



Frequently Asked Questions

Great Barrier Reef

Report Card 2014



Australian Government



Queensland Government

REEF WATER QUALITY PROTECTION PLAN

Q. What is the Reef Water Quality Protection Plan?

The Reef Water Quality Protection Plan is a joint commitment of the Australian and Queensland governments to improve the quality of water in the Great Barrier Reef through improved land management in reef catchments. Its primary focus is diffuse source pollution from broadscale land use. The Plan commits to actions to minimise sediment, nutrient and pesticide runoff from broad-scale agriculture which is impacting on the health of the Great Barrier Reef.

The long-term goal is to ensure 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.

Reef Water Quality Protection Plan has a number of specific targets – by 2018:

- At least a 50 per cent reduction in anthropogenic end-of-catchment dissolved inorganic nitrogen loads.
- At least a 20 per cent reduction in anthropogenic end-of-catchment loads of sediment and particulate nutrients in priority areas.
- At least a 60 per cent reduction in the end-of-catchment pesticide loads in priority areas.
- 90 per cent of sugarcane, horticulture, cropping and grazing lands are managed using best management practice systems (soil, nutrients and pesticides) in priority areas.
- Minimum 70 per cent late dry season ground cover on grazing land.
- There is no net loss of the extent, and an improvement in the ecological processes and environmental values, of natural wetlands.
- The extent of riparian vegetation is increased.

Q. Why do we need the Reef Water Quality Protection Plan and annual report cards?

The Reef Water Quality Protection Plan plays a fundamental role in securing the health and resilience of the Great Barrier Reef and adjacent catchments. Improving water quality builds resilience in inshore coastal and seagrass areas which support significant biodiversity such as turtles and dugongs, and drive fisheries productivity.

Water quality is a major stressor to the reef that can be addressed at a local scale to improve its resilience to other stressors such as climate change and increasing intensity of extreme weather events.

The report card is an important way of measuring change and progress; to ensure accountability and transparency; to safeguard our investment by checking actions are actually working; and to continuously improve management practices and focus investment to maximise reef protection.

Q. Is the Reef Water Quality Protection Plan making a difference?

Yes. There has been a cultural shift in the agricultural industry towards practices that reduce the runoff. Many landholders have been progressive in adopting improved practices and it is thought that the impacts of flooding could have been much worse if not for these actions to address non-point source pollution from broad-scale land use. This report card shows that on-ground change as a result of incentives, regulations and voluntary uptake is leading to less runoff of nutrients, sediments and pesticides at a catchment level, which will in time, lead to improved water quality in the reef.

TARGETS

Q. How were the Reef Water Quality Protection Plan targets developed?

The Reef Water Quality Protection Plan 2013 targets built on the Reef Water Quality Protection Plan 2009 targets, which were primarily drawn from regional Water Quality Improvement Plans, as well as other best available data, information and expert opinion at the time. The targets were agreed by the Australian and Queensland government. The targets were developed as expressions of the outcomes needed to achieve the Plan's goal. The targets were designed to be ambitious and drive accelerated action.

Q. How do the targets relate to those in the Reef 2050 Long Term Sustainability Plan?

The targets have been adopted into the Reef 2050 Long Term Sustainability Plan and combined with more ambitious longer term targets to reduce nitrogen by up to 80 per cent and sediment by up to 50 per cent in key catchments by 2025. A mid-term review of the Reef Water Quality Protection Plan targets will be completed in 2016 which will consider these targets and how to consolidate and refine them further once new marine modelling ([eReefs](#)) is complete.

Q. Why has the management practice target changed from number of landholders to area?

The area of improved practice is a more meaningful indicator of impact on reef water quality. Because property size is variable, it is difficult to link changes in the number of landholders undertaking best practice to a change in water quality risk. Area of practice change is also the basis of modelling the changes in catchment pollutant loads.

Q. How do you know that reaching your targets will ensure the reef's survival?

Many other factors beyond our control, including climate change, impact on the health of the Great Barrier Reef. What we can do, however, is ensure the reef is as healthy as possible to build resilience to the impacts of these external factors. The [Great Barrier Reef Outlook Report](#) concluded that by improving water quality, we will increase the reef's resilience to withstand these other pressures.

PADDOCK TO REEF PROGRAM

Q. What is the Paddock to Reef program?

The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program) is a collaboration involving the Australian and Queensland governments, industry, regional natural resource management bodies and research organisations. It is a highly innovative approach to integrating data and information on management practices, catchment indicators, water quality loads and the health of the Great Barrier Reef. The objective of the program is to measure and report on the progress towards the Reef Water Quality Protection Plan's goal and targets.

Q. Who is involved in the Paddock to Reef program?

The program coordinates the efforts of over 20 organisations and 100 individuals, including government agencies, research bodies, universities, regional natural resource management bodies and industry groups.

Q. How much is invested in the Paddock to Reef program?

Approximately \$8 million a year is spent on monitoring, modelling and reporting as part of the Paddock to Reef program. This cost is shared equally between the Australian and Queensland governments. This is a small investment to help safeguard the health of the Great Barrier Reef, a natural wonder which generates about \$6 billion per year for the Australian economy.

GREAT BARRIER REEF REPORT CARD 2014

Q. Why is the 2014 report card different to previous report cards and can I compare them?

Report Card 2014 incorporates significant improvements to the reporting methods and details progress towards the updated targets in the Reef Water Quality Protection Plan 2013 (previous report cards assessed progress against the Reef Water Quality Protection Plan 2009 targets). For example, the land management target is now based on the area of land managed using best practice systems, rather than the number of landholders who have adopted improved practices. This is a more meaningful measure as the area of improved land management is the basis for the water quality modelling and relates more closely to improvement in water quality. However, it does mean that results are not directly comparable with previous report cards for this target.

Another example is that the nitrogen target changed from total nitrogen to dissolved inorganic nitrogen and the sediment target was expanded to include particulate nutrients (particulate nitrogen and particulate phosphorus). The pesticide target was increased and now reports on overall toxic loads – previously the toxicity of individual pesticides was not taken into account. As the catchment loads targets are reported as cumulative progress since 2009, the results have been recalculated for this period.

All other elements of the report card are comparable with previous years, although it should be noted that annual marine condition results are strongly influenced by severe weather events.

Q. Why are “best practices” different between the report card and industry led Best Management Practice programs?

Progress towards the Reef Water Quality Protection Plan management practice adoption target is reported using industry specific management practice frameworks (water quality risk frameworks).

Practices are ranked from lowest risk (innovative practices that have the lowest water quality risk) to high risk (superseded practices that have the highest water quality risk) for sugarcane, horticulture and grains. For grazing, they are ranked from very low soil erosion and water quality risk to moderate-to-high soil erosion and water quality risk. The frameworks allocate a percentage weighting to each practice depending upon its relative potential influence on off-farm water quality. They are evidence based and link to a range of existing research. More details are available in the [water quality risk frameworks](#).

Reef Water Quality Protection Plan - Water Quality Risk Framework

Lowest risk, commercial feasibility may be unproven	Moderate-low risk	Moderate risk	High risk
Innovative	Best Practice	Minimum	Superseded

Industry BMP programs (generalised)

Above Industry Standard	Industry Standard	Below Industry Standard
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Under the industry BMPs (for cane, grazing and grains), most practices that are described as “at industry standard” align with moderate risk in the Reef Plan framework. Practices that are “above industry standard” generally align with the moderate-low or lowest risk under the Reef Plan framework. The only major exception is the nutrient standard within the SmartCane BMP which does not currently align with “best practice” under the Reef Plan framework. Over time it is expected that this will become industry standard.

Q. What constitutes an improved practice?

An ‘improved practice’ is a management practice change that reduces the loss of sediment, nutrients or pesticides from a farm. The practice change, which is industry specific, is an intervention relating to soil, nutrient and/or herbicide management. The area under an improved practice is used as a measure of progress towards the Reef Water Quality Protection Plan targets.

Q. What are the priorities for management and what regions?

The overall management priorities for the Great Barrier Reef are nitrogen, sediment and pesticides.

Regional priority areas for management of degraded water quality in the Great Barrier Reef are:

- Wet Tropics for nitrogen management from sugarcane and bananas, and pesticides from sugarcane
- Mackay Whitsunday and the lower Burdekin for pesticides and nitrogen from sugarcane
- Burdekin and Fitzroy for sediment erosion management from grazing and grains
- Burnett Mary for sediment erosion from grazing.

The overall management priority for the Cape York region was to maintain the current values of the region.

Regional management priorities were determined by the water quality relative risk assessment for the Great Barrier Reef as part of the Scientific Consensus Statement 2013 update.

For further information see: [Water quality relative risk](#).

Q. How have you responded to Queensland Audit Office concerns?

Report Card 2014 includes new reporting elements such as qualitative confidence rankings for each key indicator, an explanation of why modelling is used to measure pollutant load reductions and inclusion of the monitored loads results. All of these directly address the concerns and recommendations made by the QAO earlier in 2015.

Q. When will the next report card be released?

Land management practice data for the 2014-2015 year has been collected and quality assurance checks are underway, other program areas are starting to analyse data. It is anticipated that the Reef Report Card 2015 will be released in mid-2016.

Q. Why can't the report card come out more quickly?

To ensure quality results are reported, there is significant work that goes into data collection, validation, analysis, reviews and reporting. The Queensland and Australian governments have committed to releasing the annual Reef Report Card within 12 months of the data collection. Report Card 2014 was a significant update period in line with the five year update to the Reef Water Quality Protection Plan. This included rebuilding the suite of models. In future years the release will be mid-year.

Q. What water quality monitoring goes into the report card?

The Great Barrier Reef Catchment Loads Monitoring Program is a large-scale water quality monitoring program within the Paddock to Reef program. It intensively monitors 14 priority catchments that drain to the reef for sediments and nutrients. Twelve of these catchments are also monitored for pesticides. This data is used to validate the catchment models and is now also presented in the report card.

Paddock scale monitoring provides the on-ground evidence of the effects of specific farm management practices on water quality from the sugarcane, grazing, banana and grains industries. This data is used to improve the modelling.

Q. Why do we use modelling to report progress towards the targets instead of just monitoring?

Monitored pollutant loads leaving catchments vary significantly from year-to-year, mainly due to differences in annual rainfall and runoff. Therefore, catchment modelling is used to estimate the long-term annual pollutant load reductions due to the adoption of improved land management practices. This removes the impact of factors such as climate variability. Research suggests time lags to monitor the improvements from land management practice change could range from years for pesticides up to decades for nutrients and sediments, due to the high level of climate variability. The models use measured changes in on-ground management and well-documented and accepted methods and assumptions. Long-term water quality monitoring data is used to validate and improve the models, continuously improving confidence in the estimates of water quality over time.

Q. How accurate is the data?

The Report Card brings together the best available data to generate the most comprehensive assessment of reef water quality, ecosystem health and management actions in the world. However, some gaps remain in the data and the quality does vary between indicators and across regions. With continued significant investment in monitoring, modelling and research, the quality of information is continuing to improve.

For the first time the report card has presented the level of confidence in each of the key indicators.

A multi criteria analysis approach was used. The approach combines the use of expert opinion and direct measures of error for program components where available. As knowledge and data confidence improves, more accurate data, including a more robust estimate of some baseline values, will be presented.

The progress detailed in the report card does not include all activities undertaken during the reporting period and, therefore, results are considered an underestimate of total progress.

Q. Why are results being reported if there isn't absolute confidence in the scores?

Absolute confidence is a very rare thing in monitoring and evaluation programs. There is potential for error to be introduced at every stage from monitoring to modelling and reporting.

It is important that all scores be based on best available scientific methods, that strong quality assurance and quality control programs are in place and that the right indicators are being used. Measuring and reporting confidence in the scores allows for continuous improvement of the program to minimise error. More important than absolute confidence in the scores, is the ability to track change over time, to see if the system is improving or declining and at what rate. This enables managers to adapt their approach to bring about the desired results.

RESULTS

Q. Why is the overall inshore marine condition off Cape York reported as being in poor condition in the Report Card when the Outlook Report said it was in better condition that the southern two thirds of the reef?

The Outlook Report assesses broader values across the full extent of the reef (mid and offshore included) whereas the report card reports only on the inshore area that relates to catchment influences. However, confidence in the marine results for Cape York remains low due to limited data availability and validation. The Cape York area was also impacted by a cyclone in 2013-2014 – this was not captured by the Outlook report which pre-dated this reporting period.

Q. Why has riparian clearing rate increased compared to the last time? Isn't it regulated?

Riparian vegetation extent is currently assessed every four years. For reporting, the riparian area is defined as any area within 100 metres of a (mapped) stream or riverine wetland. The riparian vegetation is separated into two components, riparian forest and riparian ground cover. Data derived from satellite imagery is used to estimate riparian forest cover and ground cover levels.

It is important to note that the riparian area used for reporting here is not the same as the regulatory 'Category R' riparian vegetation, defined in Queensland's vegetation management framework. Native vegetation within 50m either side of regrowth watercourse is protected under vegetation clearing regulations in the key catchments of Wet Tropics, Burdekin and Mackay Whitsunday.

Q. Why has there been only an incremental change in pollutant load reductions / progress towards targets?

Report Card 2014 incorporates significant improvements to the reporting methods in line with the updated targets in the Reef Water Quality Protection Plan. Changes include improvements to modelling frameworks and monitoring programs, and the introduction of water quality risk-based land management practice frameworks. As part of the adaptive management approach, the standards within the management practice frameworks have been raised as endorsed by the Reef Independent Science Panel. In addition, changes are now recorded at a finer, incremental scale that more closely reflects the way that land managers make changes. As the modelling is based on the reported area of land management change it too reflects the incremental improvements in estimated pollutant load reductions.

Q. What percentage of the pollutant loads come from farms as opposed to other sources?

Scientific evidence shows that over 90 per cent of pollutant loads are from broad-scale agriculture. Nutrients are much higher in rivers adjacent to intensive agriculture. Monitoring has also shown that pesticides used in agriculture are being transported into river systems and the Great Barrier Reef at harmful concentrations. We also know that significant amounts of sediment come from catchments with a high proportion of grazing lands. Pollutants from urban environments and waste treatment plants are relatively small (approximately 4 per cent of nutrient loads to the reef) but can be locally significant.

Q. Have the results been independently reviewed?

The Reef Independent Science Panel reviews and provides scientific advice on key elements of the Paddock to Reef program including the program design and major outputs such as the annual Reef Report Cards. Technical review and advice, with a focus on coordination and integration are provided by the Reef Coordination and Advisory Group. In addition, each part of the program undergoes additional peer and external review processes. For example the Source Catchments modelling framework has been reviewed extensively with independent reviewers finding that the modelling approach is best practice and highly innovative.