

*Reef Trust Partnership*

# **WATER QUALITY PROGRAM**

## **Impact Report**

**September 2025**



Australian Government

REEF TRUST



Great Barrier  
Reef Foundation





*Credit Kobie Rhodes, Magnetic Island Photos*





Traditional Owners have been caring for land and sea Country for more than 60,000 years, using Traditional Knowledge passed down through ancestral lines for millennia. 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 People, holding the hopes, dreams, traditions and cultures of the Reef.

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Cover image Heron Island. Credit Andrii Slonchak



*“I think of the river as a living, breathing thing, akin to a person, so am thankful to everyone contributing funds, and the special people who have worked together to make a difference to the river.”*

Upper Mary Grazier Elizabeth King involved in early river restoration work since the 1990s





# Executive Summary

Poor water quality resulting from land-based pollution is significantly impacting coastal and inshore areas affecting the health and resilience of the Great Barrier Reef. Improving water quality enhances catchment, coastal and marine ecosystem health, and resilience. The Reef Trust Partnership, a landmark collaboration between the Australian Government's Reef Trust and the Great Barrier Reef Foundation, invested \$443 million to elevate and amplify efforts to build Reef resilience. As part of the Partnership, the Water Quality Program invested \$200 million to address poor water quality from land-based runoff and respond to the priorities of the Reef 2050 Water Quality Improvement Plan through six strategic sub-programs:

- **Early investment** maintained and developed on-ground delivery capacity while progressing towards water quality targets across Reef catchments.
- Ten large-scale **Regional programs** focussed on proven, on-ground measures and activities to accelerate pollutant reductions and improve water quality.
- Experts provided **technical guidance** accross the Water Quality Program, ensuring consistency and cohesion in project design, capacity-building efforts, scientific knowledge sharing, and validation of outcomes.
- An **Innovation and System Change program** developed novel tools, technologies, knowledge and financial solutions to support transformational changes in water quality improvement activities.
- **Traditional Owner-led Reef protection initiatives** elevated the leadership of Traditional Owners in safeguarding the Great Barrier Reef World Heritage Area and achieving healthy water outcomes.
- A **Conservation and Protection program** enhanced knowledge of wetlands, water quality, modelling and related ecosystem health, and implemented an integrated catchment management approach in Eastern Cape York.

A novel, transparent, effective, and efficient integrated framework ensured successful implementation with end-of-Partnership outcomes delivered. New approaches to reporting enhanced accountability and set a new standard for investment transparency and efficiency in Reef water quality programs. The Reef Trust Partnership Water Quality program delivered over 130 projects across Great Barrier Reef catchments with more than \$130 million co-invested through partner co-contributions and corporate/individual donations. Pollutant savings were modelled with long-term annual end of catchment load reductions of 485 tonnes of dissolved inorganic nitrogen (DIN), 342 kilotonnes of fine sediments, and 8.5 million Risk Units of pesticides achieved.





# The Challenge

***Poor water quality resulting from land-based pollution is significantly impacting the health and resilience of the Great Barrier Reef.***

A UNESCO World Heritage Site since 1981 and one of the seven natural wonders of the world, the Great Barrier Reef is globally renowned for its intrinsic beauty, immense spatial scale, outstanding biodiversity as well as its natural, social, economic, and cultural values. The Great Barrier Reef supports ~64,000 jobs and contributes \$6.4 billion to the Australian economy and has an economic, social and icon value to Australia of \$56 billion ([Deloitte, 2017](#)). The Reef provides connection through ecosystems management and protection, supports wellbeing, and is the Sea Country home for more than 70 Traditional Owner groups.

The health of the Reef is at risk from the climate-related impacts of human induced climate change exacerbated by poor water quality. Changes to catchments and land use have affected water quality in the Reef. These include widespread vegetation loss, altered hydrological patterns, increased soil erosion, and the expansion of fertilised agriculture, urban areas, and coastal developments. However, most of the water pollution comes from agricultural activities ([2022 Scientific Consensus Statement](#)).

Declining water quality as a result of pollutant run-off from adjacent catchments is a major contributor to the current poor state of many aquatic ecosystems including rivers, wetlands, mangroves, seagrass beds and the Great Barrier Reef.



# The Solution

**Improving water quality plays a significant role in enhancing catchment, coastal and marine ecosystem health, and resilience.**

A healthy and resilient Great Barrier Reef is critical to protect the vast array of ecological communities and species that inhabit coastal, marine, and terrestrial ecosystems.

In a bid to significantly improve the health of the Great Barrier Reef, the Reef Trust Partnership (the Partnership) – a landmark collaboration between the Australian Government’s Reef Trust and the Great Barrier Reef Foundation (the Foundation) – was awarded \$443 million to elevate and amplify efforts to build Reef resilience.

As part of the Partnership, the Water Quality Program (the Program) received \$200 million to address poor water quality from land-based runoff and respond to the

priorities of the Reef 2050 Water Quality Improvement Plan ([Reef 2050 WQIP](#)). More than \$130 million was co-invested through partner co-contributions and corporate/individual donations.

The Program was designed to respond to water quality priorities and address a series of challenges identified while supporting innovative approaches, Traditional Owner participation, and proactive management of less disturbed catchments (Figure 1).

The Program was conceived to ensure strategic investment in cost-effective on-ground projects; strategic investment in new and diversified areas; and transparent governance and reporting models.

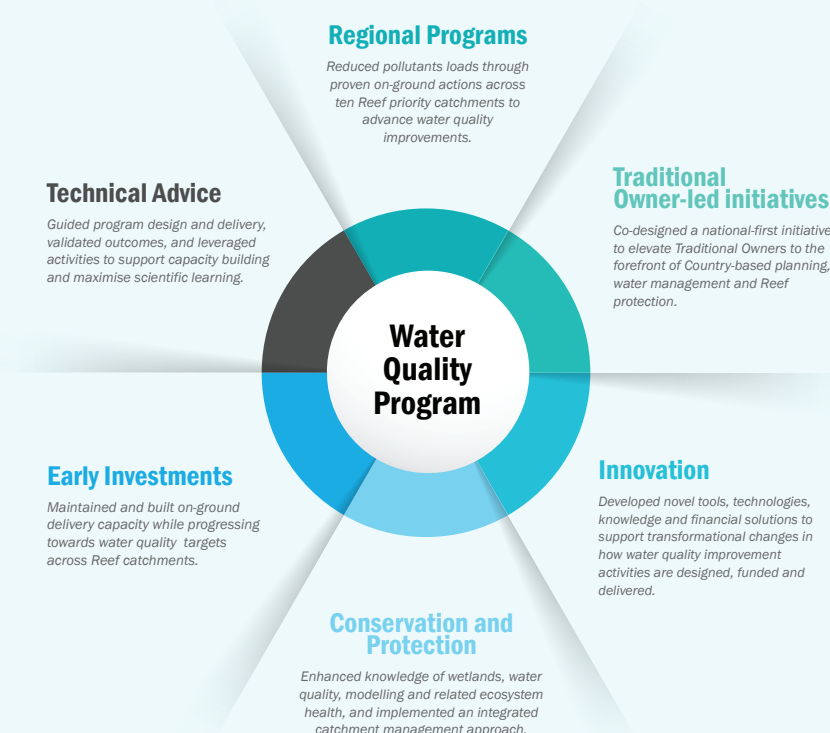


Figure 1. Program component breakdown



# Outcomes

***The Reef Trust Partnership achieved its end-of-Partnership outcomes (Figure 2), resulting in significant, measurable improvements in water quality and the overall health of the Great Barrier Reef World Heritage Area.***

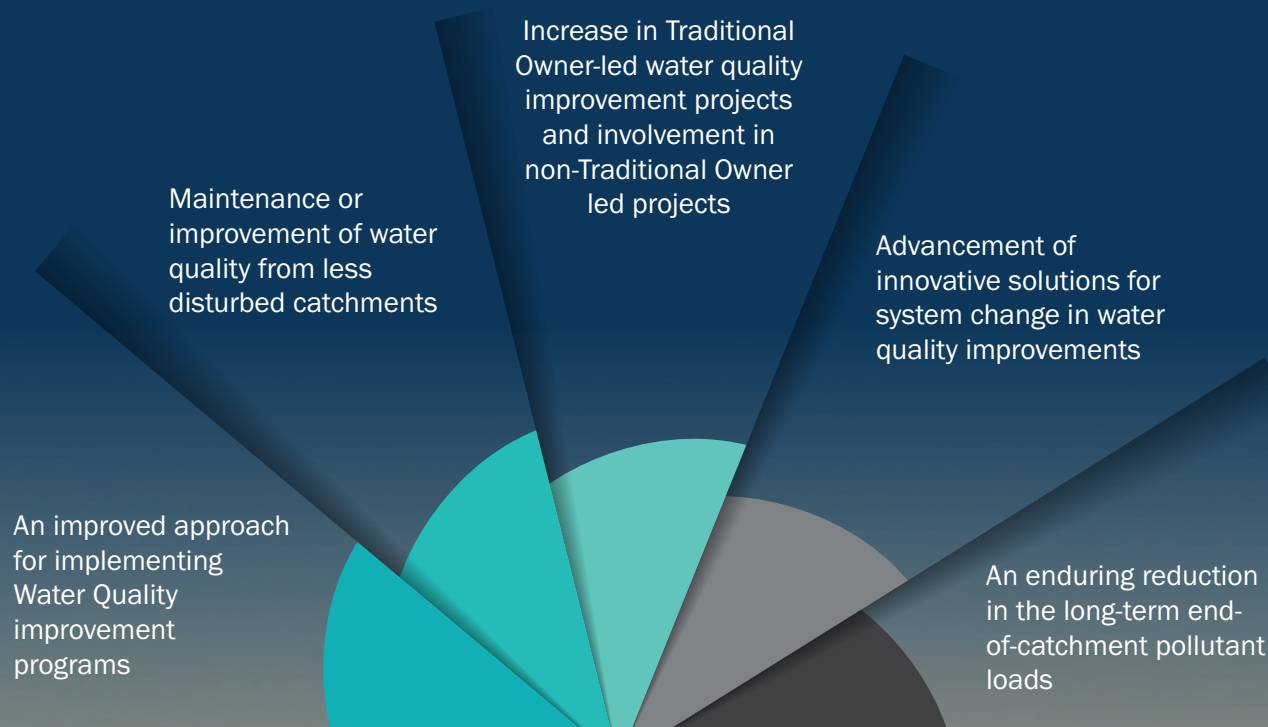


Figure 2. Program end-of-Partnership outcomes



Credit Ruth Brown, Ironbark



# Program Framework

*A novel, transparent, effective, and efficient integrated framework ensured successful implementation with all end-of-Partnership outcomes delivered.*



Figure 3. Program Framework

## 1. Strategic investment prioritisation

The [Program Investment Strategy](#) guided initiatives beyond pollutant reductions to expand knowledge, tools and opportunities advancing future water quality improvement efforts. The purpose-built decision [Investment Pathway Tool](#) supported funding prioritisation in the highest priority catchments while targeting the most cost-effective interventions.

## 2. Monitoring and Evaluation Plan

A robust [Monitoring and Evaluation Plan](#) set out the approach to measure the performance of the Program and provided a sound and credible methodology to demonstrate both the end of Partnership outcomes and impact of the investment.

## 3. Governance approach

The governance structure ensured the Program's ultimate responsibility rested with the Foundation Board via the Partnership Management Committee. A layered governance model enabled strategic and technical guidance across multiple levels, while ensuring local oversight and coordination. Clear role accountability and direct engagement with the Foundation supported effective project implementation.

## 4. Contractual targets and cost-effective actions

Projects addressing pollutant reduction had water quality targets incorporated as the primary contractual deliverable and had to demonstrate the cost-effectiveness associated with the proposed activities. Targets related to a long-term modelled reduction in dissolved inorganic nitrogen (DIN) and fine sediment loads, and pesticide toxicity risk units.

## 5. Tracking progress and transparent reporting

A custom-built spatial database provided real-time tracking of progress and reporting. It also allowed review of activities undertaken in previous water quality programs to ensure different actions were considered for funding. Overall programmatic achievements and investment were regularly shared in public dashboards (2020-2025).

## 6. On-ground verification of outcomes

An on-ground verification process led by independent experts was introduced to evaluate a sample of projects and verify whether reported activities accurately reflected the situation on the ground.



# Investment

The Water Quality Program included six strategic sub-programs (Figure 4). Much of the investment supported catchment-scale regional water quality programs starting with early investment activities focused on on-ground interventions to reduce pollutants in priority catchments.

The remaining funds supported initiatives that developed innovative knowledge, tools, and technology to catalyse and scale up solutions for water quality improvements; ensured the conservation, and protection of less-disturbed catchments; promoted a Traditional Owner-designed and led healthy water program and supported cross-cutting technical expertise.

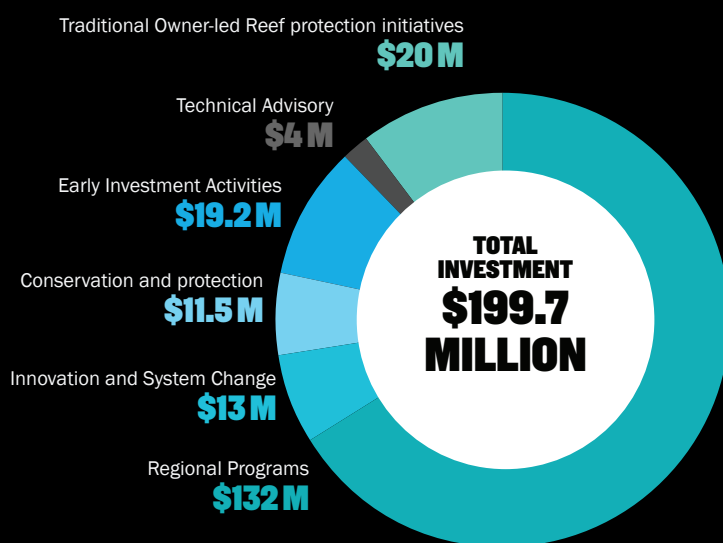


Figure 4. Program funding breakdown



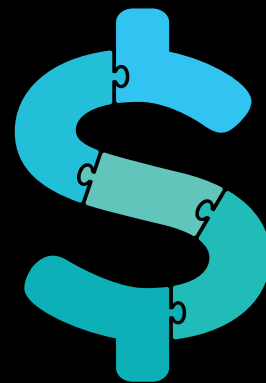
Credit: EnviroMedia Photography and XXXX



# Impact Snapshot

**490**

graziers have made on-ground actions to improve water quality on ~1 million hectares



**1,500+**

farmers have made on-ground actions to improve water quality on 49% of Qld's sugarcane area

**\$133 million**

co-invested through partner co-contributions, and corporate and individual donations

**11,700**

records of landholders with new knowledge from attending water quality training and events

**27**

Traditional Owner-led water quality projects achieving on-ground outcomes

**46**

on-ground regional projects delivering productivity and water quality outcomes

**7**

conservation projects protecting the catchments of Eastern Cape York

**24**

innovation projects delivering new approaches and opportunities

**1,250**

hectares of agricultural land under improved management to reduce pollutant runoff

**179**

Traditional Owners from 24 Traditional Owner groups engaged



**131**

projects across Reef catchments supporting and improving water quality



**150**

unique partners involved in water quality projects and activities



**47**

properties preventing erosion through the restoration of 120 gullies and 18 streambanks







Soil health workshop with Far North Queensland cane farmers. Credit Farmacist



Regenerative Grazing Workshop. Credit NQ Dry Tropics



Water Quality monitoring. Credit Sugar Research Australia

# Early Investment

*Maintained and developed on-ground delivery capacity while progressing towards water quality targets across Reef catchments.*

The Program commenced on-ground activities in early 2019 with the release of \$19 million. The Program supported 11 projects that contributed to the maintenance and establishment of critical delivery capacity while achieving reductions in pollutant loads across priority Reef catchments.

Key activities included agronomic support, water quality trials, strategies to facilitate change in landholder behaviour, and education, training, and capacity building for early career extension officers and landholders to increase both delivery capacity and drive improved practice changes respectively. The type of works included nutrient and pesticide management in sugarcane, and regenerative grazing and landscape restoration actions.

The Early Investment program engaged 797 landholders who improved management practices across 580,000 hectares of sugarcane and grazing lands.

Sugarcane growers prevented an average of 188 tonnes of dissolved inorganic nitrogen (DIN) from entering the Reef every year and reduced pesticide risk. Graziers restored 42 gully sites and over nine kilometres of streambanks and improved grazing land management practices, leading to an average reduction of 36 kilotonnes (kt) of fine sediment.

Education, workshops and awareness raising events reached 1,900 landholders across 24 of the 35 Reef catchments, paving the way for increased interest and participation in the regional programs.





*“Having been fortunate to go through this process and work with such amazing passionate people has given us the confidence to believe that we can overcome challenges and create a brighter, more sustainable future for generations to come.”*

Fitzroy region's Montevideo Grazier Simone Lawrie (son Ty Lawrie pictured).

Credit Kate Waldie, Verterra



# Regional Programs

**Ten large-scale regional water quality programs focussed on proven, on-ground measures and activities to accelerate pollutant reductions and improve water quality.**

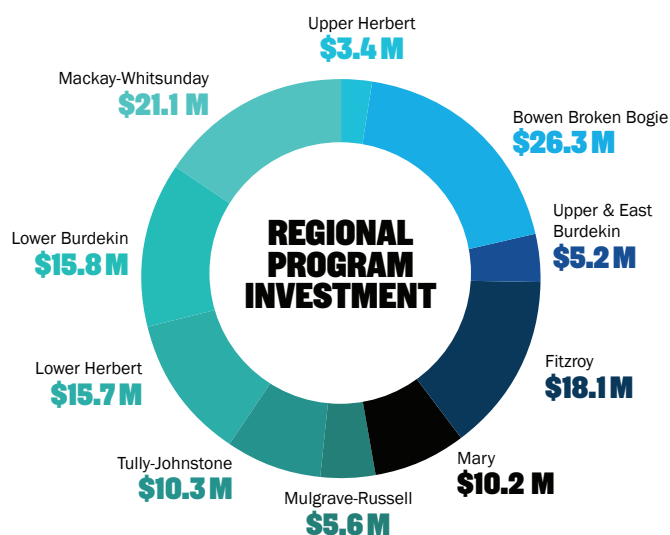


Figure 5. investment breakdown - regional programs

Regional programs were successfully delivered between 2020 and 2025 with a total investment of ~\$132 million. Priority pollutants for each regional program were guided by the Reef 2050 WQIP with investment (Figure 5) and regional-level targets informed by the [Investment Pathways Report](#).

The Partnership Water Quality Program targets were measured as modelled long-term annual end of catchment reductions:

- 457 tonnes (t/y) of DIN load
- 464 kilotonnes (kt/y) of fine sediments loads
- 3 million Risk Units of pesticides.

The pesticide target was ammended from the original 250 kg of pesticide load to pesticide Risk Units (RUs). A pesticide decision support tool, based on toxicity rather than quantity in kilograms, was developed as a more appropriate method for assessing water way risk from pesticide use and provides an output in nominal RUs.

Water quality improvement targets were addressed through improved farming and grazing land management practices, reduced fertiliser use and pesticide toxicity, improved irrigation management, uptake of new technologies, and landscape restoration activities.

Governance arrangements for the regional water quality programs recognised the importance of local leadership and oversight, as well as strategic and technical guidance. The implemented framework (Figure 6) increased transparency of investment and associated impacts by separating on-ground delivery from regional management and coordination.

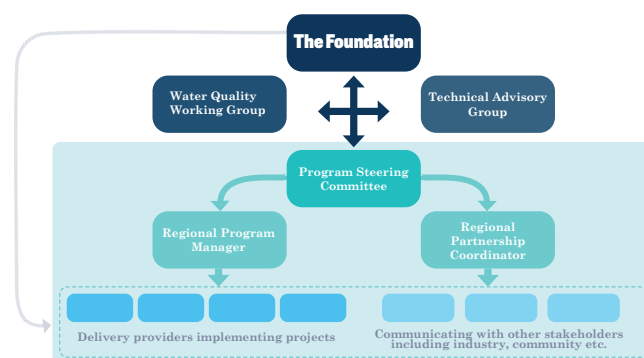


Figure 6. Governance framework - regional programs

The key roles of the regional manager and coordinator were to oversee progress towards targets, foster regional collaboration and vet farm level projects. These roles reported directly to a regional steering committee which was supported by an expert Technical Advisory Group and a strategic Water Quality Working Group.

An on-ground verification initiative further supported governance arrangements. The process focused on independently assessing the extent and quality of reported on-ground projects ensuring the accuracy and reliability of the data in the Foundation's reporting system.

Detailed Learnings and Recommendations reports from the independent verification process are available at:

- Grazing Land Management Learnings and Recommendations [Report](#) (Kerr, 2024)
- Landscape Remediation Learnings and Recommendations [Report](#) (Landloch, 2025)
- Sugarcane Programs Learnings and Recommendations [Report](#) (Dench, 2024).



# Water Quality Impact

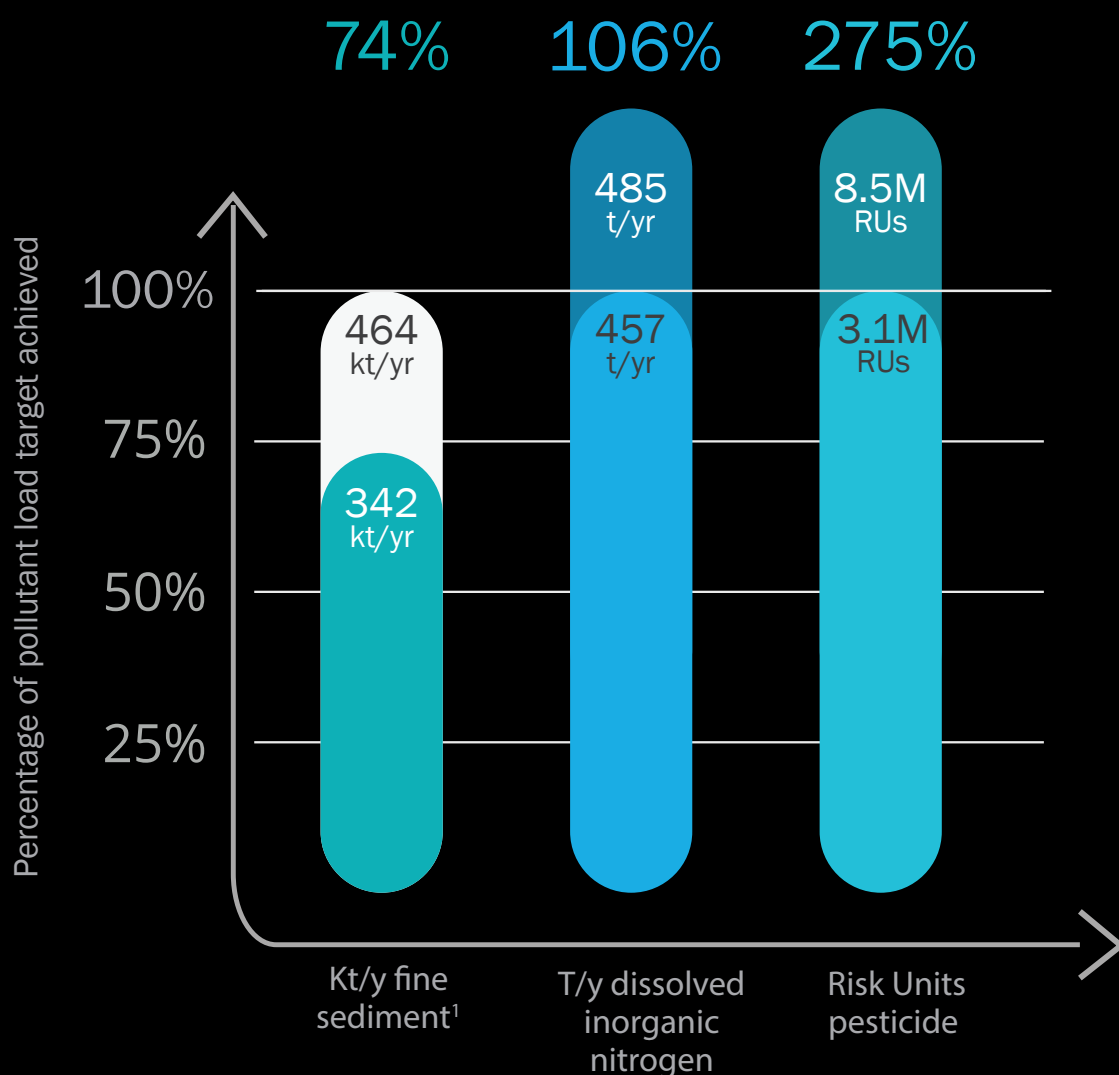


Figure 7. Pollutant reduction achievements towards Program targets

<sup>1</sup> The short-fall in the sediment target defined in the Program design (Investment Pathways Report) was due to a disparity between calculation tools and the substantial underestimation of costs associated with on-ground activities to meet the Program target.



# Cane programs

## Mulgrave-Russell Water Quality program

The \$6 million Mulgrave-Russell Water Quality program supported 82 sugarcane farmers to improve nutrient management practices on more than 11,000 hectares of cane lands. Supported by a Regional Manager and Regional Coordinator, two on-ground projects delivered by four organisations achieved a reduction of more than nine t/y of DIN. [Read detailed report.](#)

## Tully-Johnstone Water Quality program

The \$11 million Tully-Johnstone Water Quality program supported 100 sugarcane farmers and 30 banana farmers to improve management practices and nitrogen use efficiency on more than 25,000 hectares of cane lands. Supported by a Regional Manager and Regional Coordinator, four on-ground projects delivered by four organisations achieved a reduction of more than 50 t/y of DIN. [Read detailed report.](#)

## Lower Herbert Water Quality program

The \$16 million Lower Herbert Water Quality program supported 280 sugarcane farmers to improve management practices on more than 35,500 hectares of cane lands. Supported by a Regional Coordinator, six on-ground projects delivered by six organisations achieved a reduction of more than 140 t/yr of DIN. [Read detailed report](#)

## Lower Burdekin Water Quality program

The \$17 million Lower Burdekin Water Quality program supported 200 sugarcane farmers to improve nutrient, pesticide and irrigation management practices on more than 30,600 hectares of cane lands. Supported by a Regional Coordinator/Manager, four on-ground projects led by four organisations achieved a reduction of more than 49 t/y of DIN and 1.6 million RUs of pesticide toxicity per year. [Read detailed report.](#)

## Mackay-Whitsunday Water Quality program

The \$21 million Mackay-Whitsunday Water Quality program supported 300 sugarcane farmers to improve nutrient and pesticide management practices on more than 50,000 hectares of cane lands. Supported by a Regional Manager and Regional Coordinator, nine on-ground projects delivered by seven organisations achieved a reduction of more than 28 t/y of DIN and more than six million RUs of pesticide toxicity per year. [Read detailed report.](#)



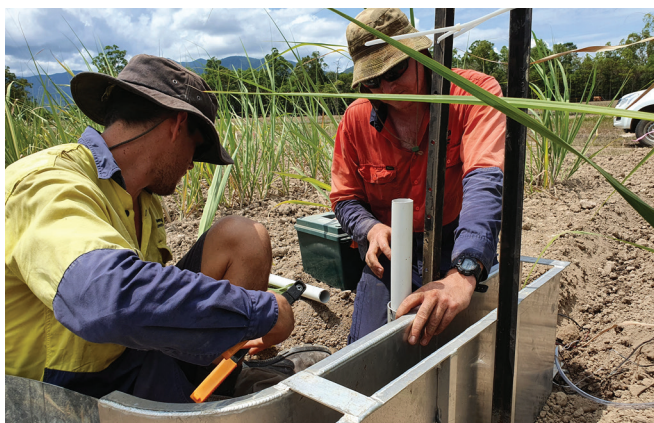
Soil health is discussed at the Mulgrave Russell Water Quality program Forum. Credit Rickard Abom RRRC



Next generation of farmers engaged in sustainable farming practices. Credit CANEGROWERS Herbert River



Pinevale grower Andrew Deguara inspects sugarcane with extension agronomist Rob Sluggett. Credit J Bennett Farmacist



Grower Craig Darveniza sets up a water quality monitoring site with Peter Becke. Credit Innisfail CANEGROWERS



# Grazing programs

## Upper Herbert Water Quality program

The \$3.4 million Upper Herbert Water Quality program completed landscape restoration on one large gully network and one streambank. Three graziers improved grazing land management practices on 56,000 hectares of grazing land and 68 graziers increased skills and knowledge through seventeen training events. One on-ground project delivered by one organisation achieved a reduction of more than 3.7 kt/y of fine sediment. [Read detailed report.](#)

## Bowen Broken Bogie Water Quality program

The \$26 million Bowen Broken Bogie Water Quality program completed landscape restoration of six gullies and one streambank; 73 graziers improved management practices on 35 properties and 97,000 hectares of grazing land. Four on-ground projects delivered by two organisations achieved a reduction of 105 kt/y of fine sediment. [Read detailed report.](#)

## Upper & East Burdekin Water Quality program

The \$5.1 million Upper & East Burdekin Water Quality program supported 62 graziers to improve grazing land management practices on more than 360,000 hectares of grazing land, and 600 graziers increased skills and knowledge at water quality events. One on-ground project delivered by one organisation achieved a reduction of more than 64 kt/y of fine sediment. [Read detailed report.](#)

## Fitzroy Water Quality program

The \$19.6 million Fitzroy Water Quality program completed landscape restoration activities on four gullies and seven streambanks, and 23 graziers improved grazing land management practices on more than 11,000 hectares of grazing land. Supported by a Regional Coordinator, five on-ground projects were delivered by four organisations and achieved a reduction of 42 kt/y of fine sediment. [Read detailed report.](#)

## Mary Water Quality program

The \$10.2 million Mary Water Quality program completed landscape restoration activities on 11 streambanks. 19 graziers and dairy farmers improved grazing land management practices on more than 11,000 hectares of grazing land. Supported by a Management Committee, five on-ground projects were delivered by four organisations and achieved a reduction of 26 kt/y of fine sediment. [Read detailed report.](#)



Grazing expert Dick Richardson leads a sustainable grazing workshop in the Upper Herbert. Credit Terrain NRM



International expert, Alejandro Carillo (Mexico) shares his experiences in Regenerative Agriculture. Credit NQ Dry Tropics



Traditional knowledge is shared on Country in the Fitzroy region. Credit Greening Australia



Streambank restoration works are reducing sediment lost into the Mary River. Credit Alluvium



# New Approaches to Reporting

## Enhanced accountability sets a new standard for investment transparency and efficiency in Reef water quality programs.

All regional water quality programs (Figure 8) had pollutant load reduction targets as per the [Investment Pathways Report](#) (Figure 9). Contracted project targets were developed, prioritised, managed and reported using the best available tools:

### Improved land management (fine sediment, DIN, pesticide)

- the [Paddock to Reef Projector Tool](#) was used to calculate DIN and Fine Sediment load reductions;
- the [Pesticide Decision Support Tool](#) was used to calculate Risk Units of pesticide toxicity reduction;
- a [study](#) led by the Department of Agriculture and Fisheries was used to calculate DIN savings based on the area of practice change in banana production;
- a method to calculate impacts of application of mill mud method was developed to assess DIN benefits;
- a whole-of-property grazing method was developed to calculate fine sediment load reduction in the Fitzroy region.

### Landscape restoration (fine sediment)

- [Brooks et al., 2020](#) gully prioritisation tool;
- [Reef Trust](#) Gully and Streambank Toolbox;
- the Gully and Streambank Erosion Control Assessment Tools (GECAT and SECAT); and
- other appropriate scientific data was used for prioritisation, design and implementation of erosion control activities.

Delivery providers reported individual project data into the Foundations's real-time custom-built Data Management System (Figure 10). This ensured that there was no duplication of efforts with previous funding programs and has transformed project oversight, allowed timely interventions when needed, and provided accurate information for reporting to the Australian Government, Paddock to Reef, and the public.

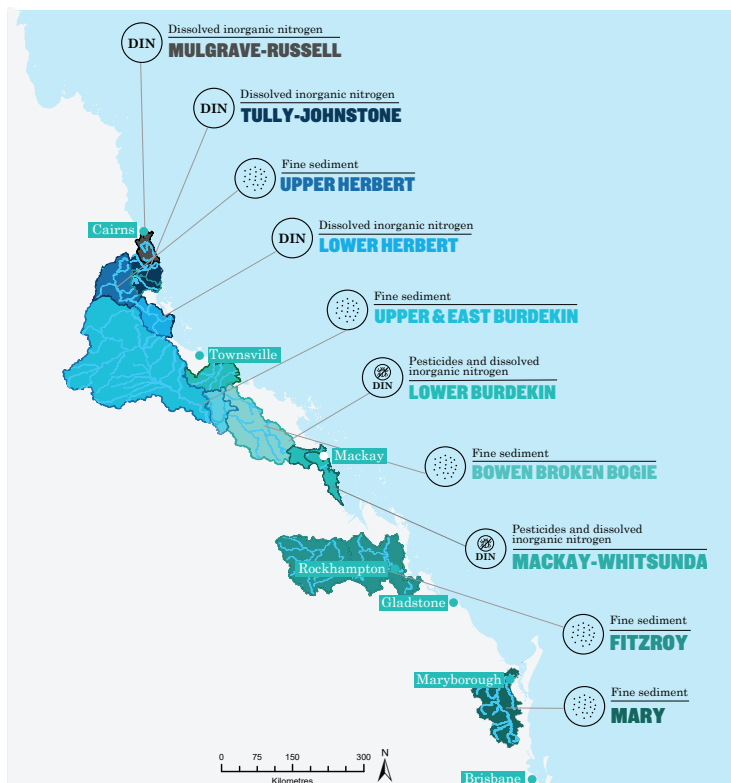


Figure 8. Map of the Reef catchment area depicting catchment breakdown with associated priority pollutants.

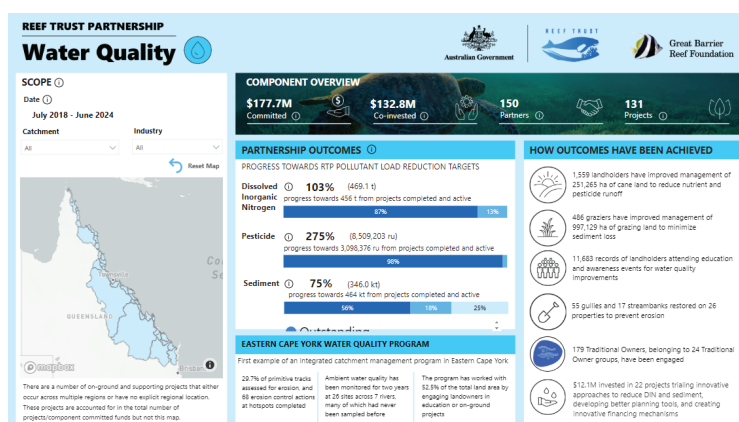


Figure 9. Program progress was displayed on public dashboards between 2020 and 2025 on the Foundation website.

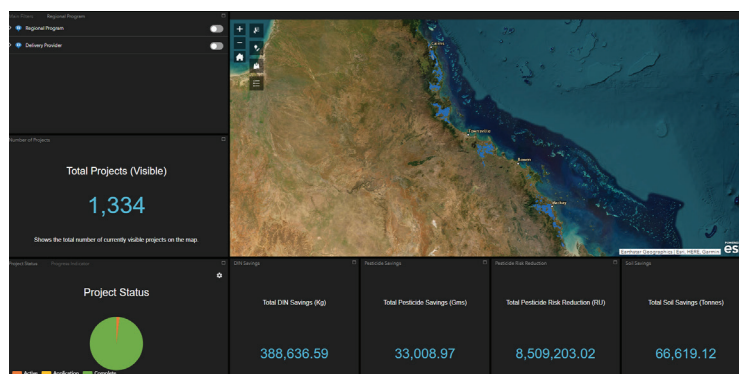


Figure 10. Project status (progress), location and area (spatial), management change (survey), pollutant load reduction (planned and actual) are displayed on the interactive dashboard that was used to monitor activities, measure progress, and mitigate risks.



# Technical Advice

***Technical advice guided program design and delivery, validated outcomes, and leveraged activities to support capacity building and maximise scientific learnings.***

Access to technical guidance and expertise across a broad range of disciplines was supported by \$4 million.

Experts across all Program areas worked collaboratively to provide high-level technical and strategic advice for the whole portfolio and specific, detailed input into the Program design, including biophysical, social, and economic monitoring aspects.

For example, a robust process was established for the review and endorsement of largescale remediation project development and monitoring plans, including gullies, streambanks, and wetlands.

Water quality monitoring programs were supported by expertise to ensure appropriate and effective use of funds. In addition, four consultancy projects filled critical needs identified early in the Program as a result of a gap analysis:

1. Comprehensive support and training on data interpretation and communication were provided to water quality monitoring projects in the sugarcane-related programs. These activities successfully addressed the complexities of misinformation that creates barriers to water quality science communication, established strong collaboration between delivery partners and technical experts, and developed a repository for reliable and practical resources, technical guidance, and effective science messaging at the [Water Quality Science and Agriculture Hub](#).
2. Further exploration of social change aspects of programs including evaluation of the effectiveness of water quality monitoring in changing grower's perceptions; the pros and cons for landholders in restoration projects; the impact of the novel governance framework and the effectiveness of capacity building and meeting local aspirations in the Eastern Cape York were evaluated.
3. A [strategy](#) to facilitate change in landholder behaviour to accelerate water quality benefits in the Lower Burdekin and Mackay-Whitsunday regions was developed. The strategy was implemented in the Mackay-Whitsundays through a web portal [CaneRise](#) functioning as a springboard to centralise industry and regional information, promote key messages and funding opportunities, and engage and connect farmers in a positive way to actions that improve water quality.
4. Alternate methods for measuring progress towards water quality targets were developed when the primary reporting tools were not appropriate. This approach enabled incorporation of innovative management practices while ensuring water quality outcomes could be estimated.



James Cook University's TropWATER 2024 science communication workshop in Townsville. Credit TropWATER



# Innovation and System Change

*Developed novel tools, technologies, knowledge and financial solutions to support transformational changes in water quality improvement activities.*

The Partnership invested \$13 million into novel activities that catalyse ideas, maximise impacts and improve the effectiveness and sustainability of on-ground water quality actions ensuring transformational changes in the design, funding, and implementation of pollutant load reduction programs.

Achievements included new practices, technologies, tools, and approaches for farming, grazing and land restoration that achieve better outcomes for the

landholder while also improving water quality; new systems to support better planning and decisions related to investing in water quality improvement; and innovative financial solutions and funding sources to support water quality activities. The Innovation portfolio funded 24 projects achieving a diverse range of outputs (Figure 11). Detailed information on innovation program outputs can be found in the [Reef Trust Partnership Innovation Program Report](#).

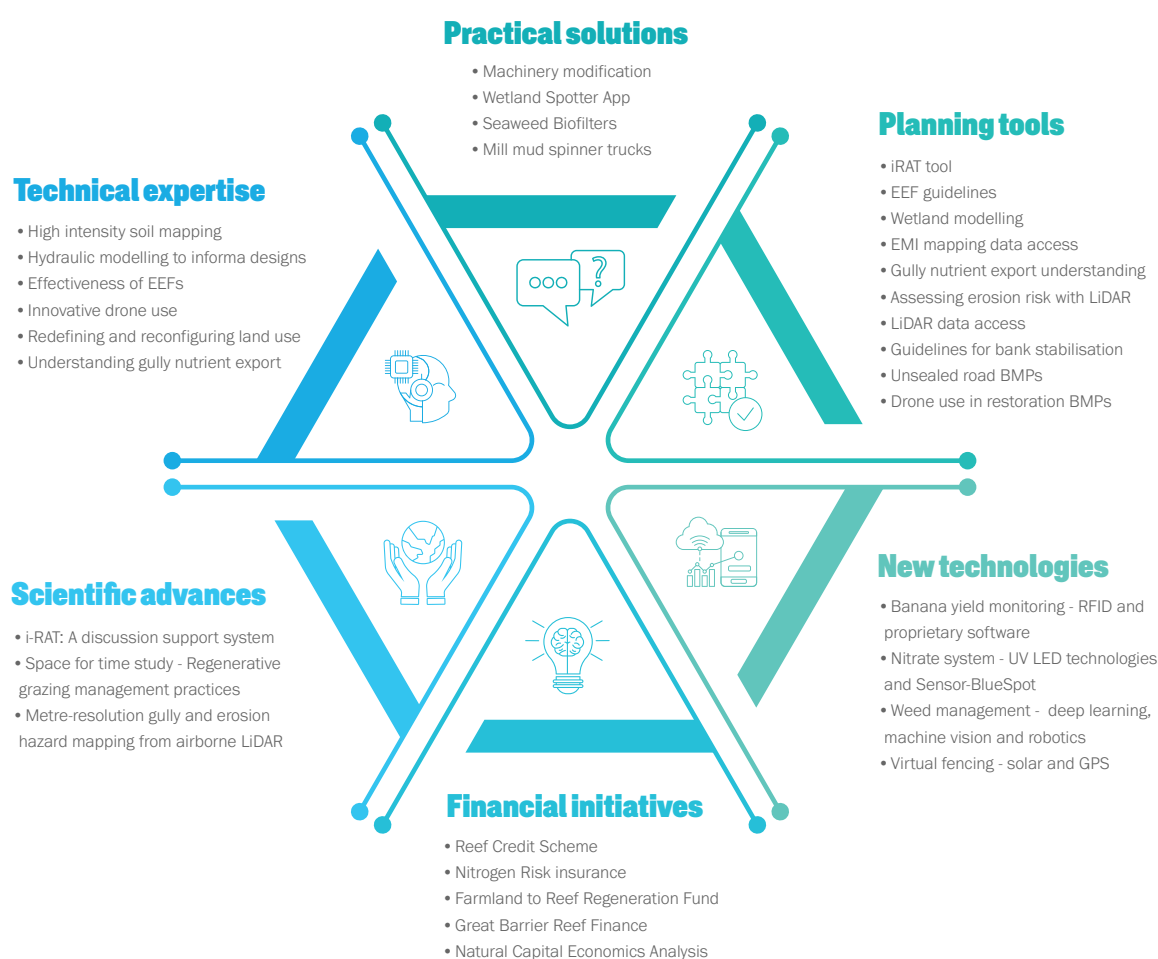


Figure 11. Partnership Innovation program snapshot



# Traditional Owner-led Initiatives

## *Elevated the leadership of Traditional Owners in the protection of the Great Barrier Reef World Heritage Area.*

For more than 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 Partnership provided the first major opportunity for Traditional Owners to become actively involved in improving the quality of water flowing to the Reef with ten percent of Partnership Water Quality Program funds allocated to the co-designed Traditional Owner-led Healthy Water Grants. This program is managed as part of the Traditional Owner component of the Partnership which continues until June 2026. To date, 27 Healthy Water Grants have been awarded totalling \$5.8 million.

Activities include protection and management of culturally and ecologically significant tea-tree swamps, wetlands and riparian frontage, culture and heritage values mapping, developing Healthy Country Water plans, controlling Glush weed, Pond Apple and Harundana, developing skills, training and employment of Traditional Owners, and water quality monitoring.



Healthy water is reflected through the natural shape and flow of waterways, as well as the waves (Figure 12). The symbol reflects both the movements of the sea, as well as the shape of rivers and catchments. The dots represent the thriving quality of healthy water ways, and the life that runs through them.

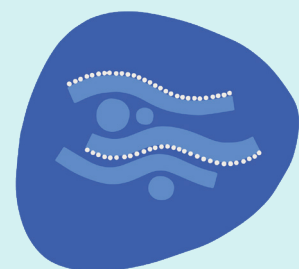


Figure 12. Healthy water symbol



# PROJECT HIGHLIGHT

Through the Mackenzie Water Quality project (Fitzroy region), Greening Australia supported the First Nations people of the Indigenous-owned Woorabinda Pastoral Company to implement best management practices on their 43,300 hectares of grazing and cropping land. Training was provided to staff on sustainable grazing practices and herd management.

New grazing land management practices were implemented across sections of the selected properties including five kilometres of riparian exclusion fencing, eight kilometres of fencing to implement rotational grazing and four additional watering points to better manage grazing pressure leading to reduced sediment losses.



Woorabinda Pastoral Company staff. Credit Greening Australia



Trainees from Three Big Rivers undertake remediation work.  
Credit NQ Dry Tropics

The Herding Change project (Upper and East Burdekin regions) focused on fine sediment reduction. Small gullies can become big gullies if left untreated. In the Burdekin, innovative practices that are proven to stabilise soils and intervene in sediment transport processes were explored. Small-scale erosion issues were addressed through low-cost interventions.

Indigenous trainees from Three Big Rivers, an Indigenous employment group, worked on Country assisting landholders to implement small-scale gully remediation and weed control projects.

This collaboration between delivery provider NQ Dry Tropics and Three Big Rivers provided direct support to landholders for water quality outcomes while achieving meaningful employment opportunities for Traditional Owners and other First Nations people.



# Conservation and Protection

*Enhanced knowledge of wetlands, water quality, modelling and related ecosystem health, and implemented an integrated catchment management approach.*

Protection of landscapes to deliver water quality and catchment health outcomes was supported through two discrete workstreams, the \$8.5 million Eastern Cape York program and the \$3 million wetlands initiative.

## Eastern Cape York Water Quality program

Composed of seven projects delivered by four local organisations, this program undertook an integrated catchment management approach that addressed erosion from fire, roads, tracks, and gullies, significantly reducing sediment run-off into waterways and the Reef and is detailed in the [Eastern Cape York WQ Program Impact Report](#).

The program implemented best management practices to effectively control and reduce sediment from unsealed roads, leaving a legacy of tools, [guidelines](#) and skills for land managers and communities and ensuring more resilient [maintenance and repair approaches](#).

Fire management led by Traditional Owner rangers and supported by Elders further supported erosion control along primitive tracks ensuring traditional knowledge and techniques are incorporated as part of caring for Country.

A sophisticated water quality monitoring program quantified the sediment contributions from the Annan and Endeavour Rivers with greater confidence. Improved knowledge of catchment water quality challenged long held views on its current 'undisturbed' status which drives continued actions and discussion around the priority level of the Eastern Cape York catchments as part of the Reef 2050 WQIP.

Collaboration between partners, capacity building and supporting the aspirations of local communities was core to the program. The design enabled significant employment and upskilling for many indigenous locals and equipped organisations, especially Traditional Owner partners, to step up and lead erosion control and water quality projects.



Annan River, Eastern Cape York. Credit Jessie Price-Decle  
South Cape York Cathments



Norma Jacko and Tiara Darkan monitoring the Starcke river.  
Credit Cape York Water Partnerships



## Wetlands initiative

Wetland ecosystems are integral for the health and resilience of the Great Barrier Reef, playing an essential role in habitat connectivity, biological diversity, and water quality improvement. Wetlands also hold significant cultural, social and economic value. A strategic \$3 million investment was provided towards a suite of projects to fill critical knowledge gaps and integrate information (Figure 13) on the effectiveness of wetlands in water quality improvement across Reef catchments:

1. A comprehensive synthesis of evidence on the role of natural and constructed freshwater wetland and treatment systems in water quality improvement was led by C<sub>2</sub>O Consulting, with outcomes incorporated into the [2022 Scientific Consensus Statement](#) (SCS). The SCS provides evidence-based information for policymakers to make decisions about management of Reef water quality and supports the design, delivery and implementation of the [Reef 2050 WQIP](#). The SCS wetlands information integrated with the synthesis of additional evidence, focused on the efficacy and value of wetlands for Reef water quality improvement and to inform future wetland investments.
2. Monitoring of constructed wetlands in the Tully and Mackay regions was led by JCU TropWATER and Terrain NRM with the support from landholders. Site based monitoring assessed the performance of treatment systems including water balance hydrology, water quality, nutrients and sediment fluxes over two consecutive wet seasons. Collected data has been integral to inform the wetland models and enhance our understanding of how these landscape features treat agricultural runoff.
3. A wetland hydrology and water quality model was developed by Alluvium in collaboration with a consortium of key experts and overseen by a Technical Advisory Committee. This project addressed the need for a tool that can effectively make predictions and simulations on the role of wetlands in filtering excess pollutants in Reef catchments. This tool is a significant step forward and provides critical support for the prioritisation of future management and investment in wetlands at the catchment and site scale, and in the design of constructed wetland systems.

### Access to wetland outputs

These three integrated advancements are underpinned by and will inform [WetlandInfo](#), the centralised comprehensive resource that supports managers and guides future investments and decisions regarding the sustainable management and protection of wetlands in Queensland. A synthesis of the suite of Partnership wetlands investments can be found at the [Water Quality Science & Agriculture Hub](#).



## Advancing wetland knowledge and protection



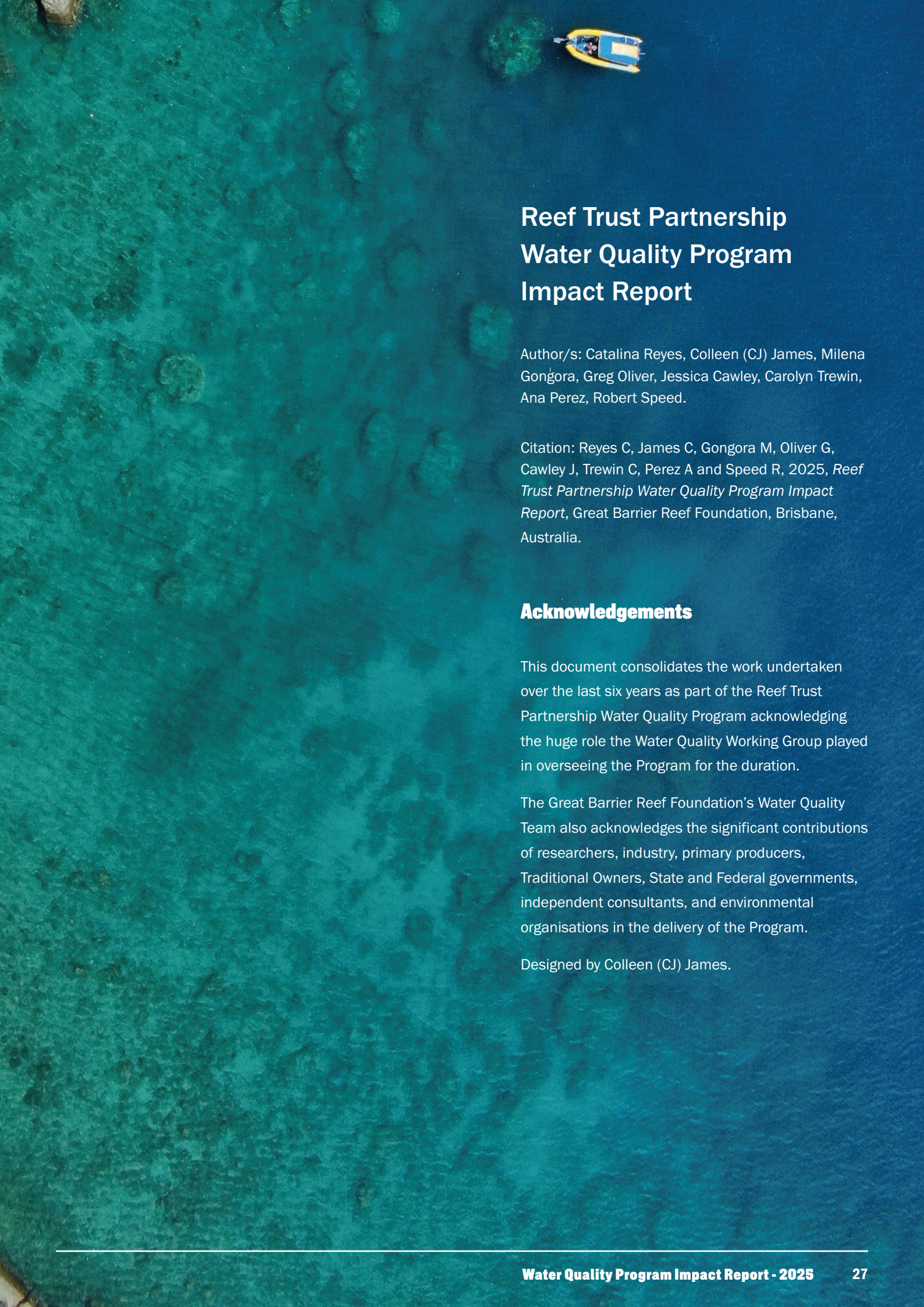
**Figure 13.** The illustration depicts interactions between existing and Partnership-funded wetland investments, that are advancing our understanding of the effectiveness of freshwater and coastal wetlands in water quality improvement and assisting managers, funders and decision making for wetland protection across Reef catchments.





Coral Nurture Program, Whitsundays. Credit Great Barrier Reef Foundation



An aerial photograph of a coral reef, showing various shades of green and blue. A small yellow and blue boat is visible in the top right corner.

# Reef Trust Partnership Water Quality Program Impact Report

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Citation: Reyes C, James C, Gongora M, Oliver G, Cawley J, Trewin C, Perez A and Speed R, 2025, *Reef Trust Partnership Water Quality Program Impact Report*, Great Barrier Reef Foundation, Brisbane, Australia.

## Acknowledgements

This document consolidates the work undertaken over the last six years as part of the Reef Trust Partnership Water Quality Program acknowledging the huge role the Water Quality Working Group played in overseeing the Program for the duration.

The Great Barrier Reef Foundation's Water Quality Team also acknowledges the significant contributions of researchers, industry, primary producers, Traditional Owners, State and Federal governments, independent consultants, and environmental organisations in the delivery of the Program.

Designed by Colleen (CJ) James.





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Reef Foundation