

# Catchment pollutant loads results



## Great Barrier Reef Report Card 2016

Reef Water Quality Protection Plan



Australian Government



Queensland Government

## Catchment pollutant loads results

The catchment pollutant load targets in the Reef Water Quality Protection Plan 2013 (Reef Plan) are:

- At least a 50 per cent reduction in anthropogenic end-of-catchment dissolved inorganic nitrogen loads in priority areas by 2018.
- At least a 20 percent reduction in anthropogenic end-of-catchment loads of sediment and particulate nutrients in priority areas by 2018.
- At least a 60 per cent reduction in end-of-catchment pesticide loads in priority areas by 2018.

The targets are based on the estimated load reductions that can be achieved through delivery of best management practice systems. The exception is the dissolved inorganic nitrogen target which remains ambitious and may not be achievable using current best practice alone.

The catchment load targets are reported as cumulative progress since 2009.

**Figure 1: Scoring system**

<b>June 2016 Criteria</b>	<b>Dissolved inorganic nitrogen</b> % reduction (Target 50% reduction)	<b>Sediment and particulate nutrients</b> % reduction (Target 20% reduction)	<b>Pesticides</b> % reduction (Target 60% reduction)
<b>Very poor progress</b>	<25	<11	<30
<b>Poor progress</b>	25–<30	11–<13	30–<36
<b>Moderate progress</b>	30–<35	13–<15	36–<42
<b>Good progress</b>	35–<40	15–<16	42–<48
<b>Very good progress</b>	≥40	≥16	≥48

## Great Barrier Reef-wide

Catchment modelling has been used to estimate the long term annual load reductions due to the adoption of improved management practices. The model is run over a fixed climate period to account for climate variability.

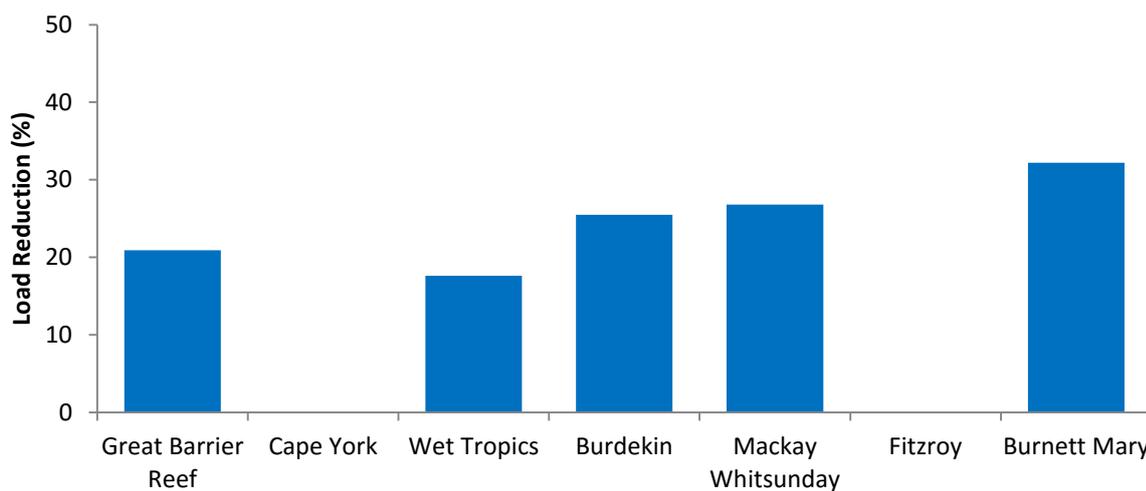
### Dissolved inorganic nitrogen

**E**  
**20.9%**

**Target: At least a 50 per cent reduction in anthropogenic end-of-catchment dissolved inorganic nitrogen loads in priority areas by 2018.**

Very poor progress: The estimated annual average dissolved inorganic nitrogen load leaving catchments had reduced by 20.9 per cent at June 2016. The greatest cumulative reduction (32.2 per cent) was in the Burnett Mary region. The greatest annual reduction was 5.5 per cent in the Burdekin region which has a cumulative total of 25.5 per cent. The reduction in the Burdekin is the result of less nitrogen fertiliser being applied following the adoption by cane growers of the Six Easy Steps nutrient management process.

**Cumulative Dissolved Inorganic Nitrogen load reductions to 2015-2016**



Note: Dissolved inorganic nitrogen reductions are only modelled for regions where sugarcane is grown.

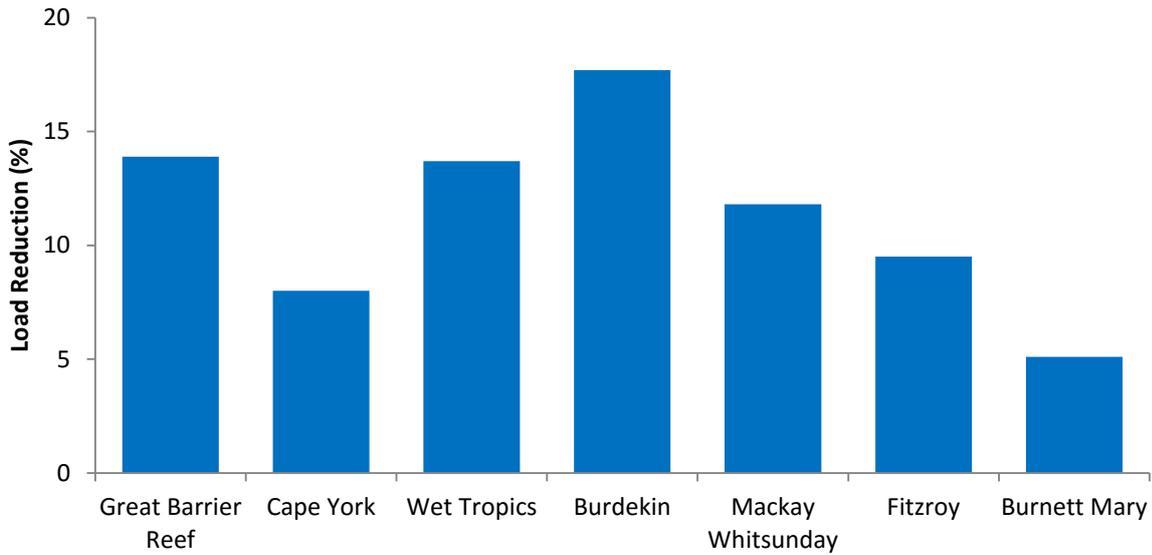
### Sediment

**C**  
**13.9%**

**Target: At least a 20 per cent reduction in anthropogenic end-of-catchment loads of sediment and particulate nutrients in priority areas by 2018.**

Moderate progress: The estimated average annual sediment load leaving catchments had reduced by 13.9 per cent at June 2016. The greatest cumulative reduction was from the Burdekin region with 17.7 per cent. The greatest annual reduction was from the Fitzroy region with 4.1 per cent, followed by Mackay Whitsunday at 2.7 per cent. The reduction in total suspended sediment (TSS) from the Fitzroy was predominantly due to the streambank protection projects (such as installation of riparian fencing and off-stream watering points). Most of these off-stream watering points were targeted in high priority locations to maximise load reductions.

**Cumulative Total Suspended Sediment load reductions to 2015-2016**



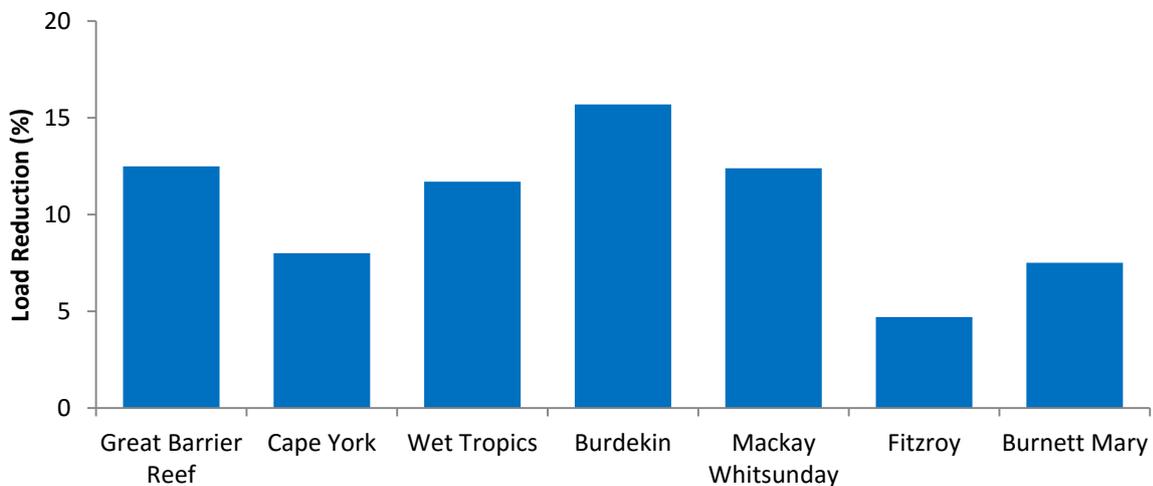
**Particulate nitrogen**

**D**  
12.5%

**Target: At least a 20 per cent reduction in anthropogenic end-of-catchment loads of sediment and particulate nutrients in priority areas by 2018.**

Poor progress: The estimated average annual particulate nitrogen load leaving catchments had reduced by 12.5 per cent at June 2016. The greatest cumulative reduction (15.7 per cent) was in the Burdekin region, with less than 0.5 per cent reduction for the year. The greatest annual reduction was from the Fitzroy and Burnett Mary regions at 1.5 per cent each. The reduction in the Fitzroy was associated with the streambank protection projects referred to under Sediment above. For the Burnett Mary region, the reduction was due to management of hillslope erosion on grazing land, with the installation of land type and riparian fencing and additional water points allowing paddocks to be subdivided for better rotational grazing, improved ground cover and erosion control.

**Cumulative Particulate Nitrogen load reductions to 2015-2016**



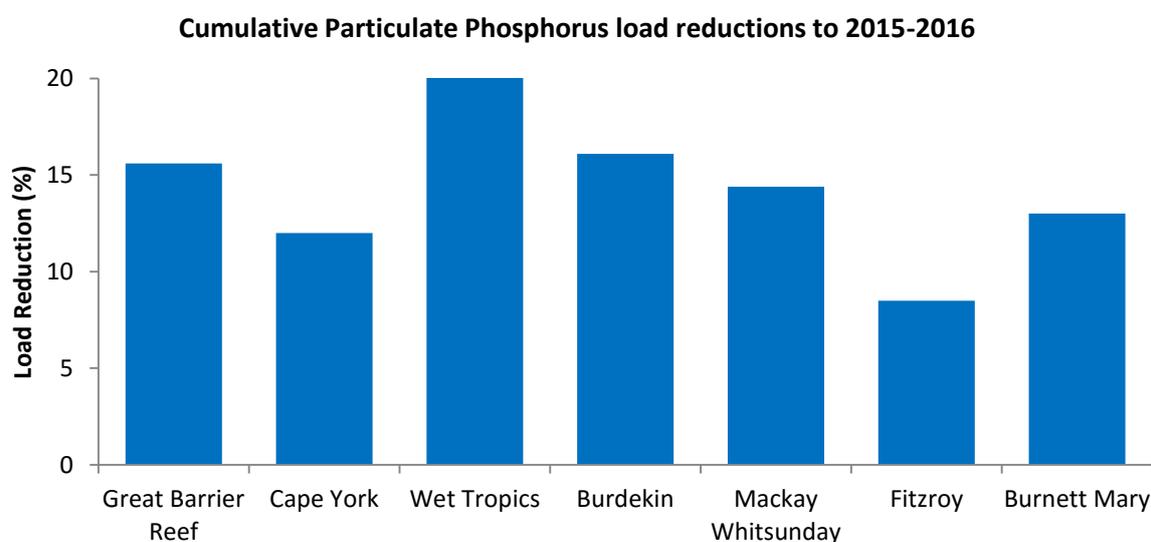
## Particulate phosphorus

B

15.6%

**Target: At least a 20 per cent reduction in anthropogenic end-of-catchment loads of sediment and particulate nutrients in priority areas by 2018.**

Good progress: The estimated average annual particulate phosphorus load leaving catchments had reduced by 15.6 per cent at June 2016. The greatest cumulative reduction was from the Wet Tropics region (20.8 per cent). The greatest annual reduction was from the Fitzroy region at 1.8 per cent followed by Mackay Whitsunday at 1.3 per cent. The reduction in the Fitzroy was again associated with streambank protection projects referred to above.



## Pesticides

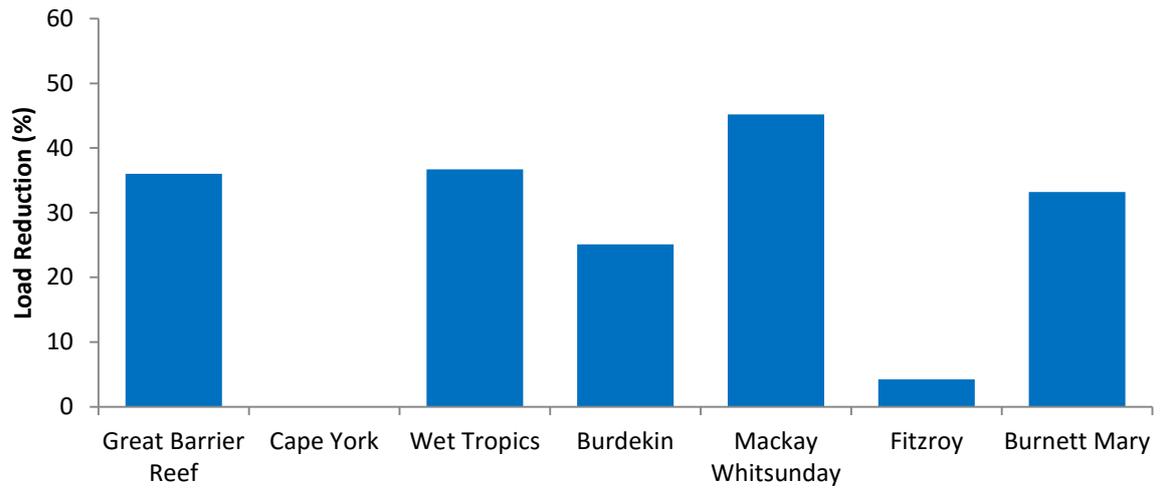
C

36%

**Target: At least a 60 per cent reduction in end-of-catchment pesticide loads in priority areas by 2018.**

Moderate progress: The estimated annual average toxic- equivalent pesticide load leaving catchments had reduced by 36 per cent at June 2016. The greatest cumulative reduction was the Mackay Whitsunday region with 45.2 per cent. The greatest annual reduction was from the Wet Tropics region (4.8 per cent), where the reduction was due to increased adoption of band spraying for residual herbicides, and decreased use of residual herbicides in ratoon cane crops.

### Cumulative Toxic Pesticide load reductions to 2015-2016



Note: No pesticide management data is available for Cape York.

## Cape York

Only a small number of projects were undertaken in the Cape York region in 2015–2016. As a result, all load reductions remain the same as last year. Load reductions are reported to only one decimal place.

### Sediment

E  
8%

Very poor progress: The estimated average annual sediment load leaving catchments remained at 8 per cent at June 2016. Hillslope erosion on grazing lands was targeted with fencing, construction and repair of whoa-boys to control erosion, and the installation of a new watering point to exclude livestock from streambanks and other degraded areas. Management change occurred on only 0.4% of the total grazing area in Cape York and did not change the cumulative sediment load leaving catchments.

### Particulate nitrogen

E  
8%

Very poor progress: The estimated average annual particulate nitrogen load leaving catchments remained at 8 per cent at June 2016.

### Particulate phosphorus

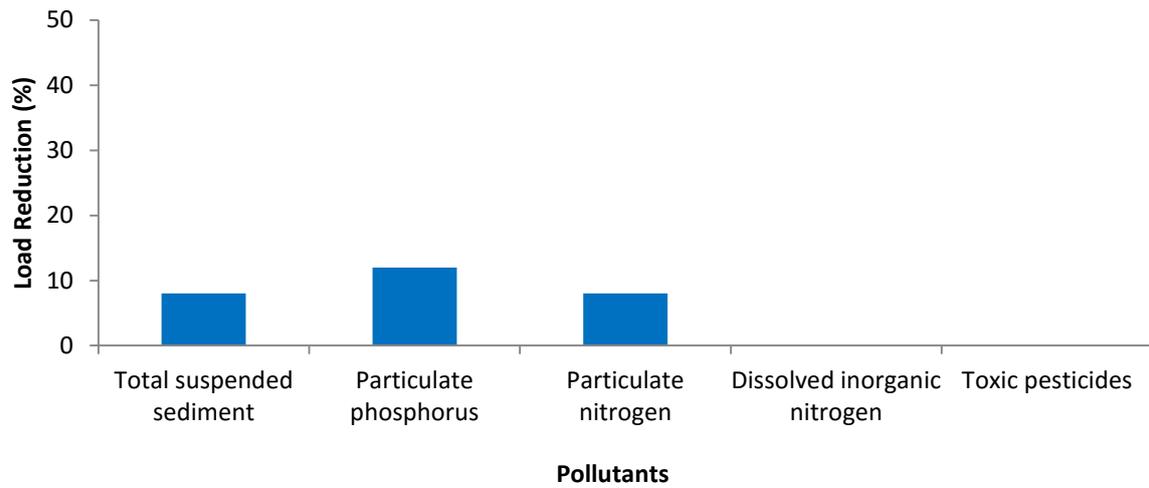
D  
12%

Poor progress: The estimated average annual particulate phosphorus load leaving catchments remained at 12 per cent at June 2016.

### Dissolved inorganic nitrogen

Dissolved inorganic nitrogen reductions are modelled only in regions with significant sugarcane areas and where investment in nitrogen reduction takes place.

### Cape York cumulative load reductions to 2015-2016



Notes:

- Dissolved inorganic nitrogen reductions are modelled only in regions with significant sugarcane areas.
- No pesticide management data is available for Cape York.

## Wet Tropics

### Sediment

**C**  
**13.7%**

Moderate progress: The estimated annual average total suspended sediment load leaving catchments had reduced to 13.7 per cent at June 2016, a reduction of 0.1 per cent for the year. This reduction was mainly from changes in sugarcane soil management, in the form of better controlled machinery traffic, less tillage during land preparation, and an increase in legume break-crops during cane fallows (creating more ground cover during the wet season).

### Particulate nitrogen

**D**  
**11.7%**

Poor progress: The estimated annual average particulate nitrogen load leaving catchments had reduced to 11.7 per cent at June 2016, a reduction of 0.1 per cent for the year. The reasons for the reduction are as for sediment management above.

### Particulate phosphorus

**A**  
**20.8%**

Very good progress: The estimated annual average particulate phosphorus load leaving catchments had reduced 20.8 per cent at June 2016, a reduction of 0.1 per cent for the year, and exceeding the target. The reasons for the reduction are as for sediment management above.

### Dissolved inorganic nitrogen

**E**  
**17.6%**

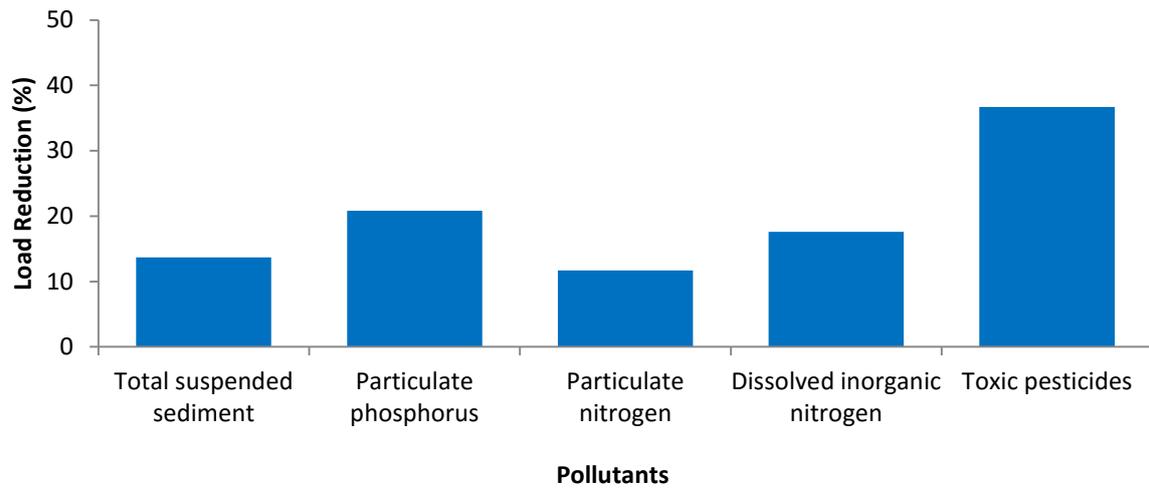
Very poor progress: The estimated annual average dissolved inorganic nitrogen load leaving catchments had reduced to 17.6 per cent at June 2016, a reduction of 2.9 per cent for the year. This reduction was mainly from changes in sugarcane nutrient management where growers reduced nitrogen fertiliser application rates in accordance with the Six Easy Steps nutrient management process.

### Pesticides

**C**  
**36.7%**

Moderate progress: The estimated annual average toxic-equivalent pesticide load leaving catchments had reduced by 36.7 per cent at June 2016, a reduction of 4.8 per cent for the year. This reduction was solely from changes in sugarcane pesticide management through improved targeting of herbicide (band spraying residuals) and an overall reduction in the use of some residual herbicides.

### Wet Tropics cumulative load reductions to 2015-2016



Note: Land management changes in the horticulture (other than bananas) and dairy industries have not been modelled.

## Burdekin

### Sediment

A  
17.7%

Very good progress: The estimated annual average total suspended sediment load leaving catchments had reduced to 17.7 per cent at June 2016, a reduction of 0.5 per cent for the year. This reduction was mainly from changes in grazing soil management, mostly from reducing hillslope erosion by use of forage budgeting to determine sustainable carrying capacity, and the adoption of rotational grazing and wet-season spelling.

### Particulate nitrogen

B  
15.7%

Good progress: The estimated annual average particulate nitrogen load leaving catchments had reduced by 15.7 per cent at June 2016, a reduction of 0.4 per cent for the year. The reasons for the reduction are as for sediment management above.

### Particulate phosphorus

A  
16.1%

Very good progress: The estimated annual average particulate phosphorus load leaving catchments had reduced by 16.1 per cent at June 2016, a reduction of 0.3 per cent for the year. The reasons for the reduction are as for sediment management above.

### Dissolved inorganic nitrogen

D  
25.5%

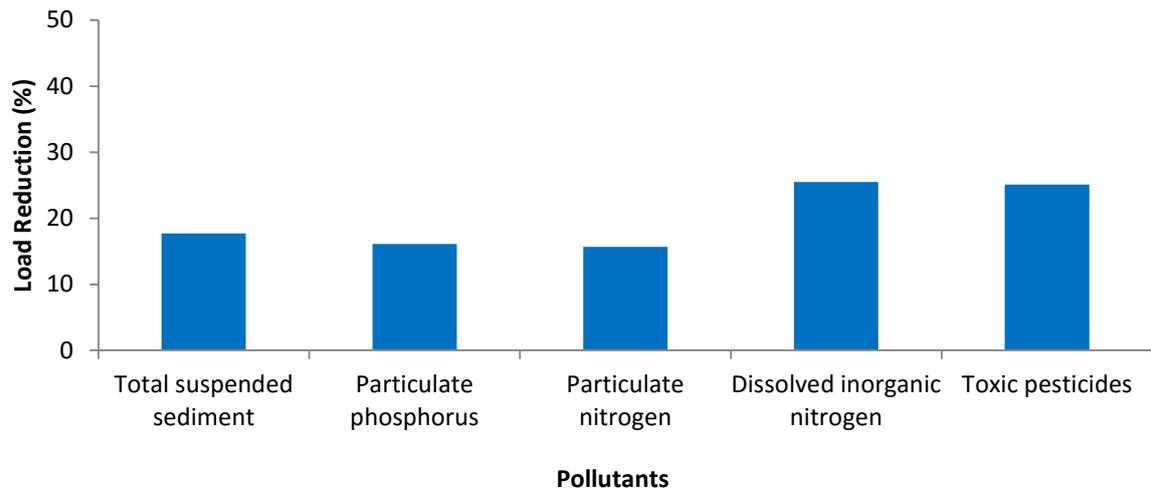
Poor progress: The estimated annual average dissolved inorganic nitrogen load leaving catchments had reduced by 25.5 per cent at June 2016, a reduction of 5.5 per cent for the year. This reduction was from changes in sugarcane nutrient management where growers applied less nitrogen fertiliser through following the Six Easy Steps nutrient management process. Reported improvements in irrigation scheduling (3444 hectares) also contributed to the reductions in sediment, dissolved inorganic nitrogen and pesticide loads.

### Pesticides

E  
25.1%

Very poor progress: The estimated annual average toxic-equivalent pesticide load leaving catchments had reduced by 25.1 per cent at June 2016, a reduction of 1.5 per cent for the year. This reduction was from reported adoption of band spraying to apply residual herbicides in sugarcane.

### Burdekin cumulative load reductions to 2015-2016



Note: Land management changes in the horticulture industry have not been modelled.

## Mackay Whitsunday

### Sediment

D  
11.8%

Poor progress: The estimated annual average total suspended sediment load leaving catchments had reduced by 11.8 per cent at June 2016, a reduction of 2.7 per cent for the year. This reduction was mainly from reported reductions in the degree of tillage on sugarcane farms.

### Particulate nitrogen

D  
12.4%

Poor progress: The estimated annual average particulate nitrogen load leaving catchments had reduced by 12.4 per cent at June 2016, a reduction of 1.3 per cent for the year. The reasons for the reduction are as for sediment management above.

### Particulate phosphorus

C  
14.4%

Moderate progress: The estimated annual average particulate phosphorus load leaving catchments had reduced by 14.4 per cent at June 2016, a reduction of 1.3 per cent for the year. The reasons for the reduction are as for sediment management above.

### Dissolved inorganic nitrogen

D  
26.8%

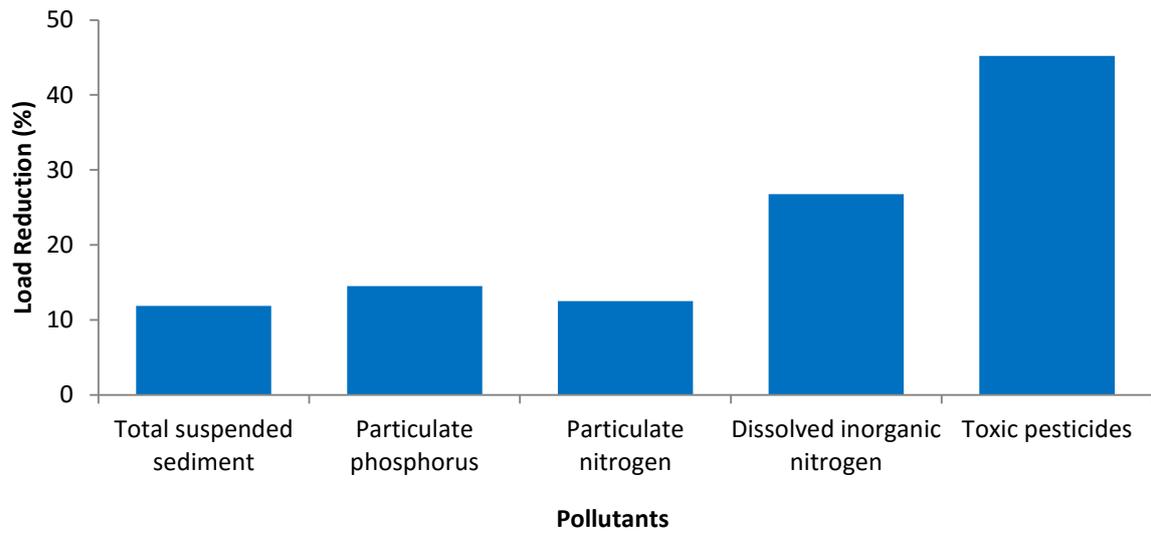
Poor progress: The estimated annual average dissolved inorganic nitrogen load leaving catchments had reduced by 26.8 per cent at June 2016, a reduction of 1.7 per cent for the year. This reduction was from improvements in sugarcane nutrient management through adoption of the Six Easy Steps nutrient management process.

### Pesticides

B  
45.2%

Good progress: The estimated annual average toxic-equivalent pesticide load leaving catchments had reduced by 45.2 per cent at June 2016, a reduction of 1.2 per cent for the year. This reduction was from improvements in herbicide management in sugarcane farming, through practices that result in a reduction in the total volume of residual herbicide applied.

### Mackay Whitsunday cumulative load reductions to 2015-2016



Note: Land management changes in the horticulture industry have not been modelled.

## Fitzroy

### Sediment

E  
9.6%

Very poor progress: The estimated annual average total suspended sediment load leaving catchments had reduced by 9.6 per cent at June 2016, a reduction of 4.1 per cent for the year. This reduction was mainly from protection of streambanks through limiting cattle access to streams (via fencing and off-stream water points) in locations that deliver relatively large amounts of fine sediments to the Reef lagoon.

### Particulate nitrogen

E  
4.7%

Very poor progress: The estimated annual average particulate nitrogen load leaving catchments had reduced by 4.7 per cent at June 2016, a reduction of 1.5 per cent for the year. The reasons for the reduction are as for sediment management above.

### Particulate phosphorus

E  
8.5%

Very poor progress: The estimated annual average particulate phosphorus load leaving catchments had reduced to 8.5 per cent at June 2016, a reduction of 1.8 per cent for the year. The reasons for the reduction are as for sediment management above.

### Dissolved inorganic nitrogen

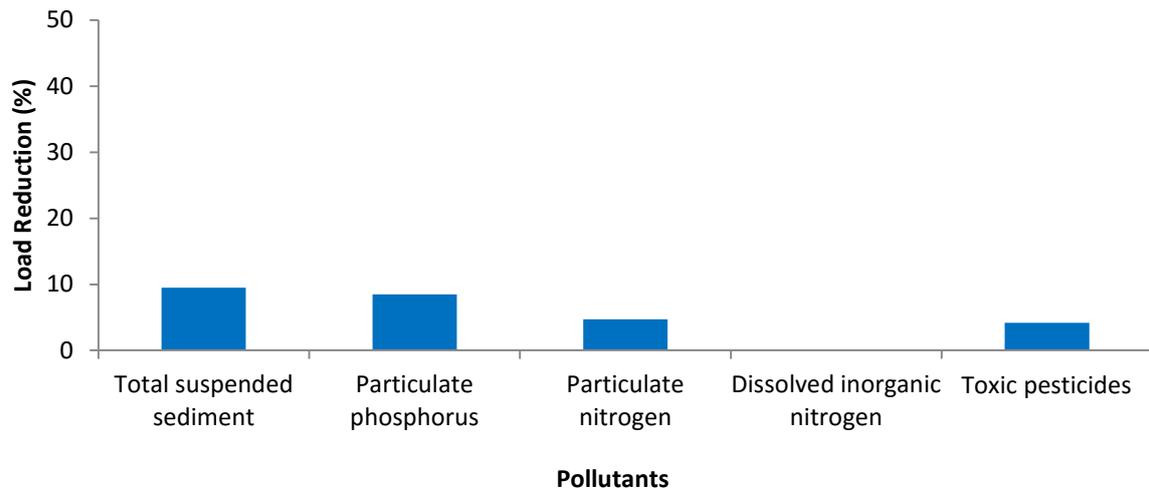
Dissolved inorganic nitrogen reductions are modelled only in regions with significant sugarcane areas.

### Pesticides

E  
4.3%

Very poor progress: The estimated annual average toxic-equivalent pesticide load leaving catchments remained at 4.3 per cent at June 2016.

### Fitzroy cumulative load reductions to 2015-2016



Notes:

- Dissolved inorganic nitrogen reductions are modelled only for regions with significant sugarcane areas.
- Land management changes in horticulture have not been modelled.

## Burnett Mary

### Sediment

**E**  
**5.1%**

Very poor progress: The estimated annual average total suspended sediment load leaving catchments had reduced by 5.1 per cent at June 2016, a reduction of 2.1 per cent for the year. This reduction was mainly from changes in grazing land management, mostly through excluding cattle from gullies and streambanks with riparian fences and the establishment of watering points away from drainage lines to encourage revegetation and reduce erosion.

### Particulate nitrogen

**E**  
**7.5%**

Very poor progress: The estimated annual average particulate nitrogen load leaving catchments had reduced by 7.5 per cent at June 2016, a reduction of 1.5 per cent for the year. The reasons for the reduction are as for sediment management above.

### Particulate phosphorus

**C**  
**13%**

Moderate progress: The estimated annual average particulate phosphorus load leaving catchments had reduced by 13 per cent at June 2016, a reduction of 1 per cent for the year. The reasons for the reduction are as for sediment management above.

### Dissolved inorganic nitrogen

**C**  
**32.2%**

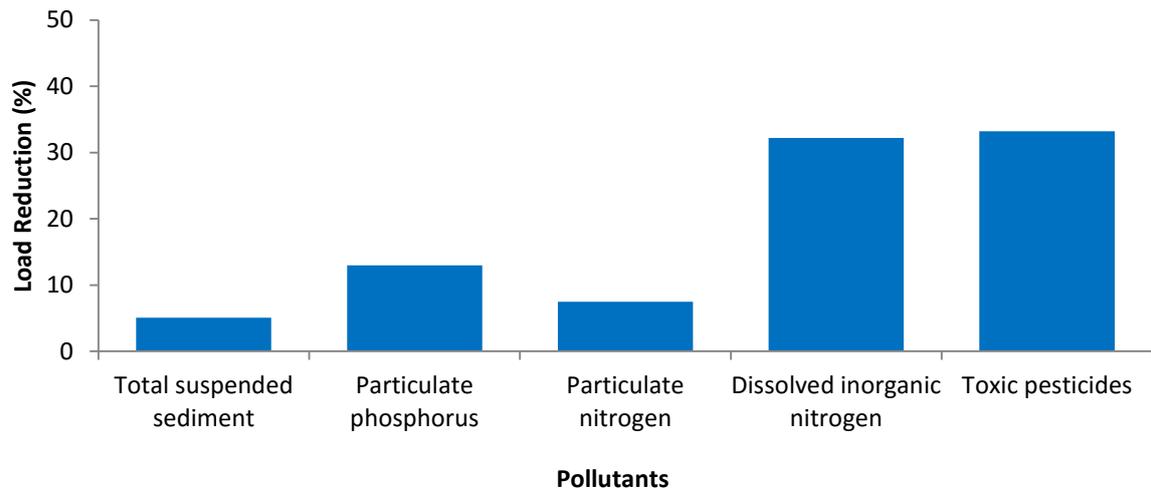
Moderate progress: The estimated annual average dissolved inorganic nitrogen load leaving catchments had reduced by 32.2 per cent at June 2016, a reduction of 0.7 per cent for the year. This reduction was from changes in sugarcane nutrient management where nitrogen application rates were reduced following the adoption of the Six Easy Steps nutrient management process.

### Pesticides

**D**  
**33.2%**

Poor progress: The estimated annual average toxic-equivalent pesticide load leaving catchments had reduced by 33.2 per cent at June 2016, a reduction of 0.1 per cent for the year. This reduction was due to the adoption of practices which reduce the volume of residual herbicide applied in sugarcane.

### Burnett Mary cumulative load reductions to 2015-2016



Note: Land management changes in the horticulture industry have not been modelled.