

# Conclusion

## Chapter 12

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*“The results highlight that there are significant areas of concern that justify the need for accelerated action to improve water quality and build resilience of the Great Barrier Reef.”*

*Photo by K Rohde*



The Australian and Queensland Governments have committed to ensuring that by 2020 the quality of water entering the reef from adjacent catchments has no detrimental impact on the health and resilience of the reef. Achievement of these goals will be assessed against a set of quantitative targets for land management and water quality outcomes outlined in the Reef Water Quality Protection Plan 2009 (Reef Plan).

This first report will be used as the point of comparison to measure progress towards Reef Plan's goals and targets. This report card presents results up to 2009 and, therefore, does not include the effects of Cyclone Yasi and the more recent flood events which will be presented in subsequent reports.

The results highlight that there are significant areas of concern that justify the need for accelerated action to improve water quality and build resilience of the Great Barrier Reef.

High rainfall in the Great Barrier Reef catchment (particularly in the Burdekin and Fitzroy regions) between 2007 and 2009 resulted in large flood plumes to 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 8 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.

The water quality and ecosystem health of the Great Barrier Reef is in moderate condition overall, while regionally variable results (e.g. the Wet Tropics and Mackay Whitsunday regions having poor seagrass and the Burdekin region having poor coral status) identify specific areas for management attention.

Most inshore reefs are in good or moderate condition, based on coral cover, macroalgal abundance, settlement of larval corals and numbers of juvenile corals. Most inshore reefs have either high or increasing coral cover. However, corals in the Burdekin region are mostly in poor condition. Seagrass abundance in intertidal regions is highly variable and has declined over the past five to 10 years, which is associated with excess nutrients. Many seagrass meadows had low or variable numbers of reproductive structures limiting their resilience to disturbance.

Inshore waters often contain concentrations of chlorophyll *a* and total suspended solids above Great Barrier Reef Marine Park Water Quality Guidelines, with the highest concentrations evident in the Wet Tropics, Burdekin and Mackay Whitsunday regions. Monitoring during flood events has measured pesticide concentrations above Great Barrier Reef Marine Park Water Quality Guidelines at least 25 kilometres from a river mouth and also concentrations that may have short term effects on the health of marine plants up to 50 kilometres from the coast.

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).

The total riparian area (area within 50 metres of the stream) in the Great Barrier Reef region is six million hectares; however, there was a loss of 30,000 hectares (0.5 per cent) between 2004 and 2008. Wetland loss since pre-European times has been significant, with greater than 80 per cent of vegetated freshwater swamps lost in some lowland areas. Some areas are less impacted, with Cape York still having 100 per cent of wetlands remaining and no loss of riparian areas between 2004 and 2008.

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.

Cutting-edge (A) or best management (B) practices for nutrients are used by 39 per cent of horticulture producers and 36 per cent of sugarcane growers. Practices considered unacceptable by industry and community standards (D) are used by 24 per cent of horticulture producers and 34 per cent of sugarcane growers.

Fifty per cent of graziers across the Burdekin and Fitzroy region are using (A or B) practices likely to maintain land in good to very good condition, or improve land in lesser condition. Practices (D) considered likely to degrade land to poor condition are used by 12 per cent of graziers in the Burdekin and Fitzroy regions. The Fitzroy region has 14 per cent of graziers using (A) practices likely to maintain land in very good condition or improve land in lesser condition compared to 6 per cent of graziers in the Burdekin.

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