# **Cape York region**

First Report Card 2009 Baseline **Reef Water Quality Protection Plan** 

# **Regional profile**

The Cape York region includes 43,000 square kilometres of catchments that drain eastwards into the Great Barrier Reef. The region contains some exceptional conservation assets, including relatively intact and extensive coastal dune-fields, wetlands, rainforest, heathlands and river systems that support high levels of biodiversity found nowhere else in Australia. This region has a larger area of coral reefs than any other region and these are considered to be in good condition. A sizeable proportion of land in Cape York is under Aboriginal ownership or management. Traditional use of marine resources is very high, particularly in inshore areas adjacent to Indigenous communities.

Major catchments of the region include Jacky Jacky Creek, the Olive Pascoe, Lockhart, Stewart, Normanby, Jeannie and Endeavour Rivers.

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.



Cape York region land use

#### Key findings

- Cutting-edge or best management practices are used by 53 per cent of horticultural producers for nutrients, 89 per cent for herbicides and 76 per cent for soil.
- Wetlands are 100 per cent intact relative to pre-European times.



Map of the eastern catchments of Cape York and Great Barrier Reef Marine Park showing the catchment and marine monitoring sites.



The Cape York region has occasional cyclones 🐌 and summer-dominated rainfall 💏 that delivers sediments 🍾, nutrients and year-round, with some horticulture 🛶 and other cropping 🧼. A large proportion of the land is used for conservation purposes, e.g., national parks. The outer reef is located very close to the shoreline and there are many continental islands 🚄 and coral cays Habitats include fringing and offshore reefs 🔤 🐜 , intertidal, subtidal and deep-water seagrass 💥 🗱 and mangroves 🐙 Reef-based tourism 💘, as well as commercial and recreational fishing 🔔, are an important part of the regional economy.

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Australian Government





- Intensive animal production Urban and other intensive uses Sugarcane
- Water and wetlands
- Other cropping (predominantly grains)
- Other uses Forestrv

Horticulture Mining

- Conservation and protected areas
- Grazing

The adoption of improved management practices is presented using the following framework:

- A Cutting-edge practices
- B Best practices
- C Common practices
- **D** Unacceptable practices



Cutting-edge (A) or best management (B) practices are used by 53 per cent of horticulture producers for nutrients, 89 per cent for herbicides and 76 per cent for soil.

Management practice adoption data for grazing (the predominant agricultural industry) is not available at this time.



#### **Catchment results**

Catchment indicators include wetland and riparian loss, groundcover and catchment loads.



There was no loss of wetlands between 2001 and 2005. The loss of riparian vegetation between 2004 and 2008 was 199 hectares (0.03 per cent). Data for late dry season groundcover is not available for the Cape York region.

#### **Catchment loads**



The estimated total nitrogen loads leaving the Cape York region are 14,000 tonnes per year, of which 11,000 tonnes are from human activity. A large proportion of this is in the form of particulate nitrogen with 8900 tonnes per year.

The pesticide loads are not estimated for the region due to a lack of adequate monitoring and modelling data.

Confidence in baseline load estimates differs across regions due to varying levels of data comprehensiveness. The estimates for the Cape York region are based solely on modelling with limited water quality monitoring data; therefore, confidence in this region's baseline load estimates is low.

#### Marine results

Marine results are moderate for water quality and moderate to good for seagrass. Further validation of remotely sensed water quality data for the Cape York region is required to verify this assessment. Coral was not evaluated in this region.



Water quality: Although water quality data has been used to derive the Great Barrier Reef Marine Park Water Quality Guidelines, there are no ongoing water quality monitoring sites in this region. Water quality results are moderate for both chlorophyll *a* and total suspended solids.

**Seagrass:** At the one station monitored in the region, seagrass reproduction and nutrient status are good. However, the moderate abundance score resulted in overall moderate condition.

**Coral:** The Marine Monitoring Program does not conduct coral monitoring in the region.

# What is being done?

Cape York Sustainable Futures is working with producers in the grazing and horticultural industries to implement management practices which improve the water quality of agricultural runoff. To complement this, a study is also being done to identify the main sources and sinks of sediment within the Laura/Normanby catchment.

# Wet Tropics region

First Report Card 2009 Baseline Reef Water Quality Protection Plan

# **Regional profile**

The Wet Tropics region is 22,000 square kilometres, includes most of the Queensland Wet Tropics World Heritage Area and parts of the Great Barrier Reef World Heritage Area and is one of the most biodiverse places in the world. The tropical climate results in cyclones and 60 to 70 per cent of the rainfall occurs in summer. 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.

Intensive animal productionUrban and other intensive uses

Other cropping (predominantly grains)

Conservation and protected areas

Horticulture

Sugarcane
 Water and wetlands

Other uses
 Forestry

Mining



Wet Tropics region land use

#### **Key findings**

• Cutting-edge or best management practices for nutrients are used by 20 per cent of sugarcane growers.

Grazing

- Loss of vegetated freshwater swamps since pre-European times is the highest of all the regions (51 per cent).
- Dissolved nitrogen loads are 11,000 tonnes—almost twice as high as any other region. Pesticide loads are approximately one-third of the total loads leaving the Great Barrier Reef.
- Water quality, seagrass and corals are in better condition in the northern than southern part of this region.



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



The Wet Tropics region has occasional cyclones and highly variable rainfall predominantly in summer that delivers sediments, nutrients and pesticides to the inshore and sometimes offshore portions of the reef in pulsed flows . Coastal ranges separate the western areas and floodplain. The Wet Tropics World Heritage area covers nearly half the landscape. The dominant land uses include grazing for to the west, sugarcane for on the narrow coastal floodplain, and some horticulture for across the region. Cairns is the major urban centre for with many smaller towns on the coastal strip and Atherton Tablelands. The proximity of the outer reef supports strong tourism for and recreational and commercial fisheries \_\_\_\_\_\_. Habitats include fringing and offshore reefs \_\_\_\_\_\_\_, shallow-water seagrass for and extensive coastal mangroves for the is a mix of continental islands for and coral cays ().

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Adoption of improved management practices varies by industry and practice. The adoption of improved management practices is presented using the following framework:

#### A – Cutting-edge practices

- B Best practices
- **C** Common practices
- **D** Unacceptable practices



Cutting-edge (A) or best management (B) practices are used by 20 per cent of sugarcane growers for nutrients, four per cent for herbicides and seven per cent for soil.

Unacceptable (D) nutrient and soil management practices are used by 72 per cent and 56 per cent of sugarcane growers, respectively.



Cutting-edge (A) or best management (B) practices are used by 43 per cent of horticulture producers for nutrients, 88 per cent for herbicides and 72 per cent for soil.

Unacceptable (D) nutrient and soil management practices are used by 28 per cent and nine per cent of horticulture producers, respectively.

Management practice adoption data for the grazing industry is not available at this time.

# **Catchment results**

Catchment indicators include wetland and riparian loss, groundcover and catchment loads.



Loss of wetlands between 2001 and 2005 was 266 hectares (0.33 per cent). Of all wetland types, loss of vegetated freshwater swamps since pre-European times is 51 per cent, the highest of all the regions.

The loss of riparian vegetation between 2004 and 2008 was 787 hectares (0.17 per cent).

Late dry season groundcover for grazing lands is high (95 per cent). Groundcover data relates to the Herbert catchment only.

#### Catchment loads



The dissolved nitrogen loads are 11,000 tonnes per year, of which 6300 tonnes are from human activity, significantly higher than other regions. It is estimated that the main source of this load in the Wet Tropics region is fertiliser loss from sugarcane areas.

The total pesticide loads leaving the region's catchments are an estimated 10,000 kilograms per year. This is equal to the highest regional load in the Great Barrier Reef. Residues of pesticides (diuron, atrazine, ametryn and hexazinone) are commonly found in surface waters leaving sugarcane cultivation areas.

#### Marine results

The Wet Tropics region has poor results for seagrass, moderate water quality and good coral results.



Water quality: Water quality is in moderate condition overall. Inshore waters have concentrations of chlorophyll *a* and total suspended solids that are above Great Barrier Reef Marine Park Water Quality Guidelines. A range of pesticides are detectable in inshore waters of the region.

**Seagrass:** Seagrass abundance is variable within the region. Seagrass meadows in the southern portion of the region have lower cover due to losses from cyclones prior to 2009, and many meadows have low numbers of reproductive structures, indicating reduced resilience to disturbance.

**Coral:** Corals are in good overall condition—northern reefs have generally better results than southern reefs.

# What is being done?

Terrain Natural Resource Management works with landholders to promote the adoption of improved management practices that reduce nutrient, pesticide and sediment losses, primarily from sugarcane (the largest intensive agricultural use in the region), bananas, paw paws, mixed cropping on the Atherton Tablelands and grazing in both wet and dry country.

DPC2066\_WEB

# **Burdekin region**

First Report Card 2009 Baseline Reef Water Quality Protection Plan

# Regional profile

The Burdekin region is approximately 141,000 square kilometres. The landscapes and biodiversity assets of the Burdekin region are equally diverse and of both national and international significance. Regional land use is dominated by grazing. The major threat from this land use is sediment and associated particulate nutrients from soil erosion, while some pesticide residues have also been detected in river runoff. 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.



Horticulture
 Mining

- Intensive animal production
- Urban and other intensive uses
- Sugarcane
- Water and wetlands
- Other cropping (predominantly grains)
- Other uses
  Forestry
- Conservation and protected areas
- Grazing

#### Key findings

- Thirty-nine per cent of graziers are using practices that are likely to maintain land in good to very good condition, or improve land in lesser condition.
- Cutting-edge or best management practices for herbicides are used by 22 per cent of sugarcane growers.
- Almost one-third of the total suspended solids loads entering the reef waters are from the Burdekin region, making it the largest contributor.
- · Inshore reefs have not recovered from the 2002 bleaching event.



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



The Burdekin region has occasional cyclones and highly variable rainfall predominantly in summer that falls mostly along the coastal areas and delivers sediments, nutrients, and pesticides to the inshore and sometimes offshore portions of the reef in pulsed flows, which can be affected by reservoirs and dams. The large region is mostly drained by the Burdekin River. Grazing is the dominant land use and sugarcane important for irrigation. Urban centres are important irrigated land uses. The Burdekin dam and groundwater in are important for irrigation. Urban centres as such as Townsville and the smaller towns of Ayr and Bowen are located on the coastal strip. Habitats include fringing and offshore reefs and, shallow-water seagrass and freshwater swamp wetlands. There are continental islands (such as Magnetic Island) along the coast. Reef-based tourism, as well as commercial and recreational fishing are important part of the regional economy.

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Adoption of improved management practices varies by industry and practice.



Thirty-nine per cent of graziers are using (A or B) practices that are likely to maintain land in good to very good condition, or improve land in lesser condition.

The adoption of improved management practices for sugarcane and horticulture is presented below using the following framework:

A – Cutting-edge practices

- **B** Best practices
- **C** Common practices
- **D** Unacceptable practices



Cutting-edge (A) or best management (B) practices are used by 45 per cent of sugarcane growers for nutrients, 22 per cent for herbicides and 32 per cent for soil.



Cutting-edge (A) or best management (B) practices are used by 35 per cent of horticulture producers for nutrients, 81 per cent for herbicides and 75 per cent for soil.

# Catchment results

Catchment indicators include wetland and riparian loss, groundcover and catchment loads.



Loss of wetlands between 2001 and 2005 was 144 hectares (0.11 per cent). The loss of riparian vegetation between 2004 and 2008 was 5834 hectares (0.28 per cent). Late dry season groundcover for grazing lands is relatively high (83 per cent).

# Catchment loads



Total suspended solids loads leaving the Burdekin region are 4.7 million tonnes per year, of which 4.1 million tonnes are from human activity. This represents almost 30 per cent of the total suspended solids loads to the Great Barrier Reef and is mainly derived from extensive areas under grazing.

The dissolved nitrogen loads are 5700 tonnes per year, of which 3500 tonnes are from human activity, mostly due to fertiliser loss from sugarcane areas.

# Marine results

Marine results are moderate for seagrass and water quality and poor for coral.



Water quality: Water quality is in moderate condition overall with poor results for total suspended solids. Inshore waters have concentrations of chlorophyll *a* and total suspended solids that are above Great Barrier Reef Marine Park Water Quality Guidelines. A range of pesticides are detectable in inshore waters of the region.

**Seagrass:** Seagrass abundance in the region is good, but has declined at coastal locations and is variable at reef locations. There are low numbers of reproductive structures, indicating reduced resilience to disturbance.

**Coral:** Inshore reefs are in poor condition and have not recovered following coral bleaching events in 2002. Settlement of coral larvae is very poor and numbers of juvenile corals are poor, which may be due to low coral cover limiting the availability of coral larvae.

# What is being done?

North Queensland Dry Tropics partners with industry groups to deliver training, extension support and financial incentives to landholders to accelerate adoption of best management practices in the region's sugarcane, horticulture and grazing industries. Programs specifically target nutrient, pesticide and sediment reduction from agricultural activities.

DPC2066\_WEB



# **Regional profile**

The Mackay Whitsunday region covers an area of 9000 square kilometres and supports a diverse range of ecosystems including soft coral communities and the nationally recognised Goorganga Wetlands. The tropical climate has a distinct wet season, with 50 to 60 per cent of the average annual rainfall occurring between January and March. This report card presents results up to 2009 and therefore does not include the more recent flood events which will be presented in subsequent reports.



- HorticultureMining
- Intensive animal production
- Urban and other intensive uses
- Sugarcane
- Water and wetlands
- Other cropping (predominantly grains)
  Other uses
- Forestry
- Conservation and protected areas
- Grazing

# Key findings

land use

- Cutting-edge or best management practices are used by 40 per cent of sugarcane growers for nutrients, three per cent for herbicides and 24 per cent for soil.
- Pesticide loads are approximately one-third of the total loads entering the Great Barrier Reef.
- Inshore seagrasses are in poor condition. Results for coral and water quality are mixed.



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



The Mackay Whitsunday region has a number of small, steep catchments. The landscape is largely rural, has occasional cyclones and is dominated by summer monsoonal rains delivering sediments , nutrients and pesticides to the inshore and sometimes offshore portions of the reef in pulsed flows , which can be affected by reservoirs and dams a number. Grazing is the largest single land use, followed by sugarcane and natural areas . Urban centres such as Mackay and Proserpine are located on the coastal strip. Habitats include wetlands , fringing and offshore reefs , intertidal, subtidal and deep water seagrass important commercial and recreational fisheries .

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Adoption of improved management practices varies by industry and practice. The adoption of improved management practices is presented using the following framework:

- A Cutting-edge practices
- B Best practices
- C Common practices
- **D** Unacceptable practices



Cutting-edge (A) or best management (B) practices are used by 40 per cent of sugarcane growers for nutrients, three per cent for herbicides and 24 per cent for soil.



Cutting-edge (A) or best management (B) practices are used by 22 per cent of horticulture producers for nutrients, 62 per cent for herbicides and 76 per cent for soil.

Management practice adoption data for the grazing industry is not available at this time.

### Catchment results

Catchment indicators include wetland and riparian loss, groundcover and catchment loads.



Wetland loss between 2001 and 2005 was 15 hectares (0.03 per cent). The loss of riparian vegetation between 2004 and 2008 was 825 hectares (0.62 per cent). Late dry season groundcover for grazing lands is high (93 per cent).

#### Catchment loads



The dissolved nitrogen loads are 3300 tonnes per year, of which 2500 tonnes are from human activity.

The pesticide loads, largely from sugarcane cultivation, are approximately 10,000 kilograms per year. This is equal to the highest regional load in the Great Barrier Reef. Residues of pesticides (diuron, atrazine, ametryn and hexazinone) are commonly found in surface waters leaving sugarcane cultivation areas.

The total suspended solids loads leaving the Mackay Whitsunday region are 1.5 million tonnes per year, of which 1.3 million tonnes are from human activity.

#### Marine results

The Mackay Whitsunday region shows poor results for seagrass and moderate results for water quality and corals.



Water quality: Water quality is in moderate condition overall with poor results for total suspended solids. Inshore waters have concentrations of chlorophyll *a* and total suspended solids that are above Great Barrier Reef Marine Park Water Quality Guidelines. A range of pesticides are detectable in inshore waters.

Seagrass: Seagrass abundance is moderate but is declining at many sites. Seagrass reproduction is very poor and in decline, raising concerns about resilience to disturbance.

**Coral:** Inshore reefs are in moderate condition. Coral cover is poor but macroalgae results are very good (low cover). The number of juvenile corals is good but has declined in recent years.

# What is being done?

Reef Catchments is working with the region's agricultural industries to improve management practices, lower pollutant loads and remove associated threats to the reef. In order to determine the relative effectiveness of these improved practices, the region has implemented a detailed paddock scale monitoring and modellingprogram.

This First Report Card presents results up to 2009 and will be used as the point of comparison to measure progress towards Reef Plan goals and targets.

# **Fitzroy region**

First Report Card 2009 Baseline Reef Water Quality Protection Plan

# **Regional profile**

At 156,000 square kilometres, Fitzroy is the largest region draining into the Great Barrier Reef. The region experiences highly variable rainfall, high evaporation rates and prolonged dry periods that are often followed by floods. The region includes important areas of remnant and threatened vegetation communities (e.g., Brigalow and native grasslands). Grazing is the predominant land use, but there are also large areas of irrigated and dryland cropping. **This report card presents results up to 2009 and therefore does not include the more recent flood events which will be presented in subsequent reports.** 



Fitzroy region land use

# Key findings

 Fifty-three percent of graziers are using practices that are likely to maintain land in good to very good condition, or improve land in lesser condition.

- Horticulture
  Mining
- Intensive animal production
- Urban and other intensive uses
- Sugarcane
- Water and wetlands
- Other cropping (predominantly grains)
  Other uses
- Forestry
- Conservation and protected areas
  Grazing



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

- The Fitzroy region contributes the second-largest total suspended solid loads entering the Great Barrier Reef.
- The least impacted coastal seagrass meadows are located in the Fitzroy region. Inshore coral reefs have largely recovered from disturbances prior to 2009.



The Fitzroy region has occasional cyclones and variable rainfall predominantly in summer delivering sediments , nutrients and pesticides to the inshore and sometimes offshore portions of the reef in pulsed flows , which can be affected by reservoirs and dams . The catchment is large and has high river flow variability. Grazing ref is the dominant land use, with dryland cropping and upland cotton . Mangroves are extensive and there is some mining . Urban centres ref such as Rockhampton and Gladstone are located on the coastal strip. Habitats include offshore reefs reefs, seagrass and mangroves reference . Continental islands (such as the Keppels) are important for tourism region also supports important commercial and recreational fisheries.

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Adoption of improved management practices varies by industry and practice.



Fifty-three percent of graziers are using (A or B) practices that are likely to maintain land in good to very good condition, or improve land in lesser condition.

The adoption of improved management practices for horticulture and grains is presented below using the following framework:

- A Cutting-edge practices
- B Best practices
- **C** Common practices
- **D** Unacceptable practices



Cutting-edge (A) or best management (B) practices are used by 39 per cent of horticulture producers for nutrients, 64 per cent for herbicides and 60 per cent for soil.



Cutting-edge (A) or best management, (B) practices are used by 85 per cent of grain growers in the Fitzroy region. Code of practice (C) or unacceptable (D) practices are used by 15 per cent of grain growers.

### **Catchment results**

Catchment indicators include wetland and riparian loss, groundcover and catchment loads.



Wetland loss between 2001 and 2005 was 278 hectares (0.13 per cent). The Fitzroy region has the lowest proportion of forested riparian areas compared to other regions, with 1.3 million hectares (71 per cent). The loss of riparian vegetation between 2004 and 2008 was 12,702 hectares (0.68 per cent). Late dry season groundcover is relatively high (83 per cent).

#### **Catchment loads**



Total suspended solids loads leaving the Fitzroy region are 4.1 million tonnes per year, of which 2.9 million tonnes are from human activity. This is the second highest of the Great Barrier Reef regions and is mainly derived from extensive areas under grazing.

The estimated total phosphorus loads leaving the catchments of the Fitzroy region are 4100 tonnes per year, of which 3900 tonnes are from human activity, largely in the form of particulate phosphorus.

#### Marine results

Marine results are moderate for corals and seagrass and good for water quality.



Water quality: Water quality is in good condition overall. The pesticides diuron and tebuthiuron are detectable in inshore waters of the region.

**Seagrass:** Seagrass abundance in the region, although good overall, has generally increased at coastal and estuarine locations but has declined in reef locations. There are low numbers of reproductive structures, indicating reduced resilience to disturbance. Shoalwater Bay contains the least impacted coastal seagrass meadows along the urban coast of the Great Barrier Reef.

**Coral:** Reefs are in overall moderate condition, with moderate coral cover and good settlement of juvenile corals but very poor juvenile density and high cover of macroalgae. The reefs have recovered from significant disturbances over the past 10 years, but resilience to future disturbance is uncertain.

# What is being done?

The Fitzroy Basin Association and industry partners are working with landholders to reduce sediments, nutrients and pesticides to the Great Barrier Reef through the promotion of best management practice systems and implementing on-ground works to restore degraded areas and increase groundcover in grazing lands.

# **Burnett Mary region**

First Report Card 2009 Baseline Reef Water Quality Protection Plan

# **Regional profile**

The Burnett Mary region is approximately 53,000 square kilometres and encompasses the World Heritage-listed Great Sandy Strait. This includes Fraser Island and the southern tip of the Great Barrier Reef Marine Park. The region has a moderate, subtropical climate with mean annual rainfall of around 1000 millimetres. This report card presents results up to 2009 and therefore does not include the more recent flood events which will be presented in subsequent reports.

Horticulture
 Mining

Sugarcane
 Water and wetlands

Other uses
 Forestry

Grazing

Intensive animal productionUrban and other intensive uses

Other cropping (predominantly grains)

Conservation and protected areas



Burnett Mary region land use

# Key findings

- Cutting-edge or best management practices for herbicides are used by eight per cent of sugarcane growers and 70 per cent of horticulture producers.
- The loss of riparian vegetation between 2004 and 2008 was the highest among the Great Barrier Reef regions (1.04 per cent).
- Seagrass meadows in the region are in decline or have failed to recover from the effects of flooding in 2006.



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



The Burnett Mary region has a subtropical climate, with more rain in the summer and in the coastal areas that delivers sediments and pesticides to the inshore and sometimes offshore portions of the reef in pulsed flows which can be affected by water reservoirs and dams areas . The landscape has mixed land use, including grazing off, dairy in the horiculture sugarcane and other cropping . Surface and groundwater are important for irrigation includes the Great Sandy Biosphere, and the Fraser Island World Heritage Area is located offshore. Habitats include offshore reefs and deep-water seagrass includes in and mangroves is a well as commercial and recreational fishing the area in important part of the regional economy.

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Adoption of improved management practices varies by industry and practice. The adoption of improved management practices is presented using the following framework:

- A Cutting-edge practices
- B Best practices
- **C** Common practices
- **D** Unacceptable practices



Cutting-edge (A) or best management (B) practices are used by 52 per cent of sugarcane growers for nutrients, eight per cent for herbicides and 21 per cent for soil.



Cutting-edge (A) or best management (B) practices are used by 42 per cent of horticulture producers for nutrients, 70 per cent for herbicides and 65 per cent for soil.

Management practice adoption data for the grazing and grain industries is not available at this time.

#### **Catchment results**

Catchment indicators include wetland and riparian loss, groundcover and catchment loads.



Loss of wetlands between 2001 and 2005 was 180 hectares (0.36 per cent). Wetland loss since pre-European times is 30 per cent.

The loss of riparian vegetation between 2004 to 2008 was 9185 hectares (1.04 per cent), the highest proportion among the Great Barrier Reef regions.

Late dry season groundcover is high (92 per cent).

#### **Catchment loads**



The estimated total suspended solids loads are 3.1 million tonnes per year, of which 2.8 million tonnes are from human activity. Most of this originates from grazing lands within the region.

The estimated total nitrogen loads are 13,000 tonnes per year, of which 12,000 tonnes are from human activity.

#### Marine results

Marine results are good and very good for seagrass and water quality, respectively. Further validation of remotely sensed water quality data for the Burnett Mary region is required to verify this assessment. Coral was not evaluated in this region.



Water quality: Inshore waters within the Great Barrier Reef Marine Park portion of the Burnett Mary region are in very good condition.

**Seagrass:** Seagrass meadows in the region, although in good condition overall, are in decline or have failed to recover from the effects of flooding in 2006. The presence of many reproductive structures suggests recovery may be possible.

# What is being done?

The Burnett Mary Regional Group works with industry and landholders to improve land management practices and improve water quality across the region. Land management practices are being improved through capacity-building activities and the use of incentives. This will reduce sediments, nutrients and pesticides entering waterways and ultimately the reef.