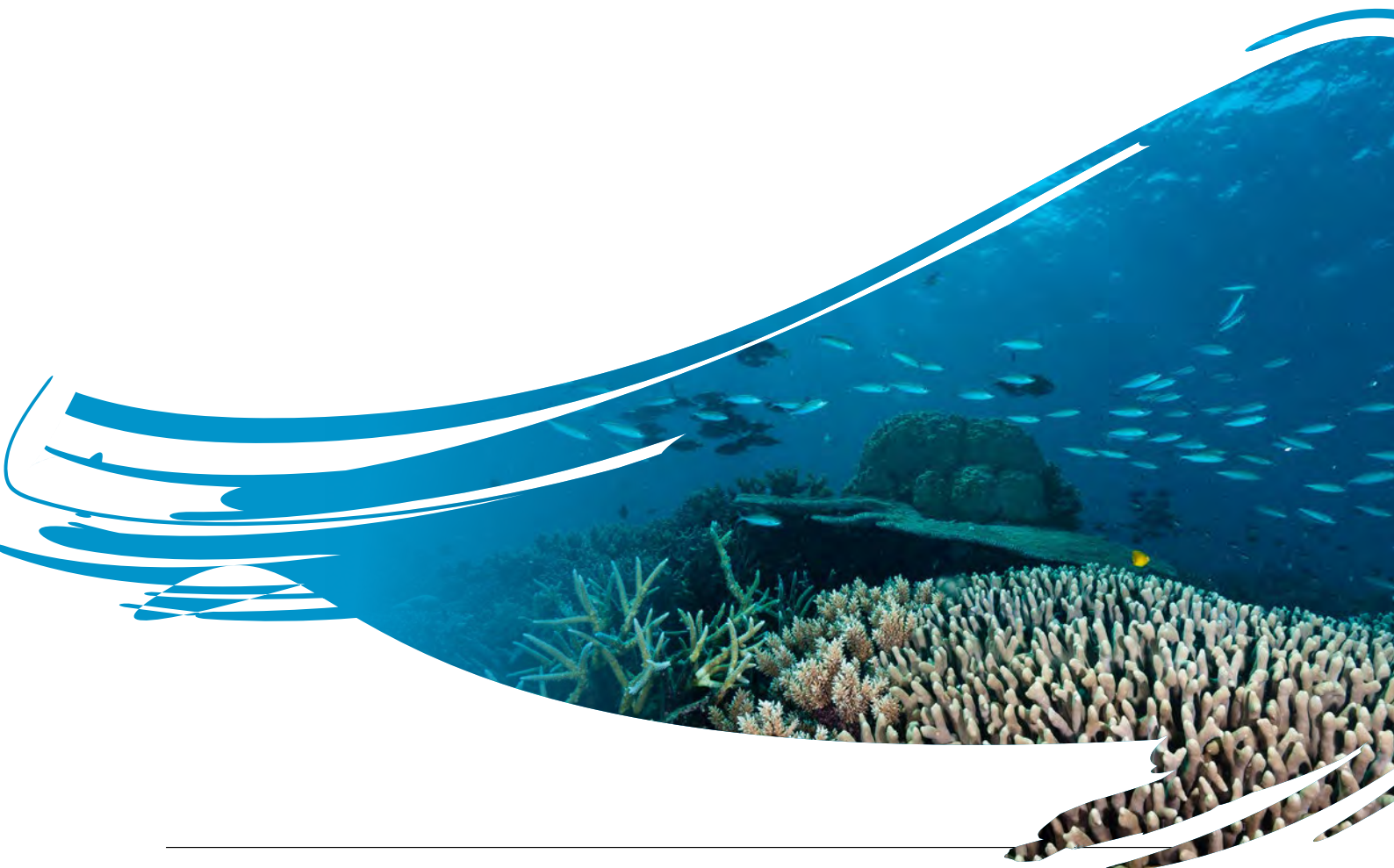
Prioritisation of RRAP Research and Development activities

The R&D program recommended by the RRAP concept feasibility study considered a 10 year timeframe, required more than \$500 million in total investment, and was designed to progress interventions concurrently before focusing on the most prospective. The required investment is well in excess of the combined Reef Trust Partnership RRAS funding and co-contributions from research partners (~\$130 million), and therefore the R&D program had to be substantially redesigned.

From December 2019 to March 2020, a structured options assessment process was implemented to assess multiple scenarios against criteria related to impact, value-for-money and delivery (scope, time and risk). Option outlines were developed and agreed in workshops involving the R&D sub-program leads, with each team spending several weeks adjusting their R&D sub-program to align with specific options. This process was iterated several times until a final recommended option was developed and subsequently endorsed by the steering committee on 25 March 2020.

The recommended option, developed in consultation with GBRF, is at a mid-way point between the currently available budget of approximately \$130 million and a \$175 million budget which assumes an additional \$30 million in third-party cash funding is sourced and matched by a further \$15 million of co-contributions from research partners. It seeks to deliver demonstrable outcomes and meet short-term stakeholder expectations, while staying true to the core longer-term and broader scale RRAP objectives. Even though this represents a significant compromise, extensive planning by the program teams has significantly strengthened cross-linkages and alignment between sub-programs and generated efficiency improvements as a result.

The main impact of this prioritisation is that considering a broad spectrum of interventions and progressively adjusting and focusing the program on the most prospective interventions is no longer an option. The priority is now to progress the most prospective ideas and, as additional funding is secured, broaden the interventions being assessed and/or increase the investment in those interventions already commenced. The Annual Work Plan 2020-2021 reflects this recommended option, key sub-programs, and forecast expenditure.



2019–2020 highlights

First in-field trial of cloud brightening technology to protect corals

Led by Dr Daniel Harrison, scientists at Southern Cross University (SCU), an RRAP core partner, and Sydney Institute of Marine Science are seen conducting the world's first outdoor trial of 'cloud brightening' technology to protect corals.

The project aims to shade and cool large areas of reef at risk of bleaching by spraying microscopic saltwater droplets into the marine boundary layer, influencing low-level clouds to make them more reflective of sunlight.

The recent trial, funded through the Queensland Government *Boosting coral abundance on the Great Barrier Reef* challenge, sampled the nanosized sea salt crystals produced over a 5-by-1-kilometre area. Under RRAP, the research team aims to have a tenfold increase in project area by 2022.

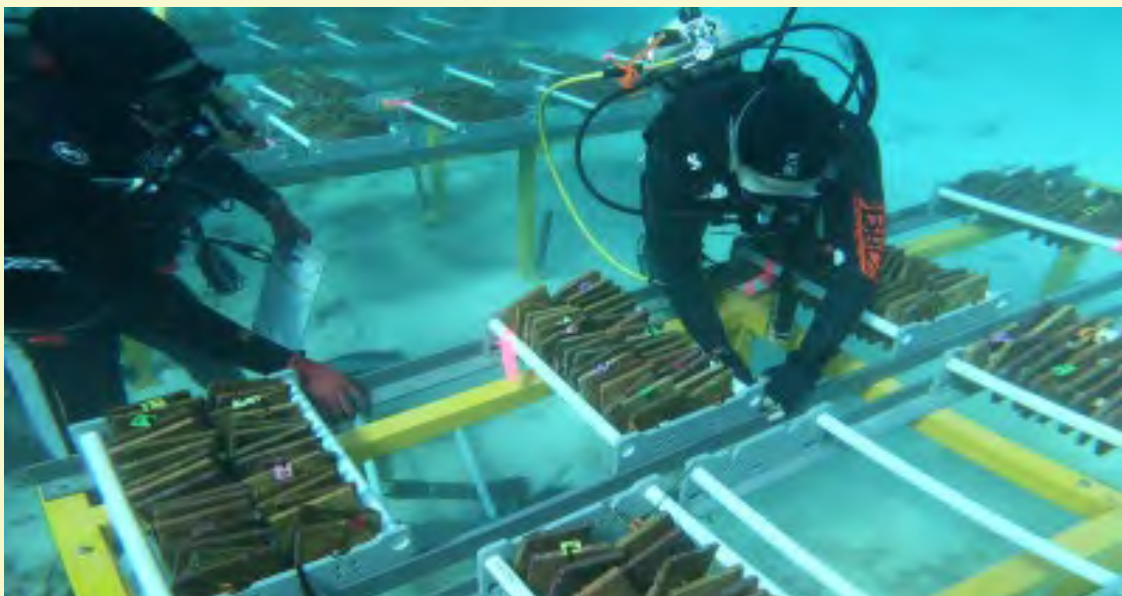


Aerial view and close-up of field testing of cloud brightening prototype equipment. Photo: Daniel Harrison/SCU

Fast tracking critical coral aquaculture methods development

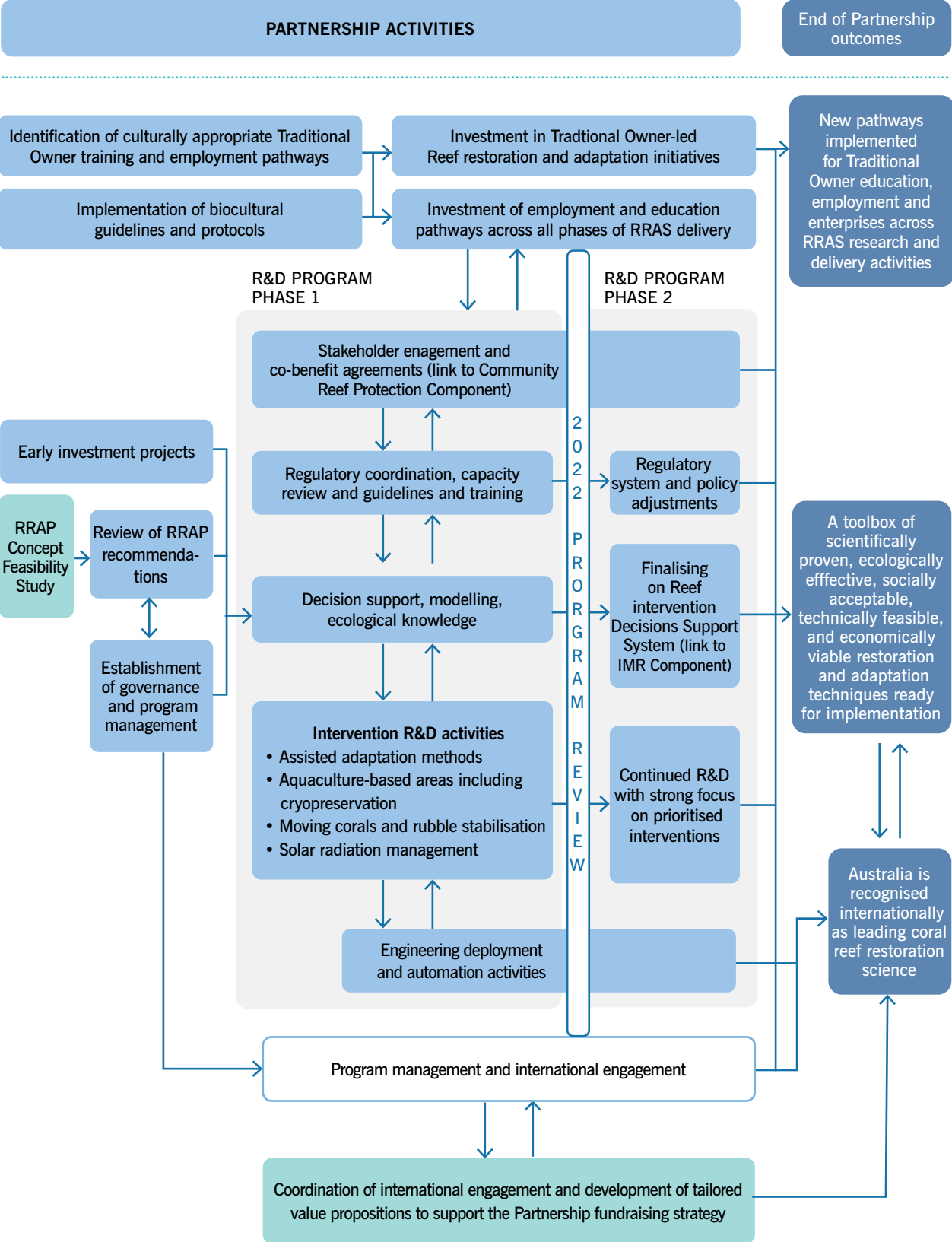
The development of effective methods for 'reseeded' reefs with genetically diverse individuals is key to the RRAP mission. One of the major bottlenecks relates to the poor survivorship of settled coral larvae and the management of deployed, small juveniles or fragments.

This early investment project, led by AIMS and delivered in collaboration with SECORE, CSIRO and SCU, aimed to increase capacity to collect spawn, fertilise and induce settlement for a range of coral species. Several settlement devices and techniques were compared in terms of growth and survival of coral recruits.



Installation of assisted gene flow corals on deployment racks at Davies Reef. Photo: Kate Green/AIMS

Figure 4. RRAS five-year program overview and end of Partnership outcomes



2020-2021 work plan

Table 7. RRAS investment areas and budget for 2020-2021

Activity	Description	Budget (Total Investment)
	RTP INVESTMENT	\$23.84m
	TOTAL INVESTMENT	(\$34.58m)
Aquaculture and deployment systems	<p>Develop the methods and systems to reliably propagate corals in captivity at scale (using sexual and asexual methods), the ability to seed corals onto reefs at low cost and with high post-deployment survival rates.</p> <p><i>Deliverables: Methods to rear coral broodstock in aquaculture facilities are improved, deployed corals have improved survivability.</i></p>	\$1.20m (\$1.81m)
Enhanced corals and treatments	<p>Measure the scope and the testing of methods for enhancement of heat stress performance in corals, while minimising potential trade-offs. These would be operationalised via the Aquaculture and Moving corals sub-programs.</p> <p><i>Deliverables: Treatments for field testing, and a developing knowledge base as to the efficacy and feasibility of methods such as genetic markers to identify already warm-adapted corals and assisted gene flow (AGF).</i></p>	\$2.33m (\$3.50m)
Moving corals	<p>Coral seeding aims to speed the return of coral cover to a disturbed or damaged reef by increasing the number of available coral larvae for natural settlement, particularly where the reef has a low larval supply (e.g. following a large-scale bleaching event).</p> <p><i>Deliverables: Deployment success of coral larvae from field-based rearing and collections is improved. Methods are developed and tested to help re-establish corals in degraded areas at different scales.</i></p>	\$1.28m (\$1.92m)
Rubble stabilisation	<p>Targeting the stabilisation or repair of damaged reef surfaces (for example by storms, ship groundings or coral bleaching), where dead or degraded coral can become loose and unconsolidated rubble, making it difficult for coral to regrow.</p> <p><i>Deliverables: Small scale prototyping and trialling studies, improved modelling capability to further assess potential impact of intervention on reef ecosystem.</i></p>	\$1.22m (\$1.82m)
Cooling and shading	<p>RRAP model predictions indicate that keeping existing corals alive at a large scale would have the biggest impact of all considered interventions. The concept of creating shade through clouds, mist, fog, or surface films assumes that decreased solar radiation protects corals from bleaching. Ecological and physiological factors will be investigated through the foundational knowledge activity. Proof of concepts and assessment of the impact of manipulating solar radiation at scale will underpin risk and environmental impact assessments to be considered under the regulation and policy activity.</p> <p><i>Deliverables: Proof of concept including environmental impact and regulatory assessment.</i></p>	\$4.77m (\$6.63m)
Cryopreservation	<p>Activities are focused on improving access to broodstock, tissue and gametes, promoting growth and survival in aquarium settings, investigating genotype/phenotype interactions and improved breeding methods.</p> <p><i>Deliverables: Access to material has improved through cryopreservation.</i></p>	\$0.54m (\$0.89m)

Activity	Description	Budget (Total Investment)
Foundational ecological knowledge (EcoRRAP)	<p>The objective is to optimise interventions by understanding the 'how, where, and when' of natural reef recovery. Centred around four themes: integrated field testing program (within-reef fine-scale processes of natural reef recovery in several GBR regions); limitations to natural coral recovery (larval supply, juvenile growth/mortality, optimum adult densities); natural adaptation (ecological adaptation, genetic adaptation, thermal tolerance curves); and risks of interventions and field testing.</p> <p><i>Deliverables: Data is collected, analysed, synthesised and shared to fill critical ecological knowledge gaps and improve models.</i></p>	\$3.10m (\$4.46m)
Integrated logistics and automation	<p>Aiming to address the scalability and input the deployment cost modelling of interventions. Considerations around centralised versus de-centralised facilities and improved cost savings through integrated logistics (large, coordinated field trials, coordination of citizen science with ongoing data collection, improved costing methods) will be an important part of this program. Automation of propagation, deployment and monitoring is key to achieve the scale and impact required through this project.</p> <p><i>Deliverables: Improved modelling, feasibility/scalability assessments and guidance on integration opportunities. Assessment of areas/interventions where automation can lead to cost savings and improved capacity to work at larger scales.</i></p>	\$0.55m (\$0.75m)
Program management	<p>This specifically refers to the funding of the RRAP managing entity, Program Director and Program Management Team, responsible for the delivery of a broad range of services including administration, program management (design, scheduling, budgeting, accounting and reporting), finalisation of UJV establishment and development of project agreements, science and engineering coordination, monitoring and evaluation, communications, travel, and board and steering committee secretariat functions. This funding also includes remunerations and expenses of the Executive Director, independent chairperson, independent board members and independent peer-review panels.</p> <p><i>Deliverables: All ongoing program management and governance functions.</i></p>	\$2.93m (\$3.98m)
Traditional Owner and stakeholder engagement	<p>This activity will start early to capitalise on the momentum of the RRAP concept feasibility phase and ensure Traditional Owners and stakeholders remain engaged and informed, as a critical step in obtaining a social licence to progress interventions through the R&D phase. It is also essential to establish a good baseline around social licence and sentiment at the start of the program.</p> <p><i>Deliverables: Stakeholders are actively participating from the start and annual sentiment towards proposed intervention techniques is established for monitoring and future engagement purposes.</i></p>	\$1.14m (\$1.70m)
Regulation and policy	<p>As many of the proposed interventions will translate to activities never previously considered within the Great Barrier Reef World Heritage Area, a review of existing regulatory and policy frameworks is required, followed by an assessment of capacity and training needs for managers and researchers. Delivered through continuous engagement with relevant regulatory agencies, this activity will assess risks and required impact assessment needs to ensure permit processes are facilitated for R&D activities.</p> <p><i>Deliverables: Regulatory and permitting processes are progressing towards a system that is fit for purpose for the proposed interventions, with regards to adequate risk and impact assessment needs.</i></p>	\$0.50m (\$0.75m)

Activity	Description	Budget (Total Investment)
Decision support	Continuing the development of best practice decision support frameworks to assess different intervention options and R&D investment prioritisation and focus. <i>Deliverables: Progress towards a management decision support system relating to restoration and adaptation activities.</i>	\$1.59m (\$2.37m)
Modelling	Developing models to improve predictions of the impact of proposed interventions is a core activity. Given the uncertainty caused by climate change, these models will need to consider multiple future scenarios. <i>Deliverables: Improved models to guide investment and intervention actions and support decision support systems relating to restoration and adaptation activities.</i>	\$1.71m (\$2.55m)
Transition investments	Early stage investments to enable critical activities while formal governance arrangements were put in place. <i>Deliverables: Local restoration engagement protocols, contractual framework, and modelling and decision support blueprint.</i>	\$0.98m (\$1.45m)

Note: At the time of writing this Annual Work Plan, RRAP was still finalising a detailed program plan and budget. Therefore these budget figures may be adjusted in early 2020-2021 to reflect this.



Table 8. RRAS gantt chart 2020-2021

Activities	Description	Total	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Governance and program management		\$2.93m												
Collaboration agreement	Finalisation and execution of RRAP collaboration agreement.		█											
Appointment of independent board members	Process to identify and appoint three independent board members including a Traditional Owner member.		█											
Managing entity contracting	Finalisation of scope of program management and execution of managing entity project agreement.		█											
R&D project agreements	Development of detailed R&D plans in accordance with approved investment plan and execution of specific project agreements.		█											
Implementation of governance and program management	Detailed project planning including budget, schedule, milestones, risk assessment, communication protocols, and M&E plan.				█									
R&D Program - Interventions sub-programs		\$11.34m												
Aquaculture and deployment systems	Research and development activities related to the development of priority interventions (in accordance with RRAP concept feasibility study investment case and R&D prioritisation) will ramp up from the point of execution of R&D project agreements.	\$1.20m												
Enhanced corals and treatments		\$2.33m												
Moving corals		\$1.28m												
Rubble stabilisation		\$1.22m												
Cooling and shading		\$4.77m												
Cryopreservation		\$0.54m												
R&D Program - Cross-cutting sub-programs		\$9.57m												
Foundational ecological knowledge (EcoRRAP)	Cross-cutting research and development activities underpinning the modelling, design and future deployment of priority interventions (in accordance with RRAP concept feasibility study investment case and R&D prioritisation) will ramp up from the point of execution of R&D project agreements.	\$3.10m												
Traditional Owner and stakeholder engagement		\$1.14m												
Regulation and policy		\$0.50m												
Modelling		\$1.71m												
Decision support		\$1.59m												
Integrated logistics and automation		\$0.55m												
Transition investments		\$0.98m												

Complex links and dependencies between sub-programs will be described in detail within the RRAP investment plan which is being finalised at the time of writing this Annual Work Plan.

The RRAP Investment Plan is planned to be endorsed by the RRAP board and GBRF board in July 2020.

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6. Traditional Owner Reef Protection — Annual Work Plan

Budget: \$51.8 million

Purpose: To improve the engagement of Traditional Owners in the protection of the Great Barrier Reef World Heritage Area.

Priorities under the Partnership Investment Strategy:

●	Land and Sea action and investment planning
●	Active Traditional Owner-led Reef protection activities
●	Indigenous innovation, leadership, and collaboration
●	Sustainable Funding (Futures Fund)

2. Elevating the voices and contributions of Traditional Owners' lived experience as a central pillar in the design and delivery of the Partnership.
3. Establishing a Traditional Owner Futures Fund – fulfilling an important aspiration and providing sustainable funding to support enduring outcomes.

These decisions have created the conditions to facilitate the achievement of a strong Traditional Owner governance framework across the Partnership, commence a genuine co-design process with Traditional Owners, support on-ground Reef protection outcomes and deliver positive impacts over the life of the Partnership and beyond.

Co-design, co-delivery and Traditional Owner governance, innovation and leadership will continue to be very strong themes in this 2020-2021 work plan. Other major activities to be undertaken in this period include supporting a local-scale coral reef restoration program in the Cairns-Port Douglas region, a dedicated water quality funding round, a traineeship program to support Traditional Owner aspirations in relation to more active participation and leadership in COTS control, and the finalisation and implementation of the *Strong Peoples – Strong Country* framework. Work will also commence with Traditional Owners, through negotiated data sharing agreements, to implement the framework for reporting on the condition and status of their heritage values through on-ground monitoring activities that will report under the Reef 2050 Plan.

Finally it is important to mention the vital cross-cutting work that is being undertaken by the Traditional Owner Partnerships team in supporting strong Traditional Owner inclusion, active participation and input into all of the other projects and programs delivered through the Partnership.

Traditional Owner program governance

Traditional Owners have informed their partners that dedicated governance roles are required to ensure fair, equitable and active participation within formal management arrangements. In response, GBRF has actively established a strong Traditional Owner governance arrangement to underpin the co-design and co-delivery of the Partnership.

Progress against the five-year strategy

GBRF recognises Traditional Owners of the Great Barrier Reef as those people who, through membership in a descent or clan, have responsibility for caring for particular Country within the Great Barrier Reef Region. We are committed to meaningful collaboration and engagement with Reef and Catchment Traditional Owners throughout the delivery of the Reef Trust Partnership, including the co-design of policies, programs and investments.

For over 25 years, Traditional Owners from across the Reef have been coming together to explore and call for a collective approach to achieving their rights and aspirations for ownership, access to, and involvement in the formal governance and management of Sea Country. The Traditional Owner Reef Protection component is building the foundational pillars required to deliver on these aspirations, creating stronger Indigenous-led processes and the step-change needed for sustaining inclusive governance and management of the Reef, while recognising cultural values and diversity.

Three key decisions made early in the Partnership have enabled this component to stand strong and position strategically for systems change at a scale and complexity that has not been attempted before within the Great Barrier Reef region.

1. Allocating a minimum of 10% of Partnership funds to Traditional Owner Reef Protection providing \$51.8 million to deliver on the aspirations of Traditional Owners.

The overarching Traditional Owner Working Group (now Advisory Group) was established in late 2018 and attracted five Reef Traditional Owners into foundational leadership roles. In 2019 a further two Traditional Owners were successful in securing full time employment as members of the GBRF's Traditional Owner Partnerships team. Most recently in 2020, the GBRF established several component-level Traditional Owner technical working groups – inviting another 12 Traditional Owners to contribute to the core workforce and assist in the initial co-design and co-delivery of the RTP. This takes the total Traditional Owner participation in the Partnership from zero to 19 in just under 18 months of operation. Importantly these Traditional Owner roles are fully remunerated for the work undertaken – as well as their work fully attributed. These practices ensure that Traditional Owners are meaningfully involved through respectful practices of participation and partnering.

Co-design action framework

Positive progress has been made to co-design and co-deliver a fit for purpose investment strategy to actively address Traditional Owner priorities for Land and Sea management. In May 2019, a Reef-wide co-design workshop with Traditional Owners of the Reef and Catchments was convened and produced initial design elements across the five Partnership components: 1) Water Quality; 2) Crown-of-Thorns Starfish Control; 3) Reef Restoration and Adaptation Science; 4) Integrated Monitoring and Reporting; and 5) the dedicated Traditional Owner Futures Fund. These concepts have been foundational in the design of the Partnership.

Working through the dedicated Traditional Owner governance arrangements, a more comprehensive Traditional Owner designed program has now been developed for delivery in 2020-2021. This work identifies close to \$8 million investment through, and builds on, the initial design elements of the Reef-wide co-design workshop. Since 2018 the GBRF has hosted 20 meetings through its collective Traditional Owner governance arrangements and one Reef-wide workshop to co-design the Partnership.

Stage-one of a dedicated workforce planning and strategies project aims to provide an improved understanding around relevant skills, qualification requirements and registered training providers that apply to the implementation of the Partnership. The project aims to map employment, career and capability pathways across the Partnership and will undertake a component by component analysis to identify skills and training required to build and strengthen Traditional Owners' competencies.

A group of experts in the field of Indigenous employment and career development will come together through a facilitated think tank and meet up to four times in 2020-2021 to help develop this work. This work will also be complemented by a skills and capacity audit across Traditional Owner groups on the Great Barrier Reef, which commenced in March 2020.

Strategic communication and engagement

A communication and engagement strategy was developed in early 2020 to guide the work of this component, however due to COVID-19 restrictions, changes to the implementation of this strategy have been required. Most notably, the regional on-Country workshops scheduled for May 2020 have been delayed. Before travel restrictions, the GBRF Traditional Owner Partnerships Engagement Manager met with over 80 Traditional Owners from across 35 Traditional Owner groups. Early on-Country work has focused on introducing the Traditional Owners of the Reef and Catchments to the opportunities under the Partnership.

Acting on the strong advice of the Traditional Owner Advisory Group, appropriate educational material is being developed and made available for Traditional Owners of the Reef and Catchments to better inform and educate broadly on the opportunities available under the Partnership.

Active Traditional Owner-led Reef protection activities

An initial Traditional Owner Reef Protection grant round was co-designed with the Traditional Owner Advisory Group and administered in early 2019. This \$1.8 million program addressed three key focus areas 1) Country-based planning; 2) implementation of existing Country-based plans; and 3) junior ranger activities. This opportunity enabled 18 projects to commence across the Reef covering 13 Traditional Owner groups.

A second grant round, valued at \$2 million, was designed in June 2020 and will open early in 2020-2021. This round will support Traditional Owner capacity building, training, innovation, planning and on-ground activities across the Water Quality, COTS Control, Reef Restoration and Adaptation Science, and Integrated Monitoring and Reporting components.

In addition, a new partnership with CSIRO has commenced that provides research support to the Traditional Owner Integrated Monitoring and Reporting Technical Working Group. This partnership will result in the further development of the *Strong Peoples – Strong Country* framework for monitoring Indigenous Heritage values, which was initiated through GBRMPA's RIMREP process and developed by Traditional Owners of the Reef.

2019–2020 highlights

17 

Traditional Owners
in governance positions
for the Partnership

35 

Reef Traditional Owner
groups engaged

Over
500 

participants in junior
ranger program
activities

Traditional Owner governance

GBRF acknowledges and thanks the 17 Reef and Catchment Traditional Owners who are members of our Traditional Owner Advisory Group and Technical Working Groups and our two Reef Traditional Owner staff. Despite COVID-19 restrictions and many Traditional Owner communities being in lockdown, these groups collectively met 11 times in the weeks leading up to the finalisation of this Annual Work Plan to inform and shape its design.

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, provide advice on both male and female

Traditional Owner priorities, and with three emerging leaders provide a voice for Traditional Owner youth. Amongst 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



Photo: Scott Anderson, IPS Management Consultants, May 2020

Junior ranger programs

Seven junior ranger programs, supporting 20 Traditional Owner groups, have been funded in 2019-2020. Four of these are supporting first-time junior ranger programs. 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.



“I felt safe and free.”
reported one of the junior rangers
from the Cape York region.

Left: Yuka Baja Muliku ranger Gauai Wallace collecting sea urchins with junior rangers as part of their cultural camp activities

Below: Mandaburra Dancers performing at a Junior Ranger Culture Camp at Cowley Beach





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.



Support for a Traditional Owner-led project with culturally grounded processes for delivering a training project has clearly resulted in high training completion rates and ongoing positive interest in the project



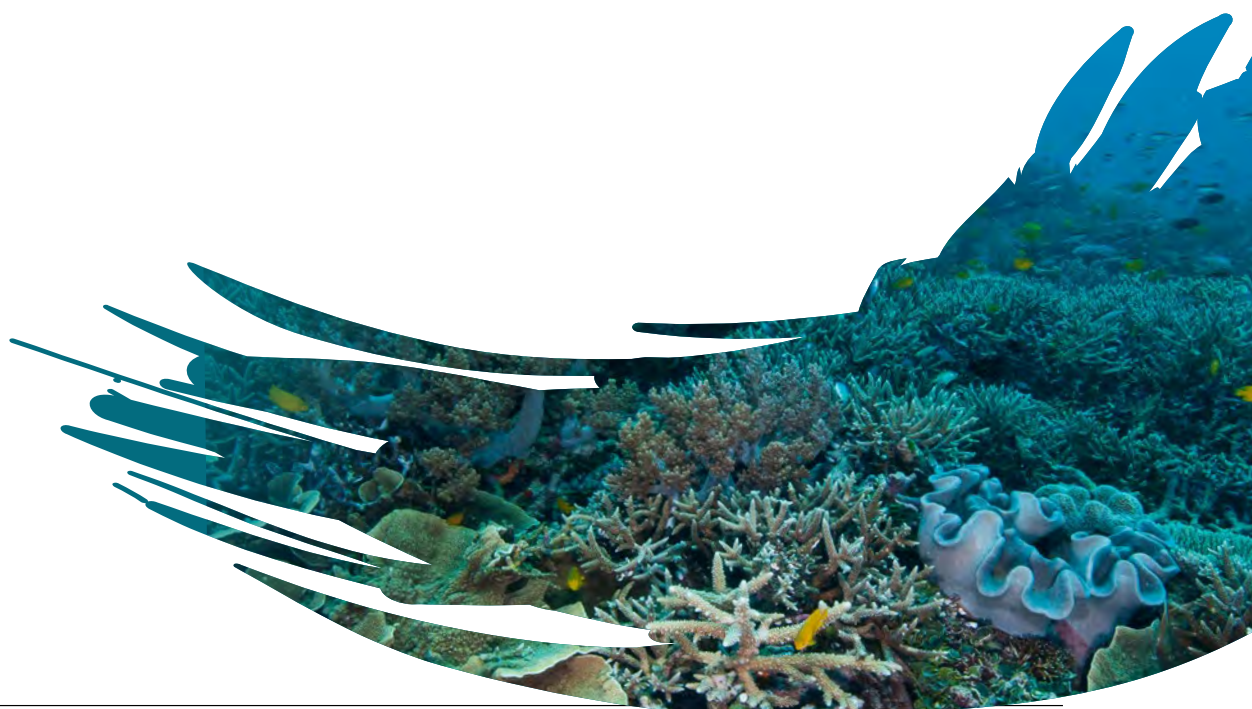
Five-year plan

Major categories of activity, rationale and budget for the five-year period are shown in Table 9 for reference.

Table 9. Traditional Owner Reef Protection five-year investment areas and budget

RTP Component	Partnership Activity	Rationale	Outcome	Budget
TOTAL INVESTMENT				\$51.8m
<ul style="list-style-type: none"> ● Traditional ● Owner and ● Community ● Reef Protection <p><i>Cross-cutting program activity</i></p>	<p>Formalise governance arrangements for the Traditional Owner Reef Protection component and cross-components</p> <p>Strategic communication and engagement</p> <p>Co-design (co-benefits) Action Framework</p>	<p>The Partnership is committed to a process of co-design and co-delivery with Traditional Owners of the Reef.</p> <p>Traditional Owner engagement in the Partnership aims to strengthen active participation and decision making.</p> <p>Co-designed programs and projects aim to deliver improvements to equitable outcomes and to maximise co-benefits.</p>	<p>Traditional Owner participation in governance arrangements for protection and management of the Reef is improved.</p> <p>Benefits to Traditional Owners engaged in Sea Country management improve.</p> <p>Collaborative working arrangements with Traditional Owners which establish mutual trust and build capacity are developed.</p>	\$5m
<ul style="list-style-type: none"> ● Traditional ● Owner and ● Community ● Reef Protection 	<p>Establish a Traditional Owner Futures Fund</p>	<p>Independent and sustainable financing is needed to support governance, future leadership activities (such as student scholarships) and strategic investments which build Traditional Owner capacity and capability in Reef management.</p>	<p>Futures Fund established to support and strengthen the role of Traditional Owners in Reef governance, foster new and sustainable partnerships and promote enduring Reef protection outcomes.</p>	\$10m
<ul style="list-style-type: none"> ● Traditional ● Owner and ● Community ● Reef Protection 	<p>Land and Sea action and investment planning</p>	<p>Country-based planning and implementation provide a structured approach for groups to articulate and understand the values and aspirations of their Land and Sea Country for improved management.</p> <p>Indigenous heritage including biocultural systems, culturally significant species and important habitats are mapped and monitored.</p> <p>Traditional Owners connect and learn about culture and Country to keep strong.</p>	<p>Traditional Owners' on-Country activities contribute to Reef biocultural health.</p> <p>Key Reef heritage values and places are identified, mapped, monitored and reported on.</p> <p>Traditional Owners are supported to collect, store and manage their own Country-based information for decision making.</p>	\$2m

	RTP Component	Partnership Activity	Rationale	Outcome	Budget
● ● ●	Water Quality	Indigenous Knowledge systems, innovations, co-design pathways and on-ground actions for healthy water (catchment to reef)	<p>Traditional Owners require better engagement in the Reef 2050 Water Quality Improvement Plan and related funding opportunities.</p> <p>Consideration of Indigenous values in current water quality programs are needed to improve decision making.</p> <p>Adoption of co-design approaches in Reef Trust Partnership Water Quality component will improve active participation and maximise benefits for Traditional Owners.</p>	<p>Increased awareness and consideration of Indigenous Knowledge and cultural values in the design and delivery of the Partnership Water Quality component and broader Reef 2050 Water Quality Improvement Plan programs.</p> <p>An increase in Traditional Owner-led water quality improvement projects.</p> <p>Water quality programs incorporate education and employment pathways for Traditional Owners.</p>	\$17m
● ● ●	Crown-of-Thorns Starfish Control	Establishing clear pathways for Traditional Owners to achieve culturally-grounded economic enterprises for effective COTS surveillance and control	<p>There is a recognised need for Traditional Owner groups to be directly involved in decision making and management of reefs and activities on their Sea Country.</p> <p>There is a need to create culturally appropriate pathways for Traditional Owners to increase employment opportunities, build partnerships, co-design programs, diversify skillsets and lead economic enterprises related to COTS surveillance and control.</p>	<p>A pathway with clear steps for Traditional Owners to achieve culturally-grounded economic enterprises for effective COTS surveillance and control is established.</p> <p>Progression towards Traditional Owner enterprises being included on the preferred panel of providers for COTS control and surveillance.</p> <p>Cultural guidelines (protocols) are adopted by agencies, institutions and private sector partners undertaking COTS research, surveillance and control.</p>	\$5.3m



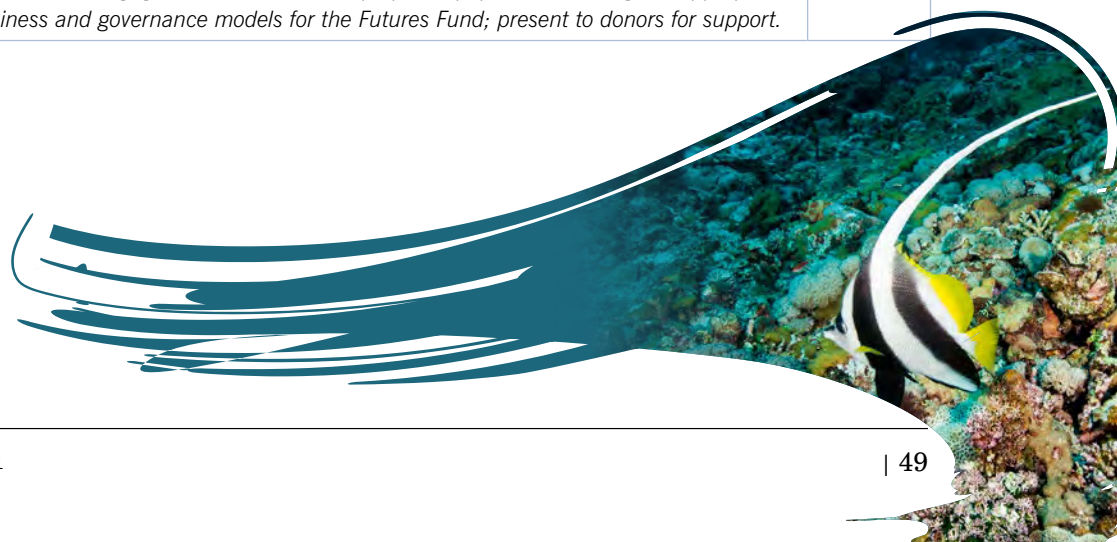
	RTP Component	Partnership Activity	Rationale	Outcome	Budget
● ● ●	Reef Restoration and Adaptation Science	<p>Establish Traditional Owner-led governance arrangements for strategic and cultural oversight of this component</p> <p>Deep engagement with Traditional Owners to develop guidelines, foundational principles and implementation of practices to ensure respect for biocultural ethics</p> <p>Implementation of actions to diversify skillsets, build capacity, Indigenous-led research and to formalise education and employment pathways</p>	<p>Traditional Owners hold inherent rights to the Reef and have successfully cared for their traditional homeland estates since time immemorial. Over the last century they have witnessed increased pressures and a changing environment. This carries with it a deep sadness for the loss of their healthy Country. Traditional Owners must therefore form part of the solution to improve the health of the Reef.</p> <p>There is a need to create culturally appropriate pathways and make resources available for Traditional Owners to diversify skillsets, build capacity, contribute to and lead research, and to formalise education and employment pathways to heal Country and people.</p>	<p>Traditional Owner biocultural ethics guide participation through established governance arrangements.</p> <p>Traditional Owners' on-Country activities contribute to Reef health and resilience.</p> <p>Engagement with Traditional Owners builds strong mutual understanding of risks and benefits.</p> <p>Biocultural guidelines, principles and practices are adopted by agencies, institutions and private sector partners undertaking Reef restoration and adaptation activities.</p> <p>Education and career pathways are embedded in programs across all phases of delivery.</p>	\$9m
● ● ●	Integrated Monitoring and Reporting	<p>Implement the <i>Strong Peoples – Strong Country</i> framework; including negotiation of data sharing agreements; audit of monitoring skills, tools and assets; and development and implementation of education and employment pathways</p>	<p>Traditional Owners are the keepers of Indigenous Knowledge and cultural values and have observed dramatic changes on their Country.</p> <p>The <i>Strong Peoples – Strong Country</i> framework provides the basis for understanding the Reef as a biocultural ecosystem and requires investment to develop indicators to understand the condition and status of Indigenous heritage in the Reef.</p> <p>There is a need to resource Traditional Owners to build capacity and diversify skill sets to enable recording and appropriate sharing of Indigenous Knowledge and information.</p>	<p>Culturally grounded approaches to monitoring, evaluation and reporting are embedded across the Partnership.</p> <p>Data sharing agreements are established to ensure Traditional Owners' intellectual property is protected and information about Indigenous Knowledge and cultural values are safeguarded and shared appropriately.</p> <p>Greater opportunities and increased capacity and capability for Traditional Owners to undertake monitoring are provided.</p>	\$3.5m

Note: In addition to the Traditional Owner specific outcomes described in Table 1 above, each of the specific Partnership components described in this table (Water Quality, COTS, RRAS and IMR) will also deliver the outcomes listed in the five-year plans relating to each of these individual components – e.g. for Water Quality this will include reductions in dissolved inorganic nitrogen, fine suspended sediments and pesticides in priority locations.

2020-2021 work plan

Table 10. Traditional Owner Reef Protection investment areas and budget for 2020-2021

Activity	Description	FY21 Budget
TOTAL INVESTMENT		\$7.68m
Indigenous innovation, leadership and collaboration		\$2m
Traditional Owner program governance	Ongoing delivery of Traditional Owner Reef Trust Partnership governance arrangements. <i>Deliverables: Support for one Traditional Owner Advisory Group to meet up to four times a year and four Traditional Owner Technical Working Groups to meet in accordance with their terms of reference; support to enable collaborative networking of Traditional Owner-led governance and leadership arrangements at least twice a year.</i>	\$0.4m
Leadership and capacity building	This activity will support leadership activities that build and strengthen the capacity and capability of Traditional Owners to actively participate in the Partnership. <i>Deliverables: Dedicated leadership and capacity building support; delivery of an existing sub-project Womenspeak; a dedicated youth sub-project that focuses on specialised communication techniques and the piloting of up to two regional youth leadership projects that inspire future leaders in Land and Sea management for the protection of the Reef; and a strategic focus on workforce planning measures in response to Traditional Owner direction set around employment development, training and opportunity pathways that may be delivered through implementation of the Partnership.</i>	\$0.4m
Strategic communication and engagement	Effective communication and engagement of Reef Traditional Owners will remain a critical priority throughout the Partnership. <i>Deliverables: Dedicated FTE to manage on-ground engagement; regional workshops planned for 2019-2020 are re-mapped to 2020-2021 in response to COVID-19; plan for a Reef-wide forum and celebration in September 2021 including engaging a professional events coordinator; develop and action a strategic communications strategy; co-designed education materials, including Indigenised branding elements to promote, communicate, engage and inform Traditional Owners and partners about opportunities and achievements under the Partnership.</i>	\$1.1m
Co-design action framework	Continue developing the Reef co-design (co-benefit) framework with Traditional Owners, Reef 2050 partners and the broader community. <i>Deliverables: Building and maintaining formal mentorships and collaborative partnerships with co-design experts; develop and benchmark co-design framework, principles, tools and resources; on the job learning and training in co-design techniques and strategies; develop co-designed educational materials to help communicate, engage and inform Traditional Owners about each Partnership component.</i>	\$0.1m
Sustainable Funding (Futures Fund)		\$0.19m
Traditional Owner-led Futures Fund	This activity aims to provide a sustainable funding stream for Traditional Owner Reef protection activities through the \$10 million allocated to this fund and invested in term deposits. <i>Deliverables: Engage consultant to develop options paper that investigates appropriate business and governance models for the Futures Fund; present to donors for support.</i>	\$0.19m



Activity	Description	FY21 Budget
Active Traditional Owner-led Reef protection activities		\$5.49m
Grants	Deliver Stage 2 Traditional Owner grant round which will support projects across the four Water Quality, COTS Control, Reef Restoration and Adaptation Science, and Integrated Monitoring and Reporting components (\$1.2m). Ongoing management of 18 Traditional Owner Stage 1 Grants (\$0.14m).	\$1.34m
Traditional Owner-led water quality improvement (healthy water)	This work aims to improve Traditional Owner access to and active participation in water quality projects. <i>Deliverables: Water quality grant round that is tiered to deliver Traditional Owner-led foundational grants (small scale projects over 12-18 months); and keystone grants (detailed medium to large project proposal/ multi-year investments (up to 3 years); a project coordinator to provide extension support to facilitate Traditional Owners' active engagement and participation in healthy water projects; resource toolkit and communication products that educate, engage and inform Traditional Owners about water quality impacts and help improve water quality literacy.</i>	\$2m
Traditional Owner-led integrated monitoring and reporting	Traditional Owner knowledge forms a critical part of building a holistic understanding of the condition and trend of Reef values. This work will continue to support the finalisation and implementation of the <i>Strong Peoples – Strong Country</i> (SP-SC) framework developed by Traditional Owners with research support provided by CSIRO. <i>Deliverables include: Finalisation of the SP-SC framework, developing a set of objective indicators that monitor the condition and status of Indigenous heritage; commence a three-year pilot project to implement Indigenous heritage monitoring programs in at least four regions across the Great Barrier Reef; data sharing agreements negotiated with Traditional Owners participating in the pilot program; continued mapping of data and information needs required to respond to reporting under Reef 2050 framework for ecosystem-based management; scoping requirements to operationalise a data management system to roll out in 2021-2022; an extension officer to support groups participating in the pilot program; education and co-design materials to help communicate, engage and inform Traditional Owners about the Integrated Monitoring and Reporting component.</i>	\$0.5m
Traditional Owner-led crown-of-thorns starfish control	This work supports activities that aim to improve Traditional Owner participation in COTS control and facilitates training and service delivery partnerships. <i>Deliverables: Strategic partnerships to deliver the Traditional Owner training component of the COTS Control Program; information and communication products that educate, engage and inform Traditional Owners about the opportunities in the COTS control component; protocols, principles and guidelines for culturally appropriate training and employment in the COTS control program including adoption strategies to facilitate uptake by partners, developed and implemented.</i>	\$0.85m
Traditional Owner-led Reef restoration and adaptation science	This work aims to improve Traditional Owner access to and active participation in Reef restoration and adaptation projects. <i>Deliverables: Investment for local Traditional Owner groups to participate in a local-scale Reef restoration projects in the Cairns-Port Douglas region through the Cairns-Port Douglas Reef Restoration Hub; build and maintain strategic partnerships between Traditional Owners and Reef restoration and adaptation science (RRAS) partners; develop and implement, with partners, an engagement process to communicate, engage and inform Traditional Owners about the RRAS component; develop education material in collaboration with partners to inform Traditional Owners about reef restoration and adaptation including findings, research, and opportunities; biocultural protocols, principles and guidelines for the RRAS program, including ethics to inform resilience and restoration work, and adoption strategies to facilitate uptake by partners; and explore delivery options to better understand innovations that may reside in Traditional Knowledge and practices that may inform new ways to undertake Reef restoration and adaptation activities.</i>	\$0.8m

Table 11. Traditional Owner Reef Protection gantt chart 2020-2021 (part one)

Activities	Description	Budget	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Indigenous Innovation, leadership and collaboration														
Governance														
Traditional Owner program governance	Ongoing delivery of Traditional Owner RTP governance arrangements (working and advisory groups) for Water Quality, COTS, IMR and RRAP.	\$0.4m	TOAG		TOAG					TOAG		TOAG		
Leadership and capacity building			Delivery 4 x Technical Working Groups at 20 days each											
Traditional Owner sponsorship	Sponsorship opportunities for leadership and capacity building on a case by case basis.	\$0.05	Design							Open Sponsorship Call				
Youth leadership support	Piloting up to two regional youth leadership projects inspiring future Aboriginal and Torres Strait Islander leaders in Land and Sea management for Reef protection.	\$0.2m	Design		Call proposals		Procurement/ Contract			Implementation of on-ground projects				
Youth and womens communication projects	Work with Traditional Owner women of the Reef and Catchments to build confidence and unearth female voices. Train/ upskill Aboriginal and Torres Strait Islander youth in specialised communication techniques to create positive Reef images.	\$0.1m	GBRMPA/QPWS Partnership: Youth		Consultancy/ plan		Call nominations			Confirm nominations		Womenspeak Workshop		
Workforce planning and development, including supporting audit	Aims to provide an improved understanding around relevant skills, qualification requirements and registered training providers that apply to the implementation of the RTP and work towards development of a Career Pathways Framework.	\$0.050			Call proposals		Youth workshop			Think Tank		Think Tank		Think Tank
Strategic communication and engagement			Project implementation											
Traditional Owner engagement	Dedicated full-time equivalent resource to manager engagement on Country. Traditional Owner regional engagement and workshops.	\$0.220								Engagement				
Strategic communication and education	Education and co-design materials, including Indigenised branding to help promote, communicate, engage and inform Traditional Owners and partners about opportunities and achievements under the RTP.	\$0.280	Consultancy		Strategic communication strategy					Implementation				
Reef and Catchments forum and celebration	Including events coordinator.	\$0.600	Consultancy	Project Plan						Implementation				
Co-design action framework														
Mentorship and guidance	Build and maintain strategic partnerships with co-design experts.	0.06		Co-design workshop								Co-design workshop		
Co-design products	Develop education and co-design materials to help communicate, engage and inform Traditional Owners about each RTP component.	0.02				Develop co-design products								
Prototyping and testing	Co-design principles, tools and resources are developed and benchmarked.	0.02										Benchmarking		
Establish Reef Traditional Owners Futures Fund			Project implementation											
Business model options	Engage consultant to investigate and report on appropriate business models for presentation to the Traditional Owner Advisory Group.	\$0.19m	Engage consultant											Delivery
Futures Fund options paper	Options paper on appropriate governance models for the Futures Fund for presentation to the Traditional Owner Advisory Group and broader Reef Traditional Owners.		Develop options paper - TOAG				Refine options			Open consultation re co-design and governance				
Invest funds	Invested in a term deposit.									Investment				

Table 12. Traditional Owner Reef Protection gantt chart 2020-2021 (part two) (Traditional Owner-led component activities)

Activities	Description	Budget	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Active Traditional Owner-led Reef protection activities		\$5.49m													
Staged grants		\$1.34m													
Grants management: Stage 1	Ongoing management of 2018-2019 financial year investments. Reporting, payments and communication.	\$0.14m	Implementation of on-ground projects												
Deliver Stage 2 Traditional Owner grant round	Projects focused across the four RTP components of Water Quality, COTS Control, Integrated Monitoring and Reporting, and RRAS.	\$1.2m	Call	Procurement	Implementation of on-ground projects										
Traditional Owner-led WQ Improvements - Healthy water		\$2.0m													
Specific water quality grant round	Structured and tiered grants that provide Traditional Owners opportunities to apply for foundational or keystone grants.	\$1.500	Design		Funding round		Contracting		Implementation of on-ground projects						
Project coordinator	Project coordinator for extension support to positively facilitate Traditional Owners' active engagement and participation in healthy water projects.	\$0.150	Recruitment			Contracting		Implementation							
Education and co-design materials	Develop resource toolkit / targeted communication products to educate, engage and inform Traditional Owners about water quality impacts and help improve water quality literacy.	\$0.350	Consultancy and design		Develop program plan		Implementation								
Traditional Owner-led integrated monitoring and reporting		\$0.5m													
Data and Information Management	Mapping comprehensive data / information needs (to respond to information needed to report under Reef 2050 framework).	\$0.060	Consultancy and plan		Project implementation										
	Scoping full data connectivity required to operationalise a database: single web based platform with multiple database/web applications/connections.	\$0.070											Scope database		
Strong Peoples – Strong Country 2.0	Finalise the <i>Strong Peoples – Strong Country</i> (SP-SC) framework and begin implementing the monitoring program with Traditional Owner groups.	\$0.200	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	CSIRO	
			Develop objective indicators		Criteria for pilot		Open call for pilot		Data sharing agreements						
Project coordinator	For extension support to groups participating in the three-year SP-SC pilot for Traditional Owners.	\$0.120											Recruitment	Contracting	
Education and co-design materials	To help communicate, engage and inform Traditional Owners about the IMR component.	\$0.050	Develop communication products						Release communication products						
Traditional Owner-led COTS control		\$0.85m													
Traditional Owner participation in COTS control training	Traditional Owner training component of the COTS control program.	\$0.650	Consultancy/plan		Implement training program										
Education and communication products developed	Develop information paper and communication products to help Traditional Owners understand full spectrum of the COTS control program.	\$0.050	Information products												
Develop cultural guidelines	Develop protocols, principles and guidelines for culturally appropriate training and employment in the COTS control program.	\$0.100	Scope		Develop guidelines with Traditional Owners										
Develop uptake adoption strategies	Develop and implement adoption strategies to facilitate uptake of protocols, principles and guidelines by partners.	\$0.050	Build relationships with service delivery partners to adopt cultural protocol guidelines												
Traditional Owner-led Reef restoration and adaptation activities		\$0.8m													
Strategic partnerships	Invest in local Traditional Owner groups' active engagement and participation in the Cairns-Port Douglas Reef Restoration Hub.	\$0.500	Funding round		Delivery										
Education and communication products developed	Develop education material in collaboration with strategic partners to inform Traditional Owners about Reef restoration and adaptation including findings, research, and opportunities to discuss reef resilience and restoration.	\$0.100	Collaborative co-develop culturally grounded information products												
Develop biocultural ethics documents	Develop biocultural protocols, principles and guidelines for the RRAS program, including ethics to inform resilience and restoration work.	\$0.100	Consultancy/plan		Project implementation								Delivery		
Research project	Explore innovations that may reside in Traditional Knowledge and practices to inform new ways to undertake Reef restoration and adaptation activities.	\$0.100					Collaborative research partnership				Project implementation				



7. Community Reef Protection Annual Work Plan

Budget: \$10 million

Purpose: To improve the engagement of the broader community in the protection of the Great Barrier Reef World Heritage Area.

Priorities under the Partnership Investment Strategy:

●	Strengthening and accelerating on-ground action
●	Building understanding, hope and action
●	Connecting community with decision making
●	Fostering enduring outcomes through funding, next generation participation and partnerships

Strengthening and accelerating on-ground action

Activities in 2019-2020 focused on supporting and strengthening existing efforts through grant delivery for citizen science and catalysing local action projects. Funding was committed to 15 citizen science projects, building knowledge and understanding about the condition of Reef habitats and wildlife and supporting locally relevant actions. Through these projects grantees have engaged participants in over 300 field days and generated over 75,000 data points reporting on Reef habitat and wildlife, resulting in 9 examples of use of citizen science data for management applications. A second round of grants for citizen science projects will open in late 2020-2021.

Ten local action projects are being delivered, championed through the Great Barrier Reef Marine Park Authority Local Marine Advisory Committees (LMACs). These local action projects have brought together partners to focus on reducing local threats through awareness and behaviour change initiatives, stormwater marine debris and local riparian restoration projects. A collaborative review of the 2019 grants has informed a revised program which will commence later in the first half of 2020-2021 and includes options for continuing and growing current projects, as well as a new funding round focused on local climate action, working with LMACs through a collective impact approach.

Collectively, these 25 projects have delivered more than 7,000 active engagements with community members, who have supported initiatives through over 16,000 hours of volunteer work. Forty-four percent of participants were youth (25 years or under) and 74% of participants were new to the project – demonstrating pathways for connecting new community audiences with Reef protection activities.

2020-2021 in the context of the five year strategy

The Community Reef Protection component aims to increase and enhance the positive impact that local action has for the Great Barrier Reef and for communities.

The five-year plan focuses on improving sharing, connection and collaboration between individuals, community groups and Reef managers to deliver greater impact. It also places a strong emphasis on recognising and celebrating the value of community contributions, and supporting enduring outcomes through system change in funding and partnership models for community work.

The 2020-2021 year will see the continuation and expansion of citizen science and local action projects and a significant investment into local-scale reef restoration and stewardship activities in partnership with scientists, Traditional Owners and tourism operators. Work will continue on developing regional community action plans, embedding community data into key reef management projects such as the regional reef report cards and developing the National Reef Protection Challenge.

A Cairns-Port Douglas Reef Restoration Hub was launched in June 2020 and will be collaboratively designed with a range of partners in 2020-2021. Building on existing reef restoration and stewardship work in the region, it will provide the framework and network for coordinating, trialling and knowledge-sharing for local-scale approaches. It will also support integrated planning and delivery with the recently announced Reef Restoration and Adaptation Program (RRAP), the Traditional Owner Reef Protection component of the Reef Trust Partnership and key regional partners. A toolkit for 'Best Practice Coral Restoration for the Great Barrier Reef project' (supported through the National Environmental Science Program's Tropical Water Quality Hub) will support implementation of local-scale Reef restoration projects funded through the Reef Trust Partnership in the region. This work progressed in 2019-2020 by opening applications for a locally-based coordinator and an expression of interest for projects to support an integrated portfolio of projects delivering local-scale reef restoration and stewardship in the region.

Connecting community with decision making

An open grants round was held in April 2020 for Community Action Plan Leaders who will design and develop Community Action Plans that aim to connect community with decision making and help support strategic planning, and reporting for high impact community action. Throughout 2020-2021, Community Action Plan Leaders will build on existing management plans, working together to design and develop plans using the Open Standards for the Practice of Conservation framework. The 2019-2020 youth leadership budget has been committed to integrating youth initiatives into Community Action Plans.

A strategic partnership with the regional report card network is also underway to support community data integration and identify opportunities to increase community engagement across the network of five regional report cards.

Building understanding, hope and action

Planning for the National Reef Protection Challenge is well underway, with consultation and research to inform how the initiative will empower Australians across the country with the knowledge and skills to take simple, measurable and impactful actions to protect the Reef. Over 2020-2021, partnership opportunities will be developed and socialised in readiness for the launch of this exciting initiative at the end of the year.

Current project partners also had the chance to join a Digital Storytellers online course to share a 'story of impact' about their projects. These videos will be screened online to showcase case studies of the impactful community work underway and how others can get involved.

Fostering enduring outcomes

A desktop community Reef stewardship audit was undertaken in collaboration with GBRMPA to build understanding about the scope, scale, reach and intent of community programs underway across the Reef. This work will not only help to shine a light on everyday champions across Queensland, but a second phase to be delivered in the first half of 2020-2021 will apply a more qualitative research approach to identify critical opportunities to address gaps, strengthen partnerships and further understand the collective impact of these programs. An audit of global community programs and fundraising models is scoped to explore proven and new models for investment and delivery of community programs, helping to support improved design and capacity building opportunities for enduring change.



2019–2020 highlights

183



Partners engaged

180



Training, education and awareness-raising initiatives and events

7,451



Active engagements with community members

Tourism-led citizen science

Several tourism-led citizen science projects demonstrated the power of citizen science as a platform for partnerships. 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 GBRMPA, AIMS and tourism operators to launch a new data collection and artificial intelligence analysis

for a recently developed geo-tagged photo transect method to record changing coral condition in the back reef. Reef Catchments partnered with the Whitsundays Charter Boat Industry Association and JCU 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.



Lady Musgrave Experience volunteers collecting data

Local action litter projects

Analysing community litter trends and identifying ways to stop litter at the source was a theme across four of the local action projects championed by Local Marine Advisory Committees. Projects used citizen science data to understand trends and drive practical solutions working with a range of community partners including council, businesses, schools, managers and community groups.



Fitzroy Basin Association volunteers collecting data from a drain buddy

“ Sorting Gross Pollutant Traps is extremely fun and interesting, but also very sobering. You get a chance to get messy, have a laugh and kick up some great conversations. Seeing all the rubbish sorted into piles in the end really grounds how wasteful our society can be and helps give perspective to the amazing work being done to reduce waste.

Pioneer Catchment Landcare volunteer

Adapting projects in response to COVID-19

COVID-19 introduced a range of logistical challenges to the way that many partners would traditionally deliver community engagement activities, prompting the need to respond and adapt. GBRF hosted virtual connection and collaboration sessions to help grantees consider options for online project delivery. Project partners from across the state zoomed in to experiment with different ways of engaging people virtually, and shared ideas on how to work together to create a connected, collaborative and people-centric online environment. The sessions received positive feedback from participants who will now join a community of practice to continue supporting, sharing and learning from each other. Projects have also expanded their original project reach by taking engagement online, offering unexpected benefits from a challenging scenario by allowing more people to connect with project activities.

“ These sessions were a grounding insight into how many of us are in the same boat right now, working through the obstacles presented by COVID-19 the best we can. After each session, I felt energised and ready for upcoming hurdles with a toolkit of new approaches and techniques!

Cory Tiger
Cairns and Far North Environment Centre

Five-year plan

Major categories of activity, rationale and budget for the five-year period are shown in Table 13 for reference.

Table 13. Community Reef Protection five-year investment areas and budget

Partnership Activity		Rationale	Outcome	Budget
TOTAL INVESTMENT				\$10m
<ul style="list-style-type: none"> ● Citizen science: Support strategic and collaborative citizen science data collection, reporting and application 	<p>Citizen science can address priority data needs for science, management and community, as well as provide a platform for effective partnerships and place-based approaches that align with the broader Reef 2050 Plan. Yet while citizen science is gaining momentum, there is much greater potential for data from programs to inform management and offer greater community benefits.</p>	<p>A framework for strategic citizen science partnerships will:</p> <ul style="list-style-type: none"> • enhance how community informs, and is informed by, local/regional decision making • increase community understanding about Reef health • boost community benefits and enhance efficacy in Reef stewardship. 	\$3.02m	
<ul style="list-style-type: none"> ● Local reef restoration: Develop and implement programs to support science-based local-reef restoration approaches and Reef stewardship 	<p>Reef restoration has been identified as an important emerging priority for the Reef. There is high interest from the community to support this work. To deliver maximum impact and build on work already underway, the investment will focus on the Cairns-Port Douglas region to support trialling approaches to strengthen collaborative models for reef restoration and protection work as a tool to build reef and community resilience in the face of climate change.</p>	<ul style="list-style-type: none"> • An integrated portfolio of local-scale projects delivered in Cairns-Port Douglas area • Develop a Reef Restoration Hub in collaboration with the Reef Restoration and Adaption Program, the Traditional Owner Component and local partners to support knowledge-sharing and coordination. • Local-scale restoration and stewardship methods are shared and refined – including improved measures of success spanning environmental, social, economic and cultural indicators. 	\$1.1m	
<ul style="list-style-type: none"> ● Local action projects: Support collaborative community projects to address local Reef threats using strategic place-based approaches 	<p>GBRMPA's Local Marine Advisory Committees already provide a platform to directly connect community with decision making and offer a network for scalable approaches to implement regional Reef Blueprint priorities. Providing support for inclusive project planning can further activate and empower this network of dedicated community members.</p>	<p>Projects will increase ownership, knowledge-sharing and collaboration to deliver local actions on priority Reef threats, and wider benefits across Reef communities. Projects will trial and embed frameworks for collective action and enhance engagement (including youth) in this Reef-wide community advisory network.</p>	\$1.67m	
<ul style="list-style-type: none"> ● Integrated decision making: Facilitate pathways and platforms to foster knowledge exchange and develop regional Community Action Plans for Reef protection projects 	<p>Effective integration of top-down and bottom-up approaches can help to deliver key management priorities as well as recognise and foster the important role of community action. Promoting exchanges to clarify understanding and opportunity will help to drive more effective local-scale actions and integration with broader Reef and catchment-wide management approaches. This will build on existing strategic frameworks.</p>	<p>Community Action Plans will provide inclusive, integrated and adaptive frameworks for Community Reef protection efforts that deliver against key Reef management priorities. Duplication of efforts will be decreased. New/strengthened partnerships will be formed between community groups and managers/policy-makers. Community will have greater ownership of plans and outcomes.</p>	\$1m	

Partnership Activity	Rationale	Outcome	Budget
<ul style="list-style-type: none"> ● National Reef Protection ● Challenge: Develop and implement a collaborative initiative to support targeted behaviour change to protect the Reef 	<p>Australians are proud of the Reef and feel a sense of responsibility to protect it, but many do not feel optimistic about its future. Despite the demonstrated interest in stewardship actions, many people feel they do not have the necessary knowledge and skills to reduce impacts they have on the Reef (Marshall et al 2017). This initiative will foster wide-scale participation in a Reef protection challenge to deliver measurable behaviour change outcomes to address key threats at multiple scales – personal, local, and nationwide.</p>	<p>The first National-scale Reef protection challenge will:</p> <ul style="list-style-type: none"> • Build positive attitudes, intention and participation in targeted behaviours that reduce Reef threats • Build hope for the future of Reef resilience through collective action • Build partnerships and efficacy across community networks such as tourism, councils, education, community groups, local business. 	<p>\$2.48m</p>
<ul style="list-style-type: none"> ● Communicate case studies and stories of hope 	<p>Capturing and sharing community-driven solutions from a range of people and projects has been identified as a key need to celebrate success and inspire increased engagement.</p>	<p>Partnership communication and mass communication will support a knowledge-sharing network. Communicating positive outcomes will demonstrate progress, acknowledge the work of individuals and community organisations, and motivate others to get involved.</p>	<p>\$0.07m</p>
<ul style="list-style-type: none"> ● Support enduring investment and partnership models: ● Enhance community Reef protection models to foster long-term organisational sustainability, impact and investment 	<p>While extensive work is taking place across communities, there is no comprehensive benchmark that documents community stewardship effort and impact across the Reef and its catchments. Addressing the challenge of small, inconsistent grant-based funding for community Reef protection activities has been identified as a key barrier to achieving more efficient and enduring outcomes.</p>	<p>A stewardship audit and impact assessment will create a baseline for celebrating current work, showcasing greater potential, and measuring changes in stewardship actions delivered with partners through the Reef Trust Partnership. A suite of tools to support dynamic business model for community Reef protection partnerships and investment will be developed and made available.</p>	<p>\$0.13m</p>
<ul style="list-style-type: none"> ● Empower community heroes: ● Identify and deliver key capacity-building needs for individuals and organisations to amplify partnerships and leadership 	<p>Addressing shared challenges and areas for growth can boost capacity across the community. The following areas have been identified: cultural capacity-building to foster greater partnership opportunities with Traditional Owners, enhanced monitoring and evaluation skills to document community project impact, and empowering youth leadership.</p>	<p>Capacity-building initiatives will strengthen individual, organisational and sector-wide capacity to support place-based, sector-based and youth empowerment activities with the goal to enhance community stewardship outcomes.</p>	<p>\$0.53m</p>

2020-2021 work plan

Table 14. Community Reef Protection investment areas and budget for 2020-2021

Activity	Description	FY21 Budget
TOTAL INVESTMENT		\$3.288m
Citizen science projects	<p>Citizen science investment for ongoing projects and a new funding round with themes including innovation, data integration, and data use that will:</p> <ul style="list-style-type: none"> • enhance how community informs, and is informed by, local/regional decision-making • increase community understanding about Reef health • boost community benefits and partnerships and enhance efficacy in Reef stewardship. <p><i>Deliverables: Ongoing delivery of funded citizen science projects and a new funding round addressing key opportunities and gaps for applying community data to enhance community Reef protection outcomes.</i></p>	\$0.533m
Local action projects	<p>Current local action grants will have an opportunity to apply for project continuation and growth. A new program will be designed to catalyse LMACs as a network for collective impact on local scale climate change action projects. Projects will increase ownership, knowledge-sharing and collaboration to deliver local action, and wider benefits across Reef communities. Projects will trial and embed frameworks for collaborative action and enhance engagement (including youth) in this Reef-wide community advisory network.</p> <p><i>Deliverables: Continuation and growth of current projects and collaborative design and implementation of a new funding round with GBRMPA and Local Marine Advisory Committees to launch and pilot a coordinated approach to local action on climate change across multiple Great Barrier Reef regions.</i></p>	\$0.458m
Local-scale reef restoration program	<p>A funding round will support design and delivery of multi-year local-scale reef restoration and stewardship projects that deliver multiple benefits in the Cairns-Port Douglas area. These projects will apply a Great Barrier Reef specific, local-scale reef restoration toolkit to support practical, science-based approaches to design, implement, monitor and communicate projects. A Reef Restoration Hub will be established as a conduit for connecting activities at the local level with larger-scale projects such as the recently announced Reef Restoration and Adaptation Program to strengthen more collaborative and integrated project delivery and monitoring approaches.</p> <p><i>Deliverables: A funding round supports an integrated portfolio of local-scale Reef restoration projects, detailed design of the Hub operational framework developed with partners, and a part-time coordinator (co-funded by Community Reef Protection and RRAP) to support Hub development and project coordination.</i></p>	\$0.42m
Community Action Plans and data integration	<p>Community Action Plans will commence, bringing together multiple partners across regions to design and deliver approaches to build on existing management plans to support inclusive, integrated and collaborative approaches to design community Reef protection efforts for key Reef management priorities. Additional strategic plans and projects will be progressed with regional report card partnerships.</p> <p><i>Deliverables: Community Action Plans will be designed, completed and implemented. A funding round will provide opportunities to support priority projects. Work will be progressed with the regional report card partnership network on citizen science data integration and community engagement.</i></p>	\$0.761m

Activity	Description	FY21 Budget
National Reef Protection Challenge framework	<p>An integrated national behaviour change challenge initiative focused on climate action to launch mid-2021. This will:</p> <ul style="list-style-type: none"> • Build a sense of hope towards the Reef that positive action can make a difference • Generate a tangible behavioural change in the community that drives positive action towards the Reef • Increase participation and partnerships to support positive outcomes for the Reef. <p><i>Deliverables: A behaviour change framework including a monitoring and evaluation plan for target behaviours is finalised and launched in consultation with experts and partners.</i></p>	\$0.865m
Communicating case studies and stories of hope	<p>Communicating positive outcomes including digital stories from projects will demonstrate progress, acknowledge the work of individuals and community organisations, and motivate others to get involved.</p> <p><i>Deliverables: Working with grant recipients and partners, high-impact case studies and stories from projects will be developed and shared.</i></p>	\$0.026m
Reef stewardship impact assessment and program models toolkit	<p>Building on the desktop audit, a second phase of the Reef stewardship assessment will further explore goals, reach and critical opportunities across the community sector. An audit of global community program and fundraising models will be applied for community program design and capacity-building support for enduring change.</p> <p><i>Deliverables: A survey will be designed, delivered and reported in consultation with the community sector to showcase the work taking place and the greater opportunities to support Reef protection. Recommendations from the global audit of community funding and program models will be applied.</i></p>	\$0.08m
Community sector and youth leadership development support	<p>Each year, funds are committed to capacity-building initiatives that will strengthen individual, organisational and sector-wide capacity to support place-based, sector-based and youth empowerment activities with the goal to enhance community stewardship outcomes.</p> <p><i>Deliverables: Identify and deliver leadership activities to enhance outcomes for the community sector and youth to support Reef protection outcomes.</i></p>	\$0.145m

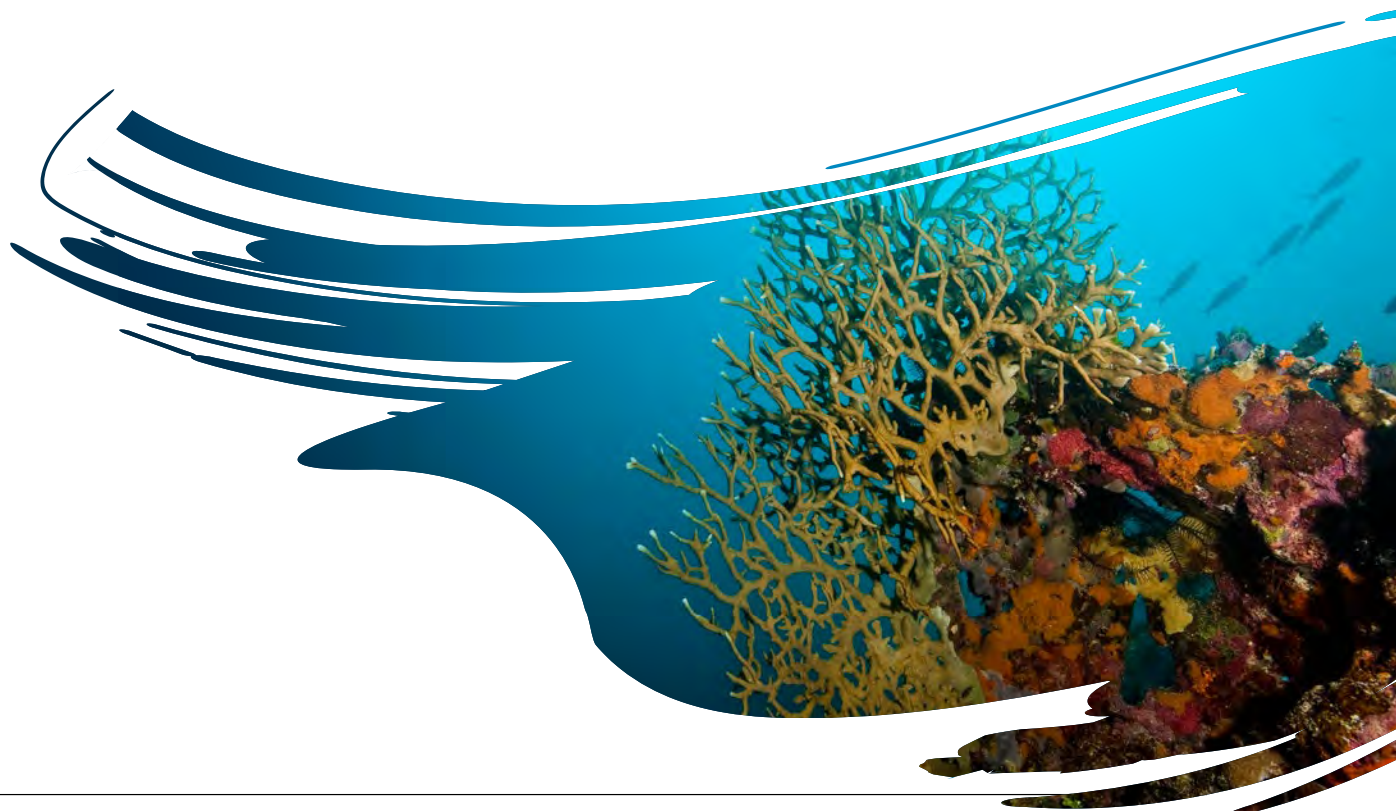


Table 15. Community Reef Protection gantt chart 2020-2021

Activities	Description	Budget	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Strengthening and accelerating on-ground actions		\$1.411m												
Citizen science projects granted in 2018-2019	Ongoing delivery of 2018-2019 financial year investments.	\$0.173m	Delivery											
Citizen science projects 2021-2024	Citizen science funding round with themes including innovation, data integration, and data use.	\$0.36m							Consultation and scoping			Funding round		
Local-scale reef restoration grants	An integrated portfolio of local-scale Reef restoration and stewardship projects delivered and supported through the Hub.	\$0.34m	Funding round		Delivery									
Cairns-Port Douglas Reef Restoration Hub	Collaborative design of the Cairns-Port Douglas Reef Restoration Hub supported by a locally-based Engagement Coordinator.	\$0.08m	Hub design and consultation					Delivery						
Local action grants continuation	Opportunity for continuation and evolution of 2019 projects.	\$0.194m	Delivery											
Local action grants 2020	Collective impact approach for local climate action delivered with LMAC network.	\$0.264m	Consultation and scoping					Delivery						
Connecting community with decision making		\$0.761m												
Community Action Plans and citizen science data integration	Implementation of Community Action Plans and projects. Finalise review of citizen science data and implement projects with regional report card partnerships.	\$0.761m	Delivery											
Building understanding, hope and action		\$0.891m												
National challenge framework	Consult on and construct national challenge framework for program launch in 2020-2021.	\$0.865m	Design and consultation										Delivery	
Communicating case studies and stories of hope	Deliver communication approach with partners and grant recipients to deliver high-impact case studies and stories.	\$0.026m	Delivery											
Foster enduring outcomes		\$0.225m												
GBR stewardship audit and funding models scoping study	Finalise Reef-wide audit of community stewardship, as well as funding and program models for Reef protection.	\$0.08m	Delivery											
Community sector and youth leadership development support	Ongoing delivery including workshops to address targeted capacity needs in the community Reef protection sector	\$0.145m	Delivery											



8. Integrated Monitoring and Reporting (IMR) — Annual Work Plan

Budget: \$40 million

Purpose: Support the implementation of the Reef 2050 Plan Reef Integrated Monitoring and Reporting Program (RIMREP), including eReefs and the Paddock to Reef monitoring and reporting programs, to improve health monitoring and reporting of the Great Barrier Reef World Heritage Area to ensure that monitoring and reporting to UNESCO is scientifically robust and investment outcomes are measurable.

NOTE: The IMR component is NOT the monitoring and evaluation program for the Reef Trust Partnership. The Partnership monitoring and evaluation activities are conducted under the administration component of the RTP and are guided by the Partnership [Monitoring and Evaluation Plan](#).

Priorities under the Partnership Investment Strategy:

●	Supporting critical monitoring activities identified via RIMREP
●	Catalysing innovation in technology to increase coverage, impact and resource efficiency
●	Driving unity of purpose and adaptive management through the development and implementation of a Reef-wide decision-making and forecasting platform
●	Understanding the value of community stewardship and disclosure of high-value information
●	Supporting partnerships and building a community of practice

While the partnership underpinning this next phase of RIMREP had not been formalised at the time of developing this Annual Work Plan, interim RIMREP governance bodies (Operating and Executive Groups) have been able, since May 2020, to provide guidance to the IMR component in terms of investment prioritisation.

In direct consultation with GBRMPA, RIMREP partners or through the interim RIMREP governance, the IMR component identified several critical multi-year investments in monitoring. These cover a broad range of priorities, addressing inshore monitoring under the Marine Monitoring Program, foundational research on Indigenous Heritage indicators, redesigning and funding the next cycle of the Socio-Economic Long-Term Monitoring Program (SELTMP) and supporting the operation and continuous improvement of the eReefs system.

Acknowledging the multiplicity of pressures on the Reef ecosystem's health, there is a need for a transparent and risk-based approach to decision making founded on available evidence and models that enable forecasting and scenario planning. In accordance with the Annual Work Plan 2019-2020, the Partnership has triggered an independent consultancy to scope the design of a Great Barrier Reef decision support system which builds on the recommendations of the first phase of RIMREP and supports the implementation of Reef 2050 Plan.

Models for delivery of technology transformation initiatives were explored, including opportunities for corporate partnerships to support such transformation, however this aspect of the Partnership was delayed significantly until the late stages of 2019-2020. A platform to invest in technology transformation has been identified, however, at time of writing this Annual Work Plan 2020-2021, negotiations with partners were ongoing under a non-disclosure agreement framework.

2020-2021 in the context of the five-year strategy

As per the objectives of RIMREP, investment in integrated monitoring (including modelling) and reporting is critical to inform reporting against the Reef 2050 Plan and enable resilience-based and adaptive management of the Reef. For this purpose, this component has continued to focus on contributing to the implementation of an effective knowledge value chain⁴, ultimately underpinning best practice decision making at a whole-of-Reef scale.

A prerequisite to transformational investments is ensuring the foundations are sound, which means adequate baseline monitoring is in place. Significant reef monitoring efforts are already occurring with more than 100 distinct programs operating in the marine environment alone. In 2014 RIMREP was established to conduct a stocktake of existing programs, identify monitoring needs and provide recommendations for establishing a Reef knowledge system, with the initial phase reaching completion in June 2019. Over 2019-2020, RIMREP partners progressed the development of a governance model for RIMREP.

⁴ The knowledge value chain represents the flow of information and data across the sequence of acquisition/processing, management/sharing, scientific interpretation/synthesis and ultimately translation into decisions and response options.

Critical monitoring

The initial phase of RIMREP was delivered by GBRMPA and key partners in June 2019, which provided a framework for prioritisation of monitoring activities. This represented a significant step forward, with the scientific community coming together and reaching consensus on overall monitoring needs. Further work was required and is underway to prioritise the RIMREP stage one recommendations for investment to address critical monitoring needs, which will inform future funding decisions under this component. While this process was taking place, the IMR component followed two parallel pathways to ensure its investment was targeted to deliver maximum impact:

- **Pathway 1:** Top-down identification of monitoring needs that were critical to the implementation of Reef 2050 Plan, the Reef Trust Partnership and identified as priorities during RIMREP stage one;
- **Pathway 2:** Engagement with the newly established RIMREP governance to develop a process for further prioritisation of critical monitoring needs.

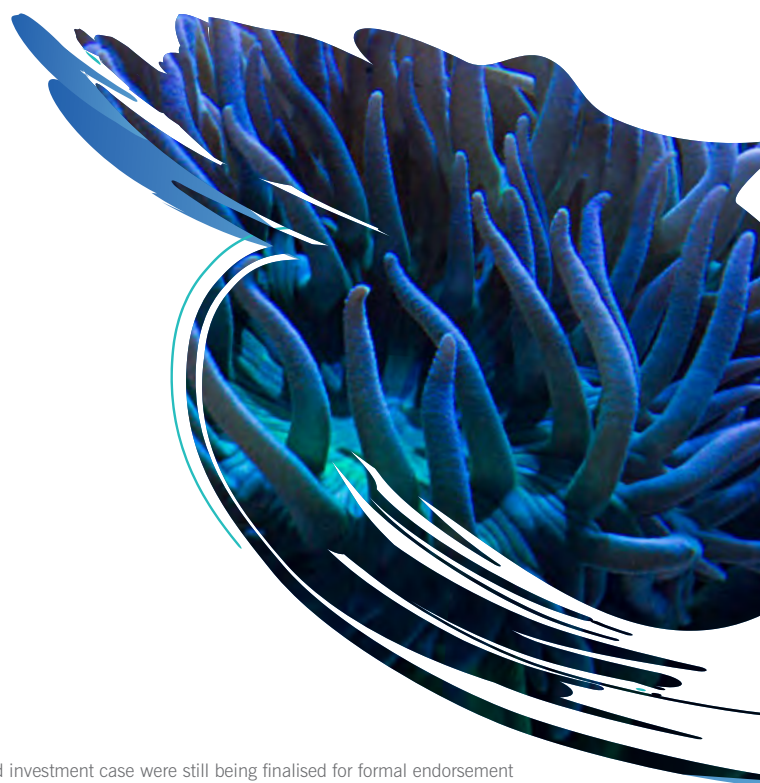
Four monitoring opportunities were identified and endorsed for investment that were consistent with the findings of RIMREP, supported by a broad range of stakeholders and most aligned to the objectives of the Partnership:

- Sustainable delivery of eReefs services including real-time marine hydrodynamic and water quality models, real-time catchment river flow models and visualisation products. Four years – \$9.7 million (estimate)⁵;
- Foundational research to support Traditional Owners in the implementation of indicator monitoring under the *Strong Peoples – Strong Country* framework (RIMREP recommendation). One year – \$0.337 million;
- Reactivating a Marine Monitoring Program (MMP) site in the Fitzroy priority region. Four years – \$1.799 million;
- Extending and improving on the foundations of the Social and Economic Long-Term Monitoring Program for the Great Barrier Reef (SELTMP), operationalising priority human dimension indicators and monitoring activity identified in RIMREP. 4 years – \$1.224 million

Decision Support

As described in the Annual Work Plan 2019-2020, the Partnership plans to invest approximately \$4.4 million (not including co-investment) to support the early-stage development and prototyping of a Reef-wide decision support system. The first step in this process has been triggered, engaging the services of a specialised consultancy to conduct, within the GBR, a comprehensive analysis of the decision support landscape, review best practice knowledge and decision systems, and recommend a roadmap (or a range of options) to implement a fit-for-purpose decision support system for the GBR. This initiative has engaged directly with a concurrent and related activity under the Reef Restoration and Adaptation Program to ensure alignment and avoid duplication.

The scope of works, developed jointly with RIMREP partners GBRMPA, AIMS and CSIRO, was endorsed by the RIMREP interim governance, demonstrating in practice how the Partnership can achieve alignment with RIMREP in delivery of the Annual Work Plan. This consultancy will report to the Operations Group (currently interim) of RIMREP and the Partnership in August 2020. This recommendation will inform the program of work to be funded by the Partnership, GBRMPA and RIMREP partners to realise both the Investment Strategy objectives and management guidance objectives under RIMREP.



⁵ At time of writing this Annual Work Plan, the detailed eReefs work program and investment case were still being finalised for formal endorsement by the Partnership Management Committee of the Reef Trust Partnership.

2019–2020 highlights

Strong Peoples – Strong Country framework

Phase 2 of the *Strong Peoples – Strong Country* (SP-SC) framework builds on the important work undertaken in Phase 1 by the Indigenous Heritage Expert Group, being supported by CSIRO, and funded under the GBRMPA led RIMREP program. The objective of Phase 2 is to further develop the SP-SC framework by working through a co-design process with the newly established GBRF Traditional Owner Integrated Monitoring and Reporting Technical Working Group. This work involves the development of a set of objective indicators, which aim to provide information and insight about the condition and trends in Indigenous heritage values in the Great Barrier Reef and its catchments. GBRF and CSIRO will support the Traditional Owner Technical Working Group to facilitate the design and implementation of the SP-SC framework through pilots in selected priority communities. This work will adhere to ethical research and follow Free, Prior and Informed Consent and be underpinned by negotiated data sharing agreements with each participating Traditional Owner community.

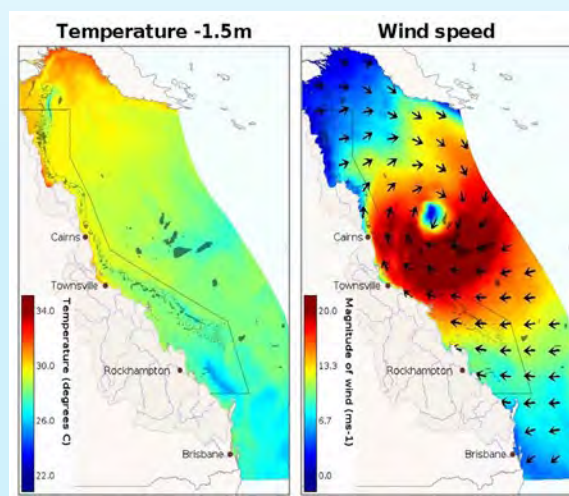


Strong Peoples – Strong Country framework for monitoring Indigenous heritage in the Reef 2050 Integrated Monitoring and Reporting Program © Mallie Designs

eReefs, an operational information system for the Great Barrier Reef

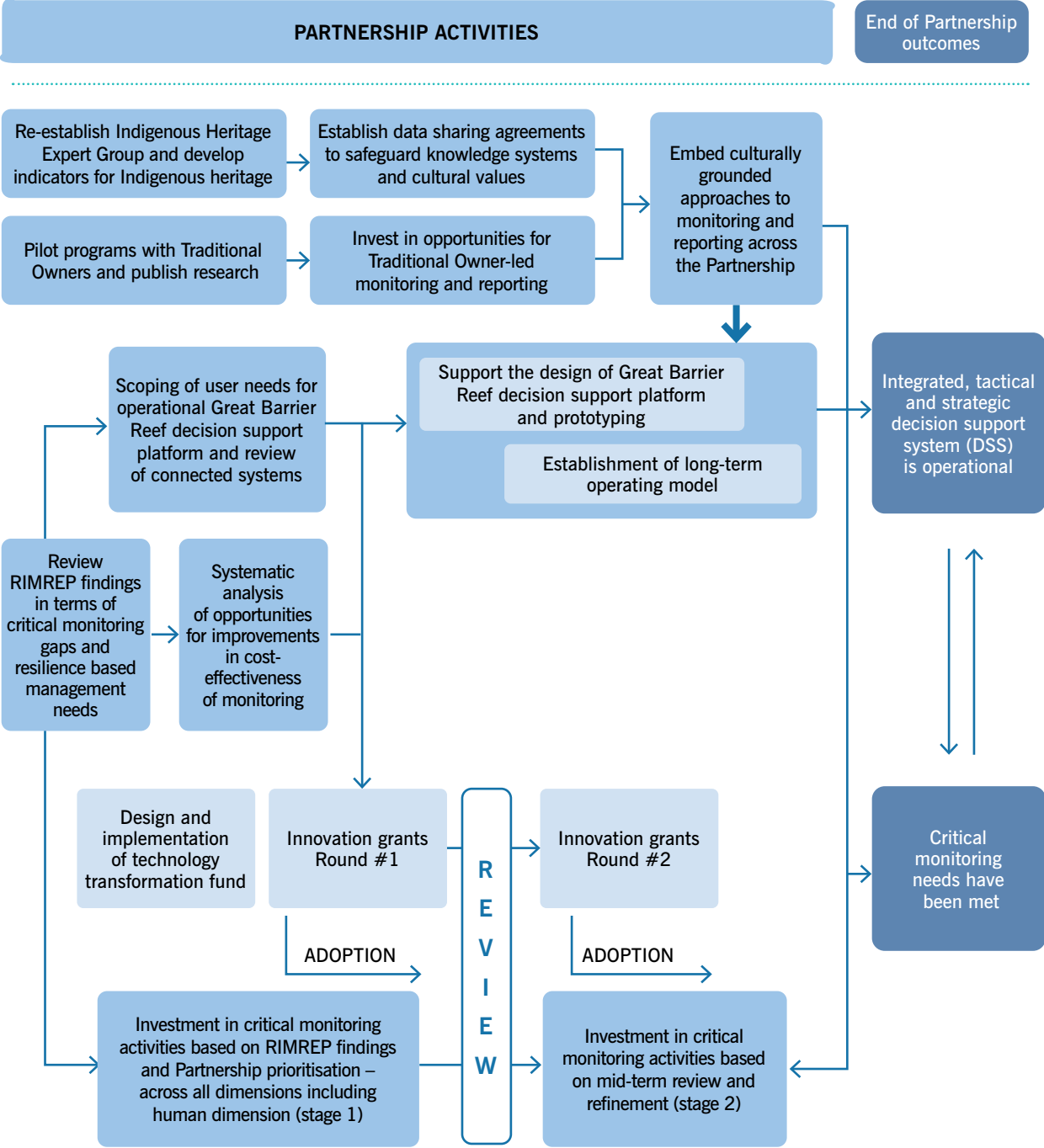
eReefs is a comprehensive suite of models and data platforms that has been developed for the Great Barrier Reef region to provide access in real-time to environmental information, such as water temperature, salinity, clarity or chlorophyll concentration. By being able to explore past, present, and future conditions, users can assess management options to mitigate the risks associated with multiple and sometimes competing uses of the GBR.

Developed over a 10-year period of collaborative investment and R&D between the Australian and Queensland governments, BHP, AIMS, Bureau of Meteorology, CSIRO and GBRF, eReefs has transformed the way the marine environment is managed and will remain a centrepiece of the IMR Component.



eReefs visualisation portal <http://aims.ereefs.org.au>

Figure 5. IMR five-year program overview and end of Partnership outcomes



Five-year plan

Major categories of activity, rationale and budget for the five-year period are shown in Table 16 for reference.

Table 16. IMR five-year investment areas and budget

Partnership Activity		Rationale	Outcome	Budget
			TOTAL INVESTMENT	\$40m
●	Early investment project – Essential coral reef monitoring in the northern Great Barrier Reef	To provide an updated ‘baseline’ assessment of reef condition and recovery in the northern Great Barrier Reef ahead of what was perceived as a significant risk of a potential bleaching event in early 2019.	In-water surveys of coral and fish communities on up to 23 reefs in the northern sector of the Reef.	\$0.57m
● ● ●	Investment in critical monitoring activities based on RIMREP findings and Partnership prioritisation	A prerequisite to transformational investments is ensuring the foundations are sound, which means adequate baseline monitoring is in place. The first phase of RIMREP has systematically identified critical monitoring activities needed to support an integrated program. This Partnership funding is expected to make a significant contribution to addressing priority gaps alongside other funding sources.	Progress towards a comprehensive and strategically designed integrated monitoring program for the Reef. Critical needs have been prioritised and addressed.	\$26m
● ● ●	Scoping, development and prototyping of an operational Reef decision support platform	The Reef needs a consistent and transparent approach to decision making based on data that is current and accurate and on models that enable forecasting and scenario planning.	Integrated, tactical and strategic decision support system is operational.	\$4.43m
● ● ●	Design and implementation of a Technology Transformation Fund supported by industry	Recognising the perpetual need for more monitoring data (more locations, more often), there is a need for investment in transformative technologies that improve the cost-effectiveness of monitoring programs, either by improving existing approaches or developing new strategies to access the required information. There are also opportunities to increase access to high value data by innovating in the operationalisation of systems, improving scalability and user access. Such systems include models (such as eReefs), data sharing and visualisation platforms and decision-making systems.	New technologies are demonstrated and adopted that improve the cost-effectiveness of a Reef integrated monitoring program. Industry and research institutions take a collaborative approach to the operationalisation of critical systems underpinning a Reef integrated monitoring program.	\$5m
● ● ● ●	Traditional Owner-led integrated monitoring and reporting initiatives (to be defined with Traditional Owner Reef Protection component)	There is a need to promote positive engagement to protect and maintain culture and heritage values, improve the cycle of research information to management, build or maintain capacity of Traditional Owners, and support transition into sunrise industries for increased business enterprise opportunities. This budget figure is also accounted for in the Traditional Owner Reef Protection component.	Traditional Owner innovations from Indigenous Knowledge systems inform <i>Strong Peoples – Strong Country</i> framework and data sharing agreements. Scoping of readiness and upskilling opportunities for Traditional Owner groups to transition to monitoring activities.	\$4m

2020-2021 work plan

Table 17. IMR investment areas and budget for 2020-2021

Activity	Description	FY21 Budget
TOTAL INVESTMENT		\$7.62m
Addressing critical monitoring needs	<p>Implementation of monitoring activities identified in 2019-2020 and identification of additional RIMREP priorities for investment (nominal envelope of \$1 million). Most investments are distributed over the life of the Partnership and the annual budget reflects the anticipated milestone payments associated with these initiatives.</p> <p><i>Deliverables: Reduction in the critical monitoring gaps as identified by RIMREP partners and ongoing delivery of essential eReefs services.</i></p>	\$5.67m
Scoping of decision support system and establishment of implementation program	<p>The findings of the consultancy, recommending pathways for the development of a fit-for-purpose Reef decision support system, will be delivered in the first quarter of 2020-2021 and considered by the Partnership and RIMREP. Following a collaborative and structured decision-making process, a preferred option will be selected and a delivery model identified for funding.</p> <p>The annual budget includes milestone payments for the scoping consultancy and a nominal allocation of \$1m for inception of the implementation program.</p> <p><i>Deliverables: Recommendations and initial design options for a Reef decision support system. Delivery model and contracting of program to implement recommendations.</i></p>	\$0.95m
Establishment of transformational technology initiative	<p>The needs and drivers for transformational innovation have not changed. Over 2019-2020 there have been active discussions regarding the priority needs and opportunities of a transformational technologies signature program. This will take more shape over the first quarter of 2020-2021 through the development of a detailed program plan.</p> <p><i>Deliverables: Detailed design of phase one of the technology transformation initiative, engagement of partners and start of the program.</i></p>	\$1m
Traditional Owner-led monitoring activities	Refer to Traditional Owner Reef Protection	



Table 18. IMR gantt chart 2020-2021

Activities	Description	Budget	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Addressing critical monitoring needs		\$5.67m													
Delivery of 2019-2020 commitments	Inception, management and oversight of monitoring projects committed to in 2019-2020		[Gantt bar spanning July to June]												
Selection of new priority activities	Continued engagement with RIMREP partners to review prioritisation and select monitoring activities for investment		[Gantt bar spanning July to October]												
Scoping and procurement of new activities	Selection of delivery model and procurement for priority monitoring activities					[Gantt bar spanning October to February]									
Delivery of 2020-2021 commitments	Inception and oversight of monitoring projects committed to in 2020-2021									[Gantt bar spanning February to June]					
Scoping of decision support system and establishment of Implementation program		\$0.95m													
Delivery of scoping study	Final stage of consultancy delivering review and recommendations on GBR decision support system		[Gantt bar spanning July to September]												
Design of implementation plan with RIMREP partners	Review of recommendations, structured design of implementation program and selection of delivery model			[Gantt bar spanning August to November]											
Procurement	Procurement and contracting in accordance with agreed delivery model						[Gantt bar spanning November to March]								
Implementation of DSS development program	Inception and oversight of agreed development program within RIMREP partnership framework										[Gantt bar spanning March to June]				
Establishment of transformational Initiative		\$1m													
Pre-establishment design and planning study	Development of detailed costings and program planning to support establishment		[Gantt bar spanning July to October]												
Establishment of strategic partnership	Engagement with partners and establishment of governance and contractual framework			[Gantt bar spanning August to December]											
Implementation of technology transformation program	Inception and oversight of agreed development program								[Gantt bar spanning December to June]						