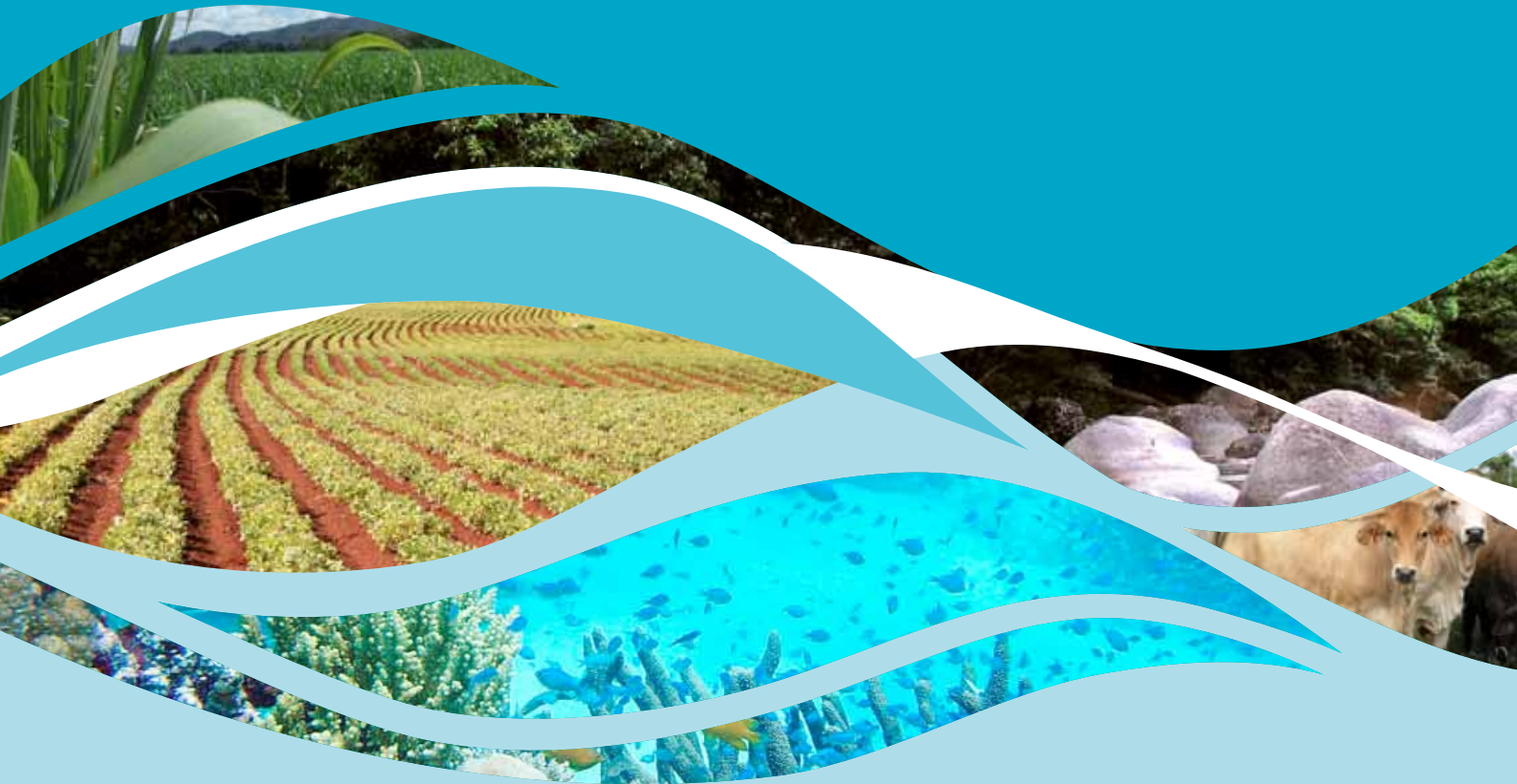


Reef Water Quality Protection Plan First Report 2009 Baseline



Australian Government



Queensland
Government

A broad range of organisations and individuals are acknowledged for their contribution to this report.

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Foreword

The Great Barrier Reef is one of our most precious resources and its protection is our collective responsibility. Through the Reef Water Quality Protection Plan, the Australian and Queensland Governments are working collaboratively with the natural resource management, industry and conservation sectors, scientists and communities to improve the health of the reef for current and future generations. Together we will promote changes to the way in which farms are managed throughout the reef's catchments. These changes will generate economic benefits for land managers and importantly, improve the quality of water entering the Great Barrier Reef and build its capacity to respond to the impacts of a changing climate. This report represents the fundamental first step in measuring our progress towards achieving the objectives of the Reef Water Quality Protection Plan 2009 (Reef Plan).

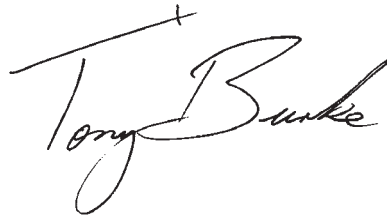
When developing Reef Plan, our governments agreed that it was critical to develop ambitious and quantitative targets. At the time, we recognised it would take commitment and collaboration to achieve these targets and a significant program of monitoring, modelling and reporting would be required. We are pleased to see such positive progress to date, both in terms of on-ground changes being made as well as the implementation of such a significant monitoring program.

The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program was established as a joint initiative to measure progress and is a world-leading example of what can occur when our governments work together in collaboration with industry, regional bodies and scientific research organisations to ensure monitoring and modelling is integrated and focused. It will allow us to answer some of the key questions surrounding reef health.

We commend all those involved in preparing this First Report and thank them for their ongoing commitment to Reef Plan and the future protection of the reef.



Anna Bligh MP
Premier of Queensland



Tony Burke MP
Minister for Sustainability, Environment,
Water, Population and Communities

1 Executive summary

The Great Barrier Reef World Heritage Area is renowned internationally for its ecological importance and beauty. However, despite it being one of the best managed coral reefs in the world (Great Barrier Reef Outlook Report 2009) there is a very real risk of damage to the reef from climate change. One of the best ways to protect the reef from this threat is to reduce other stresses on its delicate ecosystem.

Poor water quality from catchment runoff affects the health of the Great Barrier Reef, causing degradation of inshore reefs and contributing to crown of thorns outbreaks. This decreases the reef's ability to withstand and recover from other impacts caused by climate change, such as coral bleaching and damage from increased storm intensity.

The Reef Water Quality Protection Plan (Reef Plan) is the Australian and Queensland Governments' commitment to halt and reverse the decline in water quality flowing to the reef. Originally introduced in 2003, the plan was updated in 2009 to promote accelerated action and includes ambitious quantitative targets around practice change and reductions in catchment pollutant loads.

The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) is a world-leading program founded on collaboration between governments, industry, regional natural resource management bodies and research organisations. It integrates information from the paddock, to the catchment, to the marine system providing the linkage between management actions and water quality outcomes for the Great Barrier Reef.

The First Report provides an estimate of the status of key indicators for the period immediately preceding Reef Plan 2009. It therefore does not include the effects of Cyclone Yasi and the more recent flood events which will be presented in subsequent reports. It will serve as a baseline that will be used as a point of comparison to measure progress towards Reef Plan goals and targets. This report also describes some historical trends to provide context, better understand the influence of a variable climate from year to year, and help interpret changes over time.

This First Report is based on the best available data and information and uses multiple lines of evidence to measure progress. Confidence in the estimates varies for each of the indicators. However, the program is based on a philosophy of continuous improvement which will help improve data confidence over time.

Snapshot of the results

The results highlight that there are areas of concern that justify the need for accelerated action to improve water quality and build resilience of the Great Barrier Reef. These include five to nine times the natural loads of pollutants, significant loss of some freshwater wetlands, decline of seagrasses in some areas and the exceedance of Great Barrier Reef Marine Park Water Quality Guidelines for total suspended solids and chlorophyll *a* in marine areas. However, despite some poor indicators, the reef remains in moderate condition overall.

High rainfall in the Great Barrier Reef catchment (particularly in the Burdekin and Fitzroy regions between 2008 and 2009) has resulted in large flood plumes reaching marine waters. This rainfall, as well as the significant flood events of 2011, will continue to strongly influence the quality of water entering the reef, particularly in inshore areas (within 20 kilometres). While these waters only represent around eight per cent of the Great Barrier Reef Marine Park, they support significant ecosystems and are the primary focus for most recreation, commercial tourism and fisheries activities.

Improved land management

- Cutting-edge (A) or best management (B) practices are used by 36 per cent of sugarcane growers for nutrients, seven per cent for herbicides and 19 per cent for soil.
- Practices considered unacceptable by industry or community standards (D) are used by 34 per cent of sugarcane growers for nutrients, eight per cent for herbicides and 45 per cent for soil.
- Cutting-edge (A) or best management (B) practices are used by 39 per cent of horticulture producers for nutrients, 78 per cent for herbicides and 70 per cent for soil.
- Practices considered unacceptable by industry or community standards (D) are used by 24 per cent of horticulture producers for nutrients, six per cent for herbicides and 11 per cent for soil.
- Fifty per cent of graziers across the Burdekin and Fitzroy regions are using (A or B) management practices that are likely to maintain land in good to very good condition or improve land in lesser condition. Twelve per cent of graziers in the Burdekin and Fitzroy regions are using (D) management practices that are likely to degrade land to poor condition.
- Cutting-edge or best management (A or B) practices have been adopted by 85 per cent of grain growers in the Fitzroy region. Code of practice or unacceptable (C or D) practices are being used by 15 per cent of grain growers.

Catchment indicators

- The total riparian area (area within 50 metres of the stream) in the Great Barrier Reef region is six million hectares. There has been a loss of 30,000 hectares (0.49 per cent) of riparian vegetation between 2004 and 2008.
- Of all wetland types, vegetated freshwater swamps have had the greatest loss since pre-European times (25 per cent). Loss of all types of wetlands between 2001 and 2005 was 883 hectares.
- The 2009 mean dry season groundcover for the grazing lands of the Great Barrier Reef region was 84 per cent, which is above the Reef Plan target of 50 per cent. This is due to higher than the historical average rainfall across many grazing areas.

Catchment loads

- Total catchment loads are five to nine times the natural loads for suspended solids, nitrogen and phosphorous.
- Annual total suspended solid loads are 17 million tonnes, of which 14 million tonnes are from human activity. The largest contribution of total suspended sediment load is from the Burdekin and the Fitzroy regions (4.7 and 4.1 million tonnes respectively), mainly derived from grazing lands.
- Agricultural fertiliser use is a key source of dissolved nitrogen and phosphorus runoff; annual loads of dissolved nitrogen are 31,000 tonnes.
- All pesticides are from human activities. The total annual pesticide loads are approximately 28,000 kilograms and the highest loads are from the Mackay Whitsunday and Wet Tropics regions (approximately 10,000 kilograms each per year).

Great Barrier Reef water quality and ecosystem health

- The Great Barrier Reef is in moderate condition overall, however, this varies regionally.
- Inshore waters often contain elevated concentrations of total suspended solids and chlorophyll *a*.
- Monitoring during flood events over the past five years has detected pesticide concentrations above the Great Barrier Reef Marine Park Water Quality Guidelines at least 25 kilometres from the mouth of the Pioneer and O'Connell Rivers. Concentrations that may have short term effects on the health of marine plants have also been detected up to 50 kilometres from the coast.
- Inshore seagrasses are in moderate condition. Seagrass abundance is moderate and has declined over the past five to 10 years, associated with excess nutrients. The number of reproductive structures is poor or very poor in four of the six regions, indicating limited resilience to disturbance.
- Most inshore reefs are in good or moderate condition and have either high or increasing coral cover. However, corals in the Burdekin region are mostly in poor condition and have shown little recovery in the past four years.

The Paddock to Reef program will continue to review and update the monitoring, modelling and reporting techniques used to ensure that the accuracy of the information reported is constantly improved over time. The program will inform research, development and innovation initiatives established under Reef Plan 2009 and will be used to better target new initiatives and investments in reef water quality improvement.