

Wet Tropics region

Second Report Card 2010

Reef Water Quality Protection Plan

Regional profile

The Wet Tropics region covers 22,000 square kilometres and is one of the most biodiverse places in the world. It includes most of the Queensland Wet Tropics World Heritage Area and parts of the Great Barrier Reef World Heritage Area. The tropical climate features high rainfall, with 60 to 70 per cent falling in summer, and occasional cyclones. Rainfall in 2009-2010 was relatively typical with frequent rainfall events resulting in above average discharges from some catchments, especially in the southern part of the region. The main agricultural land uses are grazing (32 per cent), sugarcane (seven per cent) and horticulture (one per cent).

This Report Card measures progress from the 2009 baseline towards Reef Water Quality Protection Plan (Reef Plan) goals and targets. It assesses the combined results of all Reef Plan actions up to June 2010. Report cards are produced as part of the Paddock to Reef program.

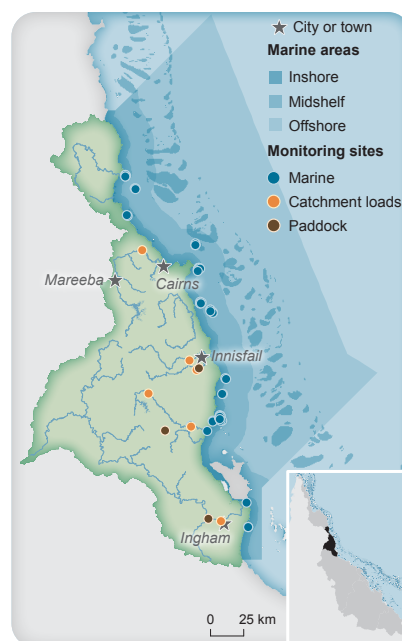
The regional Natural Resource Management body, Terrain Natural Resource Management, works with landholders to adopt improved management practices that reduce nutrient, pesticide and/or sediment runoff.

Key findings

- The overall marine condition in 2009-2010 was moderate. Inshore coral reefs and seagrass were both in better condition in the north of the region compared to the south. A range of herbicides was detected in the region.
- Overall, progress towards Reef Plan targets has been encouraging; however it will take time for these achievements to translate into improved marine condition.
- Twenty-four per cent of sugarcane growers, 14 per cent of horticulture producers and eight per cent of graziers have adopted improved land management practices.
- The loss of wetlands has slowed in recent years (2005 to 2009) indicating progress towards the Reef Plan target.
- The greatest proportional catchment load reduction was the pesticide load with an estimated 434 kilograms (four per cent) less.
- The significant progress has been driven primarily by the Australian Government's Reef Rescue program along with Queensland Government and industry-led initiatives.

Paddock to Reef program

The Paddock to Reef program, funded jointly by the Australian and Queensland Governments, is a highly innovative approach to integrating monitoring and modelling information on management practices, catchment indicators, catchment loads and the health of the Great Barrier Reef.



Map of the Wet Tropics region and Great Barrier Reef Marine Park showing the paddock, catchment and marine monitoring sites.

Progress and status

Targets		Region	Catchments							
			Barron	Daintree	Herbert	Johnstone	Mossman	Mulgrave-Russell	Murray	Tully
% adoption improved practices	Grazing		8							
	Horticulture		14							
	Sugarcane		24							
% loss	Wetlands	0.04	0.15	0	0	0.07	0.01	0	0.13	0.02
	Riparian	0.16	0.32	0.01	0.19	0.08	0.19	0.06	0.83	0.16
% groundcover		N/A	N/A	N/A	98	N/A	N/A	N/A	N/A	N/A
% load reduction	Nitrogen		2							
	Phosphorus		2							
	Sediment		1							
	Pesticides		4							
Overall marine condition										
Water quality										
Seagrass										
Corals										

Very good
Good
Moderate

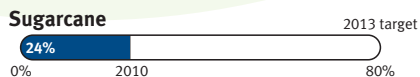
Poor
Very poor
N/A Not applicable

© The State of Queensland 2013. Published by the Reef Water Quality Protection Plan Secretariat, April 2013. Copyright protects this publication. Excerpts may be reproduced with acknowledgement to the State of Queensland. Photos: cropping landscape - J. Armour, Department of Natural Resources and Mines; grass - J. Reghenzani; cattle - S. Bailey; Barron Falls - F. Barron, Terrain Natural Resource Management.

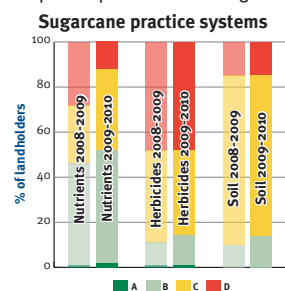
www.reefplan.qld.gov.au

Management practice results

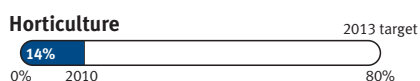
Land management practices have been improving over time. Progress since the 2008-2009 baseline is presented below.



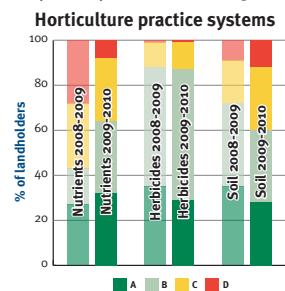
By June 2010, 24 per cent of sugarcane growers had adopted improved land management practices.



By June 2010, cutting-edge (A) or best management (B) practice systems were used by 52 per cent of sugarcane growers for nutrients, 14 per cent for herbicides and 14 per cent for soil.



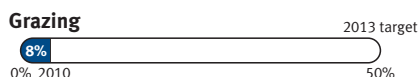
By June 2010, 14 per cent of horticulture producers had adopted improved land management practices.



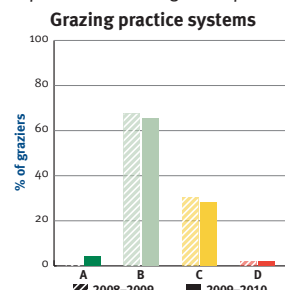
By June 2010, cutting-edge (A) or best management (B) practice systems were used by 64 per cent of horticulture producers for nutrients, 87 per cent for herbicides and 60 per cent for soil.

Improved management practice systems for sugarcane and horticulture are presented using the ABCD framework:

- A – Cutting-edge practices
- B – Best practices
- C – Common or code of practices
- D – Unacceptable practices.



By June 2010, eight per cent of graziers had adopted improved land management practices.



By June 2010, 70 per cent of graziers were using (A or B) practice systems that are likely to maintain land in good to very good condition or improve land in lesser condition.

Improved management practice systems for grazing are presented using the ABCD framework:

- A – Practices likely to maintain land in very good condition or improve land in lesser condition
- B – Practices likely to maintain land in good condition or improve land in lesser condition
- C – Practices that may maintain land in fair condition or gradually improve land in poor condition
- D – Practices likely to degrade land to poor condition.

Catchment results

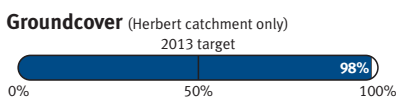
Historically, 51 per cent of vegetated freshwater swamps and six per cent of riparian forest have been lost from pre-European extent.



Loss of wetlands between 2005 and 2009 was 0.04 per cent (30 hectares). This is 209 hectares less than 2001 to 2005.



Loss of riparian forest remained constant at 0.16 per cent when comparing 2001 to 2005 (734 hectares) with 2005 to 2009 (753 hectares). The Murray catchment had the highest riparian forest loss with 0.83 per cent (135 hectares) between 2005 and 2009.

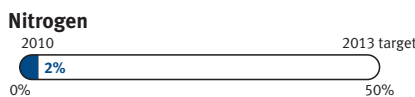


Late dry season groundcover for grazing lands of the Herbert catchment was high (98 per cent).

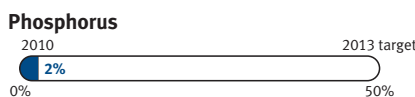
Catchment loads

The pollutant loads at the end of the catchment come from modelling, validated by monitoring, to remove the effect of a variable climate from year to year.

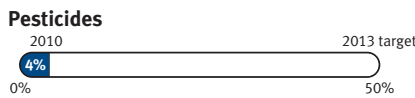
Land management changes in the horticulture and dairy industries have not been modelled. Changes in riparian management also could not be modelled due to the lack of data.



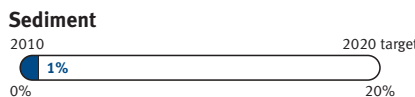
The estimated annual average total nitrogen load leaving catchments reduced by two per cent (111 tonnes).



The estimated annual average total phosphorus load leaving catchments reduced by two per cent (20 tonnes).



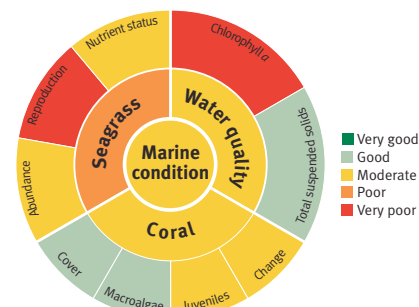
The estimated annual average pesticide load leaving catchments reduced by four per cent (434 kilograms).



The estimated annual average suspended sediment load leaving catchments reduced by one per cent (10,000 tonnes).

Marine results

The inshore area of the Wet Tropics was influenced by flood waters for an extended period as a result of above median rainfall. There were localised areas of coral bleaching on shallow, inshore reefs where reefs were exposed to moderate levels of heat stress in late summer.



Marine graphic descriptions:

- Chlorophyll a** indicates nutrient availability and productivity.
- Total suspended solids** measures particulate matter in water.
- Seagrass abundance** includes the cover and change in cover.
- Reproduction** indicates the potential of seagrass meadows to recover from disturbances.
- Nutrient status** measures the response of seagrass to nutrient conditions in surrounding waters.
- Coral cover** is a measure of the percentage of coral on a reef and indicates the capacity of coral to persist under the current environmental conditions and its potential to recover.
- Coral change** measures change in coral cover which indicates coral resilience to disturbances.
- Macroalgal cover** - high abundance indicates poor water quality and negatively affects the resilience of coral communities.
- Coral juvenile** density measures the abundance of corals less than 10 centimetres in diameter which indicates the recovery potential from disturbances.

Water quality

Inshore water quality is moderate, having gradually improved since 2005-2006. The long term improvement in condition has been driven mostly by an overall improvement in suspended solids. Both chlorophyll *a* and total suspended solids were, at times above *Water Quality Guidelines for the Great Barrier Reef Marine Park*. Water quality was poorer in inshore areas. A range of pesticides was detected. The insecticide chlorpyrifos was, at times, above *Water Quality Guidelines for the Great Barrier Reef Marine Park* at all five monitored sites.

Seagrass

Inshore seagrass meadows remained in poor condition and have been relatively stable since 2005-2006. However, the abundance of seagrass was moderate in the northern part of the region and very poor in southern areas. Reproductive effort was very poor across the region in four out of five monitoring years, indicating a low capacity to recover from disturbances.

Coral

Inshore coral reefs remained in moderate condition and have been relatively stable since 2005-2006. However, reefs in the northern part of the region were in good condition compared to inshore coral reefs in southern areas which were in poor condition. The density of juvenile corals was good, indicating recovery from previous disturbances (for example Cyclone Larry) is underway.