



Australian Government  
Great Barrier Reef  
Marine Park Authority



Queensland  
Government

REEF JOINT FIELD MANAGEMENT PROGRAM

ANNUAL

REPORT

S U M M A R Y



# EXECUTIVE SUMMARY

**Dedicated field officers are essential for protecting the Great Barrier Reef World Heritage Area, which stretches 2300 kilometres along the Queensland coast. With more than 2900 reefs and 1050 islands – home to iconic plants, animals, habitats and rich cultural heritage – there is plenty of vital field work to do in this World Heritage Area.**

The field officers are part of the Australian and Queensland governments' Reef Joint Field Management Program (the Program), which operates in the Commonwealth Great Barrier Reef Marine Park and the State Great Barrier Reef Coast Marine Park, plus on Commonwealth islands and State island protected areas. The Program is delivered jointly by the Great Barrier Reef Marine Park Authority (Reef Authority) and the Queensland Parks and Wildlife Service, part of the Queensland Department of Environment and Science.

The Program provides a constant, in-park presence, delivering conservation actions, checking for change, responding to incidents, welcoming people and upholding compliance.

Our field management activities combat threats to the reef, islands, species and cultural heritage, and build resilience, so all Australians and international visitors can enjoy the Great Barrier Reef World Heritage Area (World Heritage Area) now and in the future.

Patrolling these waters and islands, the Program delivers a range of crucial activities. These include monitoring and maintaining internationally important turtle and seabird breeding islands, eliminating island pests, and developing walking tracks, camping areas and lookouts.

In-water activities include maintaining a network of reef protection markers and moorings, and surveying reefs to help us understand and manage the impact of cyclones, crown-of-thorns starfish and bleaching on our coral reef ecosystems.

Field officers interact regularly with stakeholders and the broader community, providing information to park users, ensuring they abide by the rules that protect this iconic place and encouraging them to protect species, coral reefs and islands.

The Program acknowledges the continuing management and custodianship of the World Heritage Area by First Nations people and works with Traditional Owners to get them back on country and engaged in Land and Sea Country management.

Field management activities are at the heart of Australia's obligation to protect the World Heritage Area. First agreed in 1979 by the (then) Prime Minister Malcolm Fraser and Queensland Premier Joh Bjelke Petersen, the 'Emerald Agreement' established the foundation for joint management of the Great Barrier Reef (the Reef). The current *Great Barrier Reef Intergovernmental Agreement 2015* cements the Australian and Queensland governments' commitments to long-term protection of the World Heritage Area and the Program. Across four decades, the Program has grown from a small handful of officers managing the 12,000 square-kilometre Capricornia section, to managing 348,000 square-kilometres of marine parks and 470 island national parks and Commonwealth islands.

The Program has undergone a significant expansion and transformation, which commenced in 2017–18 following the Australian and Queensland governments' commitments to additional funding. Expansion was staged to enable considered and sustained growth from a joint base funding commitment of around \$17 million to over \$38 million by 2021–22 and an increase in staff from 115 to 194 people. While 2021–22 was the fifth and final year of the expansion, COVID-19, recruitment demands and high staff turnover had a significant impact on the Program's planned expansion.

The Program is now delivering against all 12 key investment areas identified in the *Periodic Review Report 2017*:

- maintaining essential field management capabilities
- a safe, fit-for-purpose vessel fleet
- island restoration and supporting reef restoration
- tourism and recreation infrastructure
- enhancing compliance through vessel tracking
- enhancing compliance through increased in-park presence, public contact and education
- incident response and recovery
- technology and data management
- collaborating with First Nations peoples
- collaborating with interest groups
- streamlining permissions
- increasing island protection.

This document summarises the Program's achievements in delivering the *Reef Joint Field Management Program Annual Business Plan 2021–22* and complements the *Reef Joint Field Management Program Annual Report 2021–22*.

Some statistics in this annual report summary may differ from that provided in the Reef Authority's *Corporate Report 2021–22* and the Department of Environment and Science's *Annual Report 2021–22* due to differences in timing of data extraction and validation.

## COVID-19

COVID-19 had a significant impact on Program delivery in 2021–22. When developing the Program's *Annual Business Plan 2021–22*, the risk of COVID-19 impacts on delivery were considered low given the low case numbers in Australia and Queensland at the time. However, COVID-19 cases across Australia started increasing from June 2021 and cases in Queensland increased significantly from late December 2021. Program capacity was significantly impacted by staff being sick with COVID-19, caring for family members with COVID-19, isolating due to close contacts and not being vaccinated. To protect staff, limitations on the number of people aboard vessels were put in place, which impacted multi-tasking capability and some trips had to return to port due to staff testing positive while at sea. To protect Traditional Owners and the public there were also limitations on travel to remote communities, meetings, public contact while on patrol and attending community events. COVID-19 also impacted delivery of work by partner agencies and contractors, who were facing similar challenges.



Barges like *Island Ranger* transport staff and equipment to islands to deliver activities such as constructing new walking tracks, pest and fire management and species monitoring

## 2021–22 FINANCE SUMMARY

The Australian and Queensland governments allocated funding of \$40,387,312 through the *Reef Joint Field Management Program Annual Business Plan 2021–22* and carryover funds to deliver field activities across the 348,000 square-kilometre World Heritage Area.

The Australian and Queensland governments contributed appropriation funding of \$19,428,069 and \$19,218,069 respectively in 2021–22. The Department of Environment and Science also contributed \$9000 in discretionary funding towards *Reef Resilience* vessel operations.

Additional revenue of \$674,075 was received by the Program in 2021–22, including \$260,000 from the Reef Authority for additional crown-of-thorns starfish surveys, \$227,100 from sale of vessels and equipment, \$117,135 from commercial activities in protected areas, \$17,748 in rent and \$52,092 from other sources.

At the start of 2021–22, the Reef Authority held funds of \$737,708 from the previous year's carryover and the Queensland Parks and Wildlife Service held funds of \$436,691. The Reef Authority carryover reduced from \$781,483 reported in the *Annual Report Summary 2020–21*.

The Program's expenditure of \$36,886,861 was within 8.7 per cent of the budget allocation of \$40,387,312. This is a decline from 3.3 per cent in 2020–21 and 1.3 per cent in 2019–20, due to the significant impact of COVID-19 on Program delivery in 2021–22.

At the end of 2021–22, the Queensland Parks and Wildlife Service held funds of \$2,027,379 and the Reef Authority held funds of \$1,589,372 on behalf of the Program.

The Program also received funding from other sources that contributed to field delivery in 2021–22, including:

- offset funding for Queensland and Australian government approvals associated with Curtis Island Liquid Natural Gas projects
- Australian and Queensland government funding for restoration of the Raine Island beacon
- Australian Government funding for the Raine Island Recovery Project, Reef Islands Restoration Projects and the Great Barrier Reef Green Turtle Research Project
- Queensland Government funding for Green Island Recreation Area Management, the Reef Management Technology Initiative and joint management of National Parks (Cape York Peninsula Aboriginal Land)
- Australian Government funding for Summer Reef Health and RIMReP knowledge gaps
- Queensland Government funding for Whitsunday Island walking tracks, Island Ark acquisitions and Reef Trails
- Queensland and Australian government funding for *Magnetic Island Master Plan 2019* projects.

# OUR ACHIEVEMENTS

## DELIVERING CONSERVATION ACTIONS

**SAVING FLATBACK TURTLES** with eradication of deer from Wild Duck Island on track for 2024

**PROTECTING CORAL AND SEAGRASS** 309 moorings and 289 reef protection markers inspected and maintained

**EXPANDING ISLAND PROTECTION** with islands and parcels of land assessed to identify priorities for addition to the protected area estate

**PROTECTING KEY ISLAND VALUES** with 6 fire strategies and 6 pest strategies developed

**REEF REHABILITATION** at Bait Reef with 4000 live coral fragments, 200 MARRS 'reef stars', 1000 Coralclips® and 12 reef bags

**PROTECTING HERITAGE** with restoration of the Raine Island beacon underway with Traditional Owners

## CHECKING FOR CHANGE

**MONITORING REEF HEALTH** 1372 in-water surveys across 163 reefs

**ENSURING EARLY DETECTION** 4811 manta tow surveys monitor reefs for crown-of-thorns starfish, covering 921km of reef-margin across the World Heritage Area

**KEEPING TABS ON SEABIRDS** 176 bird surveys at 123 locations identified 114 species, including all 21 species that breed in the World Heritage Area

**UNDERSTANDING POPULATIONS** with the first surveys of foraging loggerhead turtles in 20 years in the Capricorn Bunker islands

**WATCHING ISLANDS** health checks on 6 priority island parks to check condition of key values and 71 Island Watch surveys

**FILLING KNOWLEDGE GAPS** for vegetation communities on 15 Capricorn Bunker islands

## WELCOMING PEOPLE

**ENGAGING WITH WORLD HERITAGE AREA USERS** 2209 contacts with users while on patrol

**ENCOURAGING STEWARDSHIP** volunteers and Indigenous Land and Sea Rangers responded to 84% of marine strandings up from 68% in 2020-21

**CREATING NEW VISITOR OPPORTUNITIES** Newry Islands visitor amenities upgraded and new walking track from Forts Circuit to Florence Bay at Magnetic Island

**INFORMING THE COMMUNITY** 138 social media posts; 23 social media videos; 84 Reef health posts; 6 joint media releases

**COLLABORATING WITH MASTER REEF GUIDES** 50 guides trained in compliance, marine strandings, reef and crown-of-thorns starfish surveys, and ecology

**ENABLING SUSTAINABLE USE** decisions made on 333 joint marine parks permit applications, 26 state marine park and 90 national park permit applications

## UPHOLDING COMPLIANCE

**PROTECTING YOUR PATCH** World Heritage Area users provided 61 compliance incident reports of illegal activity

**PROTECTING THE REEF AND ISLANDS** 981 dedicated compliance days to deter illegal activity; 853 vessel, 35 land and 93 aerial

**UNDERSTANDING REEF USE** 74% of dedicated compliance days undertaken during high-risk illegal recreational fishing periods

**PROMOTING INDUSTRY STEWARDSHIP** over 1000 commercial fisheries vessels tracked, leading to 61 offences prosecuted and 101 advisory letters sent

**IMPOSING CONSEQUENCES FOR ENVIRONMENTAL HARM** 67 court prosecutions, 86 infringement notices, 27 caution notices and 520 advisory letters

## RESPONDING TO INCIDENTS

**UNDERSTANDING REEF THREATS** pre-summer workshop assessed the risk of coral bleaching and cyclones

**MONITORING REEF THREATS** Reef-wide aerial surveys to assess mass coral bleaching severity and extent; of 719 reefs surveyed 91% exhibited some bleaching

**PROTECTING ENVIRONMENTS** mitigating risk associated with 117 maritime events, including 40 groundings and 24 sinkings, up from 65 events in 2020-21

## WORKING WITH FIRST NATIONS PEOPLE

**MANAGING COUNTRY TOGETHER** First Nations people spent 438 person-days on Program vessels in the northern Great Barrier Reef and 342 person-days in the southern Great Barrier Reef

**RESPECTING COUNTRY** Cultural Awareness Protocol videos produced for the Yuku Baja Muliku Landowners and Reserves Ltd and Giringun Aboriginal Corporation for Program staff to watch before visiting country

## SHARING WORKPLACES

Darumbal, Runyirru, Lama Lama, Gidarjil and Wulgurukaba-Yunbenun rangers worked at Program workbases in Cairns, Magnetic Island and Gladstone

**ENCOURAGING COMPLIANCE AWARENESS** engaging with over 730 Indigenous rangers and Traditional Owners to encourage compliance reporting and manage Land and Sea Country together

## STRENGTHENING PARTNERSHIPS

4 fee-for-service arrangements with Indigenous ranger groups, supporting Traditional Owners to manage Land and Sea Country and expanding our collective capacity to protect the World Heritage Area

**BUILDING CAPACITY** 15 Indigenous Rangers and one Program staff member from 10 different First Nations groups completed diver training



Reef rehabilitation at Bait Reef included divers attaching 4000 live coral fragments to 200 MARRS 'reef stars' © Freda Nicholson, Mars Sustainable Solutions

# 2021–2022 HIGHLIGHTS



## DELIVERING CONSERVATION ACTIONS

The Program delivers conservation actions to protect and recover important natural and cultural values, including coral reefs, seagrass meadows, mangrove forests, coral cays, continental islands, wetlands, threatened species and cultural heritage.

### REEF REHABILITATION AND INTERVENTION

The Program continues to deliver the *Reef Blueprint 2017* recommendation for active localised reef restoration. Since 2018–19 the Program has been facilitating, delivering and supporting others with reef rehabilitation and intervention trials, to identify local-scale rehabilitation techniques suitable for delivery. These techniques may then be utilised by tourism operators, Traditional Owners, the Program, or other interested stakeholders to rehabilitate particular sites.

In October 2021, there were 4000 live coral fragments from over 30 species attached to 200 MARRS 'reef stars' using cable ties or attached directly to existing hard reef structure using 1000 Coralclips® at Bait Reef, offshore from the Whitsunday Islands. Twelve reef bags, which are coir net bags filled with coral rubble, were also installed to trial habitat stabilisation. The 500 square-metre area was once a popular dive and snorkel site that was heavily impacted by Tropical Cyclone Debbie in 2017. The rehabilitation is a collaboration with Mars Sustainable Solutions, BMT Group, two Whitsunday tourism operators, the University of Technology Sydney and the University of Queensland.

The mass coral bleaching event in 2022 did impact the site with 30 per cent coral mortality recorded and 800 dead fragments removed. The Program will monitor the rehabilitation area together with the other partners.

Monitoring of reef rehabilitation undertaken at Green Island in November 2020, using MARRS 'reef stars' and Coralclips® across a 200 square-metre area, has shown that coral cover, and fish biomass and diversity is increasing. This site, which was not impacted by the 2022 mass coral bleaching event, is frequently visited by tourism project partners to show visitors and educate them about reef health and management.

The Program continues to support monitoring of earlier reef intervention initiatives including at Manta Ray Bay, where monitoring by James Cook University has shown a statistically significant increase in individual coral recruits from 320 in 2020–21 to 516 in 2021–22. These coral recruits are on coral bommies that were returned to the water following Cyclone Debbie in 2017 when they were pushed ashore during cyclonic conditions.



It was a busy year at Raine Island with Phase 2 of the Raine Island Recovery Project commencing and restoration of the Raine Island beacon underway

## RAINE ISLAND RECOVERY PROJECT

After receiving a 'highly commended' in the Queensland Reconciliation Awards in 2020–21, the project went on to win a Department of Environment and Science Excellence Award in the 'Protect the Great Barrier Reef' category and a Premiers Award for Excellence in the 'Environment and Culture' category in 2021–22.

The Program commenced Phase 2 of the Raine Island Recovery Project with Wuthathi and Meriam Nation (Ugar, Mer, Erub) Traditional Owners. This second phase builds on the knowledge gained and works completed during Phase 1 and has funding support from the Australian Government under the Ocean Leadership Package.

Traditional Owners were employed as rangers on each trip to the island with 112 person days delivered in the field. Turtle monitoring revealed a moderate nesting season with approximately 33,000 turtles aggregating in December 2021 (compared with 3000 in December 2020 and 64,000 in December 2019). Monitoring of the turtle nesting habitat reprofiled in 2014, 2017 and 2019 showed that they continue to retain their profile (with minor lowering) and enable higher egg hatching success than unmodified areas — 63.4 per cent to 64.4 per cent in reprofiled areas compared with 56.1 per cent in unmodified areas.

Monitoring capability was enhanced at the remote island location, with improved power supply and installation of a second weather station, new inundation loggers and a new pan tilt zoom camera. Following six years of intervention, research and monitoring, four scientific papers on island geomorphology, nesting turtle satellite telemetry and nest environment studies were published across three journals.

The project's recovery activities are delivered consistent with the *Caring for Raine Island Country and Culture – A Strategic Plan for the Indigenous Cultural Heritage Management of the Raine Island Group* developed by the Traditional Owners.

## RESTORATION OF THE RAINE ISLAND BEACON

The Raine Island beacon is one of the oldest colonial stone buildings in Queensland. It was constructed by convict stonemasons in 1844 as an aid to navigation and shelter for ships journeying between Australia and Asia through the Torres Strait. More than 900 legible inscriptions have been carved or painted inside the beacon, providing an important record of human movement and activity in the area. While a large number are from crews of British Admiralty and other European vessels, many are also Wuthathi, Erubam, Meriam and Ugaram Le names, and represent significant shared historical value.

The *Raine Island National Park (Scientific) Management Statement 2021* identified the condition of the maritime and mining heritage as 'significant concern' (in 2019) with a declining trend. One of the strategic management directions was to restore the beacon to maintain its structural integrity. Following considerable planning and geotechnical remediation works in October 2021, extensive restoration works were undertaken in June 2022. The team undertaking the works included Program staff, Meriam Nation and Wuthathi Traditional Owners, Faulstrum Scaffolding Pty Ltd and stonemasons from Heritage Stone Pty Ltd and Aspire Stonemasonry. The beacon was secured with restraining straps and scaffolding was assembled and disassembled many times to enable the restoration works, which included renewing mortar joints in the blockwork, filling one of two major vertical cracks, and installing stainless steel reinforcing bars around the walls. The work was undertaken under careful supervision of Meriam Nation and Wuthathi cultural advisors to maintain the cultural integrity of the site in accordance with the Burra Charter. A further trip is planned for August 2022 to undertake the remaining restoration.

The restoration works are funded by the Program, the Department of Environment and Science's capital program and the Australian Government's COVID-19 Works and National Heritage funding.



Pest plants are often found along walking tracks as seeds can be transported by visitors in their shoes, socks or backpacks. Program staff are alert for pests and undertake a range of pest control activities across the World Heritage Area

## PEST MANAGEMENT

Targeted pest management continued in 2021–22 to protect the natural integrity of priority island locations and reduce disturbance and predation of vulnerable species. The Program delivered a range of pest plant and animal projects to control pests like pigs, deer, foxes, dogs, mice, cattle, goats, lantana, Siam weed and invasive grasses.

Protection of the largest rookery for east coast vulnerable flatback turtles is in progress with eradication of deer from Wild Duck Island on track for 2024.

The North West Island mice eradication project is well advanced. Monitoring has been ongoing since aerial baiting was undertaken in June and July 2020. To confirm eradication two years of monitoring is required across at least two mice breeding cycles. Program and Gidarjil rangers are undertaking the monitoring using Black Trakker ink tunnels set at 120 sites across the island, with no mice detections since baiting was completed. The final survey to confirm eradication will be undertaken in August 2022. Mice are a significant threat to birds that nest on the island, eating eggs and young chicks and even attacking nesting adults. Monitoring is also underway to measure the recovery of nesting seabirds following eradication.

Pig numbers on Hinchinbrook Island were reduced with trials of new pig bait HOGGONE® successfully resulting in 17 pigs taking the bait. Monitoring indicated low impacts on wetlands from the reduced pig activity, low interactions with visitors and impacts on the Thorsborne Trail confined to one location.

Control of feral animals continued on Curtis Island, with monitoring showing no nest predation at the Southend Beach flatback turtle rookery for the fourth consecutive year and less than five per cent damage to the marine plain from pigs. Offset funding from the Curtis Island Environmental Management Precinct and Queensland Government approvals associated with the Liquid Natural Gas plants made these Curtis Island activities possible.

## VALUES-BASED MANAGEMENT FRAMEWORK

Implementation of the values-based management framework for island protected areas continued with good progress in preparing the draft Magnetic Island National Park Management Statement with the Wulgurukaba People, through the Yunbenun Advisory Group. The First Nations cultural heritage thematic strategy, historic cultural heritage thematic strategy, visitor thematic strategy and resource information document have also been developed. The draft management statement will be provided to the Wulgurukaba People for endorsement before it progresses through approvals, to Governor in Council and gazettal.

An interim key value and levels of service assessment report was completed for Broad Sound Islands National Park and work progressed on four other value and assessment reports and five draft management statements. The Program is working with First Nations peoples so that the values-based management framework reflects a shared assessment of the islands values, levels of service and management. Assessment reports are not finalised until they are endorsed by Traditional Owners — until then they are interim reports.

Thematic strategies provide more detail around on-ground delivery for protected areas and are considered together with values assessment reports, management plans and statements. Fire thematic strategies were finalised for six parks: Gloucester Islands, Percy Isles, Possession Island, South Cumberland Islands, and Whitsunday Islands national parks, and Middle Percy Island Conservation Park. Pest thematic strategies were also finalised for six parks: Green Island, Barnard Island Group, Broad Sound Islands, Frankland Group and South Cumberland Islands national parks, and Wuthara Island National Park (Cape York Peninsula Aboriginal Land (CYPAL)). Draft monitoring and research strategies are progressing for three parks: Green Island, Curtis Island and Lizard Island national parks.



Program staff undertaking reef health and impact surveys near Orpheus Island. There were 1372 surveys delivered across 163 reefs to check for change in 2021-22

## CHECKING FOR CHANGE

**The Program checks for change on islands and in the water to monitor cultural heritage, reef and island condition and the extent of existing or emerging threats. Checking for change identifies impacts from the main threats to the World Heritage Area and enables appropriate management actions to be implemented.**

### REEF SURVEYS

Field management officers conducted 1372 reef health and impact surveys across 163 reefs, of which 586 surveys checked for crown-of-thorns starfish and 111 checked for coral bleaching.

The Program also delivered 70 days of crown-of-thorns starfish surveillance, with 4811 in-water surveys to detect starfish over approximately 921 kilometres of reef-margin across the Great Barrier Reef. When combined with regular localised tourism operator surveys and reactive agency surveys, the surveys produce a Reef-wide picture of the Great Barrier Reef's condition. They also support the *Reef Blueprint 2017* recommendation to ramp up crown-of-thorns starfish control, including improved surveillance and reporting. Funding from the Reef Authority's Crown-of-Thorns Starfish Control Program enabled the elevated survey effort.

Subtidal seagrass monitoring was also undertaken at six existing target sites (Newry, Hinchinbrook and Flinders islands and Tongue, Bathurst and Lloyd bays) and three new sites (Whitehaven Beach, Cid Harbour and Margaret Bay). These Marine Monitoring Program surveys provide a broad geographic assessment of seagrass condition across the World Heritage Area.

### NORTHERN GREAT BARRIER REEF GREEN TURTLE RESEARCH PROJECT

There are over 60 recorded nesting locations for vulnerable green turtles between Princess Charlotte Bay and the north-western Torres Strait, however there is limited recent information about nesting at these locations. Some of these island and mainland nesting locations may offer refugial nesting habitat that is more resilient to climate change than other lower lying islands and cays where nests are already being inundated.

This four-year research project, which commenced in 2020–21, has five key elements that will be delivered in partnership with Traditional Owners through the Meriam Nation, Kuuku Ya'u and Wuthathi Prescribed Body Corporates.

Analysis of the 288,775 high resolution images taken in 2020–21 during aerial surveys of 84 islands and cays and 460 kilometres of mainland beaches in the northern Great Barrier Reef and Torres Strait, is nearing completion. It will identify the turtle tracks to species, estimate relative density of nesting and provide changes in breeding distribution over the last several decades.

Two pilot foraging ground field trips were undertaken with Kuuku Ya'u, Wuthathi and Erub Traditional Owners, who provided cultural guidance and were part of the research team. This informed selection of the reefs best suited for long-term monitoring of populations in foraging grounds, with reefs south of Cape Grenville in far north Queensland and off Erub in the Torres Strait selected for biannual population monitoring to collect data on population structure, size and genetics.

Beach cooling trials at Mon Repos commenced with replicated beach shading and sprinkler systems. Unfortunately, Tropical Cyclone Seth caused significant beach erosion and the loss of turtle nests. Results are being analysed and will inform further trials in 2022–23.

This project would not be possible without funding provided through the Australian Government's Reef 2050 Plan implementation.





Program staff and Yirrganydji Land and Sea Rangers undertaking seabird monitoring at Michaelmas Cay. Yirrganydji Land and Sea Rangers were contracted for a third year to undertake and lead the monthly surveys

## SEABIRD AND SHOREBIRD MONITORING

The Program undertook 176 bird surveys at 123 locations in the seventh year of monitoring under the *Coastal Bird Monitoring and Information Strategy (Seabirds 2015–2020)* and the fourth year of reporting on shorebird surveys under the *Coastal Bird Monitoring and Information Strategy (2011)*. These surveys identified 114 different species, including all 21 seabird species known to breed in the World Heritage Area. Internationally significant numbers (greater than one per cent of global and/or eastern Asian-Australasian flyway) of endangered eastern curlews and vulnerable Western Alaskan bar-tailed godwits were recorded through summer.

Data collected from 14 geolocators attached to critically endangered Herald petrels on Raine Island in 2017–18 is being analysed by the Zoological Society of London to investigate their migration and the ocean floor habitat along their migration paths. Raine Island is the only location in Australia where Herald petrels are known to breed — they appear in February and then leave again between late August and early September. Until recently, where the birds went was unknown. Through analysis of the geocator data in 2021–22, we now know that the petrels migrate to an area in the Pacific Ocean north of New Guinea. Another geocator was recovered in June 2022 and should hold three valuable years of data showing movements.

A trial of measuring the fledging success of vulnerable red-tailed tropicbirds on Raine Island using trail cameras was undertaken, with 10 cameras deployed on active nests in December 2021. Data was downloaded and cameras reinstalled in April and June 2022. While the data is still being analysed, some cameras did capture chicks maturing to adolescence when they are capable of flying, indicating that trail cameras can be used to measure fledging success.

## FILLING KNOWLEDGE GAPS

The *Priority Monitoring Gaps Prospectus: Reef 2050 Integrated Monitoring and Reporting Program 2021* identified 11 interrelated monitoring gaps to be prioritised for further investment. The Program was selected to lead three work packs to fill knowledge gaps in seabird monitoring, island habitat monitoring and biosecurity monitoring tools. The Program will also collaborate on inshore dolphin monitoring.

In 2021–22, the Program undertook extensive project planning and procurement for the work packs. The Australian Tropical Herbarium and Queensland Herbarium have been contracted to improve regional ecosystem mapping of islands, with 35 islands expected to have updated or new mapping available in 2022–23. Planning for fauna surveys of priority islands is well advanced, with surveys to progress on up to four islands in 2022–23.

Coral cays are important habitats for turtles and seabirds and are susceptible to extreme weather events, which can dramatically change their size and shape. The Program is working with James Cook University to increase knowledge of cay geomorphology, vegetation and vulnerability to climate change. Methods for ongoing surveillance will also be identified.

Island pests can have serious impacts on native plants and animals. The Program is exploring biosecurity monitoring tools with James Cook University and Murdoch University to expand our capacity to identify new pest incursions and respond.

The Program is working with BirdLife Australia, Monash University and the Queensland University of Technology to improve seabird monitoring, including improving the accuracy of monitoring breeding pairs, developing methods to measure fledging success and improving our ability to detect population trends sooner.

This project would not be possible without funding provided through the Australian Government's Reef Trust.



The Program assessed 117 maritime events reported in 2021–22 and undertook two site assessments of damage, including at this unnamed reef 16-016, which sustained damage from a vessel grounding

## RESPONDING TO INCIDENTS

**Field management officers respond to incidents to minimise harm to the World Heritage Area's outstanding universal value, including ship and smaller vessel groundings and sinkings, pollution spills, wildfires, pest incursions, stranded marine animals and severe weather events, such as flooding.**

### MARITIME INCIDENTS

The Program assessed the risks associated with 117 maritime events in the World Heritage Area. This was a noticeable increase in maritime events, up from 65 events in 2020–21, 94 in 2019–20, 89 in 2018–19 and 101 in 2017–18.

These events had the potential to cause environmental damage and included 40 groundings, 24 sinkings, 11 spills, 11 abandoned vessels and 31 other events. Assessment resulted in 10 official Order to Remove notices and in-field response to six incidents. The Program engaged a contractor to remove a wreck from the Brook Islands in consultation with Traditional Owners.

The Program participated in training opportunities provided through the *National Plan for Maritime Environmental Emergencies 2020* and Queensland pollution response preparedness, with 12 Program staff involved in the Australian Interservice Incident Management System, three in Women in Maritime Inductions, one in Shoreline Response and 12 in State Marine Pollution Response Exercise CABIN.

### REEF HEALTH AWARENESS

An annual pre-summer workshop was held in November 2021 to assess climate-related risks to the Great Barrier Reef including the potential for coral bleaching and risks related to weather or biological factors, such as crown-of-thorns

starfish outbreaks. The workshop brings together leading marine scientists, researchers, industries, managers and other users from around Australia and overseas to share information and assess climate-related risks.

Throughout the summer months, regular checks of reef health condition, forecasts, modelling and reporting were undertaken. During the higher risk months (November to April), weekly updates were provided to the Reef Authority, Department of Environment and Science staff and key partners, and weekly externally available web updates were provided for stakeholders and the public.

A mass coral bleaching event was identified during the 2021–22 summer with December 2021 the hottest December on record since 1900. Reef-wide aerial surveys were undertaken by trained observers from the Program and the Australian Institute of Marine Science at the peak of the bleaching event in mid-March, to assess severity and extent. Of 719 reefs surveyed from the Torres Strait to the Capricorn Bunker groups, 91 per cent (654 reefs) exhibited some bleaching. This aerial assessment of extent and severity was consistent with the data on heat stress accumulation. There were also 111 in-water reef health and impact surveys undertaken for early warning and confirming aerial bleaching survey results. The aerial surveys were funded through the Australian Government's Reef 2050 Plan implementation.

There was no major cyclone disturbance to the Great Barrier Reef in 2021–22.



Visitor opportunities on popular Magnetic Island are increasing with a number of projects delivered or underway



## WELCOMING PEOPLE

The Program welcomes people to appreciate, respect and enjoy the World Heritage Area by improving community understanding of values and threats, and providing visitor facilities to enable ecologically sustainable use. The Program welcomes the involvement of industry and the broader community in the protection and recovery of reefs, islands and species.

### IMPROVING VISITOR EXPERIENCES

The World Heritage Area is a natural wonder that people worldwide want to experience. In 2021–22, the Program progressed with planning, design and construction of new and improved visitor facilities on Whitsunday, Curtis, Magnetic, Newry and Lady Elliot islands.

At Newry Island, the visitor amenities have been replaced and upgraded to support sustainable use of the island by day visitors from nearby Seaforth and Mackay, overnight campers staying ashore and visitors cruising through the Great Barrier Reef aboard vessels.

Projects identified in the *Magnetic Island Master Plan 2019* continue to be delivered to improve opportunities on this popular island. A new walking track was constructed between the Forts Circuit and Florence Bay in 2021–22. Planning and design for an upgrade to the Forts Circuit walking track and the Arthur Bay Lookout has been completed, with construction to be undertaken in 2022–23. Planning and design are also underway for an upgrade to the Horseshoe–Balding–Radical bays walking track, with construction to extend into 2023–24. These projects are funded by the Program and the Australian Government's COVID-19 Relief and Recovery Package.

On Whitsunday Island, planning for Stage 2 of the Ngaro Trail is underway to develop camping nodes and potential trail extensions, which are due for completion in 2023–24. Development of Stage 2 is supported by funding from the Queensland Government's Reef Package.

Interpretative material such as signs and track markers were installed on Curtis Island to support use of the 52 kilometre multi-use trail network. The Turtle Street campground is also due for an upgrade with planning and design completed and

construction to commence in 2022–23. These projects are funded through the Curtis Island Environmental Management Precinct and offset funding.

Following planning and design for a new shade shelter at Green Island, the interpretation trail on Lady Elliot Island, interpretative material on the Capricornia Cays and a new walking track at Orpheus Island, work will progress in 2022–23, along with an upgrade to Lady Musgrave Island visitor amenities.

### COMMUNICATION AND ENGAGEMENT

For many World Heritage Area users, field management officers are the public face of the Australian and Queensland governments' management of the Great Barrier Reef. Communication with park users is a vital part of encouraging voluntary compliance and responsible Reef practices, which in turn maintains Reef health.

The Program recorded 2209 public contacts in 2021–22, a 33 per cent decrease from 2020–21 due to targeting of high risk illegal activities in areas where there is often low public use, a perceived decrease in public use and COVID-19 impacts on Program delivery. During these public contacts, field officers talk directly with park users while on patrol in the World Heritage Area. Part of these discussions include checking that park users know the rules and have access to zoning information, with 94 per cent of 1893 users having maps available — 62 per cent use chart plotters, 27 per cent use printed maps and 37 per cent use the Eye on the Reef app (note: some visitors used more than one method so total of individual methods is greater than 100 per cent). Use of the Eye on the Reef app has increased from 20 per cent in 2020–21 and seven per cent in 2019–20.



Master Reef Guides are important partners for the Program, with their support our network of people with the skills to check for change and identify illegal activity is greater

## VOLUNTEERS AND STEWARDSHIP

Master Reef Guides are striving to be the world's leading reef guides and interpreters sharing the wonders of the World Heritage Area. The Master Reef Guide Program was introduced in partnership by the Reef Authority, Tourism and Events Queensland and the Association of Marine Park Tourism Operators in 2019. There are currently 82 Master Reef Guides located across the World Heritage Area.

In 2021–22, the Program supported a Master Reef Guide 'mega-masterclass' held on Fitzroy Island with over 50 guides coming together to learn and become stronger guides. The masterclass was delivered in partnership with people from across the Program, Reef Authority, Department of Environment and Science, Gunggandji Land and Sea Rangers, Wet Tropics Management Authority, Cairns Rehabilitation Centre, and high standard tourism operators. Training topics included compliance, marine strandings, reef health and impact surveys, crown-of-thorns starfish surveillance, and island and marine ecology. Management representatives from high standard tourism operations also attended a tourism leadership event held in conjunction with the masterclass and experienced firsthand some of the training provided. Master Reef Guides are important partners, expanding the network of people across the Great Barrier Reef that have skills to check for change in reef and island health and identify illegal activity.

The Program recognises the invaluable contribution volunteers make to protection of the World Heritage Area. The volunteer marine animal strandings program benefited from the distribution of strandings response equipment, an updated Marine Wildlife Stranding Quick Guide printed and distributed to groups, and the delivery of strandings training to 52 people at four courses (two with community groups at Magnetic Island and Wunjunga and two with Land and Sea Rangers at Yarrabah and Bowen). Volunteers responded to 84 per cent of reported marine strandings, up from 68 per cent in 2020–21 and 61 percent in 2019–20.

## ASSESSMENTS AND PERMITS

The Program assessed and made decisions on 333 Commonwealth and Queensland marine parks permit applications, 26 Queensland marine park permit applications, 90 national park permit applications, and 18 commercial activity agreements, to enable sustainable use of the World Heritage Area. A total of 1547 marine parks permits were in effect at the end of 2021–22, comprising 7283 permissions. This is an increase from 1459 permits comprising 5408 permissions in 2020–21 (the large increase in number of permissions is due to changes in system reporting). Reef Authority staff who are not funded by the Program contribute significantly to assessment and administration of joint marine parks permits.

The Program is supporting tourism recovery from COVID-19 with waivers of the Environmental Management Charge, joint marine parks permit-related fees and daily site fees on islands. Many permit holders are taking the opportunity to adjust their joint marine parks permits without incurring any fees.

The Program helped improve the established joint marine parks assessment and permit framework by advancing a risk-based approach to streamline processes. A review to reduce the number of standard joint marine parks permit conditions is progressing, with 19 per cent of conditions within tourism, barge, facility and works permits removed. A further 41 per cent have been identified for removal once associated policy and planning work is completed, which will progress in 2022–23. A joint *Tourism Management Action Strategy* was released in September 2021 and provides overarching guidance on tourism management to 2035. It aims to protect the Great Barrier Reef, reduce regulatory burden and simplify and improve management, through contemporary tourism management tools.



The Program delivered 981 days dedicated to compliance patrols in 2021–22, including 853 vessel days, 93 aerial days and 35 land-based days

## UPHOLDING COMPLIANCE

The Program delivers risk-focused, well-planned and intelligence-driven compliance patrols or deployments to deter and detect illegal activity in the World Heritage Area. During 2021–22, the Program continued its enforcement operations with support from partner agencies, including Maritime Border Command, Australian Federal Police, Queensland Boating and Fisheries Patrol, and the Queensland Police Service.

### COMPLIANCE PATROLS

In 2021–22, there were 981 days dedicated to compliance patrols — 853 vessel days, 35 land-based days and 93 aerial days — to encourage user compliance and maintain the integrity of the marine parks zoning plans and World Heritage Area values. This is in addition to surveillance flights undertaken by Maritime Border Command, which resulted in four incidents of suspected illegal activity in 2021–22. For a fifth consecutive year, the number of dedicated days remained above 900 days.

Seventy-four per cent of the Program's dedicated compliance days were undertaken during high-risk illegal recreational fishing periods, such as weekends, public holidays, school holidays and good weather periods (winds less than 10 knots), when fishers are more likely to be in the World Heritage Area.

### COMMUNITY AWARENESS

The Program continues to invest in community education and awareness to encourage recreational fishing compliance. A 'Know your Zone' campaign ran during the year and focused on making sure fishers knew where to find marine parks zoning information and comply. Advanced marketing targeted recreational fishing users through a range of channels, including social media, radio, web browsers, boat ramps and fuel stations. A change in advertising in September 2021 to ensure information was positioned where viewers would see it resulted in reaching 415,000 people, up from 69,392 people in June 2021. The Program has produced 100 signs with QR codes that can be used to access zoning information. They will be installed at high priority boat ramps in 2022–23. Community reporting of illegal activities increased to 67 incident reports, up from 59 in 2020–21.

### VESSEL TRACKING

Since 1 January 2020, all commercial fishing vessels operating in the World Heritage Area have been required to operate vessel tracking units. In 2020–21, over 1000 commercial fishing vessels were monitored to detect non-compliance and gather intelligence to inform surveillance activities. There were 61 offences prosecuted from 27 investigations (some were from detections in 2020–21), which resulted in \$74,950 in fines, in addition to 101 advisory letters. Cross-referencing of field surveillance sightings with vessel tracking data has demonstrated a very high level of compliance (98 per cent) with the requirement for commercial fishers to carry a functional tracking unit.

There is a downward trend in the number of commercial line fishing offences reported since the introduction of vessel tracking, starting with 145 in 2019–20, declining to 137 in 2020–21 and further declining to 74 in 2021–22. This is a significant improvement in compliance and similar to the trend observed following introduction of vessel tracking in the commercial trawl industry.

### CONSEQUENCES OF ILLEGAL ACTIVITY

There were 1230 possible offences reported in 2021–22. These reported offences resulted in 86 infringement notices (\$145,458 in fines), 27 caution notices, 520 advisory letters and 67 court prosecutions (\$163,150 in fines) to provide an effective deterrent to further illegal activity. Illegal recreational fishing comprised 47 per cent of these offences, a significant decrease from 62 per cent in 2020–21 and the lowest since 43 per cent in 2015–16.



Wulgurukaba-Yunbenun rangers are embedded with Program rangers at the Magnetic Island workbase, further strengthening working relationships and enabling co-stewardship



## WORKING WITH FIRST NATIONS PEOPLE

The Program acknowledges the continuing Land and Sea Country management and custodianship of the World Heritage Area by First Nations peoples. The Program focuses on getting Traditional Owners back on country and engaged in Land and Sea Country management. The Queensland Parks and Wildlife Service also jointly manages National Parks (Cape York Peninsula Aboriginal Land) with Traditional Owners. The Program’s *Traditional Owner Partnership Strategy 2022–2027* will guide and enable future partnerships.

### SUPPORTING FIRST NATIONS PEOPLE ON COUNTRY

The Program supports Traditional Owners to be on Country and deliver field management activities together. In the southern Great Barrier Reef Traditional Owners are spending more time on field management vessels delivering field activities together, increasing from 7 person-days in 2017–18 to 342 person-days in 2021–22. In the northern Great Barrier Reef Traditional Owner time on field management vessels was highest in 2018–19 at 640 person-days, reducing to 345 and 318 person-days in the following two years due to COVID-19, before increasing again to 438 person-days in 2021–22.

The Program continued to support existing and develop new formal arrangements including work placements, contracts, fee-for-service agreements and memoranda of understanding to help build the capacity of Traditional Owners to work on Country and deliver a range of activities. Fee-for-service arrangements were in place with Giringun, Dawul Wuru, Gidarjil and Wulgurukaba-Yunbenun for various services in 2021–22. Work placements with Rinyirru (Lakefield) Aboriginal Corporation, Lama Lama Aboriginal Corporation and Darumbal Enterprises saw three six-month placements where Indigenous rangers were based at the Program’s workbases and working with Program rangers. Two further six-month work placements with Gunggandji-Mandingalbay Yidinji Peoples Prescribed Body Corporate Aboriginal Corporation and Mandubarra Aboriginal Land and Sea Incorporated have also commenced. There are also Gidarjil and Wulgurukaba-Yunbenun rangers embedded in Program workbases for longer periods. These placements and embedded staff strengthen working relationships and enable co-stewardship.

### INDIGENOUS RANGER TRAINING

The Program supported 15 Indigenous Land and Sea Rangers and one Queensland Parks and Wildlife Service staff member from 10 different groups (between Bowen and Cape York) to complete open water and advanced open water diver training. The training was delivered by Experience Co in Cairns, in Gunggandji and Yirrganydji Sea Country, and included Indigenous dive instructors. The training supports increasing partnerships with Traditional Owners and provides a pathway for Indigenous rangers to deliver in-water activities, such reef monitoring and rehabilitation. Further mentoring is planned through participation in marine parks patrols, to further strengthen their skills and confidence.

### SHARING KNOWLEDGE

The Program continues to create opportunities to share knowledge with, and learn from, Traditional Owners. Two Cultural Awareness Protocol videos were produced with the Yuku Baja Muliku Landowners and Reserves Ltd and Giringun Aboriginal Corporation that highlight respectful ways to visit Country, with more in development.

To support respectful negotiations and partnerships *Meriam Nation Cultural Protocols for Working Together on Sea Country* have been developed to guide implementation of the Northern Great Barrier Reef Green Turtle Project. The protocols were developed by the Program and Meriam Nations Prescribed Body Corporates with support from the Torres Strait Regional Authority.

Agreements have been entered into with the Mandubarra and Giringun Traditional Use of Marine Resource Agreement Steering Committees, who will receive cultural referrals for joint marine parks permission applications to operate in their Sea Country. There are now three such agreements in effect, with the first operating since October 2017 with the Woppaburra Traditional Use of Marine Resource Agreement Steering Committee.



*Reef Resilience and Tamoya II are the newest vessels in the Program's fleet, based in Gladstone and Airlie Beach respectively*

## PROGRAM INPUTS

Delivery of field management activities relies on a skilled workforce, operational and appropriately located management infrastructure, a fit-for-purpose and well-maintained vessel fleet, technological advances, good systems and strong governance.

### VESSEL FLEET

The Program needs a safe and efficient vessel fleet to operate across the World Heritage Area. The Program currently operates 20 vessels to enable field delivery and this will increase to a fleet of 21 vessels in 2022–23.

*Tamoya II* entered service at Airlie Beach in September 2021, replacing *Tamoya*. The new 17 metre vessel has significantly increased service delivery capability. Construction commenced of the new 19 metre barge to be based in Townsville, with delivery expected late in 2022–23. Once delivered, the current Townsville barge *Island Ranger* will shift to Airlie Beach to replace *Nunga III*, which will be sold. The Program entered a contract to build a new 11.9 metre vessel to be based at Rosslyn Bay, with the new vessel to enter service in late 2022–23.

Field management vessels spent 1682 days at sea during 2021–22. The 24 metre vessel *Reef Ranger* spent 195 days at sea in its eighth year of operation, less than the planned 230 days due to COVID-19 impacts on staff and weather delays during planned slipping. *Reef Ranger* had seven days unplanned downtime. The Program's other 24 metre vessel *Reef Resilience* delivered 240 days at sea in its first full year of operation, slightly higher than the 231 planned days, with 11 days unplanned downtime.

### WORKFORCE

The Program started the year with 173 permanent Program funded staff and plans to increase to full expansion with 194 Program positions filled. However, despite ongoing recruitment throughout the year, staff turnover led to the Program finishing the year with 164 Program positions filled permanently (160 funded by the Program and four funded through other sources). Recruitment will continue in 2022–23 to attain the full staffing and capability envisaged. The Program also funded seven temporary staff who contributed to delivery of the Program's *Annual Business Plan 2021–22*.

Well-trained staff are essential to the delivery of an effective, efficient and safe Program. In 2021–22, over 305 staff received training across more than 31 different courses. The highly successful Reef Joint Field Management Foundation Program course was run again after planned courses were deferred in 2020–21 due to COVID-19. Two courses were delivered in March and June, with a third course deferred to 2022–23. Across seven years and 12 courses, 81 per cent of the current permanent Program-funded staff have attended the course, increasing their understanding of the Program, challenges and opportunities in managing the World Heritage Area and stakeholder expectations.



Joint field trials were undertaken with Australian Institute of Marine Science and Program staff to trial new benthic survey technology

## TECHNOLOGY

The Program finalised its *Five-Year Technology Transformation Program Strategy in 2021–22*. The strategy will guide direction and investment in technology that will deliver the most immediate and significant benefits for the Program. The Program continues to explore and deliver technology improvements to enable more efficient and effective monitoring and reporting.

The Program entered the second year of a three-year collaborative agreement with the Australian Institute of Marine Science to pursue benthic survey technologies. Development of a ReefScan package is well advanced and includes an industrial camera with depth sensors that will provide imagery and 3D spatial metadata, together with the associated data management and machine learning analysis. The intent is that the camera will be mounted on small vessels, towed platforms or autonomous underwater and surface vehicles, depending on the need. The new survey technology will provide improved and safer methods for undertaking reef

health and impact surveys, site assessments of damage, crown-of-thorns starfish surveys and manta tows. Joint field trials were undertaken with Australian Institute of Marine Science and Program staff to trial the ReefScan camera and frames for mounting multiple cameras (BoomCam) to capture a wider area. Standard operating procedures for the ReefScan and BoomCam systems were also developed. It is expected that the new benthic surveys technologies will be incorporated into the Program's operations in 2022–23.

The use of drones is increasing across the Program to enable more efficient and effective monitoring, including counts of turtles, seabirds, koalas, and wallabies, and island topographic mapping. Monitoring of wallabies and koalas at St Bees Island using thermal imaging drones will be implemented in 2022–23, following two years of successful trials. Thermal imaging drones were also successfully trialled to count nesting turtles at night on Raine Island. Machine learning to count seabirds at Raine Island using drone footage is being further refined to improve accuracy and reduce false positives.





Raine Island supports critical green turtle and seabird habitat and is one of the most remote locations the Program operates in the World Heritage Area

## RESULTS AGAINST PERFORMANCE INDICATORS

Performance indicators highlight the Program’s achievements against the *Annual Business Plan 2021–22*, which the Director-General of the Department of Environment and Science and the Chief Executive Officer of the Reef Authority jointly approved.

In 2021–22, the Program had 41 challenging performance indicator targets of which 20 (49 per cent) were achieved, 14 (34 per cent) were not achieved but demonstrated significant progress, and 7 (17 per cent) were not achieved or had no significant progress. While the Program’s 2021–22 performance decreased from 2020–21, COVID-19 clearly impacted delivery of targets against 10 performance indicators. The Program was also challenged with recruitment demands and high staff turnover in 2021–22, starting the year with 173 permanent Program funded staff and finishing the year with 164 Program positions filled permanently. Staff turnover and vacancies impacted delivery against eight indicators.

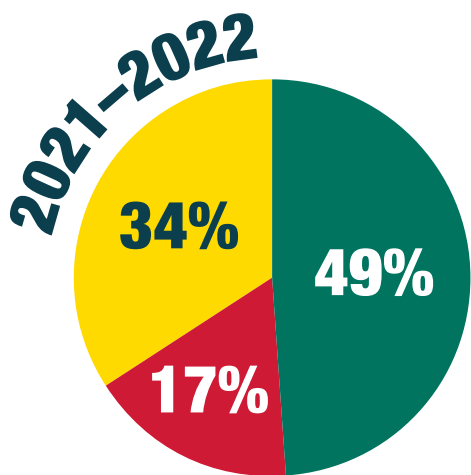


Figure 1: Percentage of performance against indicator targets 2021–22

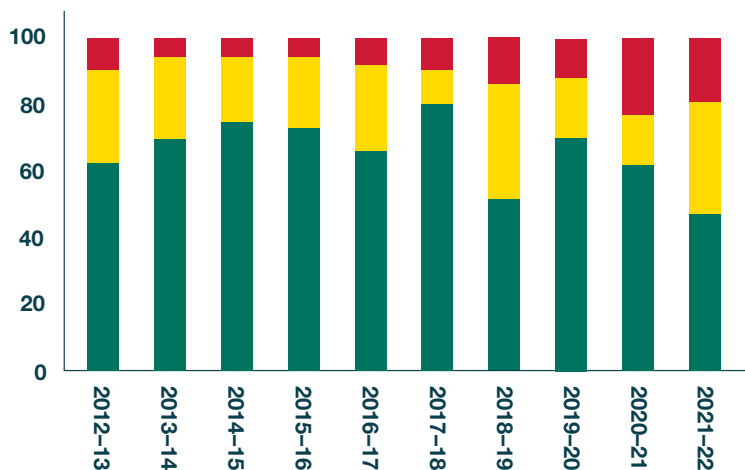
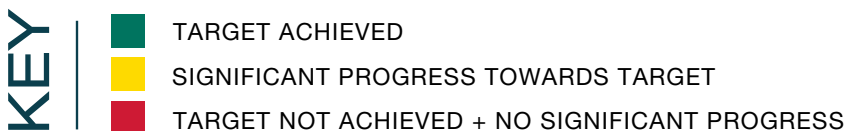



























Figure 2: Program performance over 10 years













	PERFORMANCE INDICATOR	RESULTS 2021–22	TARGET
DELIVERING CONSERVATION ACTIONS	<b>90 PER CENT OF REGIONAL PRIORITY BURN PROGRAM DELIVERED AND REPORTED IN FLAME</b>	<p>67 per cent of the 2021 regional priority burns were delivered and reported in FLAME, being four burns: St Bees Island (Shark Point and southern grasslands), Hinchinbrook Island (Mount Pitt and Barra Castle Hill), Hinchinbrook Island (Southern Heath Picnic Beach) and Curtis Island (aerial burn)</p> <p>Two burns were not completed, at North Keppel Island and Possession Island. The North Keppel Island burn is a particularly complex burn with 15 years of accumulated fuel, particularly from Cyclone Marcia in 2015. This burn was carried over to the 2022 fire season to enable additional support. A wildfire was found to have occurred on Possession Island before the planned burn could be undertaken</p>	 Not achieved
	<b>90 PER CENT OF REGIONAL PRIORITY PEST PROGRAM ACTIONS DELIVERED AND DOCUMENTED IN FLAME</b>	<p>88 per cent of regional priority pest program actions were delivered and documented in FLAME</p> <p>COVID-19 impacts on staff and reduced vessel availability impacted delivery of projects</p>	 Significant progress towards target
	<b>IDENTIFY THE CONDITION AND TREND OF REGIONAL ECOSYSTEMS INCLUDING <i>PISONIA</i> FORESTS ON FAR NORTHERN GREAT BARRIER REEF ISLANDS TO INFORM RESTORATION</b>	<p>Following desktop analysis to identify islands with pisonia forest in 2020–21, further project planning was needed in 2021–22 to develop an approved project plan, governance structure and management plan. Nine islands from six different island groups with records of <i>Pisonia grandis</i> were shortlisted for threat assessment and management intervention requirements analysis, which will take place in 2022–23 through an open tender process</p>	 Significant progress towards target
	<b>COMPLETE FINAL OR INTERIM VALUE ASSESSMENTS FOR TWO ISLAND NATIONAL PARKS OR COMMONWEALTH ISLANDS</b>	<p>An interim key value assessment report has been completed for Broad Sound Islands National Park and will be finalised once First Nations peoples endorsement is obtained</p> <p>While good progress was made on developing several other value assessments and management statements, staff vacancies impacted delivery of final or interim value assessment reports</p>	 Significant progress towards target
	<b>COMPLETE THE MANAGEMENT INSTRUMENT FOR MAGNETIC ISLAND NATIONAL PARK</b>	<p>Preparation of a draft Magnetic Island Management Statement is well advanced and has been developed in consultation with the Wulgurukaba Traditional Owners</p> <p>Once the draft management statement is endorsed by the Wulgurukaba People, it will progress through approval processes to Governor in Council and gazettal</p>	 Significant progress towards target
	<b>90 PER CENT OF MOORINGS AND REEF PROTECTION MARKERS (RPMS) ARE INSPECTED AND REGULARLY MAINTAINED – MOORINGS AT FOUR MONTHLY INTERVALS AND RPMS ANNUALLY</b>	<p>100 per cent of moorings (309) and RPMS (289) were inspected at required intervals, including 20 new RPMS in the Whitsundays to protect reef and seagrass habitats</p>	 Achieved







	PERFORMANCE INDICATOR	RESULTS 2021–22	TARGET
DELIVERING CONSERVATION ACTIONS	<b>DELIVER ACTIONS IDENTIFIED THROUGH THE REPORT ON THE PROGRESS OF BA11 IN THE REEF 2050 PLAN TO PROTECT AND MANAGE SEABIRD BREEDING SITES</b>	<p>There was limited progress on delivery of the draft report's actions due to competing priorities, including the review of seabird and shorebird monitoring strategies, development of online training, and development of an electronic reporting form</p> <p>The draft report on progress of BA11 should be finalised in 2022–23 to identify all protection and management gaps for seabird breeding sites. This will guide future management of these important sites</p> <p>Six globally significant seabird sites submitted in 2020–21 for consideration as Key Biodiversity Areas have progressed to the Global Secretariate for final approvals. Twenty additional islands recommended for minimum aircraft flying heights are being reviewed. High conservation value islands or parcels of land for acquisition have been incorporated into a broader Island Arks acquisition project</p>	 Not achieved
	<b>DELIVER ACTIONS IDENTIFIED IN THE QUEENSLAND MARINE TURTLE CONSERVATION STRATEGY</b>	<p>The Program will lead or support delivery of 12 overarching actions and 19 practical recovery actions identified in the <i>Queensland Marine Turtle Conservation Strategy 2021–2031</i>. Delivery of many actions will extend across multiple years and commence at different times</p> <p>The Program currently delivers many activities and priority projects relating to the conservation of marine turtles, which are mentioned in this summary</p> <p>Progress in delivery of all actions in the strategy requires a considered assessment. An implementation plan was to be developed in 2021–22, to identify the actions being delivered by the Program and where there are gaps, however staff vacancies impacted development. The implementation plan will progress in 2022–23 and enable reporting against this target</p>	 Not achieved
	<b>INSPECTIONS UNDERTAKEN ON HISTORIC HERITAGE ON COMMONWEALTH ISLANDS (DENT AND LADY ELLIOT ISLANDS AND LOW ISLES) AND ISLAND NATIONAL PARKS (RAINE, MAGNETIC, PERCY AND CURTIS)</b>	<p>Inspections of historic heritage were completed on all seven islands. Restoration of the Raine Island beacon has commenced and will be completed in 2022–23</p>	 Achieved
RESPONDING TO INCIDENTS	<b>100 PER CENT OF MARITIME AND ENVIRONMENTAL INCIDENTS REPORTED TO THE PROGRAM ARE RISK ASSESSED AND RESPONDED TO ACCORDINGLY</b>	<p>100 per cent of 117 maritime events reported to the Program were assessed and responded to accordingly, up from 65 events in 2020–21, 94 in 2019–20, 89 in 2018–19 and 101 in 2017–18</p> <p>One environmental incident was also risk assessed and responded to accordingly, the 2022 mass coral bleaching event. Reef-wide aerial surveys were undertaken in response to the mass coral bleaching event, along with 111 in-water reef health and impact surveys</p>	 Achieved
	<b>80 PER CENT OF MARITIME INCIDENTS REQUIRING A SITE ASSESSMENT OF DAMAGE ARE UNDERTAKEN</b>	<p>100 per cent of incidents (two of two) requiring a site assessment of damage had assessments undertaken</p>	 Achieved

	PERFORMANCE INDICATOR	RESULTS 2021–22	TARGET
CHECKING FOR CHANGE	<b>620 REEF HEALTH AND IMPACT SURVEYS (RHIS) DELIVERED</b>	1372 RHIS were completed across 163 reefs to assess the health of the Great Barrier Reef, including 586 crown-of-thorns starfish related RHIS and 111 coral bleaching incident response RHIS	 Achieved
	<b>60 DAYS CROWN-OF-THORNS STARFISH SURVEILLANCE DELIVERED</b>	70 days of surveillance were delivered	 Achieved
	<b>PRIORITY ISLAND NATIONAL PARKS – BEING HINCHINBROOK, WHITSUNDAYS, GREEN, MAGNETIC, CAPRICORNIA CAYS AND RAINE – HAVE REQUIRED HEALTH CHECKS UNDERTAKEN</b>	Health Checks were undertaken on all five island national parks (Hinchinbrook, Whitsundays, Green, Magnetic and Capricornia Cays) and Raine Island National Park (Scientific)	 Achieved
	<b>90 PER CENT OF THE ESSENTIAL SEABIRD AND SHOREBIRD MONITORING PROGRAM DELIVERED</b>	68 per cent of seabird surveys (69 of 101 surveys) were completed in the seventh year of reporting and 25 per cent of shorebird surveys (3 of 12 surveys) were completed in the fourth year of reporting COVID-19 impacts on staff availability, travel and numbers aboard vessels had a significant impact on delivery of monitoring	 Not achieved
	<b>40 PER CENT OF THE SIGNIFICANT SEABIRD SITES ARE SURVEYED BY JUNE 2022 TO ENABLE 100 PER CENT BY JUNE 2025</b>	80 per cent of the significant bird sites (43 of 54 sites) have been surveyed across the two years 2020–2022	 Achieved
	<b>120 ISLAND WATCH SURVEYS COMPLETED AND ANY NEW INCURSIONS REPORTED QUICKLY TO SENIOR RANGERS AND THE REGIONAL PEST COORDINATOR</b>	90 Island Watch surveys were completed (75 per cent of the 120 survey target), including three islands not previously surveyed COVID-19 impacts on staff availability, travel and numbers aboard vessels had a significant impact on delivery of Island Watch surveys	 Significant progress towards target
	<b>90 PER CENT OF PRIORITY MARINE TURTLE NESTING AND FORAGING INDEX SITE MONITORING WITHIN THE WORLD HERITAGE AREA IS DELIVERED OR SUPPORTED BY THE PROGRAM</b>	The Program supported or delivered monitoring at 78 per cent of priority sites: five nesting index sites (Raine, Wild Duck, Milman, Heron, and Lady Musgrave islands) and two foraging sites (Port Curtis and Howick Reefs) Monitoring at priority nesting index sites at Wreck and Peak islands were not undertaken due to COVID-19 impacts on staff availability and numbers aboard vessels	 Significant progress towards target
	<b>90 PER CENT OF ISLAND, MARINE AND MEGAFUNA REFERRAL GROUP FUNDED PROJECTS ARE COMPLETED WITHIN PROJECT TIMEFRAMES</b>	Seven of seven projects were completed within timeframes: (1) completing the 2-year little tern nesting protection at Bowling Green Bay Spit; (2) year 2 of 3-year far northern inshore dolphin survey; (3) year 3 of 5-year Green Island reef rehabilitation; (4) population dynamics of foraging loggerhead turtles in the Capricorn Bunker area; (5) year 2 of 2-year project to investigate the prevalence, movement and behaviour of sharks at North West Island; (6) year 1 of 5-year Bait Reef rehabilitation; and (7) completing the Magnetic Island macroalgae project	 Achieved

	PERFORMANCE INDICATOR	RESULTS 2021–22	TARGET
WELCOMING PEOPLE	<b>100 PER CENT OF ROUTINE AND 80 PER CENT OF TAILORED ASSESSMENT DECISION NOTICES ARE GIVEN IN ACCORDANCE WITH THE PERMISSION SERVICE CHARTER</b>	<p>85 per cent of routine assessment decisions were made within 25 business days and 33 per cent of tailored assessment decisions were made within 50 business days</p> <p>Throughout 2021–22, application numbers remained high with permit fees waived. A noticeable increase in complexity of research applications and support for adapting tourism businesses, along with multiple staff vacancies, collectively impacted assessment timeframes</p>	 Not achieved
	<b>PERMIT APPLICATION RISK ASSESSMENT PROCEDURE REVIEWED AND JOINTLY APPROVED BY THE REEF AUTHORITY AND DEPARTMENT OF ENVIRONMENT AND SCIENCE BY 3 JUNE 2022</b>	<p>Development of the permit application risk assessment procedure was delayed due to staff vacancies and other competing priorities. Work to develop and jointly approve the procedure will progress in 2022–23</p>	 Not achieved
	<b>60 PER CENT OF MARINE STRANDINGS REQUIRING RESPONSE ARE ATTENDED TO BY TRAINED COMMUNITY VOLUNTEERS OR INDIGENOUS LAND AND SEA RANGERS</b>	<p>84 per cent (280 of 335) of strandings reported were attended by trained community volunteers or Indigenous Land and Sea Rangers</p>	 Achieved
	<b>2700 PUBLIC CONTACT EVENTS WHERE PROGRAM STAFF ARE TALKING DIRECTLY WITH WORLD HERITAGE AREA USERS DURING VESSEL OR LAND-BASED ACTIVITIES</b>	<p>2209 public contact events were recorded on the Field Reporting System where field staff talked directly with World Heritage Area users, 81% of the 2700 target. These comprised 1893 public contacts, 92 permit checks, 212 incidents and 12 caution notice events</p> <p>This is a decrease from 2835 events in 2020–21, 2901 in 2019–20 and 2476 in 2018–19 due to factors including targeting high risk illegal activities in areas where there is often low public use, an observed decrease in public use and a decline in multi-tasking capability and total days at sea delivered due to COVID-19</p>	 Significant progress towards target
	<b>100 PER CENT OF PROGRAMMED CRITICAL AND STATUTORY INFRASTRUCTURE MAINTENANCE TASKS COMPLETED</b>	<p>100 per cent of programmed critical and statutory infrastructure maintenance tasks were completed</p>	 Achieved
	<b>95 PER CENT OF PLANNED CAPITAL PROGRAM DELIVERED</b>	<p>10 of 11 visitor capital projects were delivered as planned. The new walking track for Orpheus Island was deferred to 2022–23 to prioritise delivery of multiple visitor projects on Magnetic Island</p>	 Significant progress towards target


	PERFORMANCE INDICATOR	RESULTS 2021–22	TARGET
UPHOLDING COMPLIANCE	<b>1000 DEDICATED COMPLIANCE DAYS</b>	<p>981 dedicated compliance days were delivered across all partner agencies (853 vessel, 35 land-based and 93 aerial) to deter and identify illegal activity — 98 per cent of the 1000-day target</p> <p>Delivery of compliance days was constrained due to COVID-19 impacts on Program staff availability and staff vacancies</p> <p>COVID-19 also impacted delivery of dedicated compliance days by partner agencies, who had reduced availability to participate in patrols tasked by the Program, or in joint compliance operations</p>	 Significant progress towards target
	<b>60 PER CENT OF DEDICATED COMPLIANCE DAYS UNDERTAKEN DURING HIGH-RISK ILLEGAL RECREATIONAL FISHING PERIODS (NIGHT-TIME, WEEKENDS, PUBLIC HOLIDAYS, SCHOOL HOLIDAYS, GOOD WEATHER PERIODS (WINDS &lt; 10 KNOTS))</b>	<p>74 per cent of dedicated compliance days (726 of 981 days) were undertaken during high-risk illegal recreational fishing periods (note: this does not include Queensland Boating and Fisheries Patrol activities undertaken during good weather periods where wind was less than 10 knots, as this information has not been recorded in the Program's Field Reporting System, so per cent of dedicated compliance days would actually be higher)</p>	 Achieved
	<b>ALLEGATIONS OF PERMISSIONS NON-COMPLIANCE IDENTIFIED AS HIGH RISK COMPRISE 15 PER CENT (OR LESS) OF ALLEGATIONS RECEIVED</b>	<p>27 per cent of 341 allegations of permissions non-compliance that were jointly managed were rated as high risk, a 58 per cent increase from 2020–21</p> <p>This level of high risk permissions non-compliance is in part due to an increase in tourism activity since January 2022 when COVID-19 travel restrictions eased, and system enhancements that automatically raise an allegation when a permit condition due date is not met</p>	 Significant progress towards target
	<b>60 PER CENT OF ON-WATER VISITORS REACHED DURING PATROLS HAVE ZONING MAPS AVAILABLE, PRINT OR ELECTRONIC (INCLUDING MOBILE APPS)</b>	<p>94 per cent of 1893 on-water visitors spoken to during patrols (recorded as public contact events) had access to one or more sources of zoning information — 62 per cent used chart plotters, 27 per cent used printed maps and 37 per cent used the Eye on the Reef app. Visitor use of the app continues to increase from 7 per cent in 2019–20 and 20 per cent in 2020–21</p>	 Achieved
	<b>DEVELOP NEW PERFORMANCE INDICATORS TO MEASURE THE EFFECTIVENESS OF EDUCATION CAMPAIGNS AND COMMUNITY UNDERSTANDING</b>	<p>Work is well advanced in developing performance measures that track the effectiveness of campaigns, including Eye on the Reef app downloads, QR code scans, campaign reach and YouTube brand lift studies. The measures to be used will be refined in 2022–23 and incorporated into future reporting</p>	 Significant progress towards target

	PERFORMANCE INDICATOR	RESULTS 2021–22	TARGET
WORKING WITH FIRST NATIONS PEOPLE	<b>100 PER CENT OF NATIONAL PARK (CAPE YORK PENINSULA ABORIGINAL LAND) NEGOTIATION AND JOINT MANAGEMENT IMPLEMENTATION MEETINGS ATTENDED</b>	100 per cent of meetings held were attended (17 meetings)	 Achieved
	<b>90 PER CENT OF TRADITIONAL USE OF MARINE RESOURCE AGREEMENT MEETINGS ATTENDED</b>	100 per cent of meetings that the Program was invited to were attended (note: the Program is not invited to all meetings)	 Achieved
	<b>10 PER CENT OF PROGRAM VESSEL DAYS INCLUDE FIRST NATIONS PEOPLES FROM WITHIN OR OUTSIDE THE PROGRAM</b>	42 per cent (707 of 1682) of Program vessel days included First Nations peoples from within or outside the Program 18 per cent (298 of 1682) of days included First Nations peoples from outside the Program, from 12 different Indigenous ranger groups	 Achieved
	<b>FEE-FOR-SERVICE ARRANGEMENTS ARE IN PLACE WITH SIX DIFFERENT FIRST NATIONS GROUPS</b>	Fee-for-service arrangements were in place with four different Indigenous ranger groups: Giringun, Dawul Wuru (for Yirrganydji rangers), Gidarjil, and Wulgurukaba-Yunbenun The Program is negotiating with other Indigenous ranger groups for delivery of services, including compliance patrols and incident response where rangers have undertaken training with the Program in previous years	 Significant progress towards target
	<b>10 PER CENT OF DEDICATED COMPLIANCE DAYS INCLUDE TRAINED INDIGENOUS RANGERS OR FIRST NATIONS PEOPLE WITHIN THE PROGRAM</b>	17 per cent of dedicated compliance days (163 of 981 days) were delivered with trained Indigenous rangers or First Nations people within the Program. Four per cent (43 of 981 days) included trained Indigenous rangers from outside the Program who undertook Certificate IV in Government Investigations training with the Program through the Capacity Building for Indigenous Rangers Strategy	 Achieved

	PERFORMANCE INDICATOR	RESULTS 2021–22	TARGET
PROGRAM INPUTS	<b>ANNUAL TRAINING PROGRAM DEVELOPED AND DELIVERED</b>	The annual training program was developed and the majority was delivered, including all safety critical training. COVID-19 impacted delivery of some courses that needed to be rescheduled, including three Reef Joint Field Management Foundation Program courses, with two delivered in March and June, and the third deferred to 2022–23	 Significant progress towards target
	<b>DEVELOP NEW PERFORMANCE INDICATORS TO MEASURE PROGRAM HEALTH AND SAFETY</b>	New performance measures have been developed to be used in future reporting: <ul style="list-style-type: none"> <li>• 100 per cent compliance with statutory safety obligations</li> <li>• 100 per cent of all incident reports investigated and actioned within statutory or programmed timeframes</li> <li>• 100 per cent of all hazard reports investigated and actioned within programmed timeframes</li> </ul>	 Achieved
	<b>FIVE-YEAR VESSEL REPLACEMENT PROGRAM IMPLEMENTED</b>	The vessel replacement program was reviewed and updates incorporated into the <i>Reef Joint Field Management Program Business Strategy 2022 to 2026</i>	 Achieved
	<b>1700 TOTAL DAYS AT SEA DELIVERED ABOARD PROGRAM VESSELS, OR ABOARD VESSELS CHARTERED BY THE PROGRAM</b>	1682 total days at sea were delivered (99 per cent of the 1700 day target). 1674 days were aboard Program vessels and eight days aboard chartered vessels Delivery was impacted by COVID-19 impacts on staff availability and reduced multi-tasking capability due to limits on numbers of staff aboard vessels. Staff vacancies and recruitment demands also impacted delivery	 Significant progress towards target
	<b>FINALISE THE FIVE-YEAR TECHNOLOGY TRANSFORMATION PROGRAM STRATEGY</b>	The <i>Five-Year Technology Transformation Program Strategy</i> has been finalised and jointly approved	 Achieved
	<b>EXPENDITURE IS WITHIN ONE PER CENT OF BUDGET ALLOCATION</b>	Expenditure was within 8.7 per cent of budget allocation, with delays in planned expenditure due to COVID-19 impacts on Program and contractor delivery, staff vacancies and recruitment demands	 Not achieved



**Further information  
about the Reef Joint Field  
Management Program**

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and State of Queensland  
(QPWS) 2022  
2022-0571  
2207-3183