



Australian Government



Queensland Government

Wetland Extent Monitoring Results (Version 6.0, 2001 - 2019)

**QUEENSLAND HERBARIUM AND BIODIVERSITY
SCIENCE**

1 INTRODUCTION

This report summarises the progress towards the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of “No loss of the extent of natural wetlands”. Natural wetlands includes vegetated freshwater swamps (i.e., palustrine wetlands), lakes (i.e., lacustrine wetlands), and mangroves and/or salt flats (i.e., estuarine and intertidal wetlands).

Queensland Wetland Data that underpins this report is a time-series of data sets representing wetland extent and characterisation at various points in time. Each version of Queensland Wetland Data regenerates the full time-series of data sets to incorporate data improvements in the source data (such as the use of higher resolution satellite imagery to refine the spatial boundary of identified wetlands and the capture of additional wetlands). This ensures that trends in on-ground change in wetland extent and characteristics are not conflated with trends in the comprehensiveness and/or accuracy of source data capture processes. Therefore, the results presented in this report supersede previously published results for all reporting periods and this report is not directly comparable to previously published reports. This also means that although wetland extent change across Queensland is typically very small, it is considered indicative of genuine trends in wetland extent rather than artefacts of random differences in mapping conducted at different times.

This report details trends in the extent of natural and slightly modified wetlands across Queensland. Natural wetlands refer to wetlands where activities that modify wetland hydrology and/or structures associated with these activities cannot be observed from aerial or satellite imagery and are not known from field survey data. Modified wetlands for the purposes of state-wide monitoring of wetland system and type extent change are former natural wetlands where activities that modify wetland hydrology and/or structures associated with these activities have been observed from aerial or satellite imagery or from field survey data. Where the nature of these activities and/or structures are considered to enable the wetland to retain many of their functional and ecological characteristics, these are referred to as slightly modified wetlands. While the extent of highly modified wetlands (i.e., where the nature of these activities and/or structures are considered to significantly degrade the wetland's functional and ecological characteristics) and artificial wetlands (i.e., anthropogenically constructed wetlands where no natural or modified wetlands existed prior to the commencement of construction) are included in this report, any trends in their extent are not included.

This report exclusively details trends in the extent of the following wetland systems where they collectively comprise over 80% of their mapped area:

- vegetated freshwater swamps (i.e., palustrine wetlands),
- lakes (i.e., lacustrine wetlands), and
- mangroves and/or salt flats (i.e., estuarine wetlands or intertidal wetland regional ecosystems).

This report excludes rivers (i.e., riverine wetlands), and estuaries, canals, and/or oceans (i.e., intertidal and subtidal waters). Statistics presented in this report are rounded and the IEC 60559 standard has been applied whereby the rounding preferences the even digit. All statistics presented have been standardised to a two year interval. Where standardisation was required (i.e., reporting period extends over more than two years), the observed change in wetland extent (in either hectares or percent) has been averaged.

Temporality of Reporting

Wetland extent and characteristics were historically mapped every four years. More recently, the frequency of wetland extent and characteristics mapping has been increased to every two years. This report presents results on change in wetland extent for the latest reporting period 2017 to 2019, all previous reporting periods (listed below), and historical loss (based on pre-clearing). Pre-clearing wetland extent refers to the maximum areal extent of the wetland prior to clearing (Nelder et al. 2020) and is used as a baseline.

- 2001 to 2005
- 2005 to 2009
- 2009 to 2013
- 2013 to 2017

Scoring System

The following thresholds have been applied to score wetland extent change over a two year period:

Table 1. Scoring system and associated thresholds

Score	Threshold
Very Good	No (0 %) loss of wetlands
Good	< 0.05 % loss of wetlands
Moderate	>= 0.05 and < 0.25 % loss of wetlands
Poor	>= 0.25 and < 1.5 % loss of wetlands
Very Poor	>= 1.5 % loss of wetlands

2 GREAT BARRIER REEF

Across the Great Barrier Reef approximately 645,479.3 hectares of natural wetlands were mapped in 2019 including 251,652.1 hectares of vegetated freshwater swamps, 17,806.5 hectares of lakes, and 376,020.7 hectares of mangroves and/or salt flats.

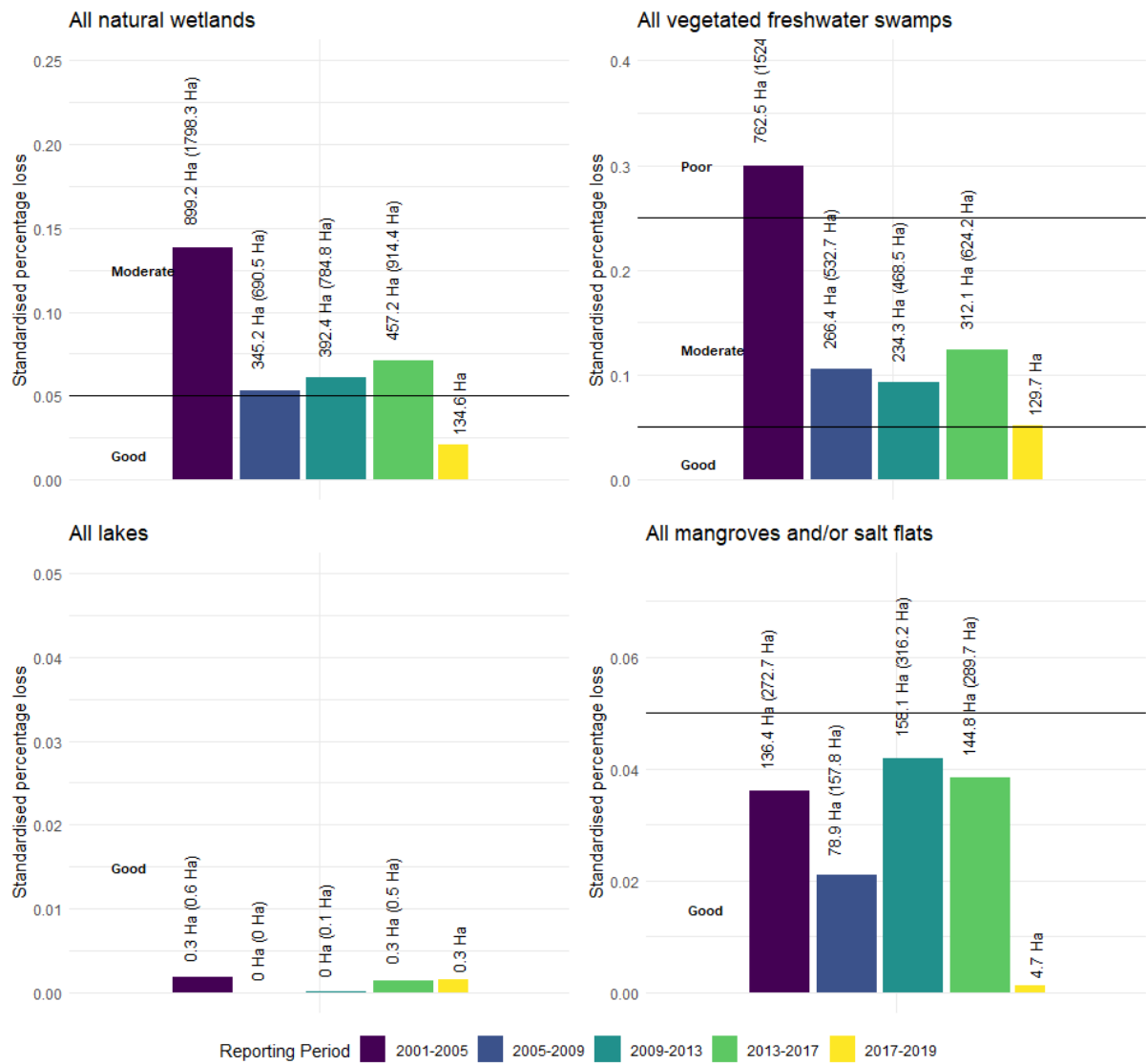
Change in wetland extent of natural wetlands

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Great Barrier Reef	Moderate: 0.138 % loss	Moderate: 0.053% loss	Moderate: 0.061% loss	Moderate: 0.071% loss	Good: 0.021% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.

There was a loss of 134.6 hectares (or 0.02 percent) of natural wetlands across the Great Barrier Reef between 2017 and 2019 (Figure 2-1, Table 2-1). This loss of natural wetlands included: a loss of 129.7 hectares of natural vegetated freshwater swamps wetlands; a loss of 0.3 hectares of natural lakes; and a loss of 4.7 hectares of natural mangroves and/or salt flats. These natural wetlands were lost to infilling or clearing (134.5 hectares) and modification (0.2 hectares).

Loss of natural wetlands has continued since this state-wide wetland extent monitoring began in 2001 but overall, at a slowing rate. A loss of natural wetlands was reported for all reporting period, however, the rate of natural wetland loss between 2017 and 2019 has decreased relative to the previous reporting period receiving a score of 'Good'.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2-1. Change in natural wetland extent across the Great Barrier Reef for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2-1a. Change in extent of natural wetlands across the Great Barrier Reef for all reporting periods as a percentage of the initial extent for each reporting period.

All natural wetlands		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.138	899.2 Ha (1798.3 Ha)
2005-2009	0.053	345.2 Ha (690.5 Ha)
2009-2013	0.061	392.4 Ha (784.8 Ha)
2013-2017	0.071	457.2 Ha (914.4 Ha)
2017-2019	0.021	134.6 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-1b. Change in extent of natural vegetated freshwater swamps across the Great Barrier Reef for all reporting periods as a percentage of the initial extent for each reporting period.

All natural vegetated freshwater swamps		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.300	762.5 Ha (1524.9 Ha)
2005-2009	0.105	266.4 Ha (532.7 Ha)
2009-2013	0.093	234.3 Ha (468.5 Ha)
2013-2017	0.124	312.1 Ha (624.2 Ha)
2017-2019	0.052	129.7 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-1c. Change in extent of natural lakes across the Great Barrier Reef for all reporting periods as a percentage of the initial extent for each reporting period.

All natural lakes		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.002	0.3 Ha (0.6 Ha)
2005-2009	0.000	0 Ha (0 Ha)
2009-2013	0.000	0 Ha (0.1 Ha)
2013-2017	0.001	0.3 Ha (0.5 Ha)
2017-2019	0.002	0.3 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-1d. Change in extent of natural mangroves and/or salt flats across the Great Barrier Reef for all reporting periods as a percentage of the initial extent for each reporting period.

All natural mangroves and/or salt flats		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.036	136.4 Ha (272.7 Ha)
2005-2009	0.021	78.9 Ha (157.8 Ha)
2009-2013	0.042	158.1 Ha (316.2 Ha)
2013-2017	0.038	144.8 Ha (289.7 Ha)
2017-2019	0.001	4.7 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

In 2019, approximately 78.2% of total pre-clearing extent of all wetlands remained across the Great Barrier Reef (Figure 2-2). This includes 66.9% of the pre-clearing extent of vegetated freshwater swamps, 96.6% of the pre-clearing extent of lakes, and 87.2% of the pre-clearing extent of mangroves and/or salt flats. Wetland extent loss has largely occurred prior to 2001 when this state-wide wetland extent monitoring began.

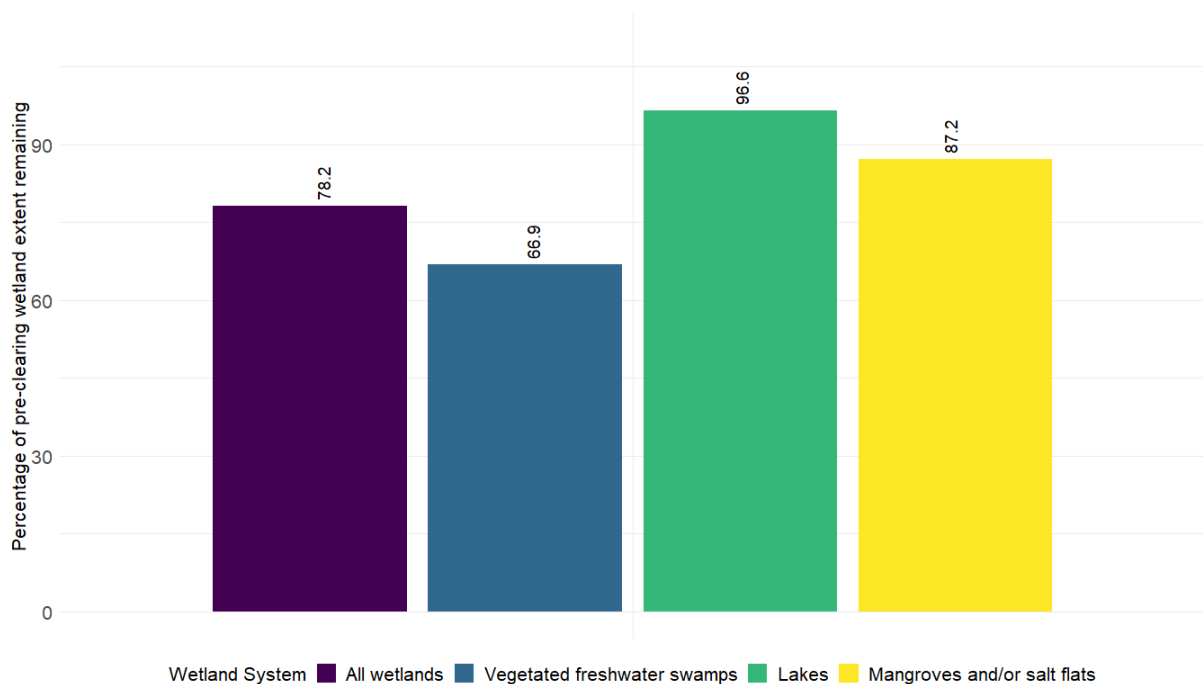
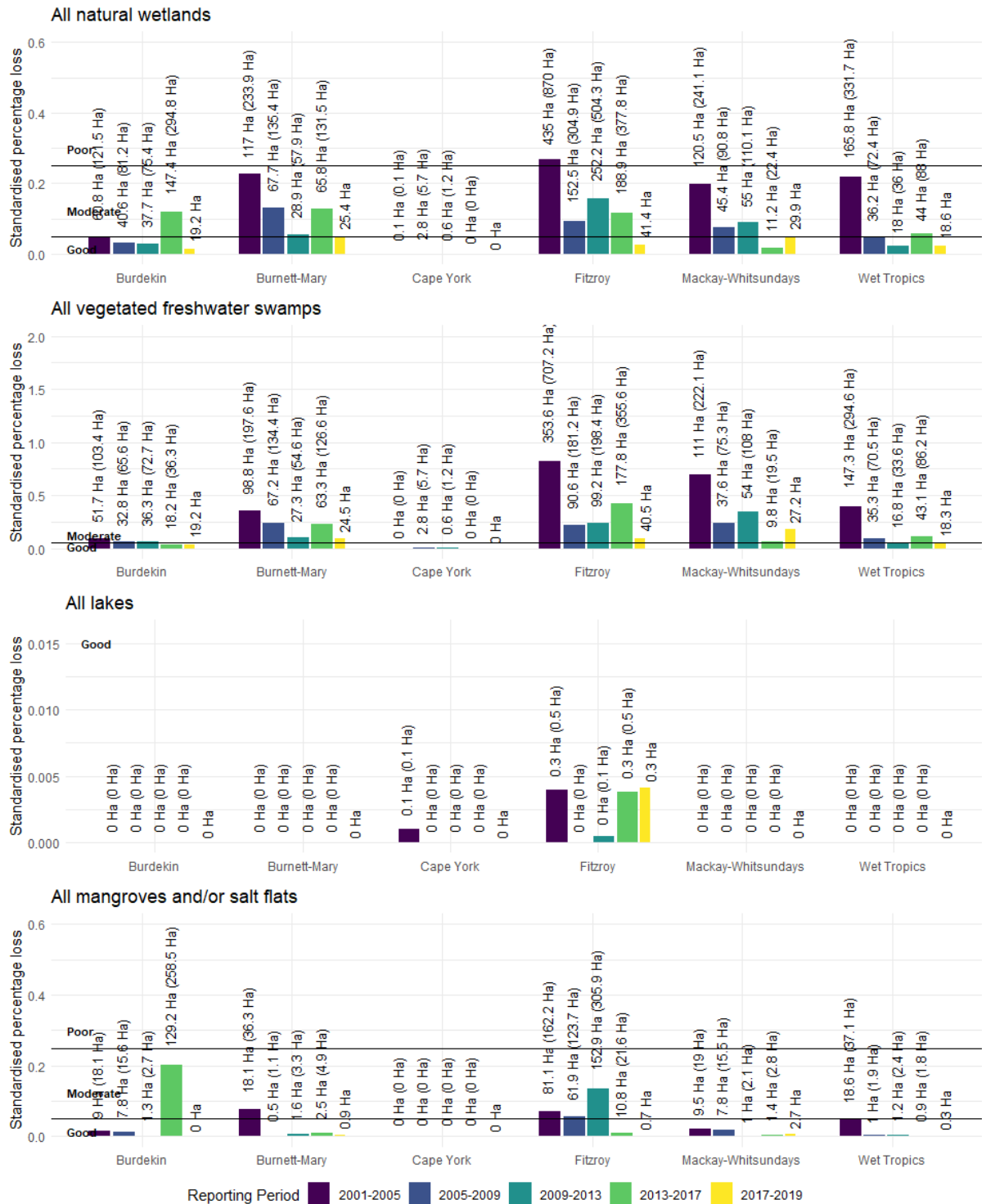


Figure 2-2. Extent of natural wetlands remaining as a percentage of the initial pre-clearing wetland extent.

The trends observed in extent change of natural wetlands across the Great Barrier Reef may vary across different regions (Figure 2-3, Table 2-2). The highest proportional loss of natural wetlands between 2017 and 2019 was in Burnett-Mary where a 25.4 hectares (0.05 percent) loss occurred.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Burdekin	Good: 0.049% loss	Good: 0.033% loss	Good: 0.03% loss	Moderate: 0.119% loss	Good: 0.016% loss
Burnett-Mary	Moderate: 0.227 % loss	Moderate: 0.132% loss	Moderate: 0.056% loss	Moderate: 0.128% loss	Good: 0.05% loss
Cape York	Good: 0% loss	Good: 0.002% loss	Good: 0% loss	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Fitzroy	Poor: 0.268% loss	Moderate: 0.094% loss	Moderate: 0.156% loss	Moderate: 0.117% loss	Good: 0.026% loss
Mackay-Whitsundays	Moderate: 0.198 % loss	Moderate: 0.075% loss	Moderate: 0.091% loss	Good: 0.019% loss	Good: 0.05% loss
Wet Tropics	Moderate: 0.219 % loss	Good: 0.048% loss	Good: 0.024% loss	Moderate: 0.058% loss	Good: 0.025% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2-3. Change in natural wetland extent by reporting region across the Great Barrier Reef for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2-2a. Change in extent of natural wetlands across the Great Barrier Reef by reporting region and reporting period.

Year	Burdekin	Burnett-Mary	Cape York	Fitzroy	Mackay-Whitsundays	Wet Tropics
2001-2005 ⁱ	60.8 Ha (121.5 Ha)	117 Ha (233.9 Ha)	0.1 Ha (0.1 Ha)	435 Ha (870 Ha)	120.5 Ha (241.1 Ha)	165.8 Ha (331.7 Ha)
2005-2009 ⁱ	40.6 Ha (81.2 Ha)	67.7 Ha (135.4 Ha)	2.8 Ha (5.7 Ha)	152.5 Ha (304.9 Ha)	45.4 Ha (90.8 Ha)	36.2 Ha (72.4 Ha)
2009-2013 ⁱ	37.7 Ha (75.4 Ha)	28.9 Ha (57.9 Ha)	0.6 Ha (1.2 Ha)	252.2 Ha (504.3 Ha)	55 Ha (110.1 Ha)	18 Ha (36 Ha)
2013-2017 ⁱ	147.4 Ha (294.8 Ha)	65.8 Ha (131.5 Ha)	0 Ha (0 Ha)	188.9 Ha (377.8 Ha)	11.2 Ha (22.4 Ha)	44 Ha (88 Ha)
2017-2019	19.2 Ha	25.4 Ha	0 Ha	41.4 Ha	29.9 Ha	18.6 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-2b. Change in extent of natural vegetated freshwater swamps across the Great Barrier Reef by reporting region and reporting period.

Year	Burdekin	Burnett-Mary	Cape York	Fitzroy	Mackay-Whitsundays	Wet Tropics
2001-2005 ⁱ	51.7 Ha (103.4 Ha)	98.8 Ha (197.6 Ha)	0 Ha (0 Ha)	353.6 Ha (707.2 Ha)	111 Ha (222.1 Ha)	147.3 Ha (294.6 Ha)
2005-2009 ⁱ	32.8 Ha (65.6 Ha)	67.2 Ha (134.4 Ha)	2.8 Ha (5.7 Ha)	90.6 Ha (181.2 Ha)	37.6 Ha (75.3 Ha)	35.3 Ha (70.5 Ha)
2009-2013 ⁱ	36.3 Ha (72.7 Ha)	27.3 Ha (54.6 Ha)	0.6 Ha (1.2 Ha)	99.2 Ha (198.4 Ha)	54 Ha (108 Ha)	16.8 Ha (33.6 Ha)
2013-2017 ⁱ	18.2 Ha (36.3 Ha)	63.3 Ha (126.6 Ha)	0 Ha (0 Ha)	177.8 Ha (355.6 Ha)	9.8 Ha (19.5 Ha)	43.1 Ha (86.2 Ha)
2017-2019	19.2 Ha	24.5 Ha	0 Ha	40.5 Ha	27.2 Ha	18.3 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-2c. Change in extent of natural lakes across the Great Barrier Reef by reporting region and reporting period.

Year	Burdekin	Burnett-Mary	Cape York	Fitzroy	Mackay-Whitsundays	Wet Tropics
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0.1 Ha (0.1 Ha)	0.3 Ha (0.5 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0.1 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0.3 Ha (0.5 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0.3 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-2d. Change in extent of natural mangroves and/or salt flats across the Great Barrier Reef by reporting region and reporting period.

Year	Burdekin	Burnett-Mary	Cape York	Fitzroy	Mackay-Whitsundays	Wet Tropics
2001-2005 ⁱ	9 Ha (18.1 Ha)	18.1 Ha (36.3 Ha)	0 Ha (0 Ha)	81.1 Ha (162.2 Ha)	9.5 Ha (19 Ha)	18.6 Ha (37.1 Ha)
2005-2009 ⁱ	7.8 Ha (15.6 Ha)	0.5 Ha (1.1 Ha)	0 Ha (0 Ha)	61.9 Ha (123.7 Ha)	7.8 Ha (15.5 Ha)	1 Ha (1.9 Ha)
2009-2013 ⁱ	1.3 Ha (2.7 Ha)	1.6 Ha (3.3 Ha)	0 Ha (0 Ha)	152.9 Ha (305.9 Ha)	1 Ha (2.1 Ha)	1.2 Ha (2.4 Ha)
2013-2017 ⁱ	129.2 Ha (258.5 Ha)	2.5 Ha (4.9 Ha)	0 Ha (0 Ha)	10.8 Ha (21.6 Ha)	1.4 Ha (2.8 Ha)	0.9 Ha (1.8 Ha)
2017-2019	0 Ha	0.9 Ha	0 Ha	0.7 Ha	2.7 Ha	0.3 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Notable contributions to the observed loss of natural wetlands between 2017 and 2019 in the Great Barrier Reef have been: (1) in Mackay-Whitsundays region where the highest proportional loss of vegetated freshwater swamps (0.18 percent) occurred and comprised of 27.2 hectares of wetlands lost to infilling and/or clearing ; and (2) in Mackay-Whitsundays region where the highest proportional loss of mangroves and/or salt flats (0.01 percent) occurred and comprised of 2.6 hectares of wetlands lost to modification .

No natural wetland loss has occurred in the Cape York region in the latest reporting period consistent with the previous reporting period. In addition, the most recent reporting period observed limited loss in natural mangroves and/or salt flats across all regions in contrast to earlier reporting periods.

Wetland extent loss in the Great Barrier Reef largely occurred prior to 2001 when this state-wide wetland extent monitoring began (Figure 4). The historical loss of vegetated freshwater swamps occurred mostly in coastal regions with extensive lowlands including the Mackay-Whitsunday and Wet Tropics regions due to drainage, clearing, and/or leveling activities associated with intensive agriculture or urban use. The historical loss of mangroves and/or salt flats is comparatively lower with many regions retaining over 80 to 90 percent of their pre-clearing extent. The Cape York region has experienced the lowest historical loss of wetland extent.

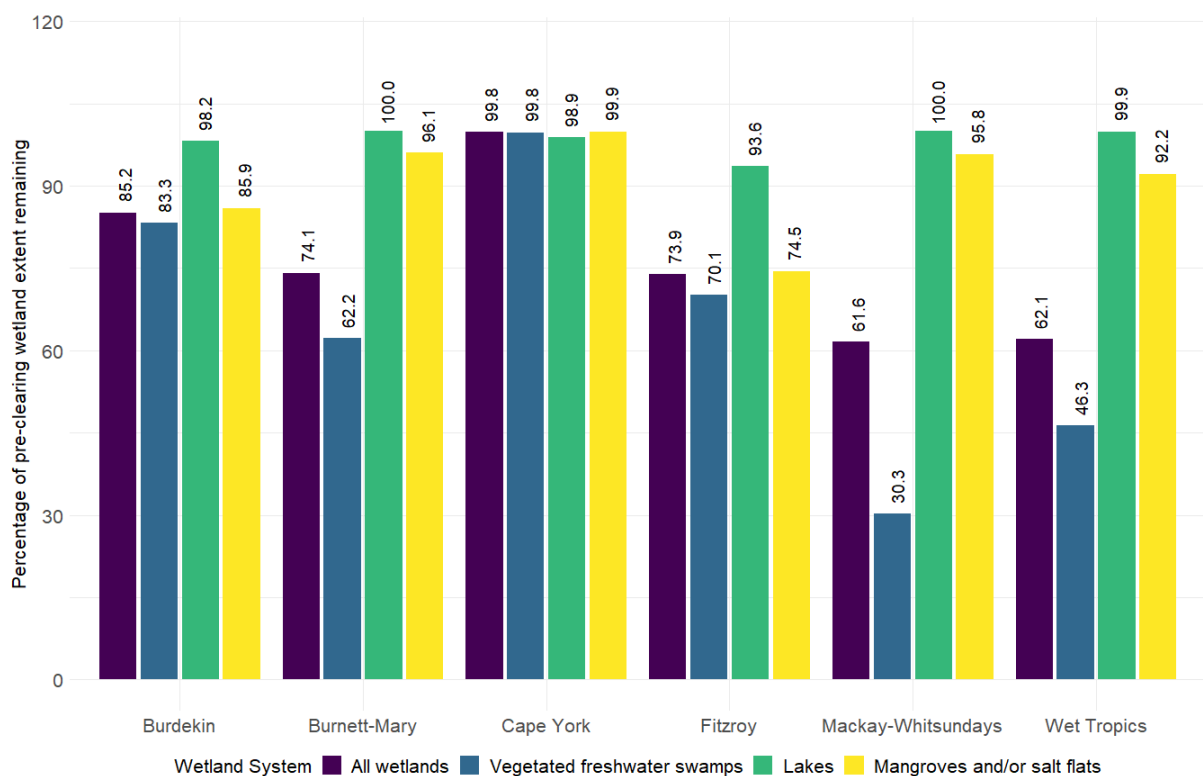


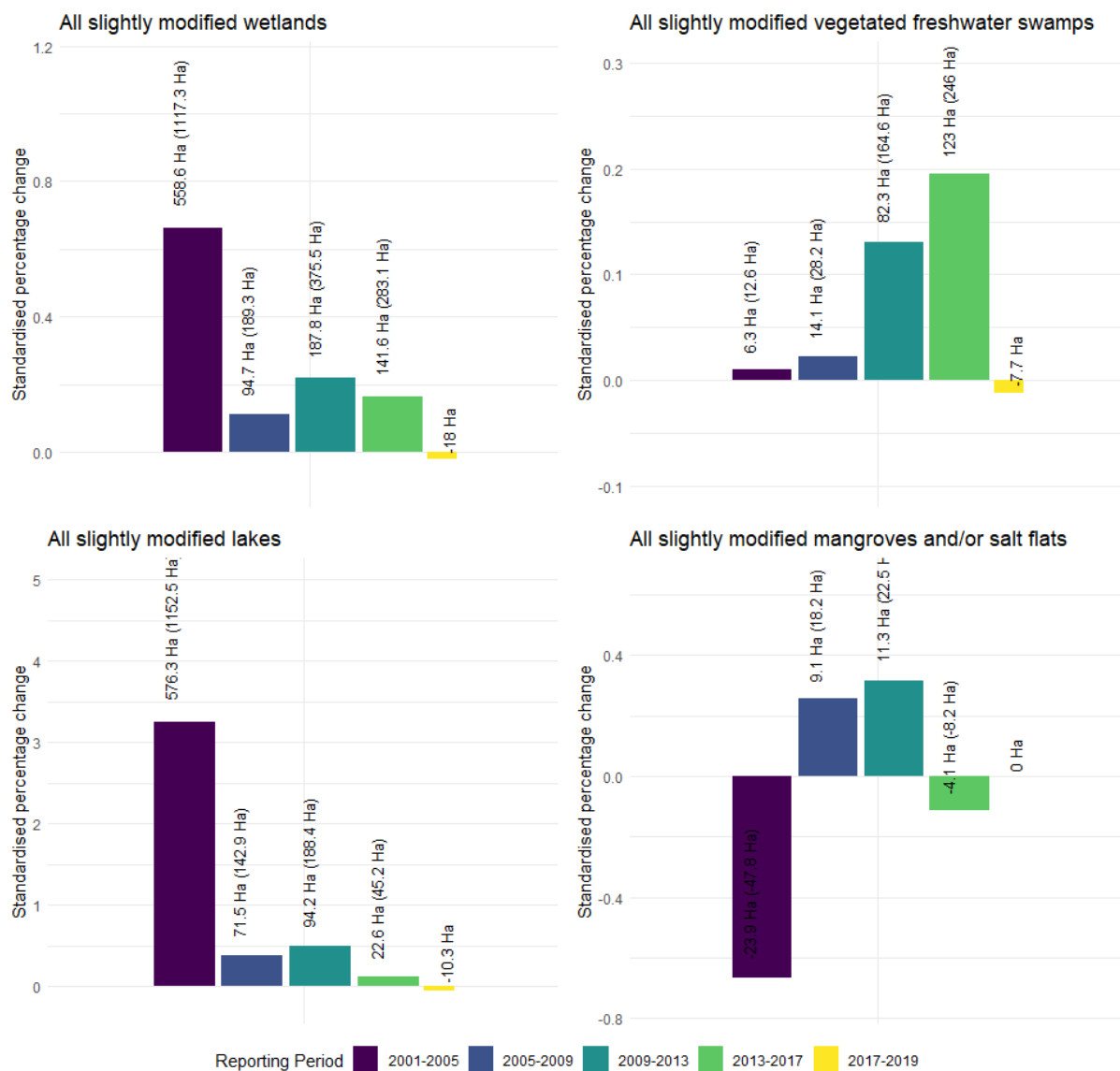
Figure 2-4. Extent of natural wetlands remaining across the Great Barrier Reef as a percentage of the initial pre-clearing wetland extent.

Further information on trends for each Great Barrier Reef region and their catchments can be found in [2.1 Wetlands of the Burdekin Region](#), [2.2 Wetlands of the Burnett Mary Region](#), [2.3 Wetlands of Cape York Region](#), [2.4 Wetlands of the Fitzroy Region](#), [2.5 Wetlands of the Mackay-Whitsundays Region](#) and [2.6 Wetlands of the Wet Tropics Region](#).

Change in wetland extent of slightly modified wetlands

Approximately 86,124.3 of slightly modified wetlands were mapped across the Great Barrier Reef in 2019. This includes 63,355.2 hectares of slightly modified vegetated freshwater swamps, 19,207.1 hectares of slightly modified lakes, and 3,562 hectares of slightly modified mangroves and/or salt flats respectively.

A net decrease of 18 hectares of slightly modified wetlands occurred across the Great Barrier Reef between 2017 and 2019 (Figure 2-5). However, net change in slightly modified wetlands can mask the real loss of these wetlands that occurs simultaneously (Figure 2-6). 10.6 hectares of slightly modified wetlands were lost to infilling and clearing activities between 2017 and 2019 including: 0.1 hectares of slightly modified vegetated freshwater swamps; 10.4 hectares of slightly modified lakes. In addition, 3.5 hectares of slightly modified wetlands were lost to modification between 2017 and 2019 including: 2.1 hectares of slightly modified vegetated freshwater swamps; 3.5 hectares of slightly modified lakes.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2-5. Net change in slightly modified wetland extent across the Great Barrier Reef for all reporting periods as a percentage of the initial extent for each reporting period.

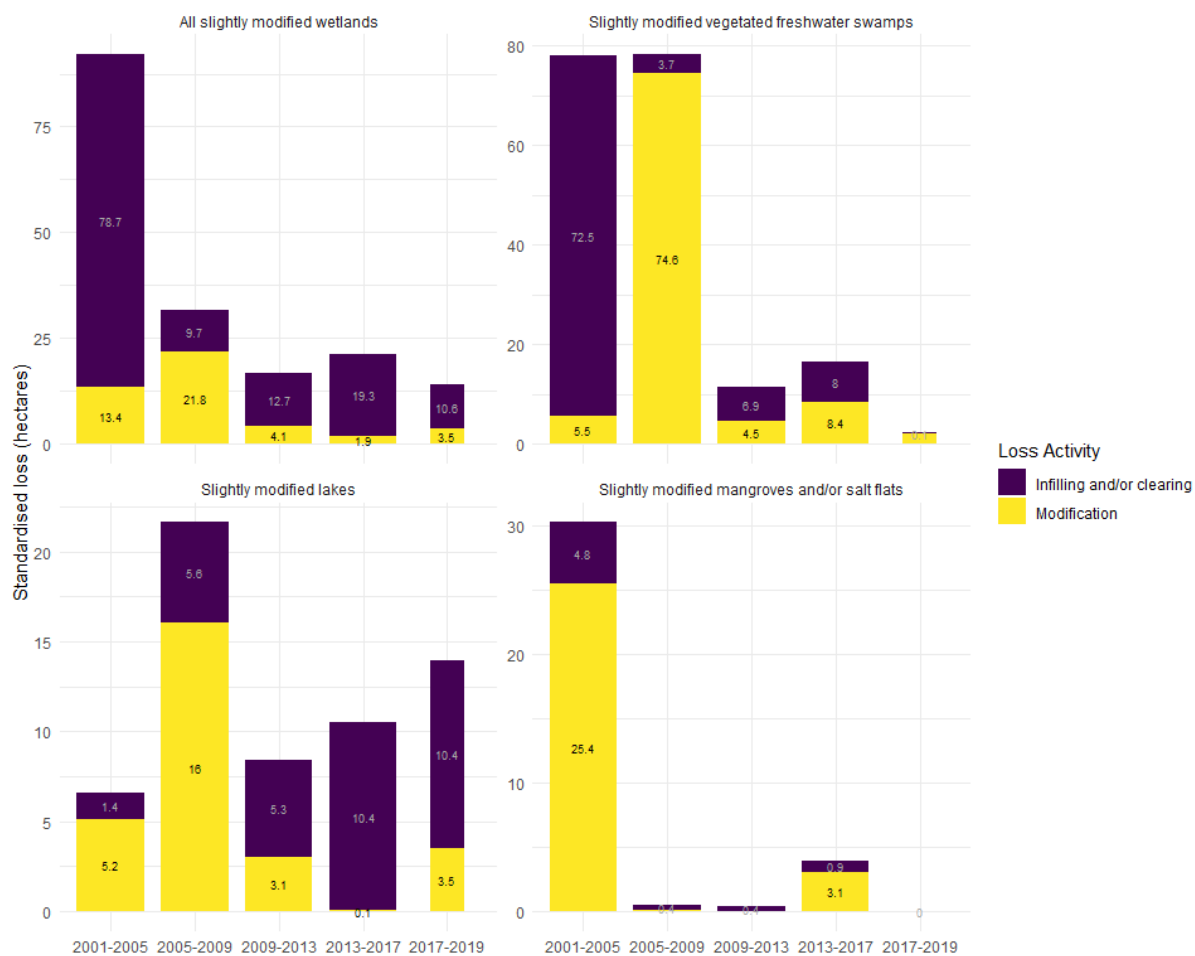


Figure 2-6. Change in slightly modified wetland extent across the Great Barrier Reef for all reporting periods in hectares.

The trends observed in the net change (Figure 2-7) and loss (Figure 2-8, Table 2-3) of slightly modified wetlands across the Great Barrier Reef may also vary across different regions. The highest proportional loss of slightly modified wetlands between 2017 and 2019 was in Burnett-Mary where a 25.4 hectares (0.05 percent) loss occurred.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2-7. Net change in slightly modified wetland extent across the Great Barrier Reef by reporting region for all reporting periods as a percentage of the initial extent for each reporting period.

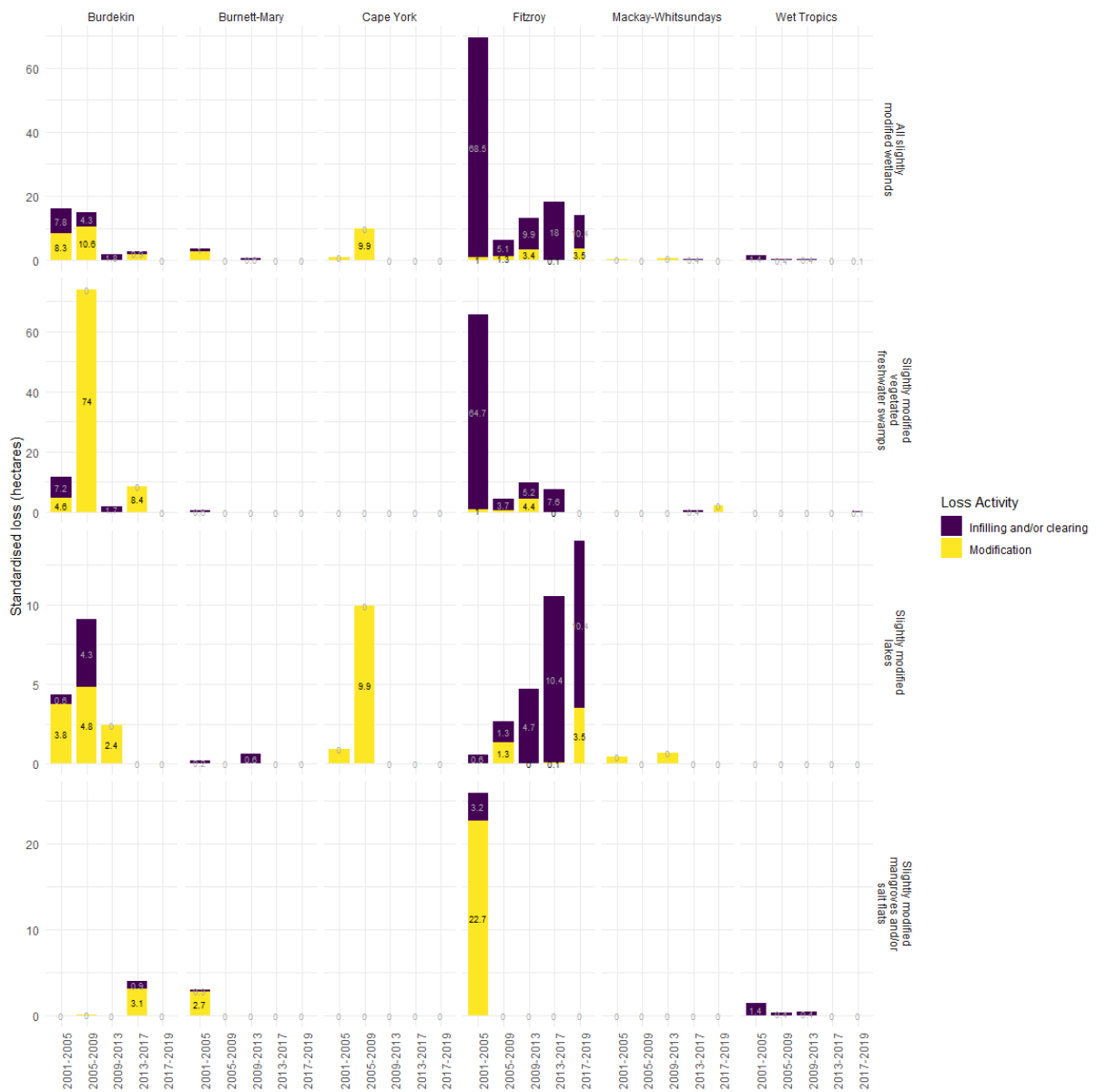


Figure 2-8. Change in slightly modified wetland extent across the Great Barrier Reef by reporting region for all reporting periods in hectares.

Table 2-3a. Change in extent of slightly modified wetlands across the Great Barrier Reef by reporting region and reporting periods.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Burdekin ⁱ	Infilling and/or Clearing: 7.8 Ha (15.7 Ha) Modification: 8.3 Ha (16.7 Ha)	Infilling and/or Clearing: 4.3 Ha (8.6 Ha) Modification: 10.6 Ha (21.1 Ha)	Infilling and/or Clearing: 1.8 Ha (3.6 Ha) Modification: 0.1 Ha (0.1 Ha)	Infilling and/or Clearing: 0.9 Ha (1.8 Ha) Modification: 1.8 Ha (3.6 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burnett-Mary ⁱ	Infilling and/or Clearing: 1 Ha (2 Ha) Modification: 2.7 Ha (5.5 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.6 Ha (1.3 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Cape York ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.9 Ha (1.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 9.9 Ha (19.8 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroy ⁱ	Infilling and/or Clearing: 68.5 Ha (136.9 Ha) Modification: 1 Ha (1.9 Ha)	Infilling and/or Clearing: 5.1 Ha (10.1 Ha) Modification: 1.3 Ha (2.6 Ha)	Infilling and/or Clearing: 9.9 Ha (19.7 Ha) Modification: 3.4 Ha (6.8 Ha)	Infilling and/or Clearing: 18 Ha (36 Ha) Modification: 0.1 Ha (0.2 Ha)	Infilling and/or Clearing: 10.4 Ha Modification: 3.5 Ha
Mackay-Whitsundays	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.5 Ha (0.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.7 Ha (1.3 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Wet Tropics	Infilling and/or Clearing: 1.4 Ha (2.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.7 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.1 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-3b. Change in extent of slightly modified vegetated freshwater swamps across the Great Barrier Reef by reporting region and reporting periods.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Burdekin ⁱ	Infilling and/or Clearing: 7.2 Ha (14.5 Ha) Modification: 4.6 Ha (9.2 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 74 Ha (148 Ha)	Infilling and/or Clearing: 1.7 Ha (3.5 Ha) Modification: 0.1 Ha (0.1 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 8.4 Ha (16.9 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burnett-Mary ⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Cape York ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroy ⁱ	Infilling and/or Clearing: 64.7 Ha (129.4 Ha) Modification: 1 Ha (1.9 Ha)	Infilling and/or Clearing: 3.7 Ha (7.5 Ha) Modification: 0.6 Ha (1.1 Ha)	Infilling and/or Clearing: 5.2 Ha (10.4 Ha) Modification: 4.4 Ha (8.9 Ha)	Infilling and/or Clearing: 7.6 Ha (15.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mackay-Whitsundays	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 2.1 Ha
Wet Tropics	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.1 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-3c. Change in extent of slightly modified lakes across the Great Barrier Reef by reporting region and reporting periods.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Burdekin ⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 3.8 Ha (7.5 Ha)	Infilling and/or Clearing: 4.3 Ha (8.6 Ha) Modification: 4.8 Ha (9.6 Ha)	Infilling and/or Clearing: 0 Ha (0.1 Ha) Modification: 2.4 Ha (4.8 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burnett-Mary ⁱ	Infilling and/or Clearing: 0.2 Ha (0.4 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.6 Ha (1.3 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Cape York ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.9 Ha (1.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 9.9 Ha (19.8 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroy ⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 1.3 Ha (2.7 Ha) Modification: 1.3 Ha (2.7 Ha)	Infilling and/or Clearing: 4.7 Ha (9.3 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 10.4 Ha (20.8 Ha) Modification: 0.1 Ha (0.2 Ha)	Infilling and/or Clearing: 10.4 Ha Modification: 3.5 Ha
Mackay-Whitsundays	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.5 Ha (0.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.7 Ha (1.3 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Wet Tropics	Infilling and/or Clearing: 0 Ha (0.1 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2-3d. Change in extent of slightly modified mangroves and/or salt flats across the Great Barrier Reef by reporting region and reporting periods.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Burdekin ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.1 Ha (0.3 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.9 Ha (1.8 Ha) Modification: 3.1 Ha (6.2 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burnett-Mary ⁱ	Infilling and/or Clearing: 0.3 Ha (0.5 Ha) Modification: 2.7 Ha (5.5 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Cape York ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroy ⁱ	Infilling and/or Clearing: 3.2 Ha (6.4 Ha) Modification: 22.7 Ha (45.4 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mackay-Whitsundays	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Wet Tropics	Infilling and/or Clearing: 1.4 Ha (2.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.7 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Highly modified and artificial

Approximately 163,580 of highly modified and artificial wetlands were mapped across the Great Barrier Reef in 2019. This includes 6,907.1 hectares of highly modified and artificial vegetated freshwater swamps, 156,672.9 hectares of highly modified and artificial lakes, and 0 hectares of highly modified and artificial mangroves and/or salt flats. Highly modified and artificial wetlands are excluded from the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of “No loss of the extent of natural wetlands” and therefore any trends in their extent are not further analysed.

2.1 Wetlands of the Burdekin Region

Across the Burdekin region approximately 123,849.1 hectares of natural wetlands were mapped in 2019 including 55,668.7 hectares of vegetated freshwater swamps, 4,943.6 hectares of lakes, and 63,236.8 hectares of mangroves and/or salt flats.

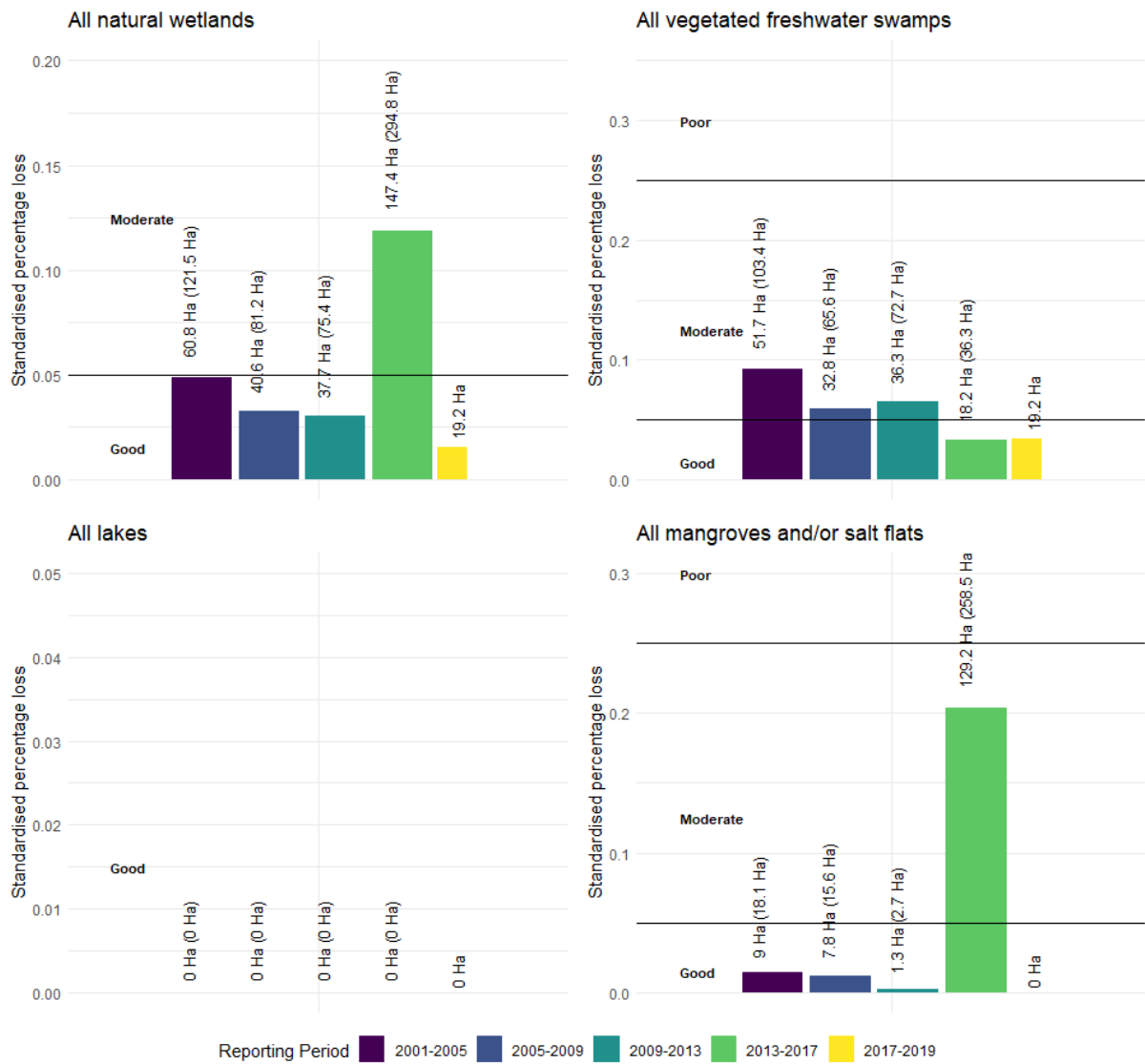
Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Burdekin	Good: 0.049% loss	Good: 0.033% loss	Good: 0.03% loss	Moderate: 0.119% loss	Good: 0.016% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.

Change in wetland extent of natural wetlands

There was a loss of 19.2 hectares (or 0.02 percent) of natural wetlands across the Burdekin region between 2017 and 2019 (Figure 2.1-1, Table 2.1-1). This loss of natural wetlands included: a loss of 19.2 hectares of natural vegetated freshwater swamps wetlands; no loss of natural lakes; and a loss of 0 hectares of natural mangroves and/or salt flats. These natural wetlands were lost to infilling or clearing (19.2 hectares) and modification (0 hectares).

A loss of natural wetlands was reported for all reporting periods, however, the rate of natural wetland loss between 2017 and 2019 has decreased relative to the previous reporting period receiving a score of 'Good'.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.1-1. Change in natural wetland extent across the Burdekin region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.1-1a. Change in extent of natural wetlands across the Burdekin region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural wetlands		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.049	60.8 Ha (121.5 Ha)
2005-2009	0.033	40.6 Ha (81.2 Ha)
2009-2013	0.030	37.7 Ha (75.4 Ha)
2013-2017	0.119	147.4 Ha (294.8 Ha)
2017-2019	0.016	19.2 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-1b. Change in extent of natural vegetated freshwater swamps across the Burdekin region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural vegetated freshwater swamps		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.092	51.7 Ha (103.4 Ha)
2005-2009	0.059	32.8 Ha (65.6 Ha)
2009-2013	0.065	36.3 Ha (72.7 Ha)
2013-2017	0.033	18.2 Ha (36.3 Ha)
2017-2019	0.034	19.2 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-1c. Change in extent of natural lakes across the Burdekin region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural lakes		
Reporting Period	Percent loss	Hectare loss
2001-2005	0	0 Ha (0 Ha)
2005-2009	0	0 Ha (0 Ha)
2009-2013	0	0 Ha (0 Ha)
2013-2017	0	0 Ha (0 Ha)
2017-2019	0	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-1d. Change in extent of natural mangroves and/or salt flats across the Burdekin region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural mangroves and/or salt flats		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.014	9 Ha (18.1 Ha)
2005-2009	0.012	7.8 Ha (15.6 Ha)
2009-2013	0.002	1.3 Ha (2.7 Ha)
2013-2017	0.204	129.2 Ha (258.5 Ha)
2017-2019	0.000	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

In 2019, approximately 85.2% of total pre-clearing extent of all wetlands remained across the Burdekin region (Figure 2.1-2). This includes 83.3% of the pre-clearing extent of vegetated freshwater swamps, 98.2% of the pre-clearing extent of lakes, and 85.9% of the pre-clearing extent of mangroves and/or salt flats. Wetland extent loss has largely occurred prior to 2001 when this state-wide wetland extent monitoring began.

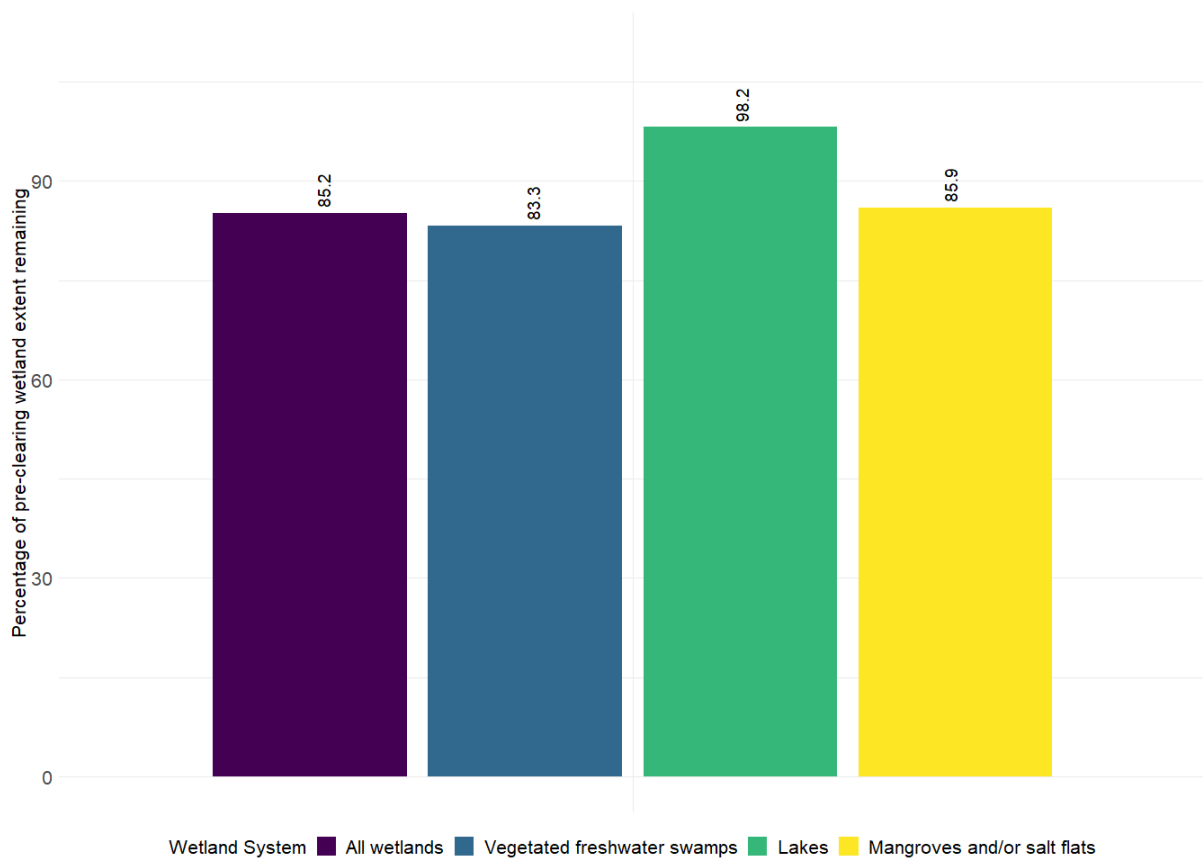
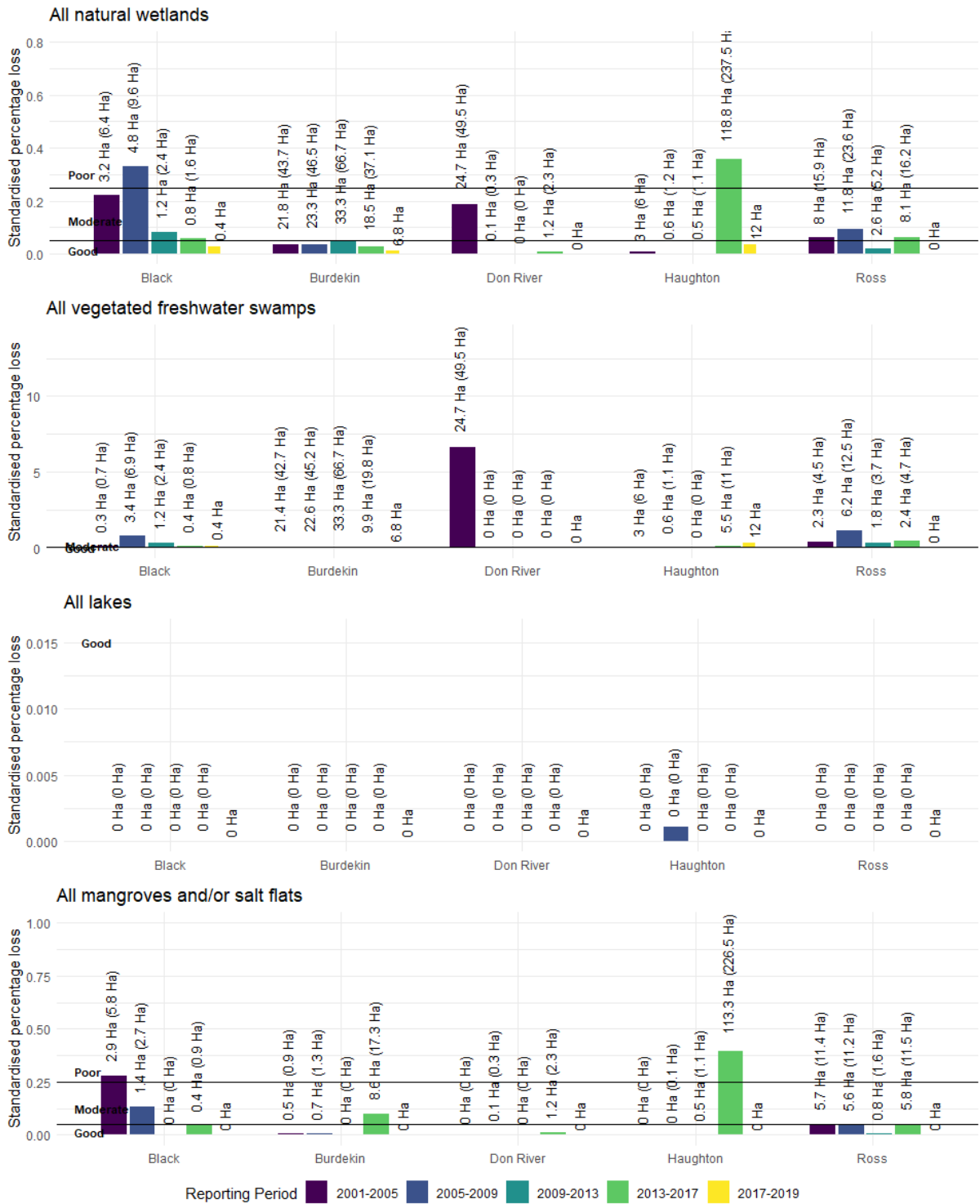


Figure 2.1-2. Extent of natural wetlands remaining in the Burdekin region as a percentage of the initial pre-clearing wetland extent.

The trends observed in extent change of natural wetlands across the Burdekin region may vary across different catchments (Figure 2.1-3, Table 2.1-2). The highest proportional loss of natural wetlands between 2017 and 2019 was in Haughton where 12 hectares (0.04 percent) loss occurred.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Black	Moderate: 0.221 % loss	Poor: 0.33 % loss	Moderate: 0.082% loss	Moderate: 0.057% loss	Good: 0.027% loss
Burdekin	Good: 0.034% loss	Good: 0.036% loss	Moderate: 0.052% loss	Good: 0.029% loss	Good: 0.011% loss
Don River	Moderate: 0.187 % loss	Good: 0.001% loss	Very Good: No (0%) loss of wetlands	Good: 0.009% loss	Good: 0% loss
Haughton	Good: 0.009% loss	Good: 0.002% loss	Good: 0.002% loss	Poor: 0.357% loss	Good: 0.036% loss
Ross	Moderate: 0.063 % loss	Moderate: 0.093% loss	Good: 0.021% loss	Moderate: 0.064% loss	Very Good: No (0%) loss of wetlands

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.1-3. Change in natural wetland extent by reporting catchment across the Burdekin region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.1-2a. Change in extent of natural wetlands across the Burdekin region by reporting catchment and reporting period.

Year	Black	Burdekin	Don River	Haughton	Ross
2001-2005 ⁱ	3.2 Ha (6.4 Ha)	21.8 Ha (43.7 Ha)	24.7 Ha (49.5 Ha)	3 Ha (6 Ha)	8 Ha (15.9 Ha)
2005-2009 ⁱ	4.8 Ha (9.6 Ha)	23.3 Ha (46.5 Ha)	0.1 Ha (0.3 Ha)	0.6 Ha (1.2 Ha)	11.8 Ha (23.6 Ha)
2009-2013 ⁱ	1.2 Ha (2.4 Ha)	33.3 Ha (66.7 Ha)	0 Ha (0 Ha)	0.5 Ha (1.1 Ha)	2.6 Ha (5.2 Ha)
2013-2017 ⁱ	0.8 Ha (1.6 Ha)	18.5 Ha (37.1 Ha)	1.2 Ha (2.3 Ha)	118.8 Ha (237.5 Ha)	8.1 Ha (16.2 Ha)
2017-2019	0.4 Ha	6.8 Ha	0 Ha	12 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-2b. Change in extent of natural vegetated freshwater swamps across the Burdekin region by reporting catchment and reporting period.

Year	Black	Burdekin	Don River	Haughton	Ross
2001-2005 ⁱ	0.3 Ha (0.7 Ha)	21.4 Ha (42.7 Ha)	24.7 Ha (49.5 Ha)	3 Ha (6 Ha)	2.3 Ha (4.5 Ha)
2005-2009 ⁱ	3.4 Ha (6.9 Ha)	22.6 Ha (45.2 Ha)	0 Ha (0 Ha)	0.6 Ha (1.1 Ha)	6.2 Ha (12.5 Ha)
2009-2013 ⁱ	1.2 Ha (2.4 Ha)	33.3 Ha (66.7 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	1.8 Ha (3.7 Ha)
2013-2017 ⁱ	0.4 Ha (0.8 Ha)	9.9 Ha (19.8 Ha)	0 Ha (0 Ha)	5.5 Ha (11 Ha)	2.4 Ha (4.7 Ha)
2017-2019	0.4 Ha	6.8 Ha	0 Ha	12 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-2c. Change in extent of natural lakes across the Burdekin region by reporting catchment and reporting period.

Year	Black	Burdekin	Don River	Haughton	Ross
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-2d. Change in extent of natural mangroves and/or salt flats across the Burdekin region by reporting catchment and reporting period.

Year	Black	Burdekin	Don River	Haughton	Ross
2001-2005 ⁱ	2.9 Ha (5.8 Ha)	0.5 Ha (0.9 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	5.7 Ha (11.4 Ha)
2005-2009 ⁱ	1.4 Ha (2.7 Ha)	0.7 Ha (1.3 Ha)	0.1 Ha (0.3 Ha)	0 Ha (0.1 Ha)	5.6 Ha (11.2 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0.5 Ha (1.1 Ha)	0.8 Ha (1.6 Ha)
2013-2017 ⁱ	0.4 Ha (0.9 Ha)	8.6 Ha (17.3 Ha)	1.2 Ha (2.3 Ha)	113.3 Ha (226.5 Ha)	5.8 Ha (11.5 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Notable contributions to the observed loss of natural wetlands between 2017 and 2019 in the Burdekin have been: (1) in Haughton catchment where the highest proportional loss of vegetated freshwater swamps (0.27 percent) occurred and comprised of 12 hectares of wetlands lost to infilling and/or clearing.

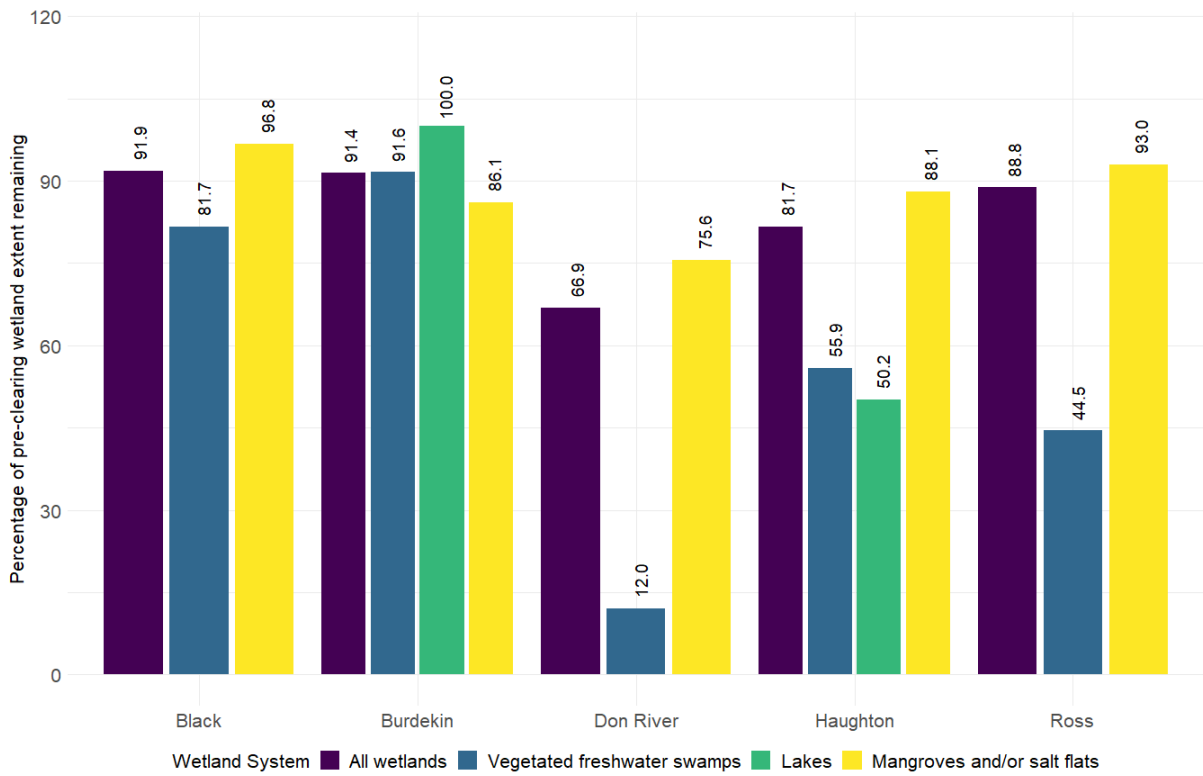
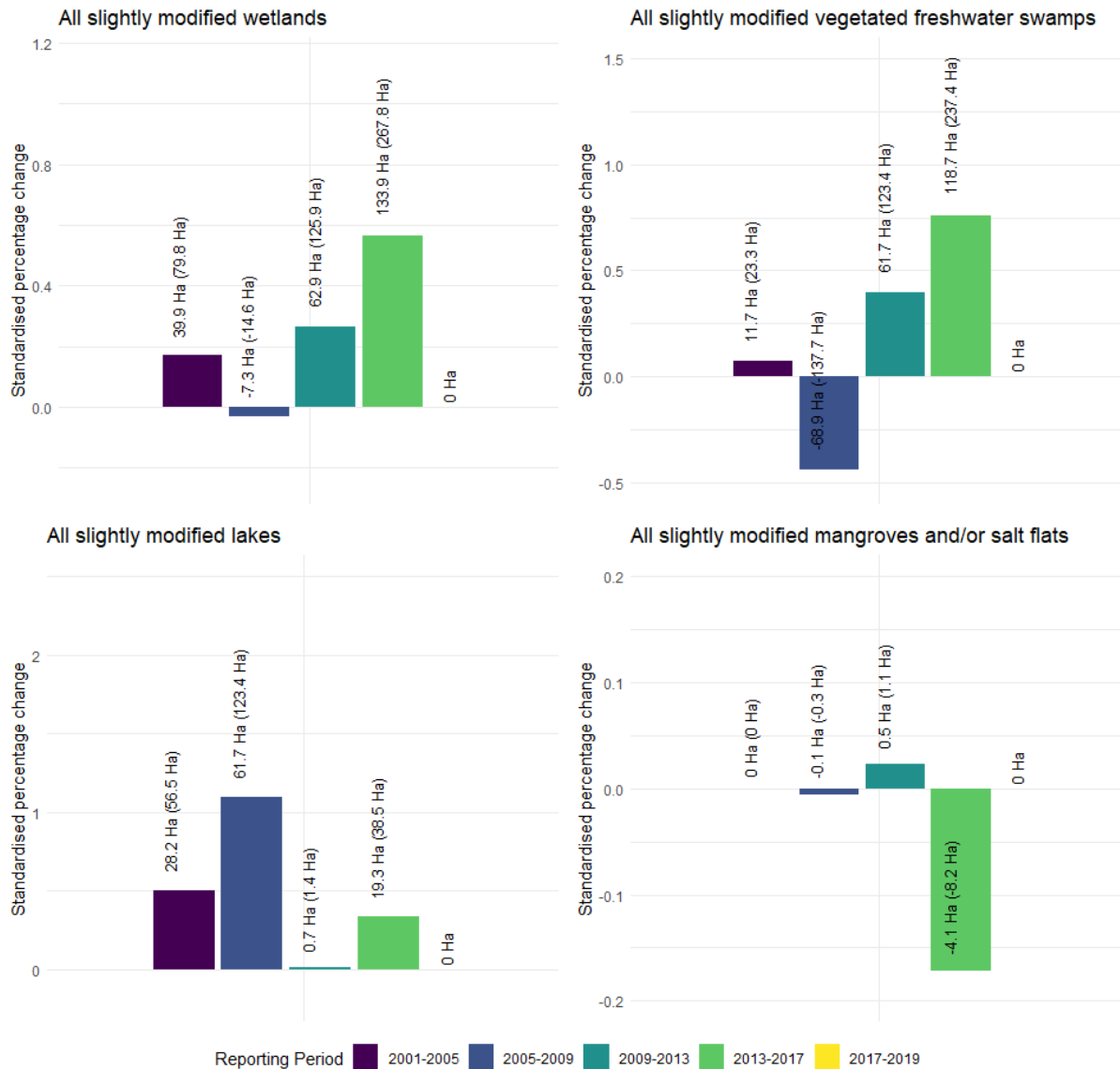


Figure 2.1-4. Extent of natural wetlands remaining across the Burdekin region as a percentage of the initial pre-clearing wetland extent.

Change in wetland extent of slightly modified wetlands

Approximately 24,044.6 of slightly modified wetlands were mapped across the Burdekin region in 2019. This includes 15,869.2 hectares of slightly modified vegetated freshwater swamps, 5,812.1 hectares of slightly modified lakes, and 2,363.2 hectares of slightly modified mangroves and/or salt flats respectively.

No net change of slightly modified wetlands occurred across the Burdekin region between 2017 and 2019 (Figure 2.1-5). However, net change in slightly modified wetlands can mask the real loss of these wetlands that occurs simultaneously (Figure 2.1-6).



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.1-5. Net change in slightly modified wetland extent in the Burdekin region for all reporting periods as a percentage of the initial extent for each reporting period.

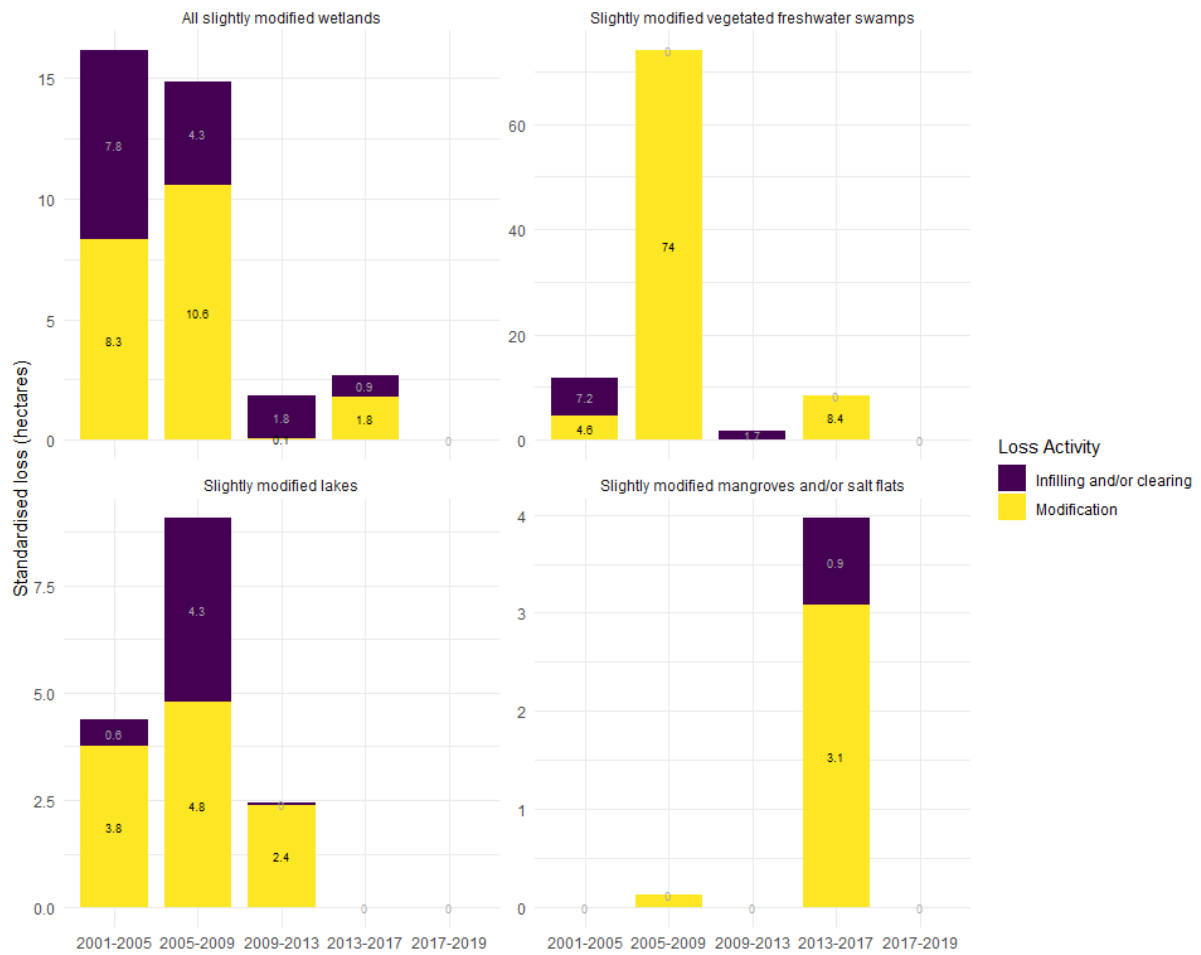
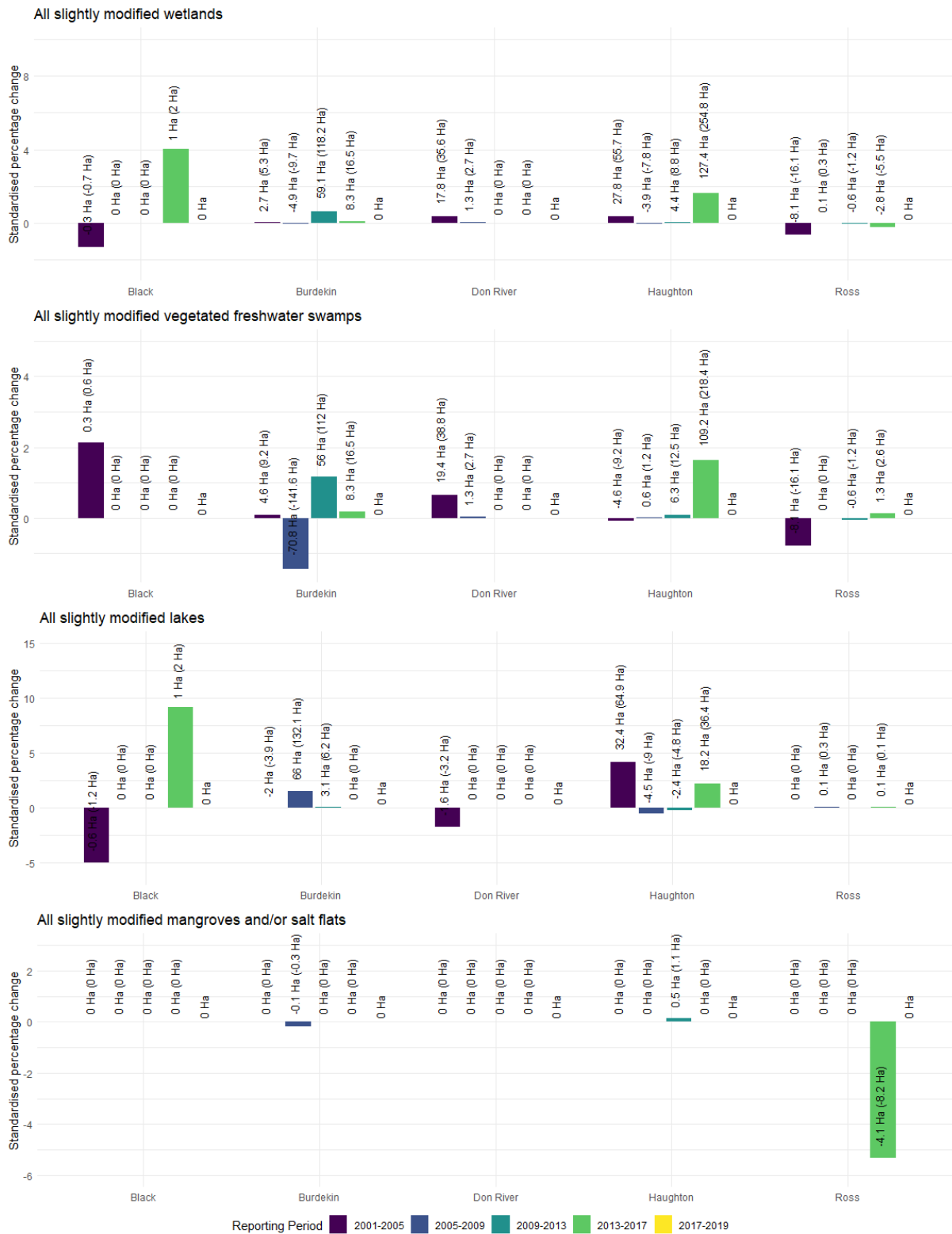


Figure 2.1-6. Change in slightly modified wetland extent in the Burdekin region for all reporting periods in hectares.

The trends observed in the net change (Figure 15) and loss (Figure 2.1-7, Table 2.1-3) of slightly modified wetlands across the Burdekin region may vary across different catchments. The highest proportional loss of slightly modified wetlands between 2017 and 2019 was in Haughton where a 12 hectares (0.04 percent) loss occurred.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.1-7. Net change in slightly modified wetland extent across the Burdekin region by reporting catchment for all reporting periods as a percentage of the initial extent for each reporting period.

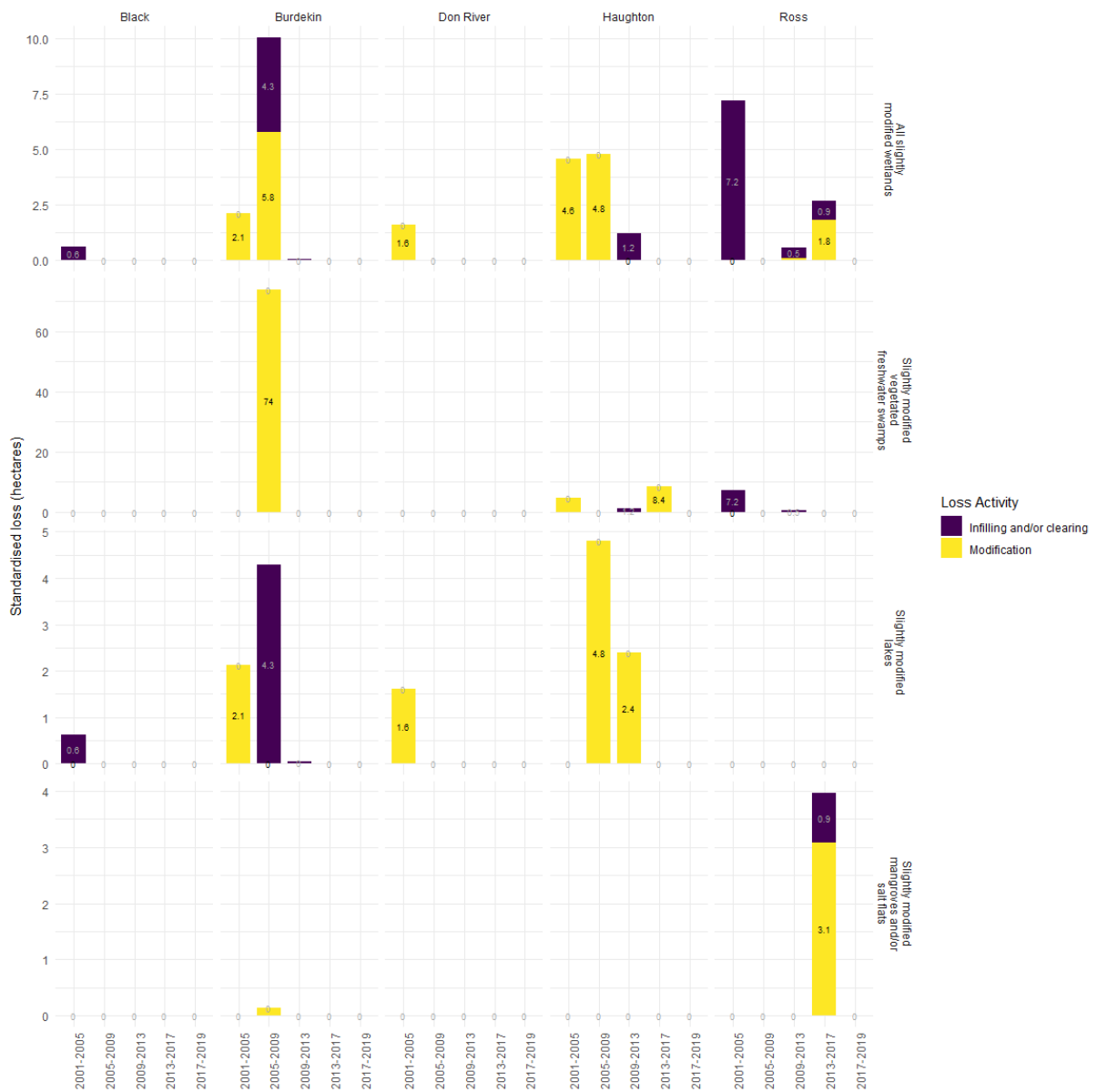


Figure 2.1-8. Change in slightly modified wetland extent across the Burdekin region by reporting catchment for all reporting periods in hectares.

Table 2.1-3a. Change in extent of slightly modified wetlands across the Burdekin region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Blackⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burdekinⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 2.1 Ha (4.3 Ha)	Infilling and/or Clearing: 4.3 Ha (8.6 Ha) Modification: 5.8 Ha (11.5 Ha)	Infilling and/or Clearing: 0 Ha (0.1 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Don Riverⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 1.6 Ha (3.2 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Haughtonⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 4.6 Ha (9.2 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 4.8 Ha (9.6 Ha)	Infilling and/or Clearing: 1.2 Ha (2.4 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Ross	Infilling and/or Clearing: 7.2 Ha (14.4 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.5 Ha (1 Ha) Modification: 0.1 Ha (0.1 Ha)	Infilling and/or Clearing: 0.9 Ha (1.8 Ha) Modification: 1.8 Ha (3.6 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-3b. Change in extent of slightly modified vegetated freshwater swamps across the Burdekin region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Blackⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burdekinⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 74 Ha (148 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Don Riverⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Haughtonⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 4.6 Ha (9.2 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 1.2 Ha (2.4 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 8.4 Ha (16.9 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Ross	Infilling and/or Clearing: 7.2 Ha (14.4 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.5 Ha (1 Ha) Modification: 0.1 Ha (0.1 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.1-3c. Change in extent of slightly modified lakes across the Burdekin region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Blackⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burdekinⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 2.1 Ha (4.3 Ha)	Infilling and/or Clearing: 4.3 Ha (8.6 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0.1 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Don Riverⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 1.6 Ha (3.2 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Haughtonⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 4.8 Ha (9.6 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 2.4 Ha (4.8 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Ross	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-3d. Change in extent of slightly modified mangroves and/or salt flats across the Burdekin region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Black ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burdekin ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.1 Ha (0.3 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Don River ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Haughton ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Ross	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.9 Ha (1.8 Ha) Modification: 3.1 Ha (6.2 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Highly modified and artificial

Approximately 51,109.8 of highly modified and artificial wetlands were mapped across the Burdekin region in 2019. This includes 681.3 hectares of highly modified and artificial vegetated freshwater swamps, 50,428.5 hectares of highly modified and artificial lakes, and 0 hectares of highly modified and artificial mangroves and/or salt flats. Highly modified and artificial wetlands are excluded from the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of "No loss of the extent of natural wetlands" and therefore any trends in their extent are not further analysed.

2.2 Wetlands of the Burnett Mary Region

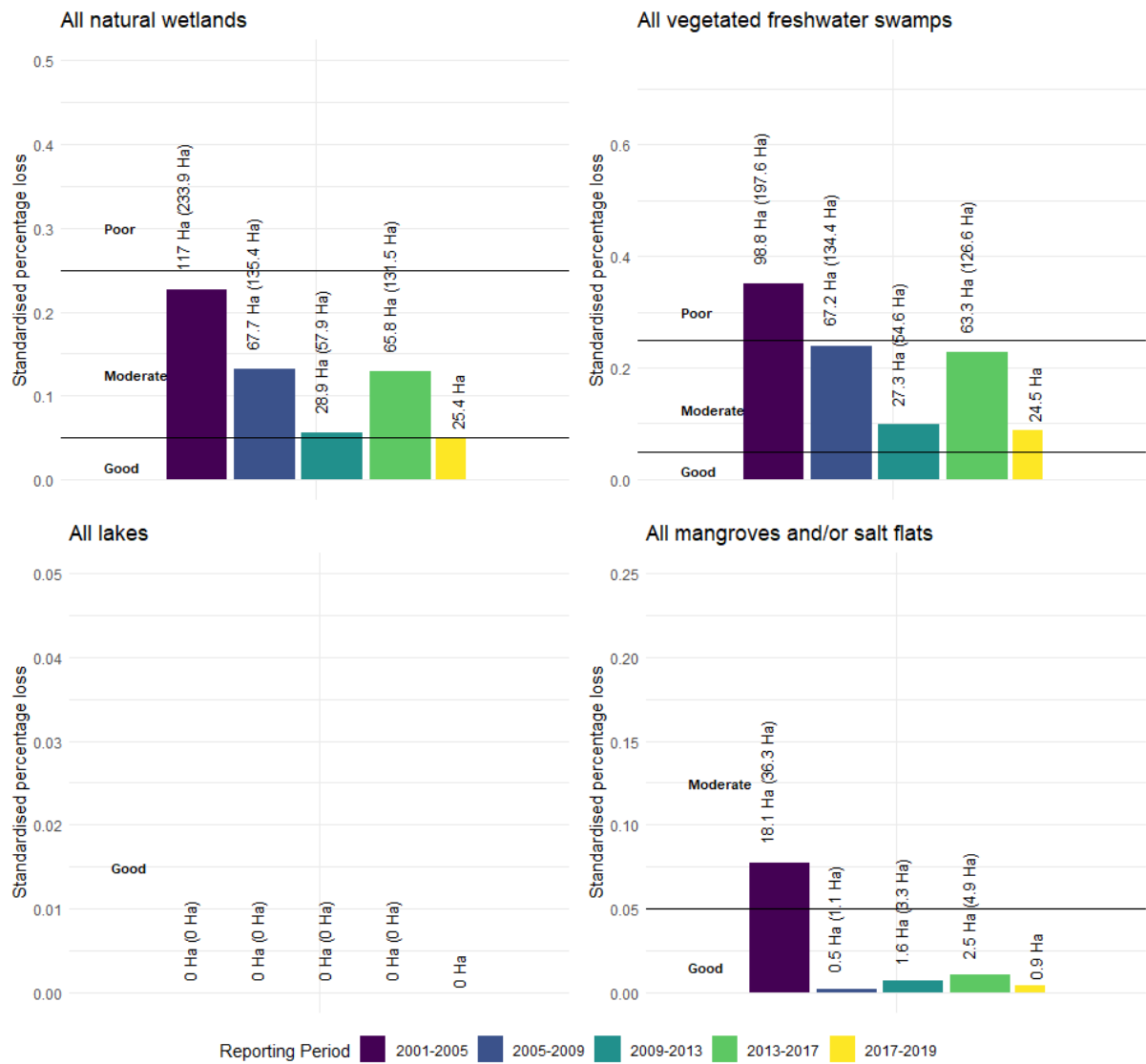
Across the Burnett-Mary region approximately 51,046.5 hectares of natural wetlands were mapped in 2019 including 27,722.1 hectares of vegetated freshwater swamps, 13.4 hectares of lakes, and 23,311 hectares of mangroves and/or salt flats.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Burnett-Mary	Moderate: 0.227 % loss	Moderate: 0.132% loss	Moderate: 0.056% loss	Moderate: 0.128% loss	Good: 0.0499% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.

Change in wetland extent of natural wetlands

There was a loss of 25.4 hectares (or 0.05 percent) of natural wetlands across the Burnett-Mary region between 2017 and 2019 (Figure 2.2-1, Table 2.2-1). This loss of natural wetlands included: a loss of 24.5 hectares of natural vegetated freshwater swamps wetlands; no loss of natural lakes; and a loss of 0.9 hectares of natural mangroves and/or salt flats. These natural wetlands were lost to infilling or clearing (25.4 hectares) and modification (0 hectares). A loss of natural wetlands was reported for all reporting periods, however, the rate of natural wetland loss between 2017 and 2019 has decreased relative to the previous reporting period receiving a score of 'Good'.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.2-1. Change in natural wetland extent across the Burnett-Mary region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.2-1a. Change in extent of natural wetlands across the Burnett-Mary region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural wetlands		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.227	117 Ha (233.9 Ha)
2005-2009	0.132	67.7 Ha (135.4 Ha)
2009-2013	0.056	28.9 Ha (57.9 Ha)
2013-2017	0.128	65.8 Ha (131.5 Ha)
2017-2019	0.050	25.4 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-1b. Change in extent of natural vegetated freshwater swamps across the Burnett-Mary region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural vegetated freshwater swamps		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.350	98.8 Ha (197.6 Ha)
2005-2009	0.240	67.2 Ha (134.4 Ha)
2009-2013	0.098	27.3 Ha (54.6 Ha)
2013-2017	0.227	63.3 Ha (126.6 Ha)
2017-2019	0.088	24.5 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-1c. Change in extent of natural lakes across the Burnett-Mary region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural lakes		
Reporting Period	Percent loss	Hectare loss
2001-2005	0	0 Ha (0 Ha)
2005-2009	0	0 Ha (0 Ha)
2009-2013	0	0 Ha (0 Ha)
2013-2017	0	0 Ha (0 Ha)
2017-2019	0	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-1d. Change in extent of natural mangroves and/or salt flats across the Burnett-Mary region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural mangroves and/or salt flats		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.078	18.1 Ha (36.3 Ha)
2005-2009	0.002	0.5 Ha (1.1 Ha)
2009-2013	0.007	1.6 Ha (3.3 Ha)
2013-2017	0.011	2.5 Ha (4.9 Ha)
2017-2019	0.004	0.9 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

In 2019, approximately 74.1% of total pre-clearing extent of all wetlands remained across the Burnett-Mary region (Figure 2.2-2). This includes 62.2% of the pre-clearing extent of vegetated freshwater swamps, 100% of the pre-clearing extent of lakes, and 96.1% of the pre-clearing extent of mangroves and/or salt flats. Wetland extent loss has largely occurred prior to 2001 when this state-wide wetland extent monitoring began.

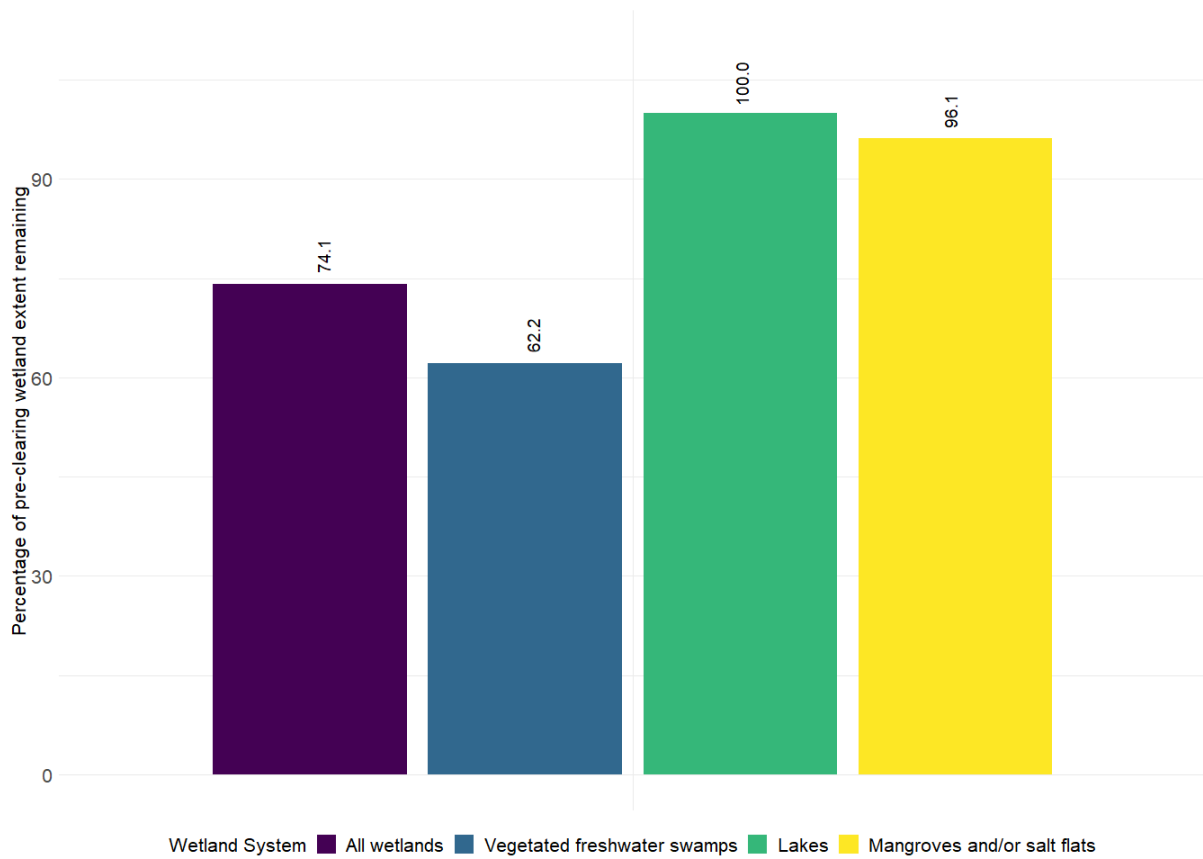
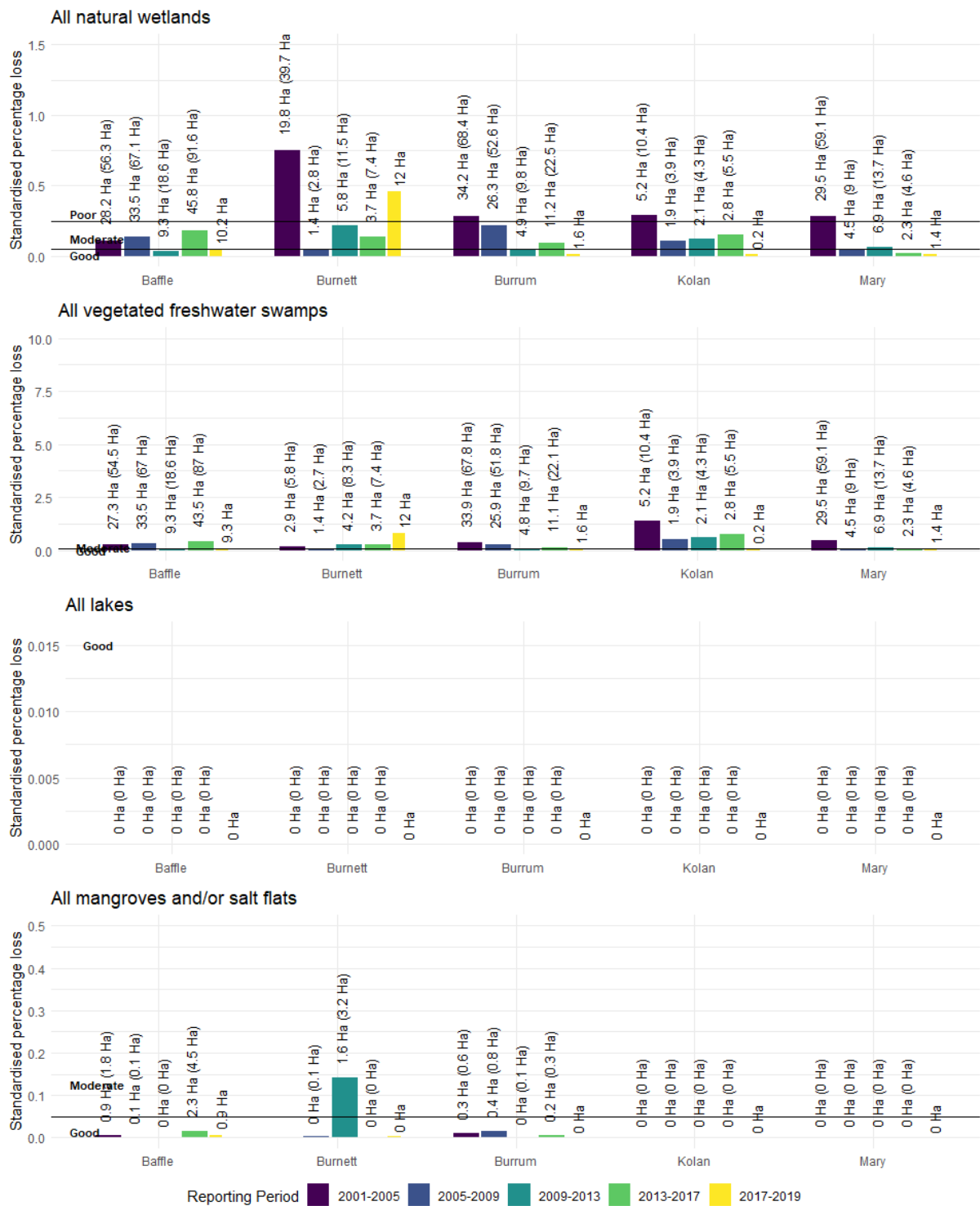


Figure 2.2-2. Extent of natural wetlands remaining in the Burnett-Mary region as a percentage of the initial pre-clearing wetland extent.

The trends observed in extent change of natural wetlands across the Burnett-Mary region may vary across different catchments (Figure 2.2-3, Table 2.2-2). The highest proportional loss of natural wetlands between 2017 and 2019 was in Burnett where 12 hectares (0.46 percent) loss occurred.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Baffle	Moderate: 0.114 % loss	Moderate: 0.136% loss	Good: 0.038% loss	Moderate: 0.186% loss	Good: 0.041% loss
Burnett	Poor: 0.749% loss	Moderate: 0.053% loss	Moderate: 0.221% loss	Moderate: 0.142% loss	Poor: 0.462% loss
Burrum	Poor: 0.288% loss	Moderate: 0.223% loss	Good: 0.041% loss	Moderate: 0.095% loss	Good: 0.014% loss
Kolan	Poor: 0.293% loss	Moderate: 0.11% loss	Moderate: 0.121% loss	Moderate: 0.157% loss	Good: 0.012% loss
Mary	Poor: 0.281% loss	Good: 0.043% loss	Moderate: 0.066% loss	Good: 0.022% loss	Good: 0.013% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.2-3. Change in natural wetland extent by reporting catchment across the Burnett-Mary region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.2-2a. Change in extent of natural wetlands across the Burnett-Mary region by reporting catchment and reporting period.

Year	Baffle	Burnett	Burrum	Kolan	Mary
2001-2005 ⁱ	28.2 Ha (56.3 Ha)	19.8 Ha (39.7 Ha)	34.2 Ha (68.4 Ha)	5.2 Ha (10.4 Ha)	29.5 Ha (59.1 Ha)
2005-2009 ⁱ	33.5 Ha (67.1 Ha)	1.4 Ha (2.8 Ha)	26.3 Ha (52.6 Ha)	1.9 Ha (3.9 Ha)	4.5 Ha (9 Ha)
2009-2013 ⁱ	9.3 Ha (18.6 Ha)	5.8 Ha (11.5 Ha)	4.9 Ha (9.8 Ha)	2.1 Ha (4.3 Ha)	6.9 Ha (13.7 Ha)
2013-2017 ⁱ	45.8 Ha (91.6 Ha)	3.7 Ha (7.4 Ha)	11.2 Ha (22.5 Ha)	2.8 Ha (5.5 Ha)	2.3 Ha (4.6 Ha)
2017-2019	10.2 Ha	12 Ha	1.6 Ha	0.2 Ha	1.4 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-2b. Change in extent of natural vegetated freshwater swamps across the Burnett-Mary region by reporting catchment and reporting period.

Year	Baffle	Burnett	Burrum	Kolan	Mary
2001-2005 ⁱ	27.3 Ha (54.5 Ha)	2.9 Ha (5.8 Ha)	33.9 Ha (67.8 Ha)	5.2 Ha (10.4 Ha)	29.5 Ha (59.1 Ha)
2005-2009 ⁱ	33.5 Ha (67 Ha)	1.4 Ha (2.7 Ha)	25.9 Ha (51.8 Ha)	1.9 Ha (3.9 Ha)	4.5 Ha (9 Ha)
2009-2013 ⁱ	9.3 Ha (18.6 Ha)	4.2 Ha (8.3 Ha)	4.8 Ha (9.7 Ha)	2.1 Ha (4.3 Ha)	6.9 Ha (13.7 Ha)
2013-2017 ⁱ	43.5 Ha (87 Ha)	3.7 Ha (7.4 Ha)	11.1 Ha (22.1 Ha)	2.8 Ha (5.5 Ha)	2.3 Ha (4.6 Ha)
2017-2019	9.3 Ha	12 Ha	1.6 Ha	0.2 Ha	1.4 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-2c. Change in extent of natural lakes across the Burnett-Mary region by reporting catchment and reporting period.

Year	Baffle	Burnett	Burrum	Kolan	Mary
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-2d. Change in extent of natural mangroves and/or salt flats across the Burnett-Mary region by reporting catchment and reporting period.

Year	Baffle	Burnett	Burrum	Kolan	Mary
2001-2005 ⁱ	0.9 Ha (1.8 Ha)	16.9 Ha (33.8 Ha)	0.3 Ha (0.6 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0.1 Ha (0.1 Ha)	0 Ha (0.1 Ha)	0.4 Ha (0.8 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	1.6 Ha (3.2 Ha)	0 Ha (0.1 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	2.3 Ha (4.5 Ha)	0 Ha (0 Ha)	0.2 Ha (0.3 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0.9 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Notable contributions to the observed loss of natural wetlands between 2017 and 2019 in the Burnett-Mary have been: (1) in Burnett catchment where the highest proportional loss of vegetated freshwater swamps (0.8 percent) occurred and comprised of 12 hectares of wetlands lost to infilling and/or clearing .

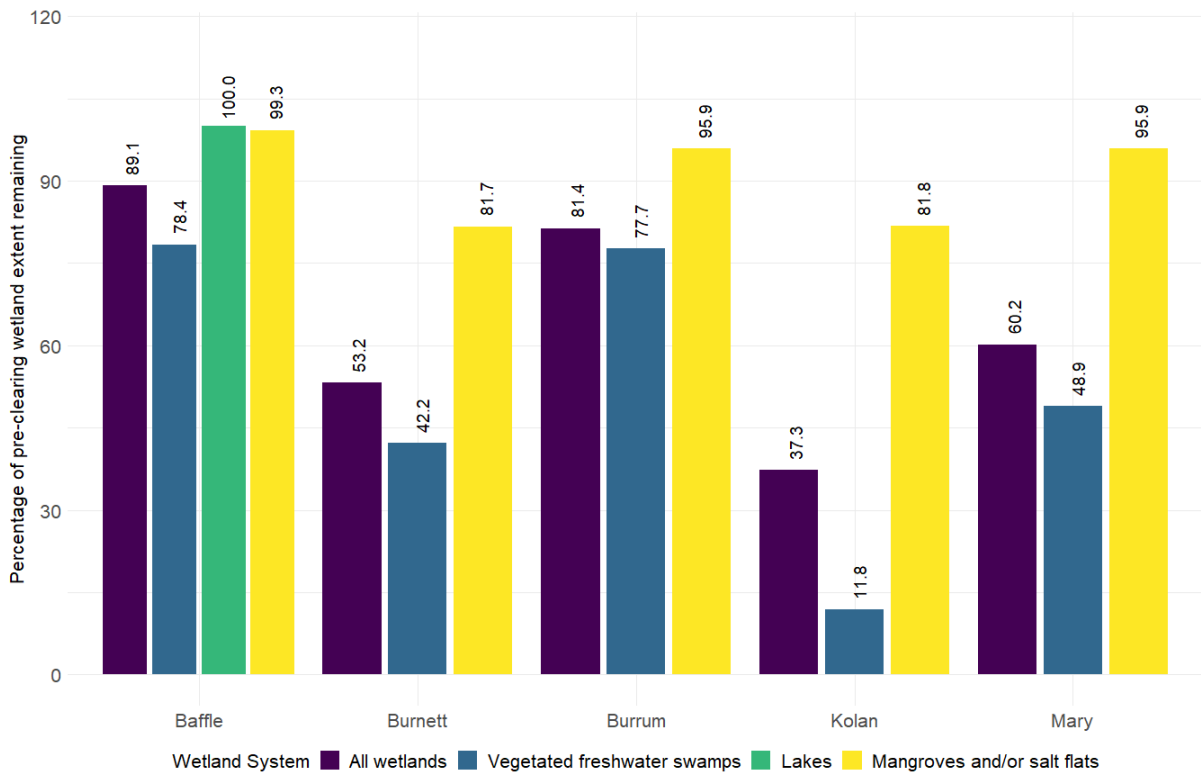
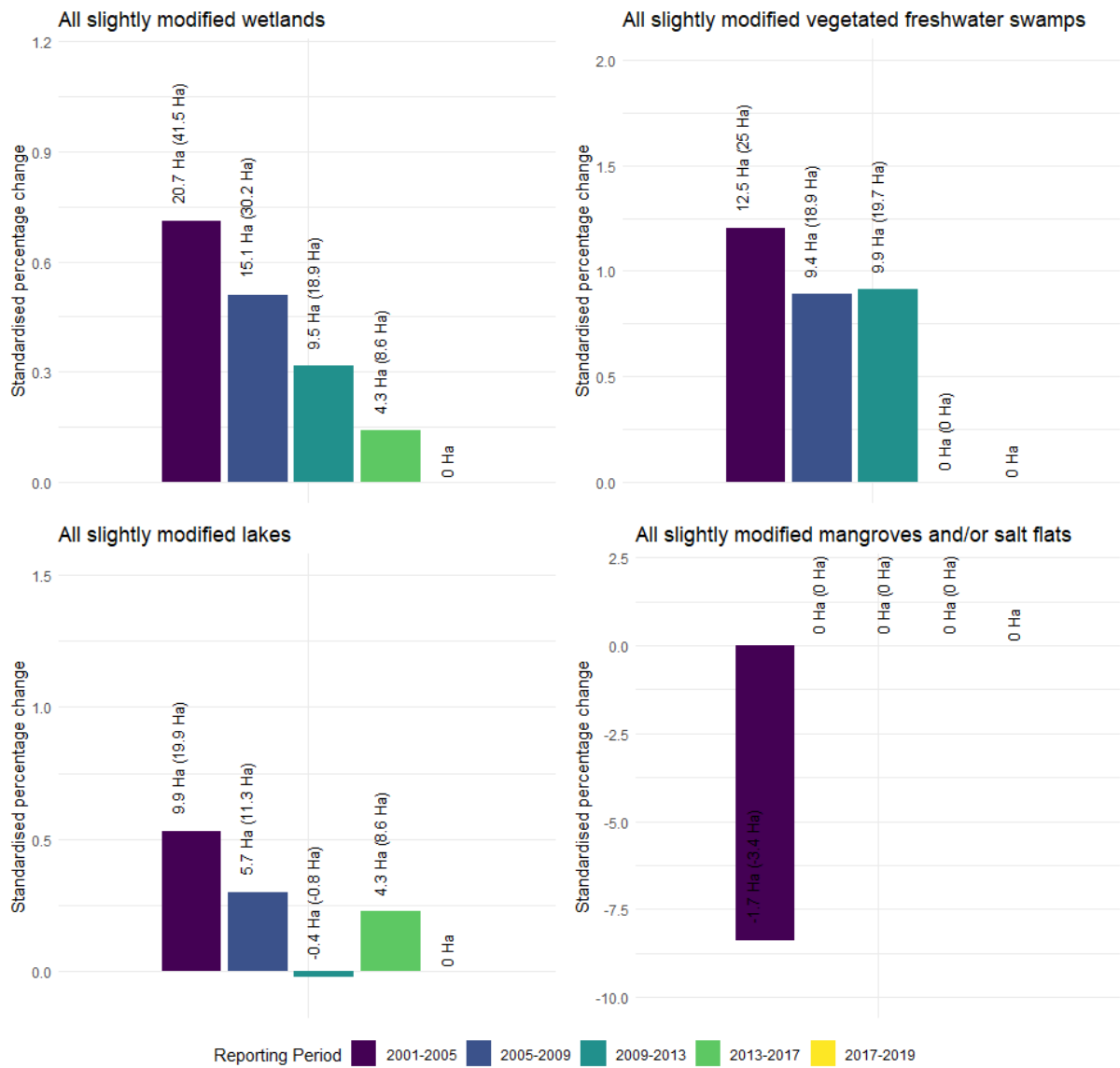


Figure 2.2-4. Extent of natural wetlands remaining across the Burnett-Mary region as a percentage of the initial pre-clearing wetland extent.

Change in wetland extent of slightly modified wetlands

Approximately 3,023.4 of slightly modified wetlands were mapped across the Burnett-Mary region in 2019. This includes 1,100.1 hectares of slightly modified vegetated freshwater swamps, 1,906.6 hectares of slightly modified lakes, and 16.7 hectares of slightly modified mangroves and/or salt flats respectively.

No net change of slightly modified wetlands occurred across the Burnett-Mary region between 2017 and 2019 (Figure 2.2-5). However, net change in slightly modified wetlands can mask the real loss of these wetlands that occurs simultaneously (Figure 2.2-6).



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.2-5. Net change in slightly modified wetland extent in the Burnett-Mary region for all reporting periods as a percentage of the initial extent for each reporting period.

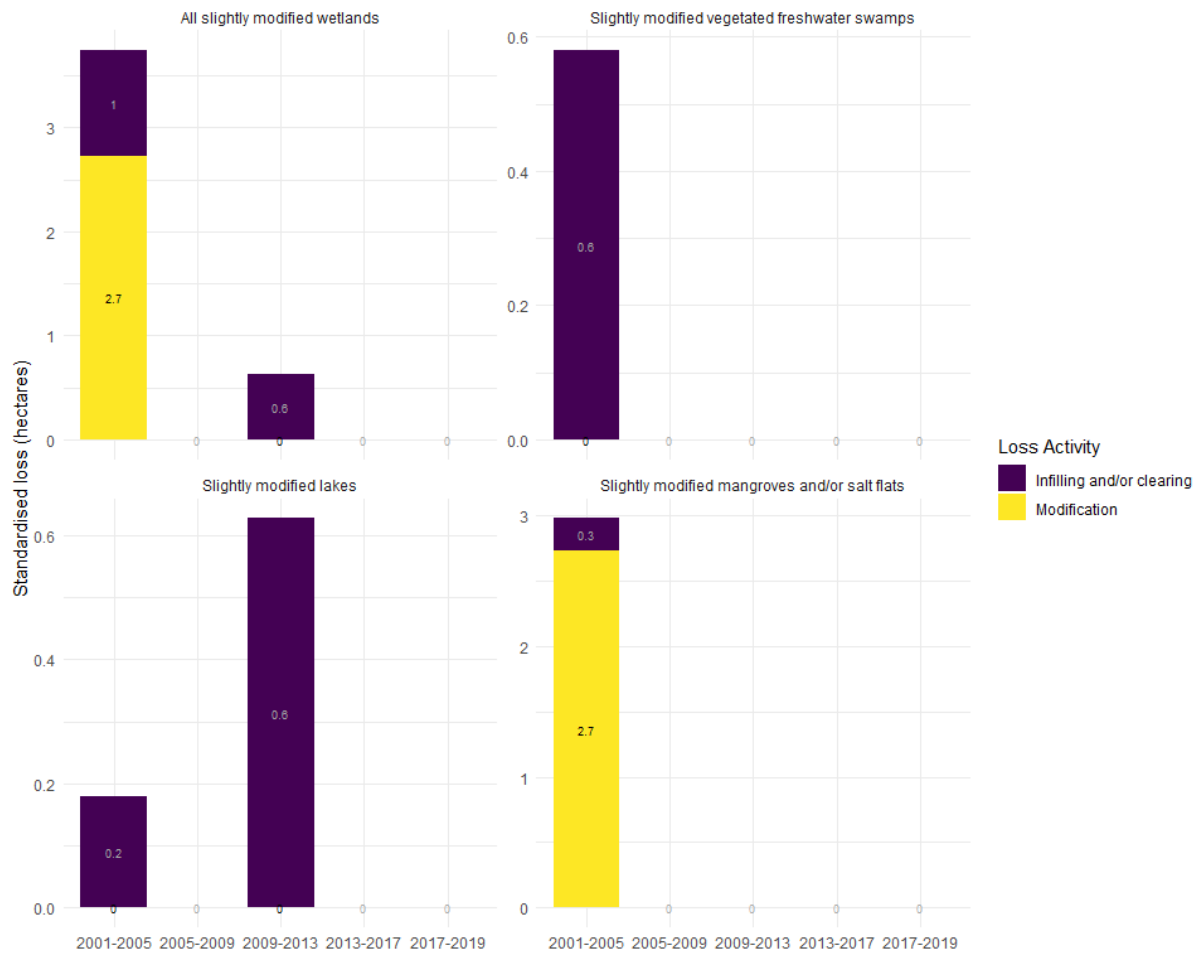
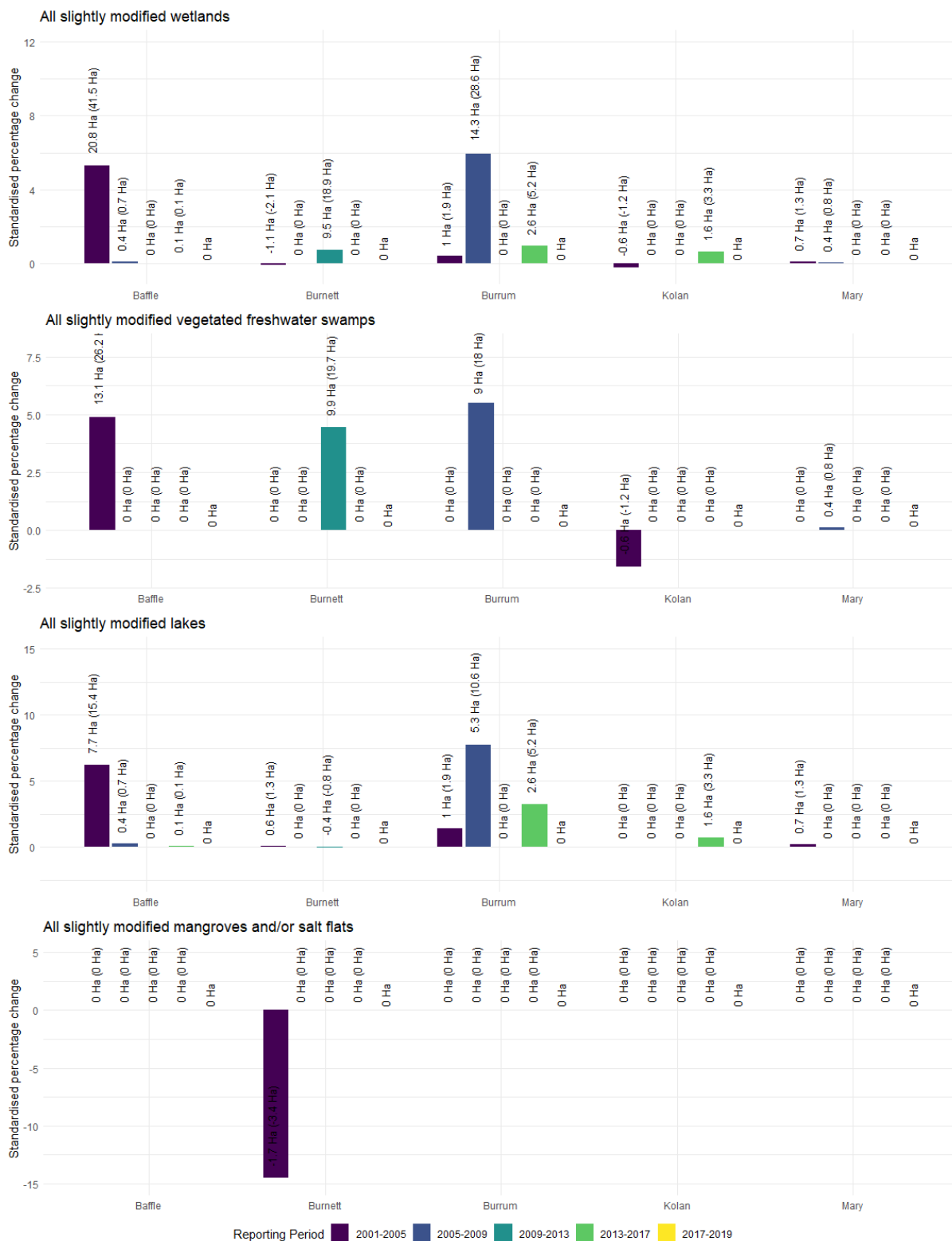


Figure 2.2-6. Change in slightly modified wetland extent in the Burnett-Mary region for all reporting periods in hectares.

The trends observed in the net change (Figure 2.2-7) and loss (Figure 2.2-8, Table 2.2-3) of slightly modified wetlands across the Burnett-Mary region may vary across different catchments. The highest proportional loss of slightly modified wetlands between 2017 and 2019 was in Burnett where a 12 hectares (0.46 percent) loss occurred.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.2-7. Net change in slightly modified wetland extent across the Burnett-Mary region by reporting catchment for all reporting periods as a percentage of the initial extent for each reporting period.

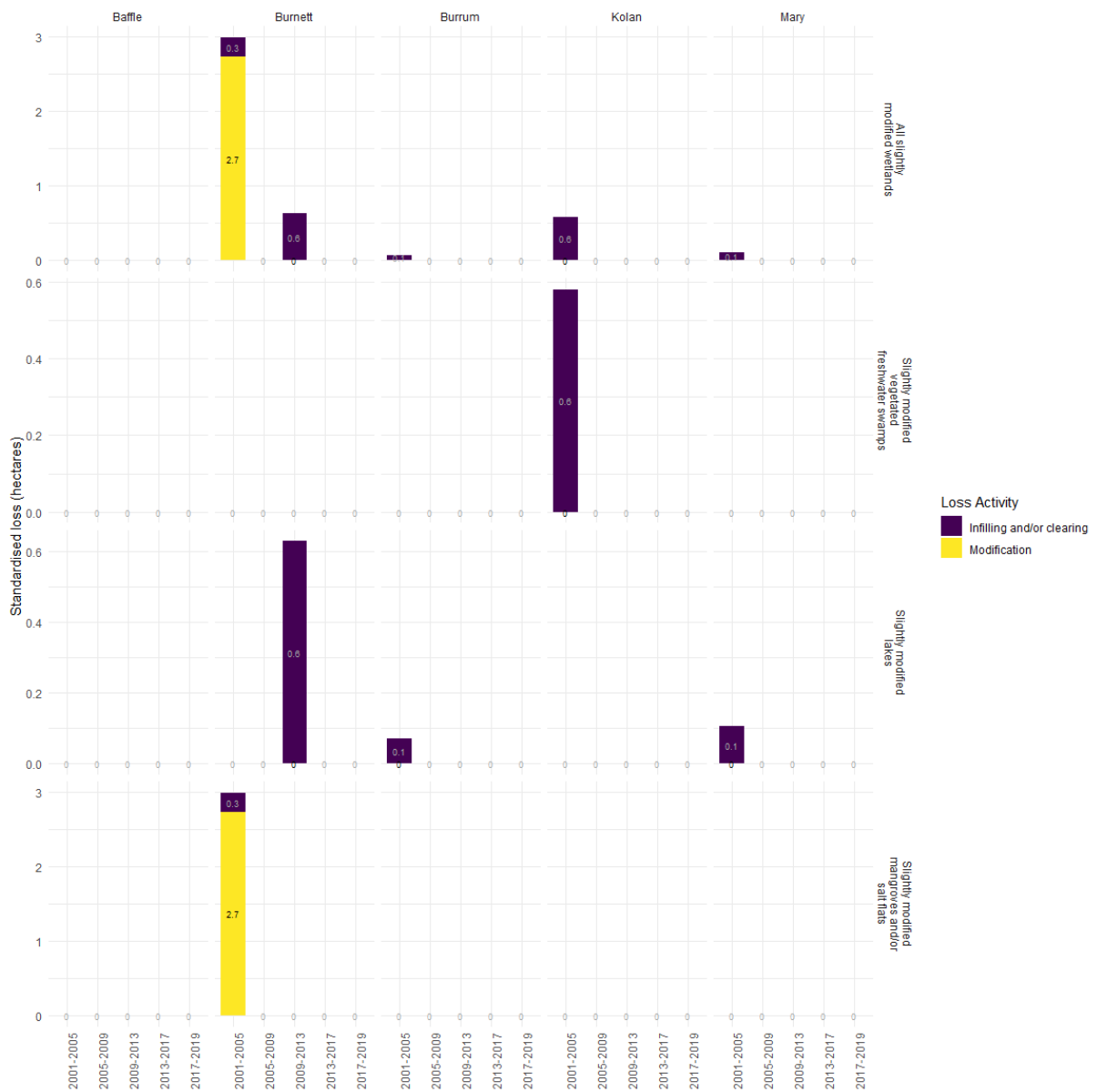


Figure 2.2-8. Change in slightly modified wetland extent across the Burnett-Mary region by reporting catchment for all reporting periods in hectares.

Table 2.2-3a. Change in extent of slightly modified wetlands across the Burnett-Mary region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Baffleⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burnettⁱ	Infilling and/or Clearing: 0.3 Ha (0.5 Ha) Modification: 2.7 Ha (5.5 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.6 Ha (1.3 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burrumⁱ	Infilling and/or Clearing: 0.1 Ha (0.1 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Kolanⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mary	Infilling and/or Clearing: 0.1 Ha (0.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-3b. Change in extent of slightly modified vegetated freshwater swamps across the Burnett-Mary region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Baffleⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha
Burnettⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burrumⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Kolanⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mary	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-3c. Change in extent of slightly modified lakes across the Burnett-Mary region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Baffleⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burnettⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.6 Ha (1.3 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burrumⁱ	Infilling and/or Clearing: 0.1 Ha (0.1 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Kolanⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mary	Infilling and/or Clearing: 0.1 Ha (0.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.2-3d. Change in extent of slightly modified mangroves and/or salt flats across the Burnett-Mary region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Baffle ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burnett ⁱ	Infilling and/or Clearing: 0.3 Ha (0.5 Ha) Modification: 2.7 Ha (5.5 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Burrum ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Kolan ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mary	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Highly modified and artificial

Approximately 28,397.6 of highly modified and artificial wetlands were mapped across the Burnett-Mary region in 2019. This includes 185.9 hectares of highly modified and artificial vegetated freshwater swamps, 28,211.7 hectares of highly modified and artificial lakes, and 0 hectares of highly modified and artificial mangroves and/or salt flats. Highly modified and artificial wetlands are excluded from the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of "No loss of the extent of natural wetlands" and therefore any trends in their extent are not further analysed.

2.3 Wetlands of Cape York Region

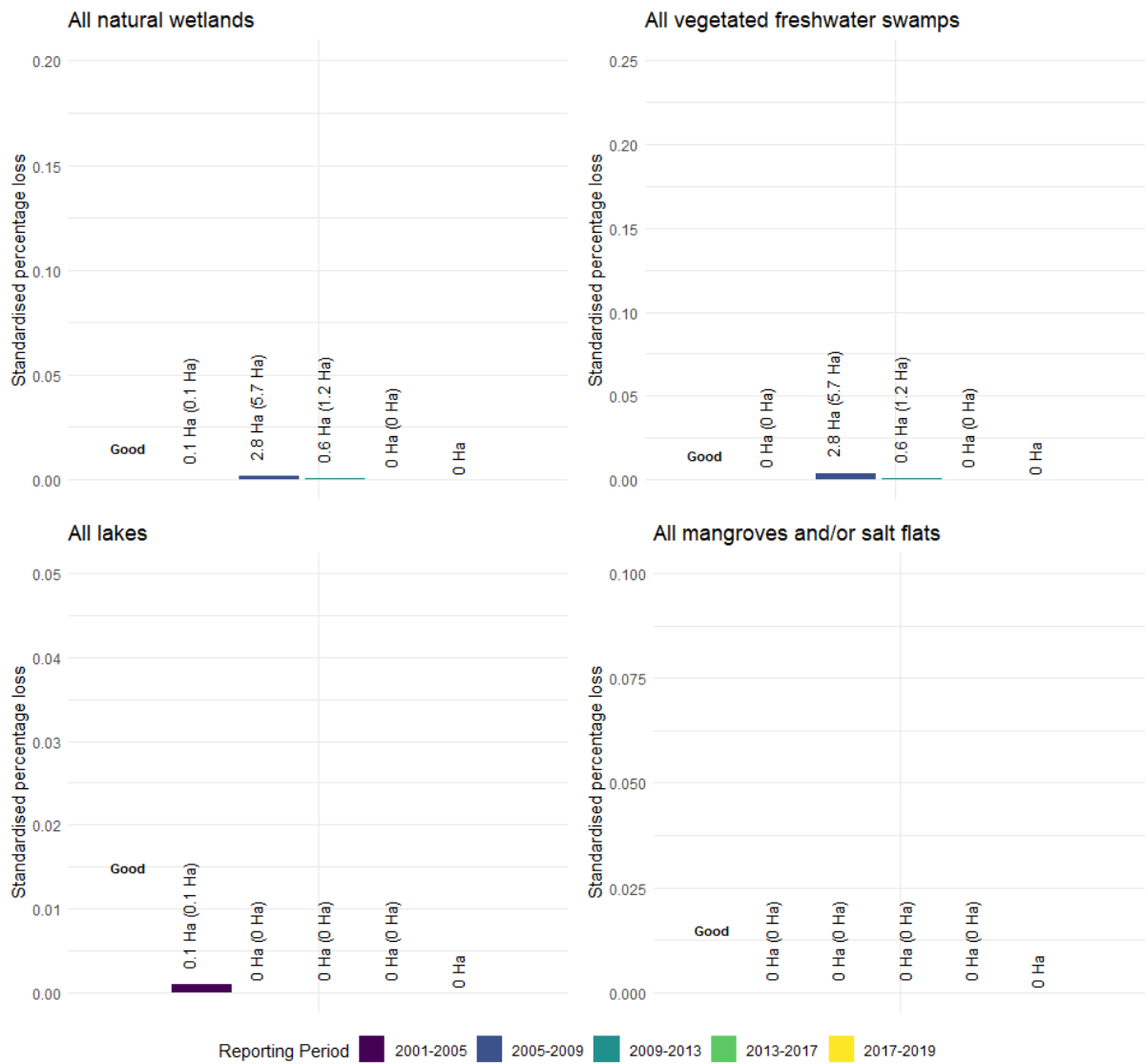
Across the Cape York region approximately 174,600.7 hectares of natural wetlands were mapped in 2019 including 74,253.6 hectares of vegetated freshwater swamps, 5,405.9 hectares of lakes, and 94,941.2 hectares of mangroves and/or salt flats.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Cape York	Good: 0% loss	Good: 0.002% loss	Good: 0% loss	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.

Change in wetland extent of natural wetlands

There was a no loss of 0 hectares (or 0 percent) of natural wetlands across the Cape York region between 2017 and 2019 (Figure 2.3-1, Table 2.3-1). This no loss of natural wetlands included: no loss of natural vegetated freshwater swamps; no loss of natural lakes; and no loss of natural mangroves and/or salt flats. A loss of natural wetlands was reported for all reporting periods, however, the rate of natural wetland loss between 2017 and 2019 has decreased relative to the previous reporting period receiving a score of 'Good'.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.3-1. Change in natural wetland extent across the Cape York region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.3-1a. Change in extent of natural wetlands across the Cape York region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural wetlands		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.000	0.1 Ha (0.1 Ha)
2005-2009	0.002	2.8 Ha (5.7 Ha)
2009-2013	0.000	0.6 Ha (1.2 Ha)
2013-2017	0.000	0 Ha (0 Ha)
2017-2019	0.000	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-1b. Change in extent of natural vegetated freshwater swamps across the Cape York region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural vegetated freshwater swamps		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.000	0 Ha (0 Ha)
2005-2009	0.004	2.8 Ha (5.7 Ha)
2009-2013	0.001	0.6 Ha (1.2 Ha)
2013-2017	0.000	0 Ha (0 Ha)
2017-2019	0.000	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-1c. Change in extent of natural lakes across the Cape York region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural lakes		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.001	0.1 Ha (0.1 Ha)
2005-2009	0.000	0 Ha (0 Ha)
2009-2013	0.000	0 Ha (0 Ha)
2013-2017	0.000	0 Ha (0 Ha)
2017-2019	0.000	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-1d. Change in extent of natural mangroves and/or salt flats across the Cape York region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural mangroves and/or salt flats		
Reporting Period	Percent loss	Hectare loss
2001-2005	0	0 Ha (0 Ha)
2005-2009	0	0 Ha (0 Ha)
2009-2013	0	0 Ha (0 Ha)
2013-2017	0	0 Ha (0 Ha)
2017-2019	0	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

In 2019, approximately 99.8% of total pre-clearing extent of all wetlands remained across the Cape York region (Figure 2.3-2). This includes 99.8% of the pre-clearing extent of vegetated freshwater swamps, 98.9% of the pre-clearing extent of lakes, and 99.9% of the pre-clearing extent of mangroves and/or salt flats. Wetland extent loss has largely occurred prior to 2001 when this state-wide wetland extent monitoring began.

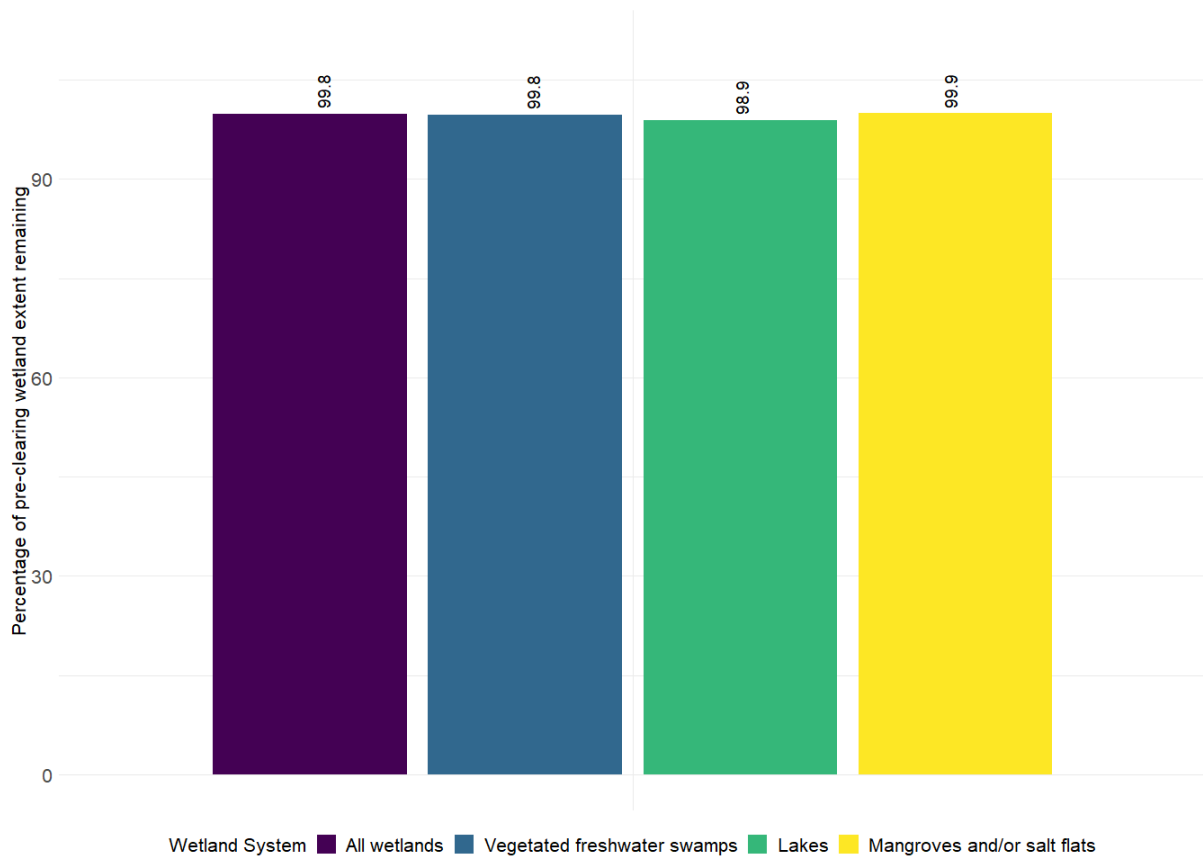


Figure 2.3-2. Extent of natural wetlands remaining in the Cape York region as a percentage of the initial pre-clearing wetland extent.

The trends observed in extent change of natural wetlands across the Cape York region does not vary across different catchments (Figure 2.3-3, Table 2.3-2).

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Endeavour	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Jacky Jacky	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Jeannie	Good: 0% loss	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Lockhart	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Normanby	Very Good: No (0%) loss of wetlands	Good: 0.004% loss	Good: 0.001% loss	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Olive- Pascoe	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Stewart	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.3-3. Change in natural wetland extent by reporting catchment across the Cape York region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.3-2a. Change in extent of natural wetlands across the Cape York region by reporting catchment and reporting period.

Year	Endeavour	Jacky Jacky	Jeannie	Lockhart	Normanby	Olive-Pascoe	Stewart
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0.1 Ha (0.1 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	2.8 Ha (5.7 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0.6 Ha (1.2 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-2b. Change in extent of natural vegetated freshwater swamps across the Cape York region by reporting catchment and reporting period.

Year	Endeavour	Jacky Jacky	Jeannie	Lockhart	Normanby	Olive-Pascoe	Stewart
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	2.8 Ha (5.7 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0.6 Ha (1.2 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-2c. Change in extent of natural lakes across the Cape York region by reporting catchment and reporting period.

Year	Endeavour	Jacky Jacky	Jeannie	Lockhart	Normanby	Olive-Pascoe	Stewart
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0.1 Ha (0.1 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-2d. Change in extent of natural mangroves and/or salt flats across the Cape York region by reporting catchment and reporting period.

Year	Endeavour	Jacky Jacky	Jeannie	Lockhart	Normanby	Olive-Pascoe	Stewart
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

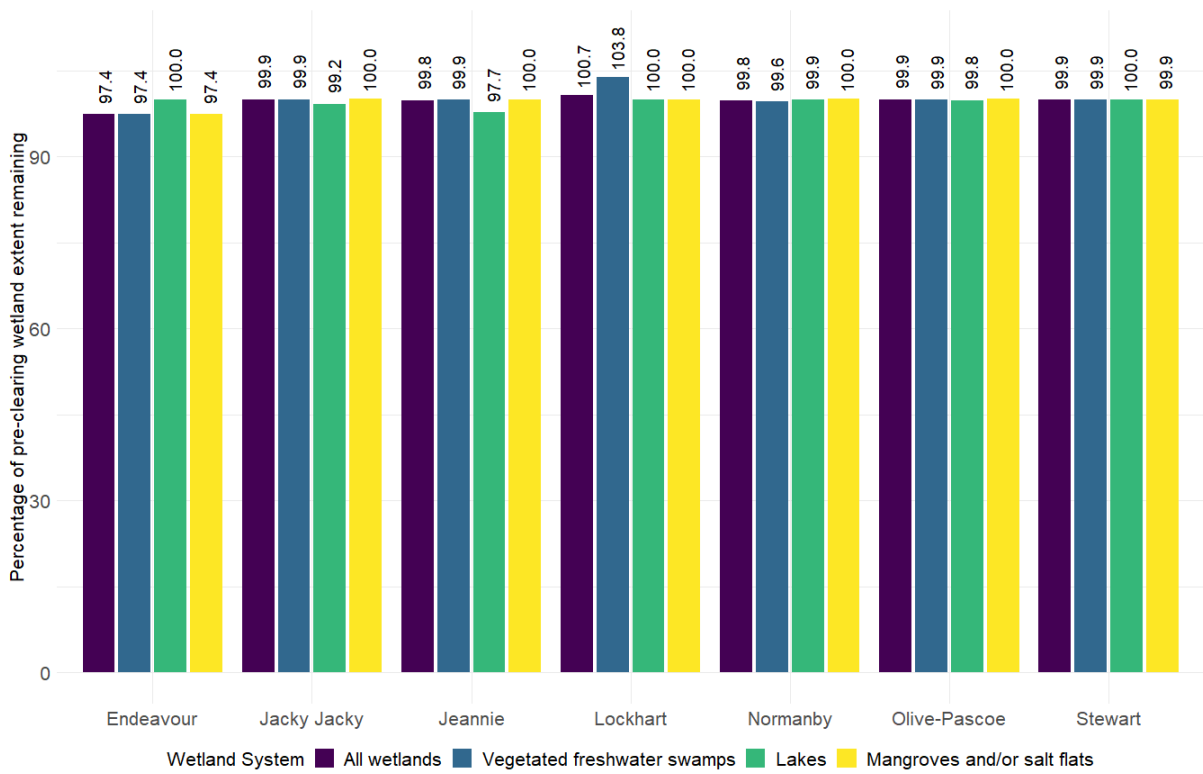
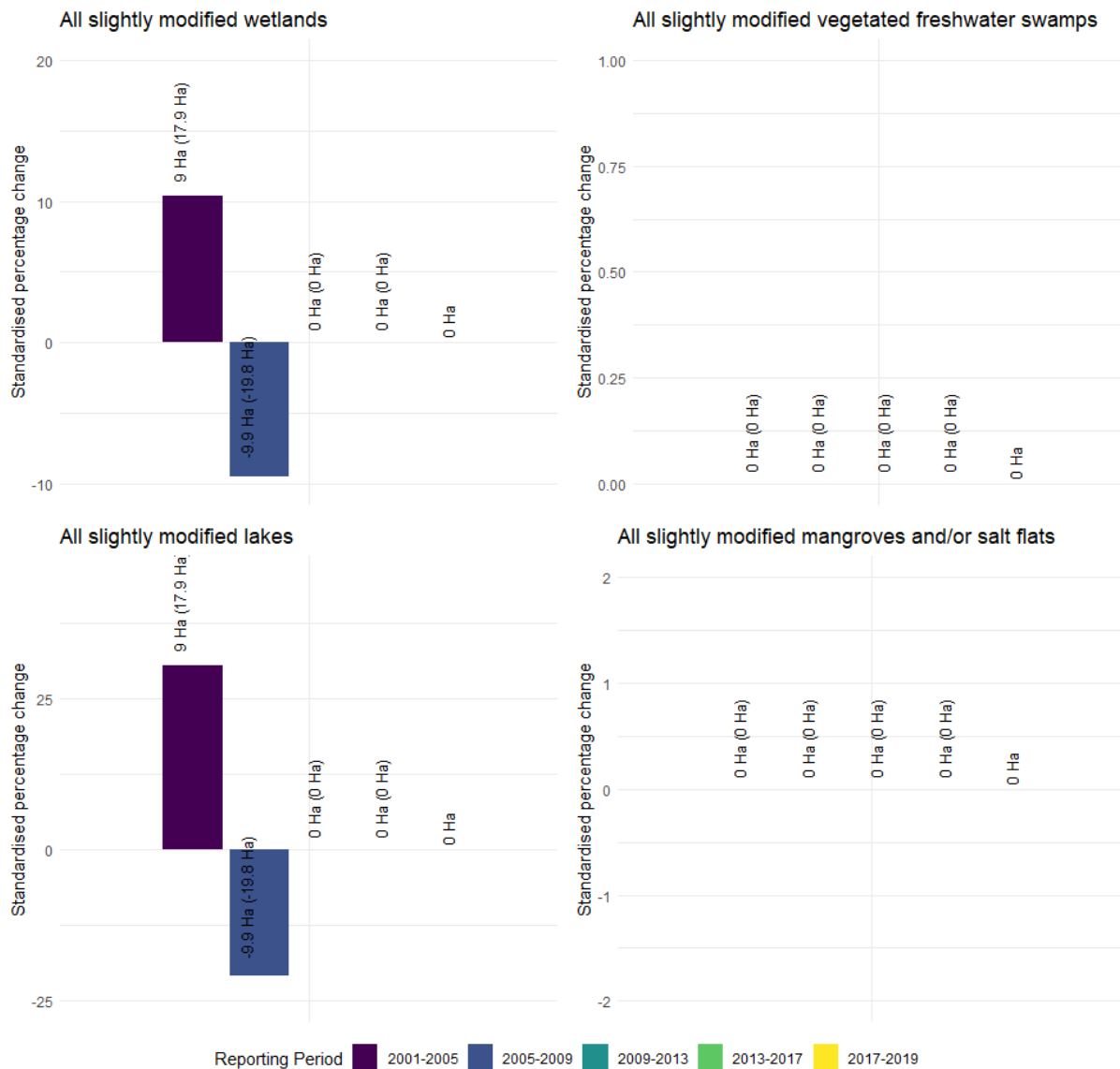


Figure 2.3-4. Extent of natural wetlands remaining across the Cape York region as a percentage of the initial pre-clearing wetland extent.

Change in wetland extent of slightly modified wetlands

Approximately 84.7 of slightly modified wetlands were mapped across the Cape York region in 2019. This includes 57.1 hectares of slightly modified vegetated freshwater swamps, 27.6 hectares of slightly modified lakes, and 0 hectares of slightly modified mangroves and/or salt flats respectively.

No net change of slightly modified wetlands occurred across the Cape York region between 2017 and 2019 (Figure 2.3-5). However, net change in slightly modified wetlands can mask the real loss of these wetlands that occurs simultaneously (Figure 2.3-6).



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.3-5. Net change in slightly modified wetland extent in the Cape York region for all reporting periods as a percentage of the initial extent for each reporting period.

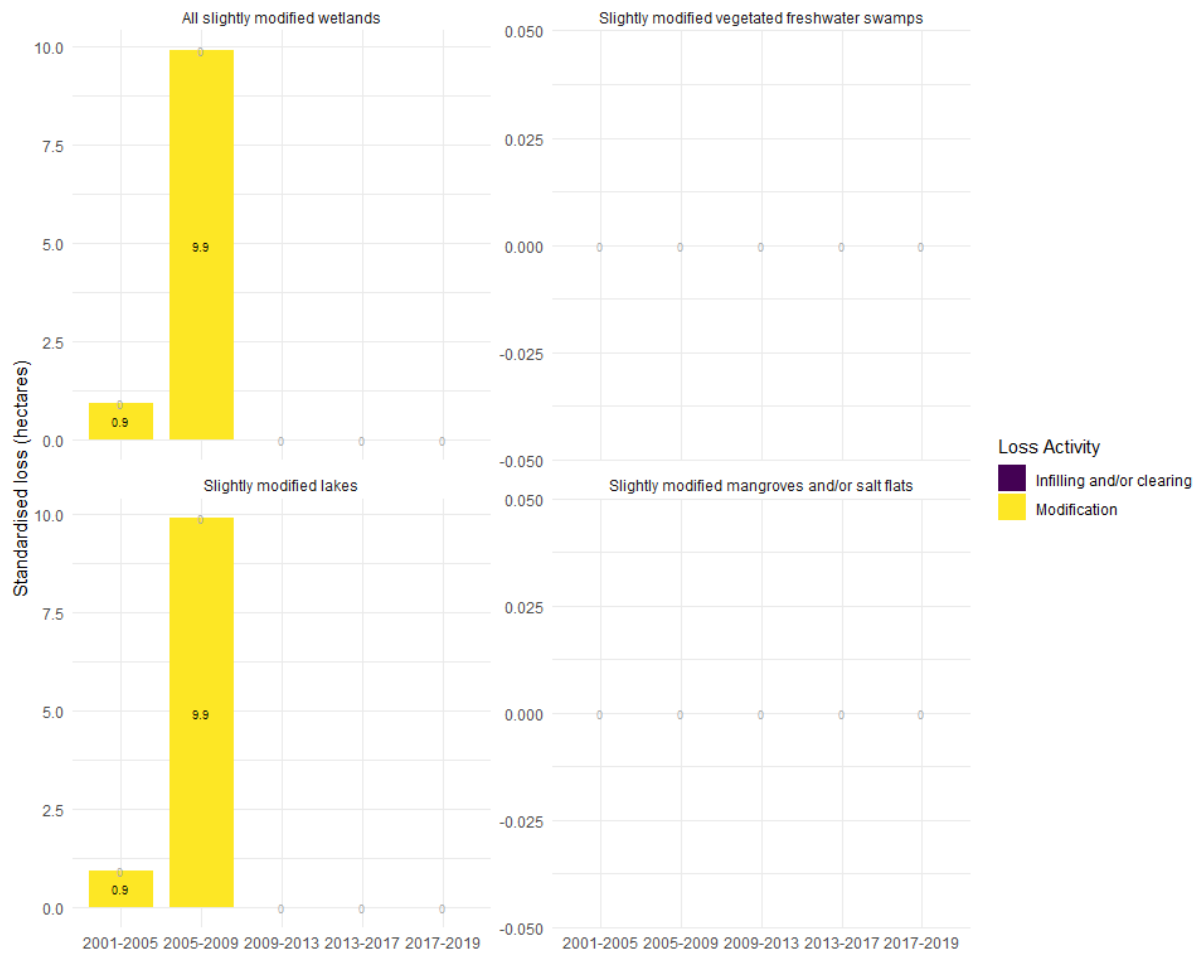
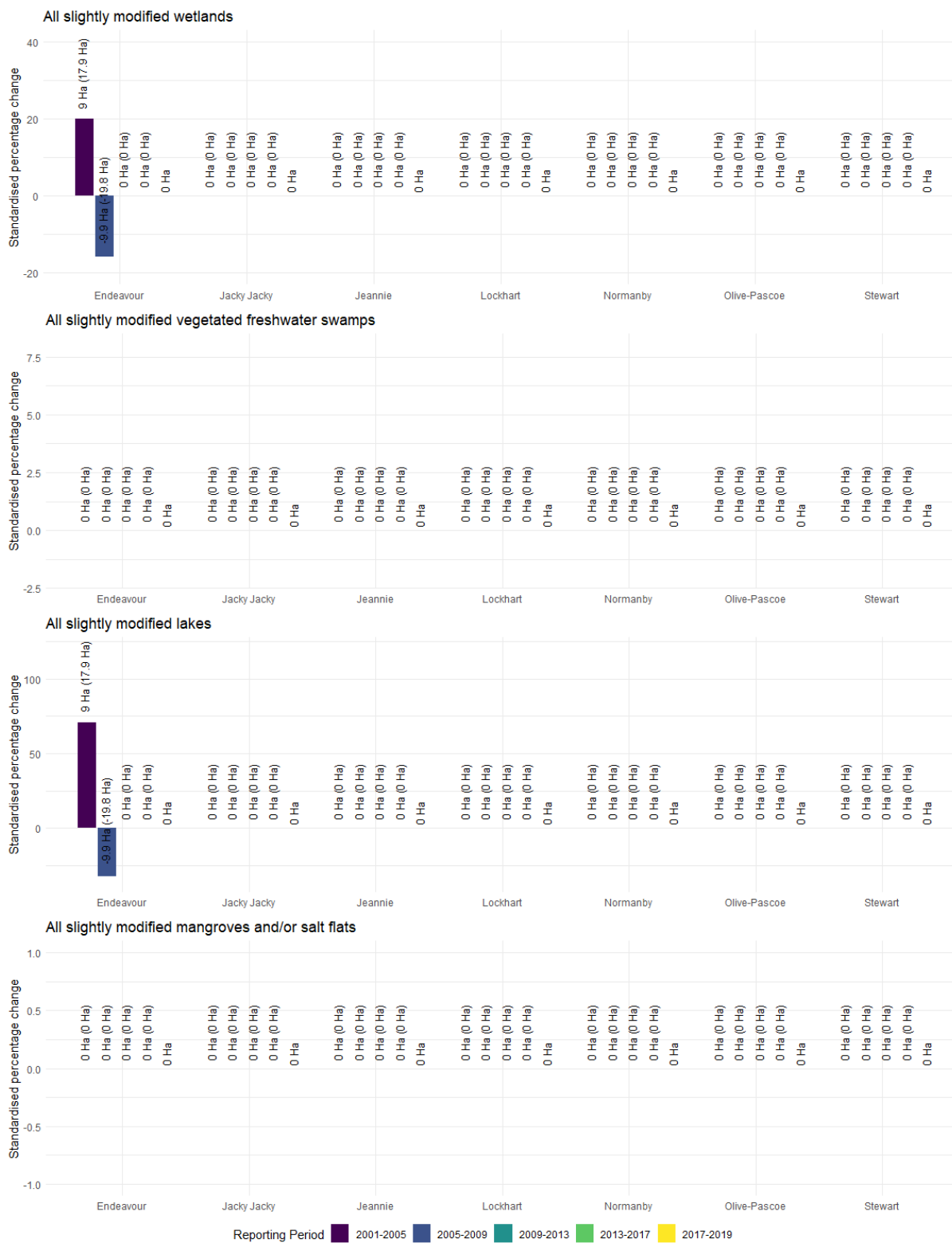


Figure 2.3-6. Change in slightly modified wetland extent in the Cape York region for all reporting periods in hectares.

The trends observed in the net change (Figure 2.3-7) and loss (Figure 2.3-8, Table 2.3-3) of slightly modified wetlands across the Cape York region does not vary across different catchments.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.3-7. Net change in slightly modified wetland extent across the Cape York region by reporting catchment for all reporting periods as a percentage of the initial extent for each reporting period.

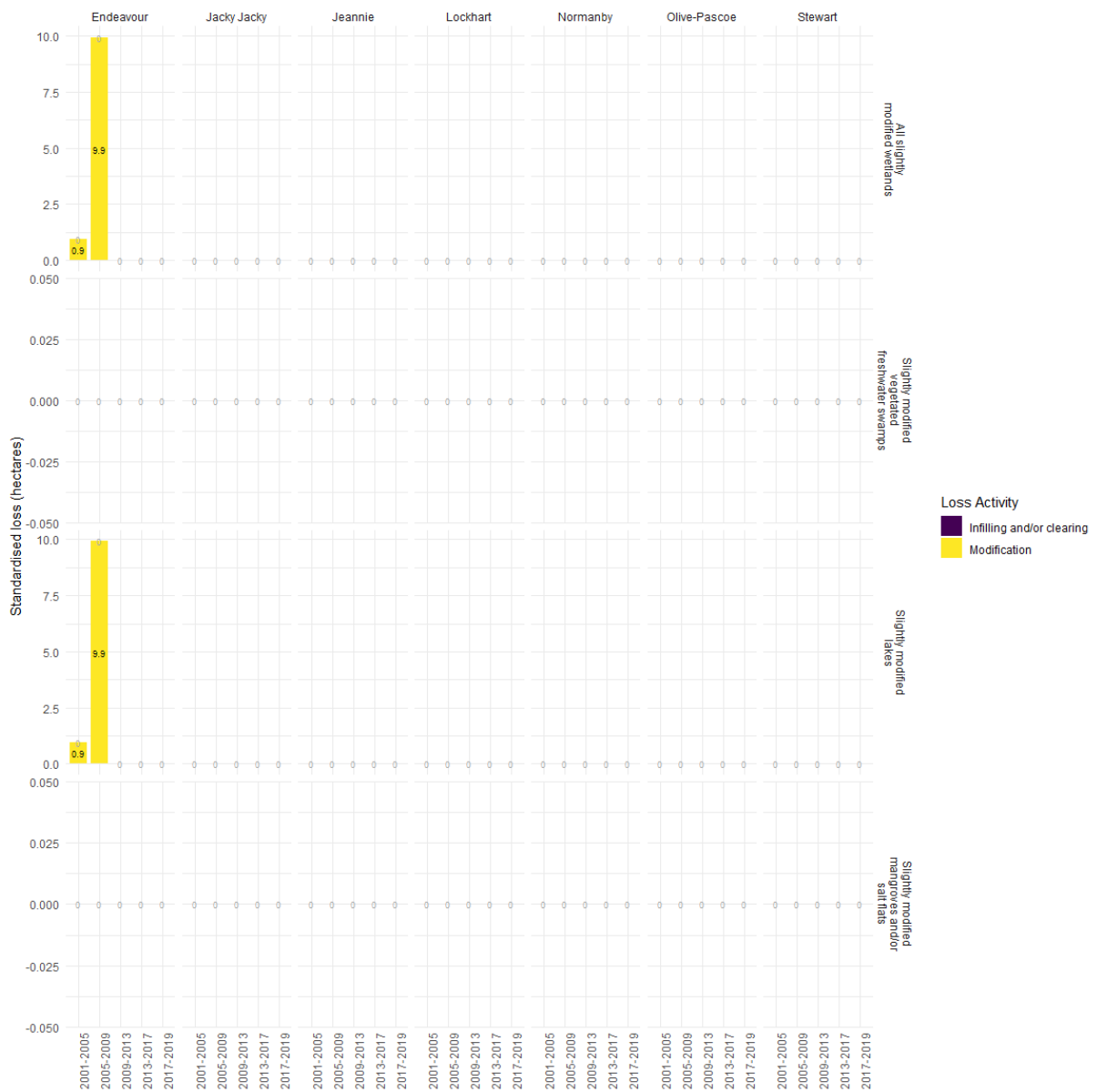


Figure 2.3-8. Change in slightly modified wetland extent across the Cape York region by reporting catchment for all reporting periods in hectares.

Table 2.3-3a. Change in extent of slightly modified wetlands across the Cape York region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Endeavour ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.9 Ha (1.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 9.9 Ha (19.8 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jacky Jacky ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jeannie ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Lockhart ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Normanby	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Olive-Pascoe	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Stewart	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-3b. Change in extent of slightly modified vegetated freshwater swamps across the Cape York region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Endeavourⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jacky Jackyⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jeannieⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Lockhartⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Normanby	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Olive- Pascoe	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Stewart	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-3c. Change in extent of slightly modified lakes across the Cape York region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Endeavourⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.9 Ha (1.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 9.9 Ha (19.8 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jacky Jackyⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jeannieⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Lockhartⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Normanby	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Olive-Pascoe	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Stewart	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.3-3d. Change in extent of slightly modified mangroves and/or salt flats across the Cape York region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Endeavour ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jacky Jacky ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Jeannie ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Lockhart ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Normanby	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Olive-Pascoe	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Stewart	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Highly modified and artificial

Approximately 825.1 of highly modified and artificial wetlands were mapped across the Cape York region in 2019. This includes 0 hectares of highly modified and artificial vegetated freshwater swamps, 825.1 hectares of highly modified and artificial lakes, and 0 hectares of highly modified and artificial mangroves and/or salt flats. Highly modified and artificial wetlands are excluded from the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of “No loss of the extent of natural wetlands” and therefore any trends in their extent are not further analysed.

2.4 Wetlands of the Fitzroy Region

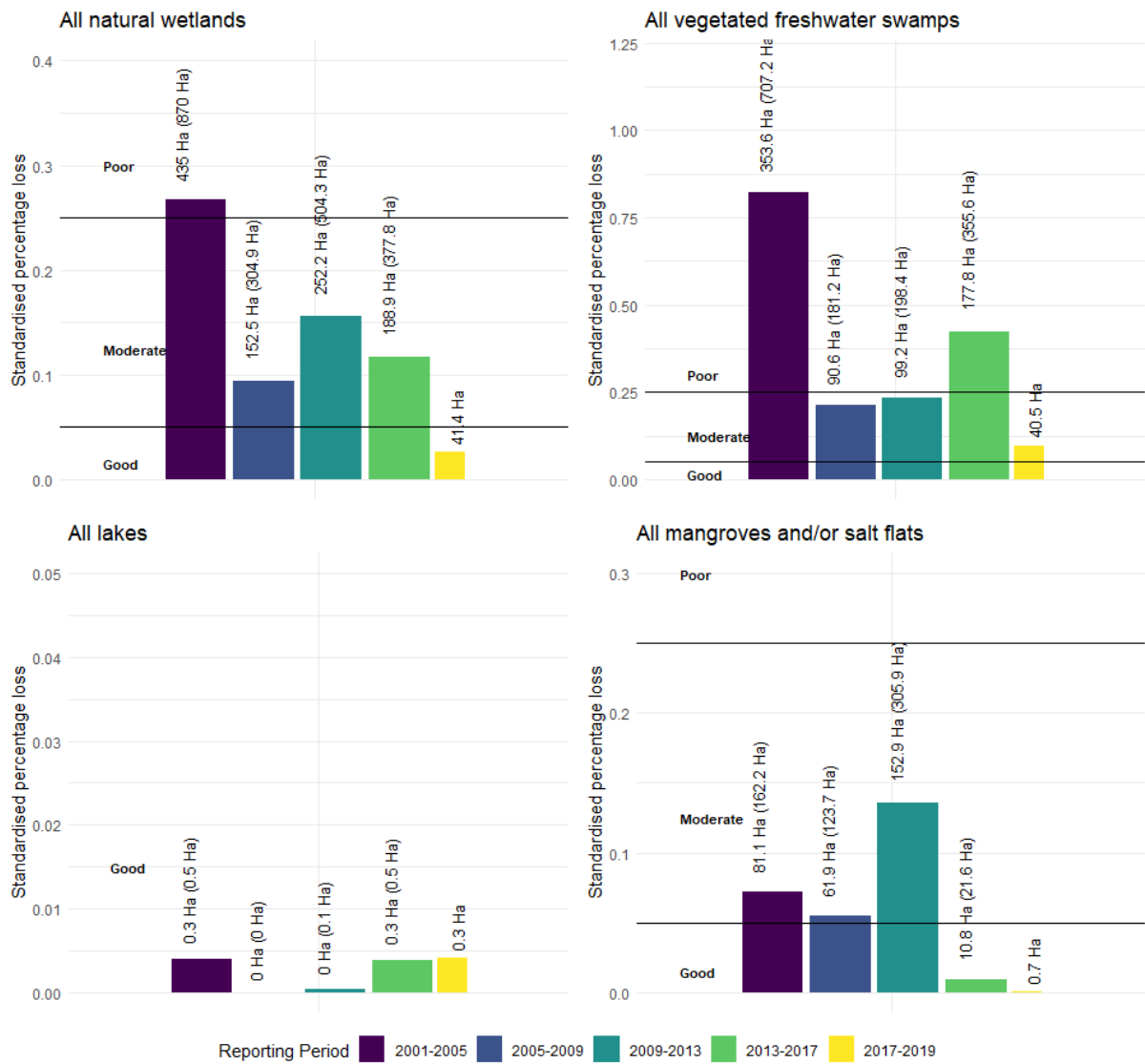
Across the Fitzroy region approximately 160,424.3 hectares of natural wetlands were mapped in 2019 including 41,583.6 hectares of vegetated freshwater swamps, 6,826.4 hectares of lakes, and 112,014.4 hectares of mangroves and/or salt flats.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Fitzroy	Poor: 0.268% loss	Moderate: 0.094% loss	Moderate: 0.156% loss	Moderate: 0.117% loss	Good: 0.026% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.

Change in wetland extent of natural wetlands

There was a loss of 41.4 hectares (or 0.03 percent) of natural wetlands across the Fitzroy region between 2017 and 2019 (Figure 2.4-1, Table 2.4-1). This loss of natural wetlands included: a loss of 40.5 hectares of natural vegetated freshwater swamps wetlands; a loss of 0.3 hectares of natural lakes; and a loss of 0.7 hectares of natural mangroves and/or salt flats. These natural wetlands were lost to infilling or clearing (41.4 hectares) and modification (0 hectares). A loss of natural wetlands was reported for all reporting periods, however, the rate of natural wetland loss between 2017 and 2019 has decreased relative to the previous reporting period receiving a score of 'Good'.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.4-1. Change in natural wetland extent across the Fitzroy region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.4-1a. Change in extent of natural wetlands across the Fitzroy region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural wetlands		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.268	435 Ha (870 Ha)
2005-2009	0.094	152.5 Ha (304.9 Ha)
2009-2013	0.156	252.2 Ha (504.3 Ha)
2013-2017	0.117	188.9 Ha (377.8 Ha)
2017-2019	0.026	41.4 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-1b. Change in extent of natural vegetated freshwater swamps across the Fitzroy region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural vegetated freshwater swamps		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.822	353.6 Ha (707.2 Ha)
2005-2009	0.214	90.6 Ha (181.2 Ha)
2009-2013	0.235	99.2 Ha (198.4 Ha)
2013-2017	0.424	177.8 Ha (355.6 Ha)
2017-2019	0.097	40.5 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-1c. Change in extent of natural lakes across the Fitzroy region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural lakes		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.004	0.3 Ha (0.5 Ha)
2005-2009	0.000	0 Ha (0 Ha)
2009-2013	0.000	0 Ha (0.1 Ha)
2013-2017	0.004	0.3 Ha (0.5 Ha)
2017-2019	0.004	0.3 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-1d. Change in extent of natural mangroves and/or salt flats across the Fitzroy region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural mangroves and/or salt flats		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.072	81.1 Ha (162.2 Ha)
2005-2009	0.055	61.9 Ha (123.7 Ha)
2009-2013	0.136	152.9 Ha (305.9 Ha)
2013-2017	0.010	10.8 Ha (21.6 Ha)
2017-2019	0.001	0.7 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

In 2019, approximately 73.9% of total pre-clearing extent of all wetlands remained across the Fitzroy region (Figure 2.4-2). This includes 70.1% of the pre-clearing extent of vegetated freshwater swamps, 93.6% of the pre-clearing extent of lakes, and 74.5% of the pre-clearing extent of mangroves and/or salt flats. Wetland extent loss has largely occurred prior to 2001 when this state-wide wetland extent monitoring began.

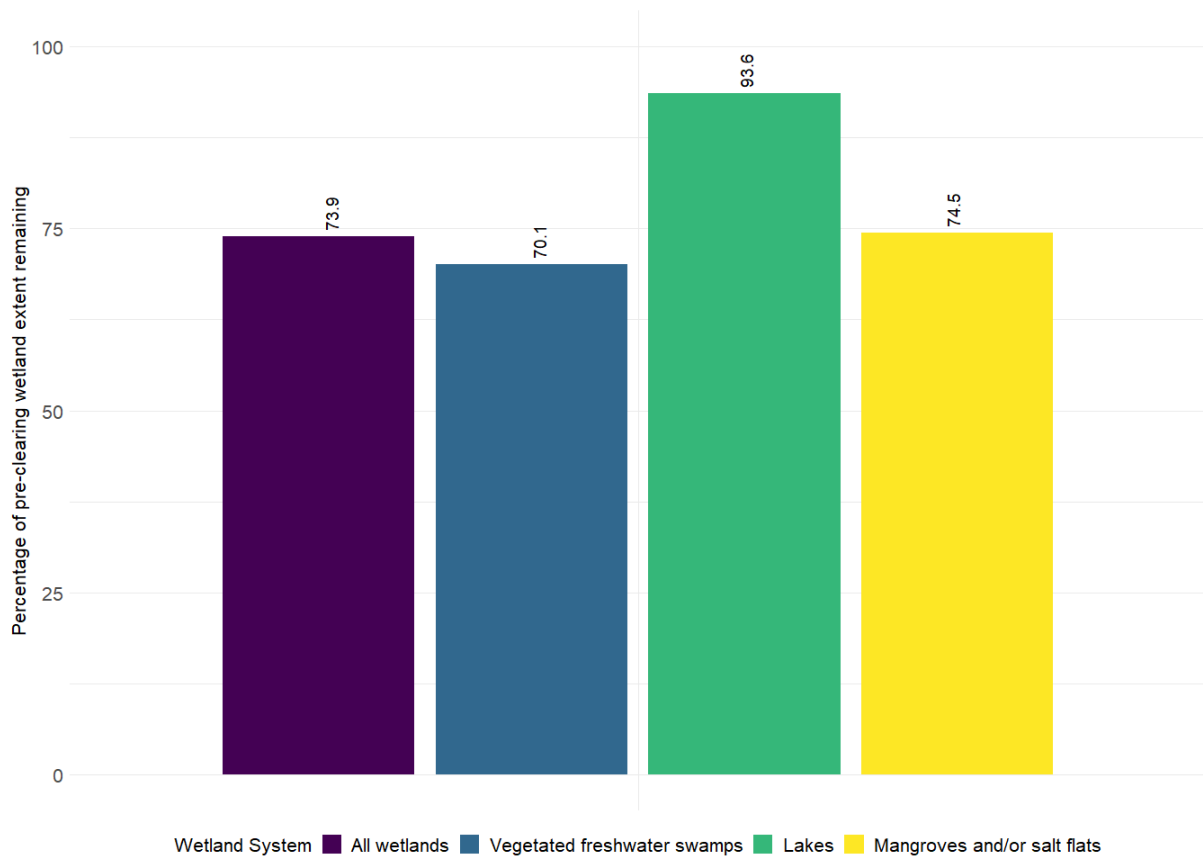
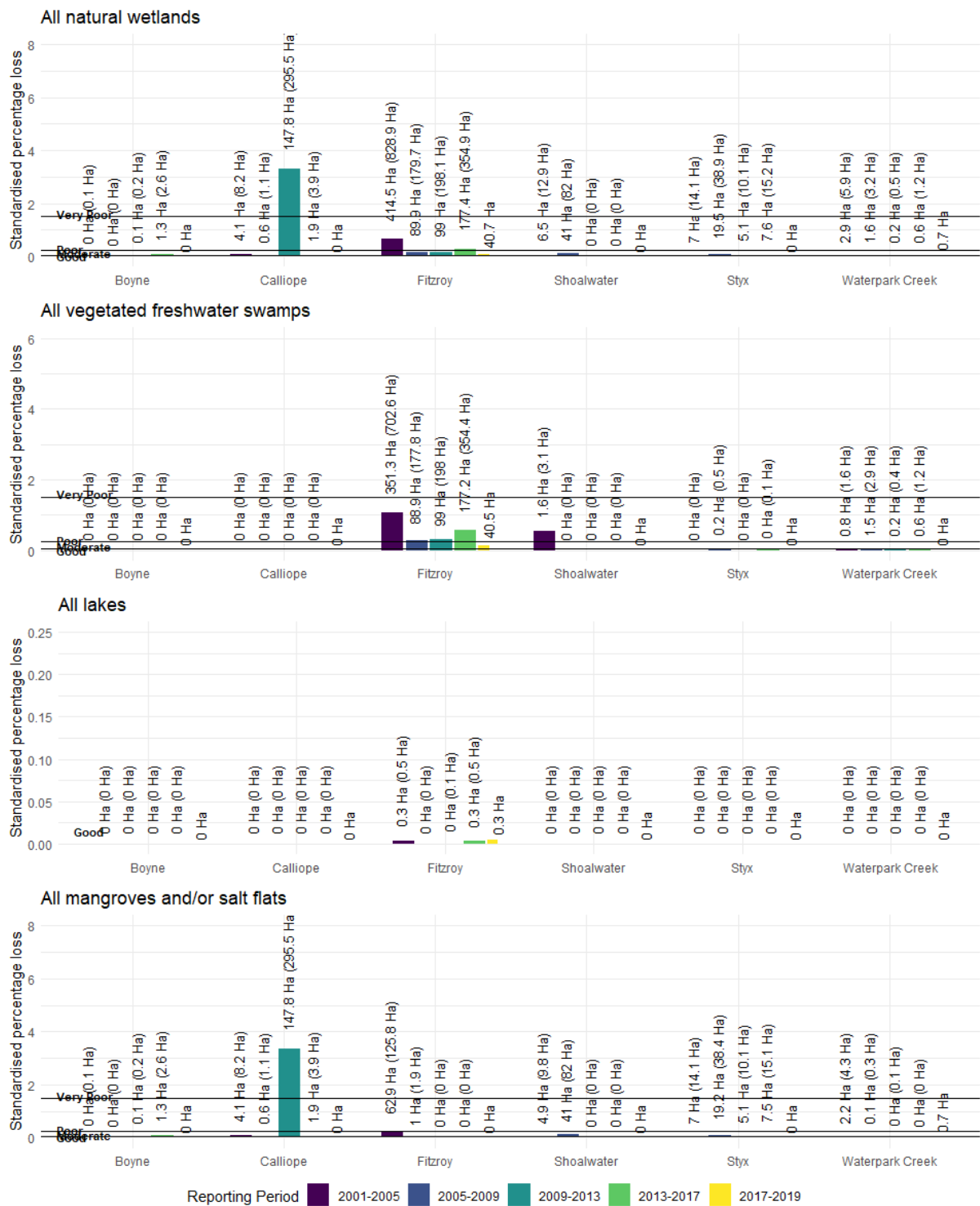


Figure 2.4-2. Extent of natural wetlands remaining in the Fitzroy region as a percentage of the initial pre-clearing wetland extent.

The trends observed in extent change of natural wetlands across the Fitzroy region may vary across different catchments (Figure 2.4-3, Table 2.4-2). The highest proportional loss of natural wetlands between 2017 and 2019 was in Fitzroy where 40.7 hectares (0.07 percent) loss occurred.

Region	2001-2005ⁱ	2005-2009ⁱ	2009-2013ⁱ	2013-2017ⁱ	2017-2019
Boyne	Good: 0.003% loss	Good: 0% loss	Good: 0.005% loss	Moderate: 0.079% loss	Very Good: No (0%) loss of wetlands
Calliope	Moderate: 0.092 % loss	Good: 0.013% loss	Very Poor: 3.313% loss	Good: 0.047% loss	Very Good: No (0%) loss of wetlands
Fitzroy	Poor: 0.646% loss	Moderate: 0.142% loss	Moderate: 0.157% loss	Poor: 0.282% loss	Moderate: 0.065% loss
Shoalwater	Good: 0.021% loss	Moderate: 0.136% loss	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Styx	Good: 0.026% loss	Moderate: 0.071% loss	Good: 0.019% loss	Good: 0.028% loss	Very Good: No (0%) loss of wetlands
Waterpark Creek	Good: 0.008% loss	Good: 0.005% loss	Good: 0.001% loss	Good: 0.002% loss	Good: 0.002% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.4-3. Change in natural wetland extent by reporting catchment across the Fitzroy region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.4-2a. Change in extent of natural wetlands across the Fitzroy region by reporting catchment and reporting period.

Year	Boyne	Calliope	Fitzroy	Shoalwater	Styx	Waterpark Creek
2001-2005 ⁱ	0 Ha (0.1 Ha)	4.1 Ha (8.2 Ha)	414.5 Ha (828.9 Ha)	6.5 Ha (12.9 Ha)	7 Ha (14.1 Ha)	2.9 Ha (5.9 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0.6 Ha (1.1 Ha)	89.9 Ha (179.7 Ha)	41 Ha (82 Ha)	19.5 Ha (38.9 Ha)	1.6 Ha (3.2 Ha)
2009-2013 ⁱ	0.1 Ha (0.2 Ha)	147.8 Ha (295.5 Ha)	99 Ha (198.1 Ha)	0 Ha (0 Ha)	5.1 Ha (10.1 Ha)	0.2 Ha (0.5 Ha)
2013-2017 ⁱ	1.3 Ha (2.6 Ha)	1.9 Ha (3.9 Ha)	177.4 Ha (354.9 Ha)	0 Ha (0 Ha)	7.6 Ha (15.2 Ha)	0.6 Ha (1.2 Ha)
2017-2019	0 Ha	0 Ha	40.7 Ha	0 Ha	0 Ha	0.7 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-2b. Change in extent of natural vegetated freshwater swamps across the Fitzroy region by reporting catchment and reporting period.

Year	Boyne	Calliope	Fitzroy	Shoalwater	Styx	Waterpark Creek
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	351.3 Ha (702.6 Ha)	1.6 Ha (3.1 Ha)	0 Ha (0 Ha)	0.8 Ha (1.6 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	88.9 Ha (177.8 Ha)	0 Ha (0 Ha)	0.2 Ha (0.5 Ha)	1.5 Ha (2.9 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	99 Ha (198 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0.2 Ha (0.4 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	177.2 Ha (354.4 Ha)	0 Ha (0 Ha)	0 Ha (0.1 Ha)	0.6 Ha (1.2 Ha)
2017-2019	0 Ha	0 Ha	40.5 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-2c. Change in extent of natural lakes across the Fitzroy region by reporting catchment and reporting period.

Year	Boyne	Calliope	Fitzroy	Shoalwater	Styx	Waterpark Creek
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0.3 Ha (0.5 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0.1 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0.3 Ha (0.5 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0.3 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-2d. Change in extent of natural mangroves and/or salt flats across the Fitzroy region by reporting catchment and reporting period.

Year	Boyne	Calliope	Fitzroy	Shoalwater	Styx	Waterpark Creek
2001-2005 ⁱ	0 Ha (0.1 Ha)	4.1 Ha (8.2 Ha)	62.9 Ha (125.8 Ha)	4.9 Ha (9.8 Ha)	7 Ha (14.1 Ha)	2.2 Ha (4.3 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0.6 Ha (1.1 Ha)	1 Ha (1.9 Ha)	41 Ha (82 Ha)	19.2 Ha (38.4 Ha)	0.1 Ha (0.3 Ha)
2009-2013 ⁱ	0.1 Ha (0.2 Ha)	147.8 Ha (295.5 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	5.1 Ha (10.1 Ha)	0 Ha (0.1 Ha)
2013-2017 ⁱ	1.3 Ha (2.6 Ha)	1.9 Ha (3.9 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	7.5 Ha (15.1 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0.7 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Notable contributions to the observed loss of natural wetlands between 2017 and 2019 in the Fitzroy have been: (1) in Fitzroy catchment where the highest proportional loss of vegetated freshwater swamps (0.13 percent) occurred and comprised of 40.5 hectares of wetlands lost to infilling and/or clearing.

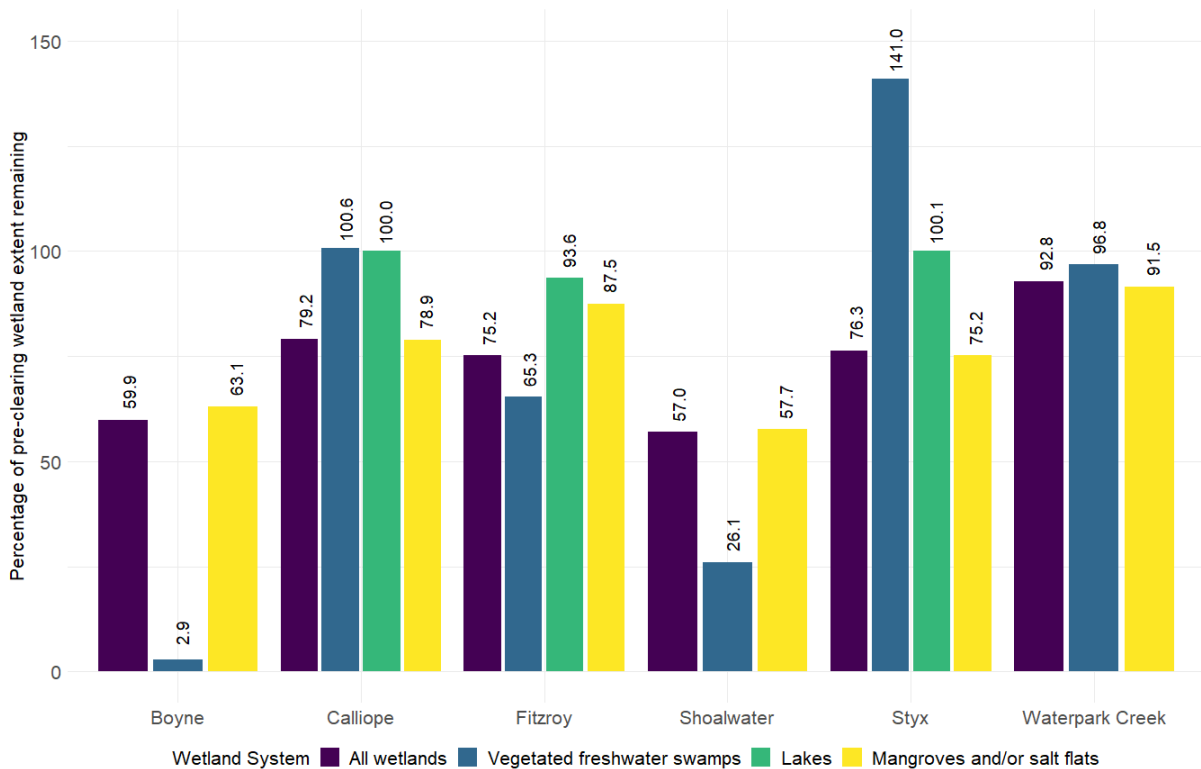
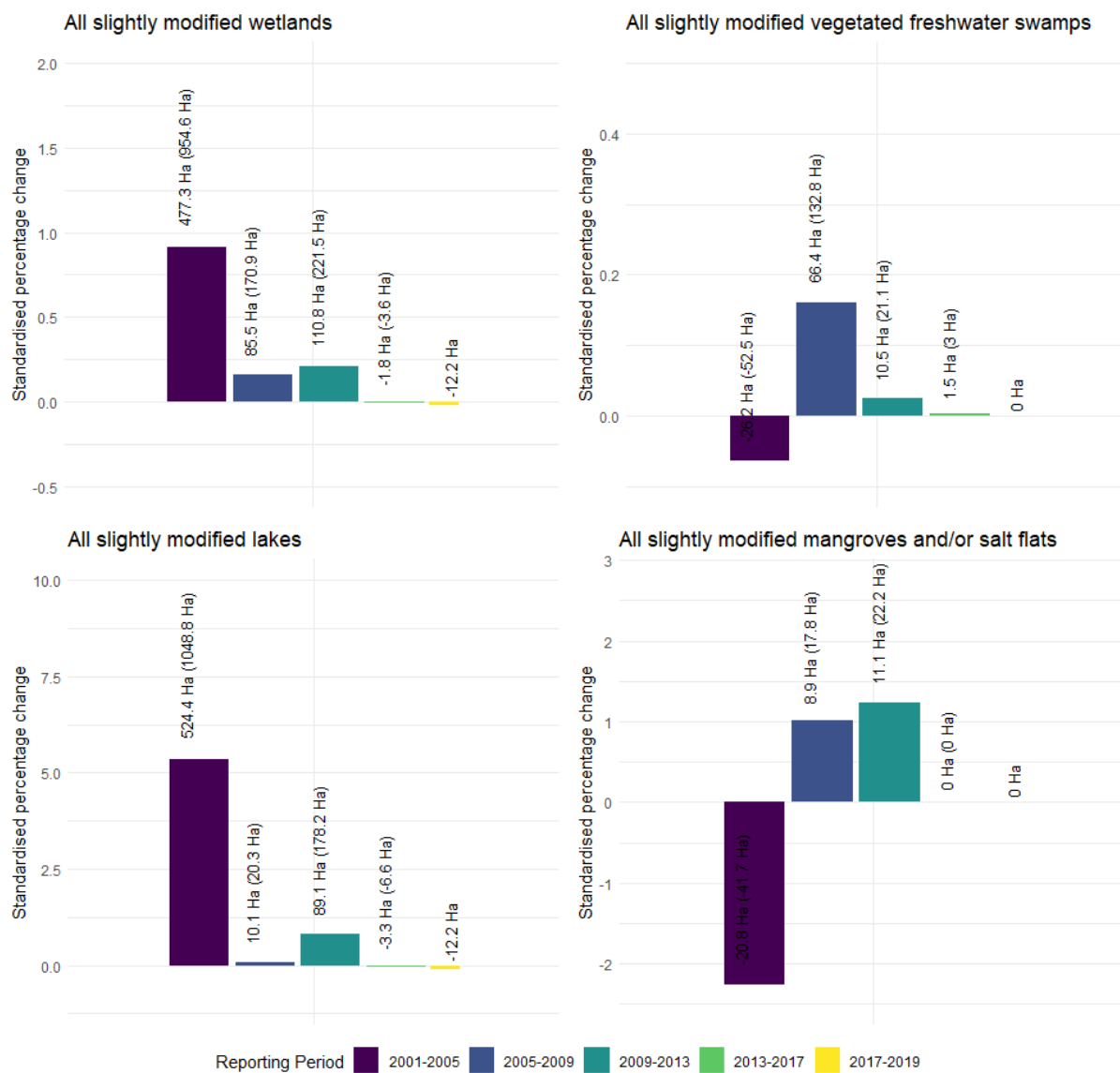


Figure 2.4-4. Extent of natural wetlands remaining across the Fitzroy region as a percentage of the initial pre-clearing wetland extent.

Change in wetland extent of slightly modified wetlands

Approximately 53,428 of slightly modified wetlands were mapped across the Fitzroy region in 2019. This includes 41,450.8 hectares of slightly modified vegetated freshwater swamps, 11,055.5 hectares of slightly modified lakes, and 921.6 hectares of slightly modified mangroves and/or salt flats respectively.

A net decrease of 12.2 hectares of slightly modified wetlands occurred across the Fitzroy region between 2017 and 2019 (Figure 2.4-5). However, net change in slightly modified wetlands can mask the real loss of these wetlands that occurs simultaneously (Figure 2.4-6). 10.4 hectares of slightly modified wetlands were lost to infilling and clearing activities between 2017 and 2019 including: ; 10.4 hectares of slightly modified lakes. In addition, 3.5 hectares of slightly modified wetlands were lost to modification between 2017 and 2019 including: ; 3.5 hectares of slightly modified lakes.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.4-5. Net change in slightly modified wetland extent in the Fitzroy region for all reporting periods as a percentage of the initial extent for each reporting period.

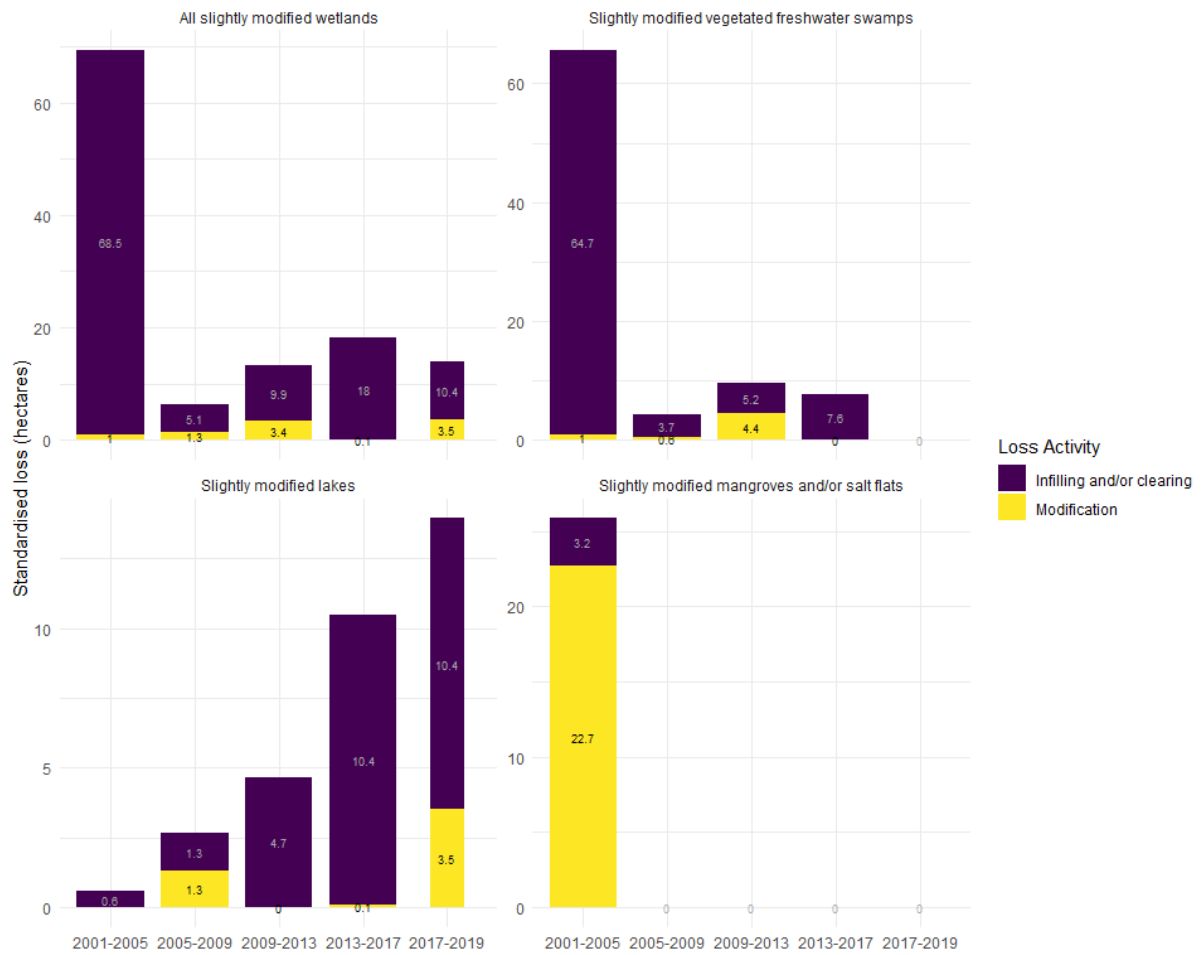
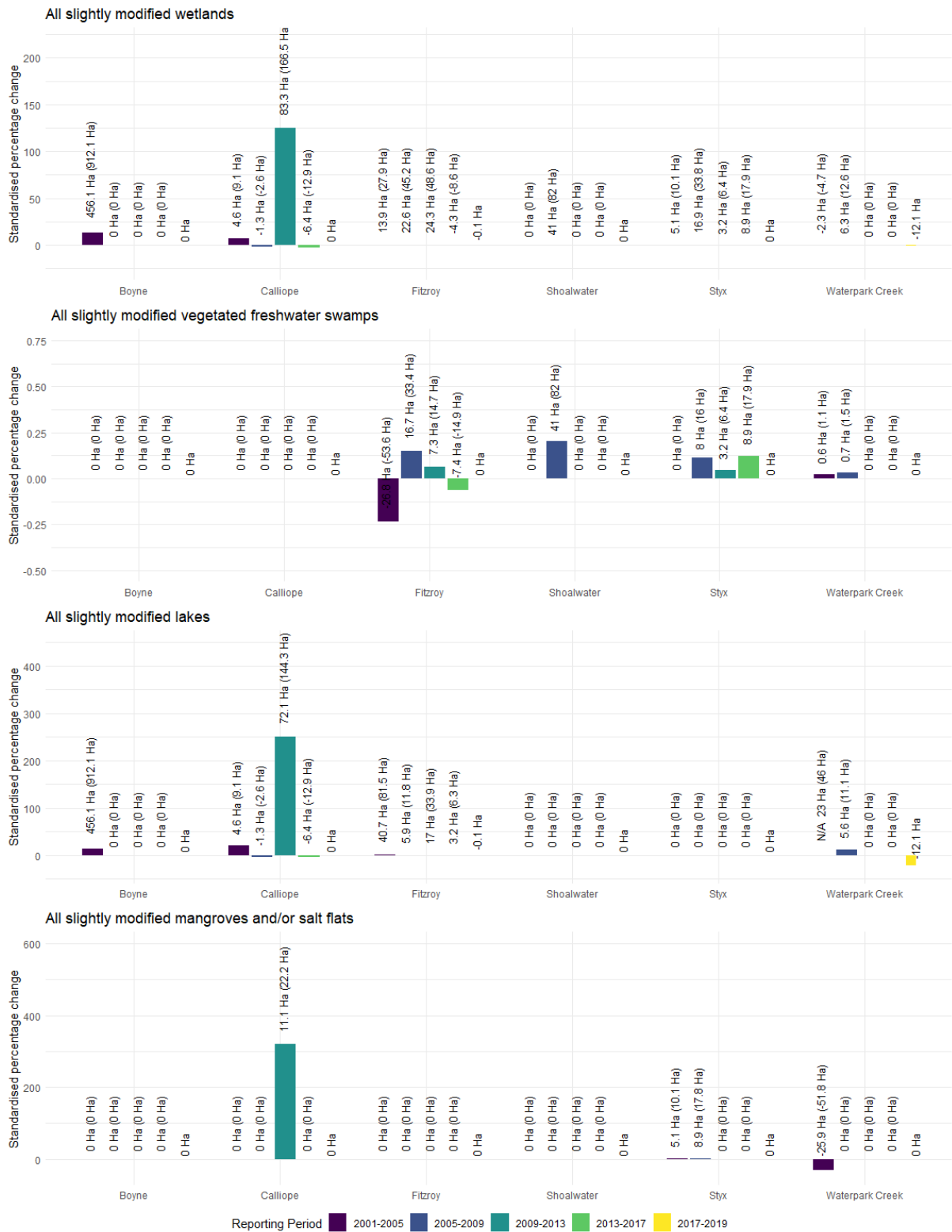


Figure 2.4-6. Change in slightly modified wetland extent in the Fitzroy region for all reporting periods in hectares.

The trends observed in the net change (Figure 2.4.1-7) and loss (Figure 2.4-8, Table 2.4-3) of slightly modified wetlands across the Fitzroy region may vary across different catchments. The highest proportional loss of slightly modified wetlands between 2017 and 2019 was in Fitzroy where a 40.7 hectares (0.07 percent) loss occurred.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.4-7. Net change in slightly modified wetland extent across the Fitzroy region by reporting catchment for all reporting periods as a percentage of the initial extent for each reporting period.

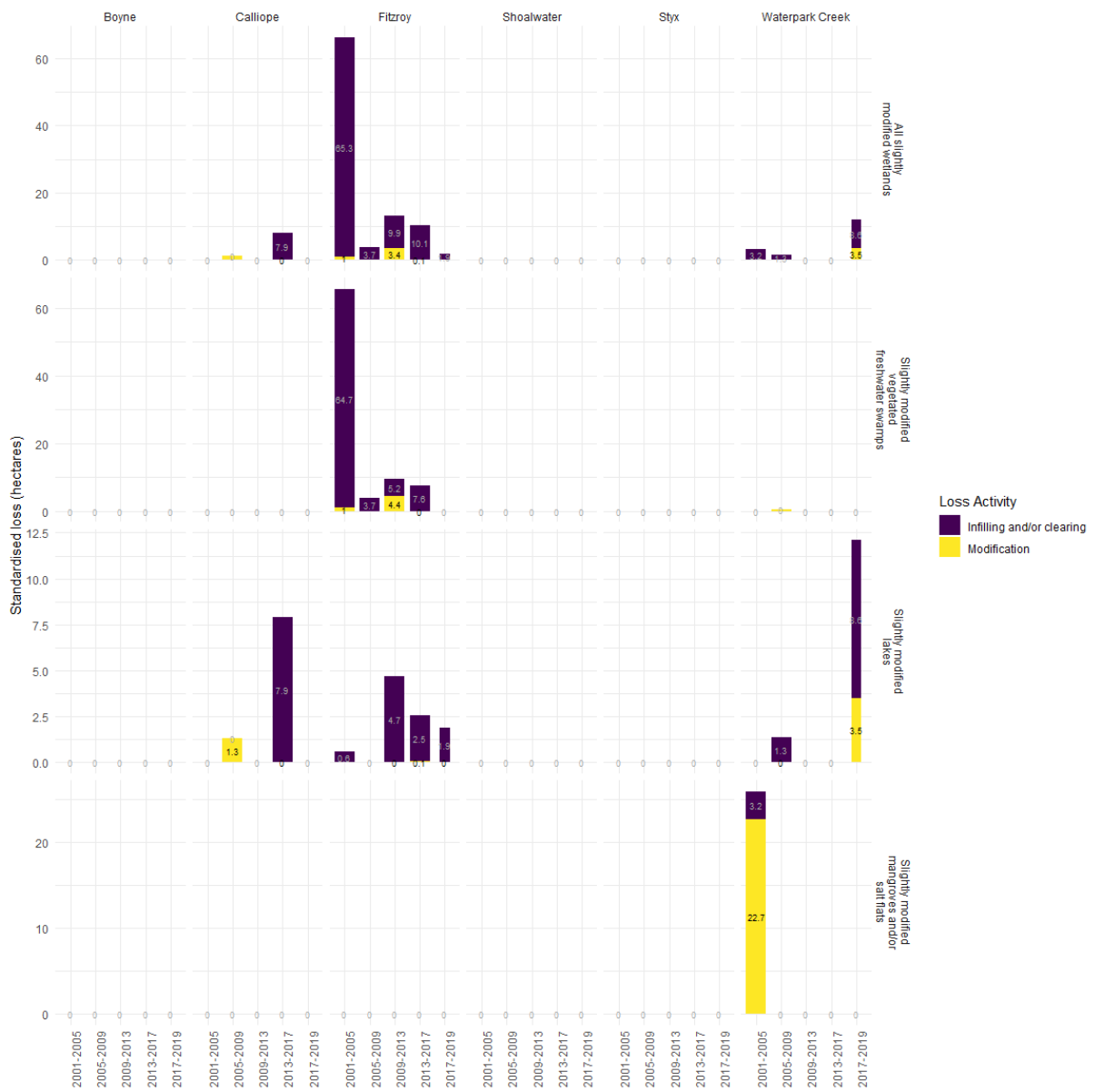


Figure 2.4-8. Change in slightly modified wetland extent across the Fitzroy region by reporting catchment for all reporting periods in hectares.

Table 2.4-3a. Change in extent of slightly modified wetlands across the Fitzroy region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Boyne ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Calliope ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 1.3 Ha (2.6 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 7.9 Ha (15.9 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroy ⁱ	Infilling and/or Clearing: 65.3 Ha (130.5 Ha) Modification: 1 Ha (1.9 Ha)	Infilling and/or Clearing: 3.7 Ha (7.5 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 9.9 Ha (19.7 Ha) Modification: 3.4 Ha (6.8 Ha)	Infilling and/or Clearing: 10.1 Ha (20.2 Ha) Modification: 0.1 Ha (0.2 Ha)	Infilling and/or Clearing: 1.9 Ha Modification: 0 Ha
Shoalwater ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Styx	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Waterpark Creek	Infilling and/or Clearing: 3.2 Ha (6.4 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 1.3 Ha (2.7 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 8.6 Ha Modification: 3.5 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-3b. Change in extent of slightly modified vegetated freshwater swamps across the Fitzroy region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Boyneⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Calliopeⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroyⁱ	Infilling and/or Clearing: 64.7 Ha (129.4 Ha) Modification: 1 Ha (1.9 Ha)	Infilling and/or Clearing: 3.7 Ha (7.5 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 5.2 Ha (10.4 Ha) Modification: 4.4 Ha (8.9 Ha)	Infilling and/or Clearing: 7.6 Ha (15.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Shoalwaterⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Styx	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Waterpark Creek	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.6 Ha (1.1 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-3c. Change in extent of slightly modified lakes across the Fitzroy region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Boyneⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Calliopeⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 1.3 Ha (2.6 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 7.9 Ha (15.9 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroyⁱ	Infilling and/or Clearing: 0.6 Ha (1.2 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 4.7 Ha (9.3 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 2.5 Ha (5 Ha) Modification: 0.1 Ha (0.2 Ha)	Infilling and/or Clearing: 1.9 Ha Modification: 0 Ha
Shoalwaterⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Styx	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Waterpark Creek	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 1.3 Ha (2.7 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 8.6 Ha Modification: 3.5 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.4-3d. Change in extent of slightly modified mangroves and/or salt flats across the Fitzroy region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Boyne ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Calliope ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Fitzroy ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Shoalwater ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Styx	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Waterpark Creek	Infilling and/or Clearing: 3.2 Ha (6.4 Ha) Modification: 22.7 Ha (45.4 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Highly modified and artificial

Approximately 63,508.8 of highly modified and artificial wetlands were mapped across the Fitzroy region in 2019. This includes 3,534.4 hectares of highly modified and artificial vegetated freshwater swamps, 59,974.3 hectares of highly modified and artificial lakes, and 0 hectares of highly modified and artificial mangroves and/or salt flats. Highly modified and artificial wetlands are excluded from the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of "No loss of the extent of natural wetlands" and therefore any trends in their extent are not further analysed.

2.5 Wetlands of the Mackay-Whitsundays Region

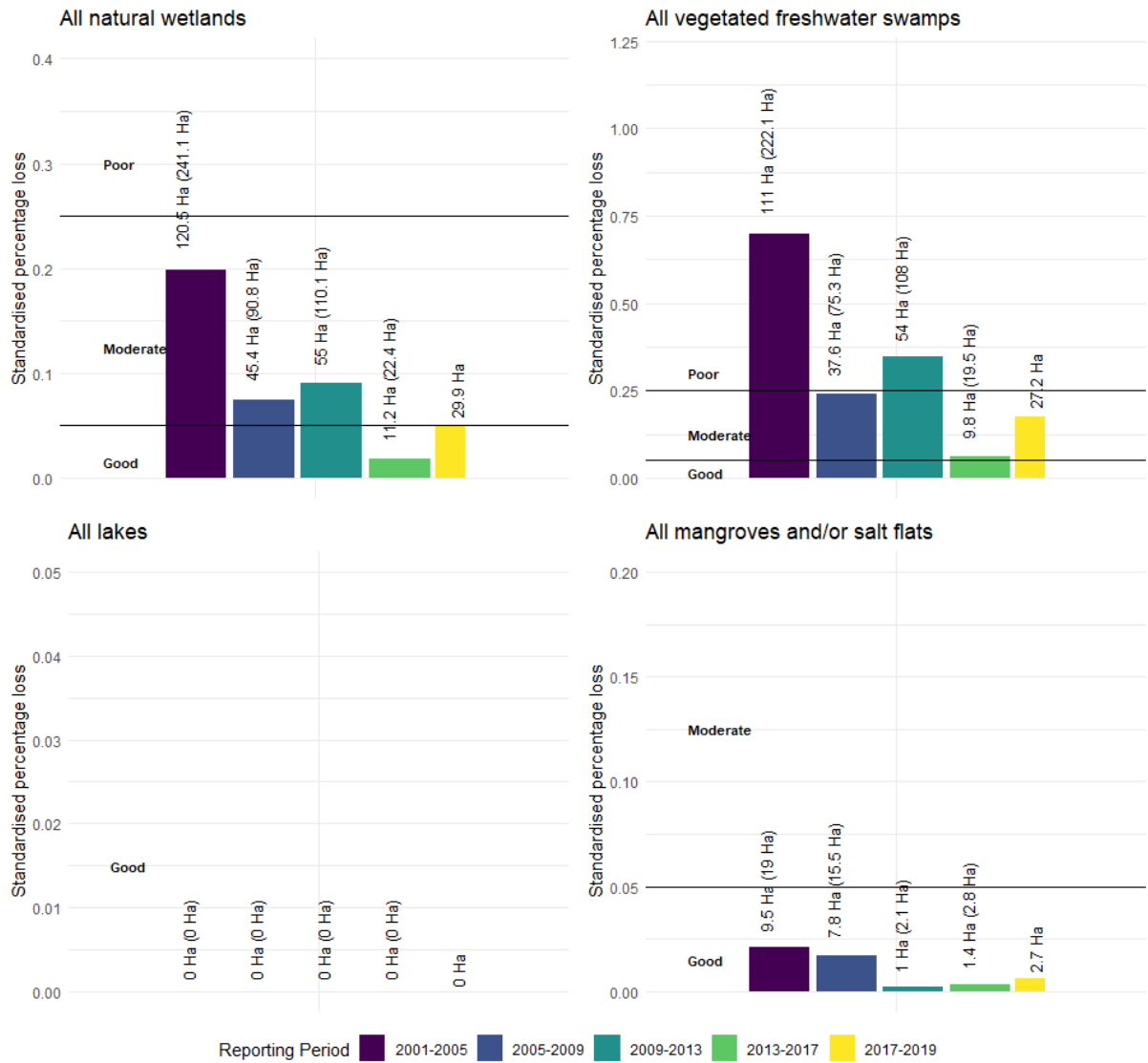
Across the Mackay-Whitsundays region approximately 60,341.9 hectares of natural wetlands were mapped in 2019 including 15,482.6 hectares of vegetated freshwater swamps, 14.5 hectares of lakes, and 44,844.7 hectares of mangroves and/or salt flats.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Mackay-Whitsundays	Moderate: 0.198 % loss	Moderate: 0.075% loss	Moderate: 0.091% loss	Good: 0.019% loss	Good: 0.0499% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.

Change in wetland extent of natural wetlands

There was a loss of 29.9 hectares (or 0.05 percent) of natural wetlands across the Mackay-Whitsundays region between 2017 and 2019 (Figure 2.5-1, Table 2.5-1). This loss of natural wetlands included: a loss of 27.2 hectares of natural vegetated freshwater swamps wetlands; no loss of natural lakes; and a loss of 2.7 hectares of natural mangroves and/or salt flats. These natural wetlands were lost to infilling or clearing (29.8 hectares) and modification (0.2 hectares). A loss of natural wetlands was reported for all reporting periods, however, the rate of natural wetland loss between 2017 and 2019 has decreased relative to the previous reporting period receiving a score of 'Good'.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.5-1. Change in natural wetland extent across the Mackay-Whitsundays region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.5-1a. Change in extent of natural wetlands across the Mackay-Whitsundays region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural wetlands		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.198	120.5 Ha (241.1 Ha)
2005-2009	0.075	45.4 Ha (90.8 Ha)
2009-2013	0.091	55 Ha (110.1 Ha)
2013-2017	0.019	11.2 Ha (22.4 Ha)
2017-2019	0.050	29.9 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-1b. Change in extent of natural vegetated freshwater swamps across the Mackay-Whitsundays region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural vegetated freshwater swamps		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.699	111 Ha (222.1 Ha)
2005-2009	0.240	37.6 Ha (75.3 Ha)
2009-2013	0.346	54 Ha (108 Ha)
2013-2017	0.063	9.8 Ha (19.5 Ha)
2017-2019	0.176	27.2 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-1c. Change in extent of natural lakes across the Mackay-Whitsundays region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural lakes		
Reporting Period	Percent loss	Hectare loss
2001-2005	0	0 Ha (0 Ha)
2005-2009	0	0 Ha (0 Ha)
2009-2013	0	0 Ha (0 Ha)
2013-2017	0	0 Ha (0 Ha)
2017-2019	0	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-1d. Change in extent of natural mangroves and/or salt flats across the Mackay-Whitsundays region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural mangroves and/or salt flats		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.021	9.5 Ha (19 Ha)
2005-2009	0.017	7.8 Ha (15.5 Ha)
2009-2013	0.002	1 Ha (2.1 Ha)
2013-2017	0.003	1.4 Ha (2.8 Ha)
2017-2019	0.006	2.7 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

In 2019, approximately 61.6% of total pre-clearing extent of all wetlands remained across the Mackay-Whitsundays region (Figure 2.5-2). This includes 30.3% of the pre-clearing extent of vegetated freshwater swamps, 100% of the pre-clearing extent of lakes, and 95.8% of the pre-clearing extent of mangroves and/or salt flats. Wetland extent loss has largely occurred prior to 2001 when this state-wide wetland extent monitoring began.

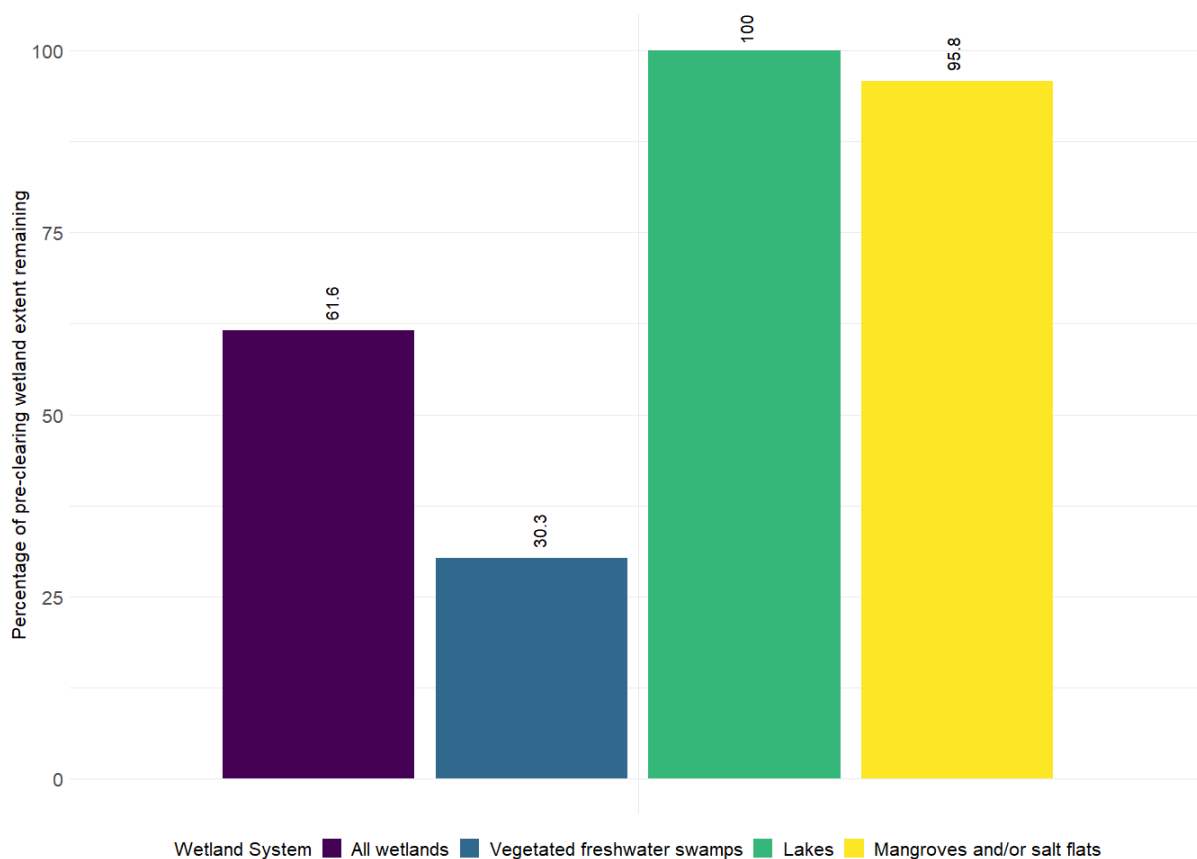
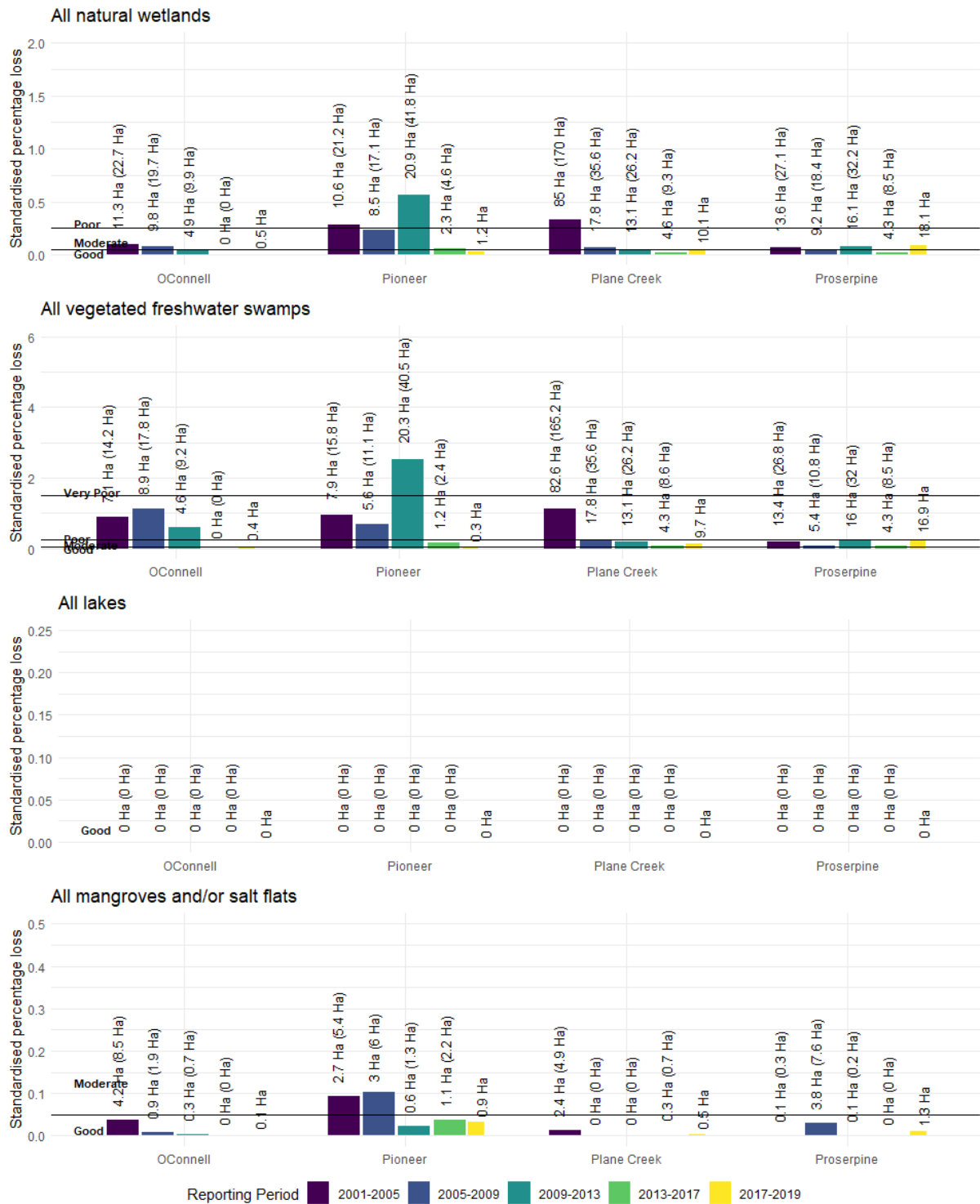


Figure 2.5-2. Extent of natural wetlands remaining in the Mackay-Whitsundays region as a percentage of the initial pre-clearing wetland extent.

The trends observed in extent change of natural wetlands across the Mackay-Whitsundays region may vary across different catchments (Figure 2.5-3, Table 2.5-2). The highest proportional loss of natural wetlands between 2017 and 2019 was in Proserpine where 18.1 hectares (0.09 percent) loss occurred.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
OConnell	Moderate: 0.094 % loss	Moderate: 0.082% loss	Good: 0.041% loss	Very Good: No (0%) loss of wetlands	Good: 0.004% loss
Pioneer	Poor: 0.286% loss	Moderate: 0.231% loss	Poor: 0.568% loss	Moderate: 0.063% loss	Good: 0.033% loss
Plane Creek	Poor: 0.334% loss	Moderate: 0.07% loss	Moderate: 0.052% loss	Good: 0.018% loss	Good: 0.04% loss
Proserpine	Moderate: 0.069 % loss	Good: 0.047% loss	Moderate: 0.083% loss	Good: 0.022% loss	Moderate: 0.093% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.5-3. Change in natural wetland extent by reporting catchment across the Mackay-Whitsundays region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.5-2a. Change in extent of natural wetlands across the Mackay-Whitsundays region by reporting catchment and reporting period.

Year	OConnell	Pioneer	Plane Creek	Proserpine
2001-2005 ⁱ	11.3 Ha (22.7 Ha)	10.6 Ha (21.2 Ha)	85 Ha (170 Ha)	13.6 Ha (27.1 Ha)
2005-2009 ⁱ	9.8 Ha (19.7 Ha)	8.5 Ha (17.1 Ha)	17.8 Ha (35.6 Ha)	9.2 Ha (18.4 Ha)
2009-2013 ⁱ	4.9 Ha (9.9 Ha)	20.9 Ha (41.8 Ha)	13.1 Ha (26.2 Ha)	16.1 Ha (32.2 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	2.3 Ha (4.6 Ha)	4.6 Ha (9.3 Ha)	4.3 Ha (8.5 Ha)
2017-2019	0.5 Ha	1.2 Ha	10.1 Ha	18.1 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-2b. Change in extent of natural vegetated freshwater swamps across the Mackay-Whitsundays region by reporting catchment and reporting period.

Year	OConnell	Pioneer	Plane Creek	Proserpine
2001-2005 ⁱ	7.1 Ha (14.2 Ha)	7.9 Ha (15.8 Ha)	82.6 Ha (165.2 Ha)	13.4 Ha (26.8 Ha)
2005-2009 ⁱ	8.9 Ha (17.8 Ha)	5.6 Ha (11.1 Ha)	17.8 Ha (35.6 Ha)	5.4 Ha (10.8 Ha)
2009-2013 ⁱ	4.6 Ha (9.2 Ha)	20.3 Ha (40.5 Ha)	13.1 Ha (26.2 Ha)	16 Ha (32 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	1.2 Ha (2.4 Ha)	4.3 Ha (8.6 Ha)	4.3 Ha (8.5 Ha)
2017-2019	0.4 Ha	0.3 Ha	9.7 Ha	16.9 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-2c. Change in extent of natural lakes across the Mackay-Whitsundays region by reporting catchment and reporting period.

Year	OConnell	Pioneer	Plane Creek	Proserpine
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-2d. Change in extent of natural mangroves and/or salt flats across the Mackay-Whitsundays region by reporting catchment and reporting period.

Year	OConnell	Pioneer	Plane Creek	Proserpine
2001-2005 ⁱ	4.2 Ha (8.5 Ha)	2.7 Ha (5.4 Ha)	2.4 Ha (4.9 Ha)	0.1 Ha (0.3 Ha)
2005-2009 ⁱ	0.9 Ha (1.9 Ha)	3 Ha (6 Ha)	0 Ha (0 Ha)	3.8 Ha (7.6 Ha)
2009-2013 ⁱ	0.3 Ha (0.7 Ha)	0.6 Ha (1.3 Ha)	0 Ha (0 Ha)	0.1 Ha (0.2 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	1.1 Ha (2.2 Ha)	0.3 Ha (0.7 Ha)	0 Ha (0 Ha)
2017-2019	0.1 Ha	0.9 Ha	0.5 Ha	1.3 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Notable contributions to the observed loss of natural wetlands between 2017 and 2019 in the Mackay-Whitsundays have been: (1) in Proserpine catchment where the highest proportional loss of vegetated freshwater swamps (0.25 percent) occurred and comprised of 16.9 hectares of wetlands lost to infilling and/or clearing.

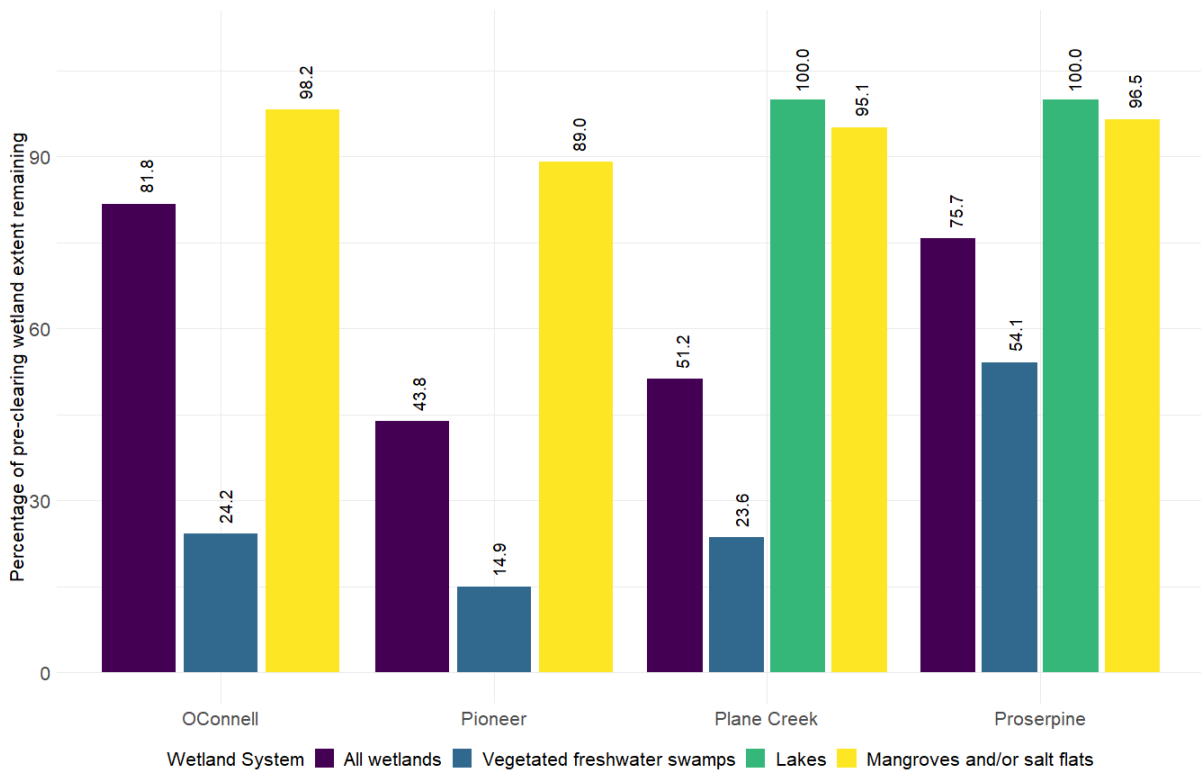
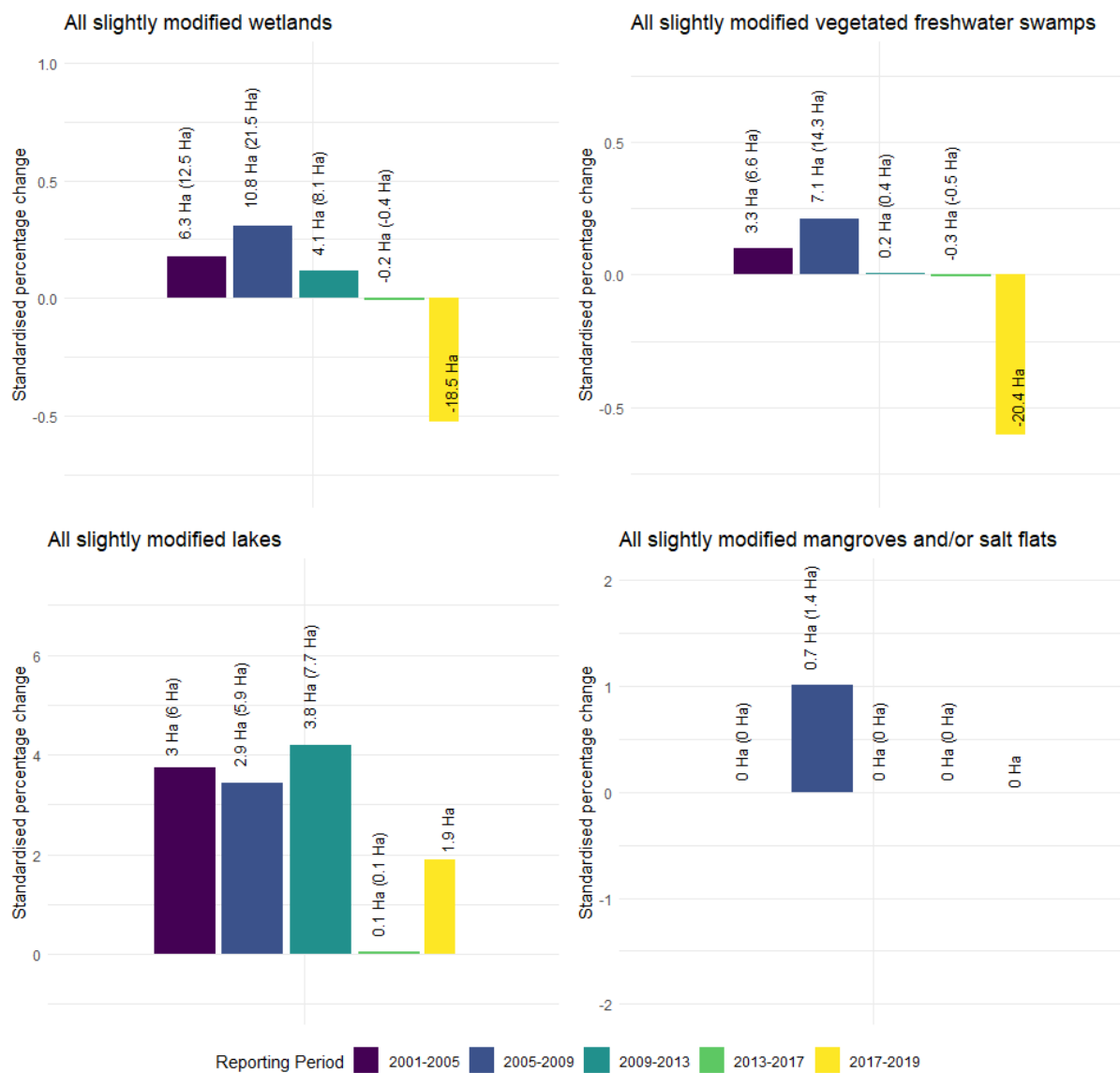


Figure 2.5-4. Extent of natural wetlands remaining across the Mackay-Whitsundays region as a percentage of the initial pre-clearing wetland extent.

Change in wetland extent of slightly modified wetlands

Approximately 3,526.4 of slightly modified wetlands were mapped across the Mackay-Whitsundays region in 2019. This includes 3,355.6 hectares of slightly modified vegetated freshwater swamps, 101.1 hectares of slightly modified lakes, and 69.7 hectares of slightly modified mangroves and/or salt flats respectively.

A net decrease of 18.5 hectares of slightly modified wetlands occurred across the Mackay-Whitsundays region between 2017 and 2019 (Figure 2.5-5). However, net change in slightly modified wetlands can mask the real loss of these wetlands that occurs simultaneously (Figure 2.5-6).



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.5-5. Net change in slightly modified wetland extent in the Mackay-Whitsundays region for all reporting periods as a percentage of the initial extent for each reporting period.

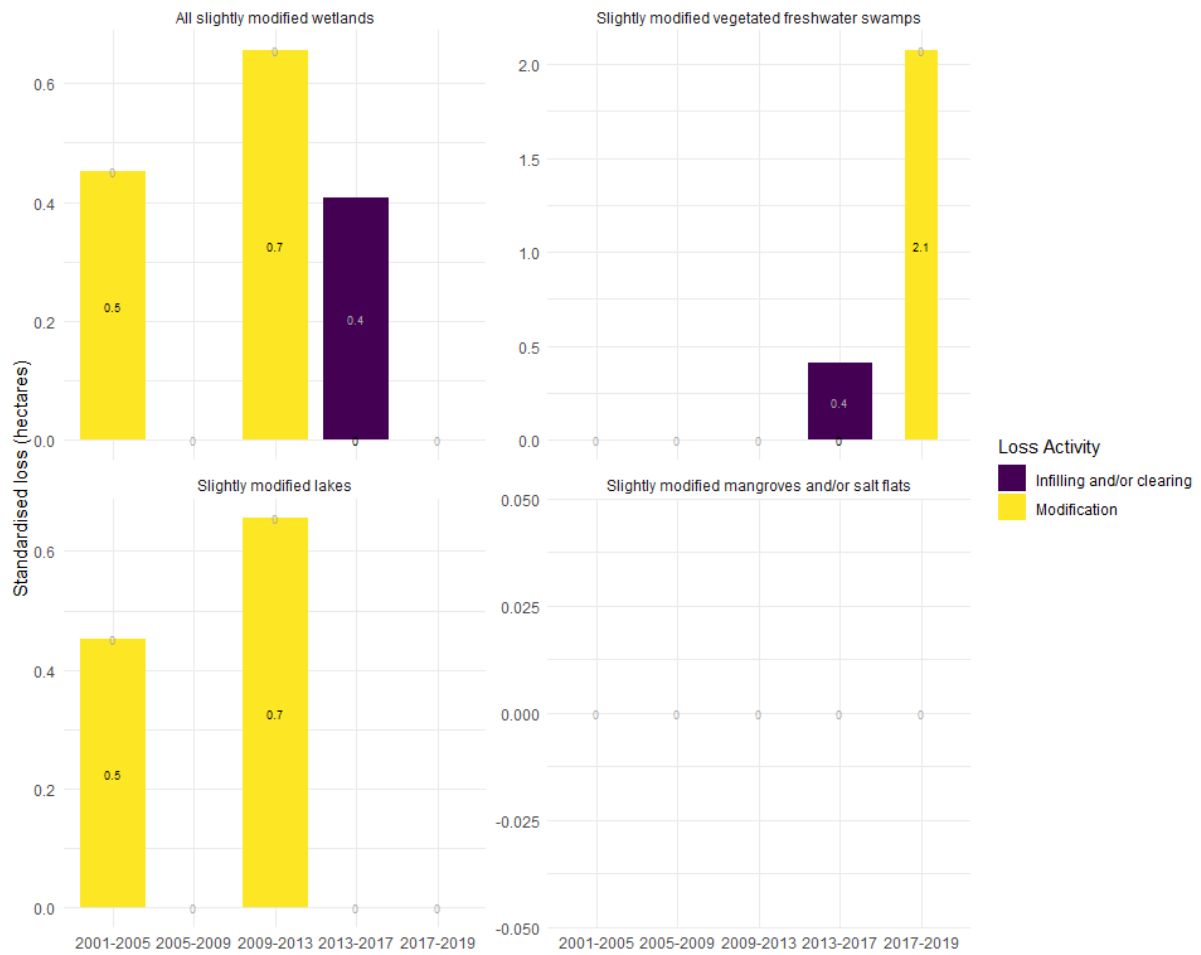
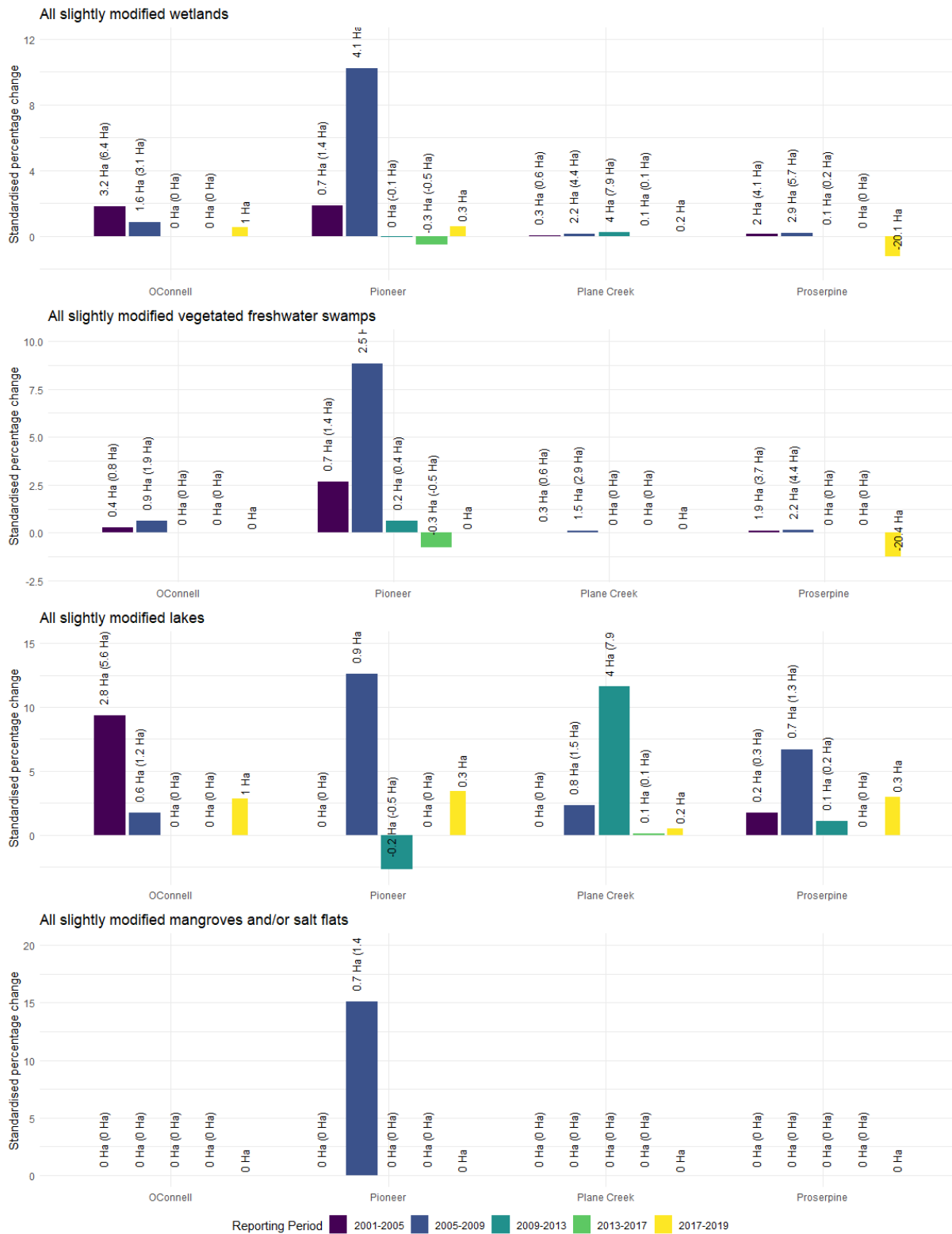


Figure 2.5-6. Change in slightly modified wetland extent in the Mackay-Whitsundays region for all reporting periods in hectares.

The trends observed in the net change (Figure 2.5.1-7) and loss (Figure 2.5-8, Table 2.5-3) of slightly modified wetlands across the Mackay-Whitsundays region may vary across different catchments. The highest proportional loss of slightly modified wetlands between 2017 and 2019 was in Proserpine where a 18.1 hectares (0.09 percent) loss occurred.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.5-7. Net change in slightly modified wetland extent across the Mackay-Whitsundays region by reporting catchment for all reporting periods as a percentage of the initial extent for each reporting period.

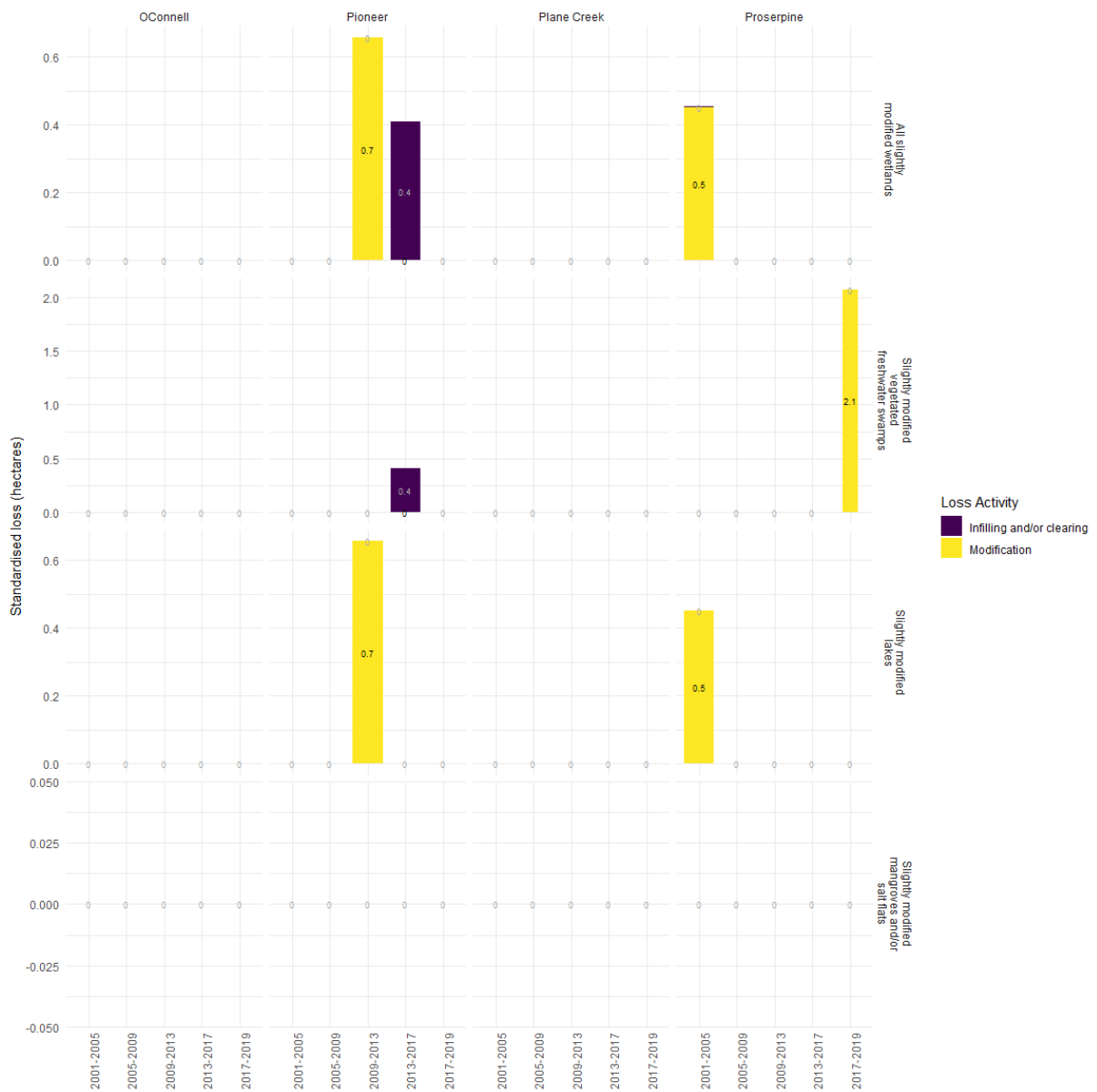


Figure 2.5-8. Change in slightly modified wetland extent across the Mackay-Whitsundays region by reporting catchment for all reporting periods in hectares.

Table 2.5-3a. Change in extent of slightly modified wetlands across the Mackay-Whitsundays region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
OConnellⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Pioneerⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.7 Ha (1.3 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Plane Creekⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Proserpineⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.5 Ha (0.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-3b. Change in extent of slightly modified vegetated freshwater swamps across the Mackay-Whitsundays region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
OConnell ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Pioneer ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Plane Creek ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Proserpine ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 2.1 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-3c. Change in extent of slightly modified lakes across the Mackay-Whitsundays region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
OConnellⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Pioneerⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.7 Ha (1.3 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Plane Creekⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Proserpineⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0.5 Ha (0.9 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.5-3d. Change in extent of slightly modified mangroves and/or salt flats across the Mackay-Whitsundays region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
OConnell ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Pioneer ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Plane Creek ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Proserpine ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Highly modified and artificial

Approximately 9,673.5 of highly modified and artificial wetlands were mapped across the Mackay-Whitsundays region in 2019. This includes 203.5 hectares of highly modified and artificial vegetated freshwater swamps, 9,470.1 hectares of highly modified and artificial lakes, and 0 hectares of highly modified and artificial mangroves and/or salt flats. Highly modified and artificial wetlands are excluded from the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of “No loss of the extent of natural wetlands” and therefore any trends in their extent are not further analysed.

2.6 Wetlands of the Wet Tropics Region

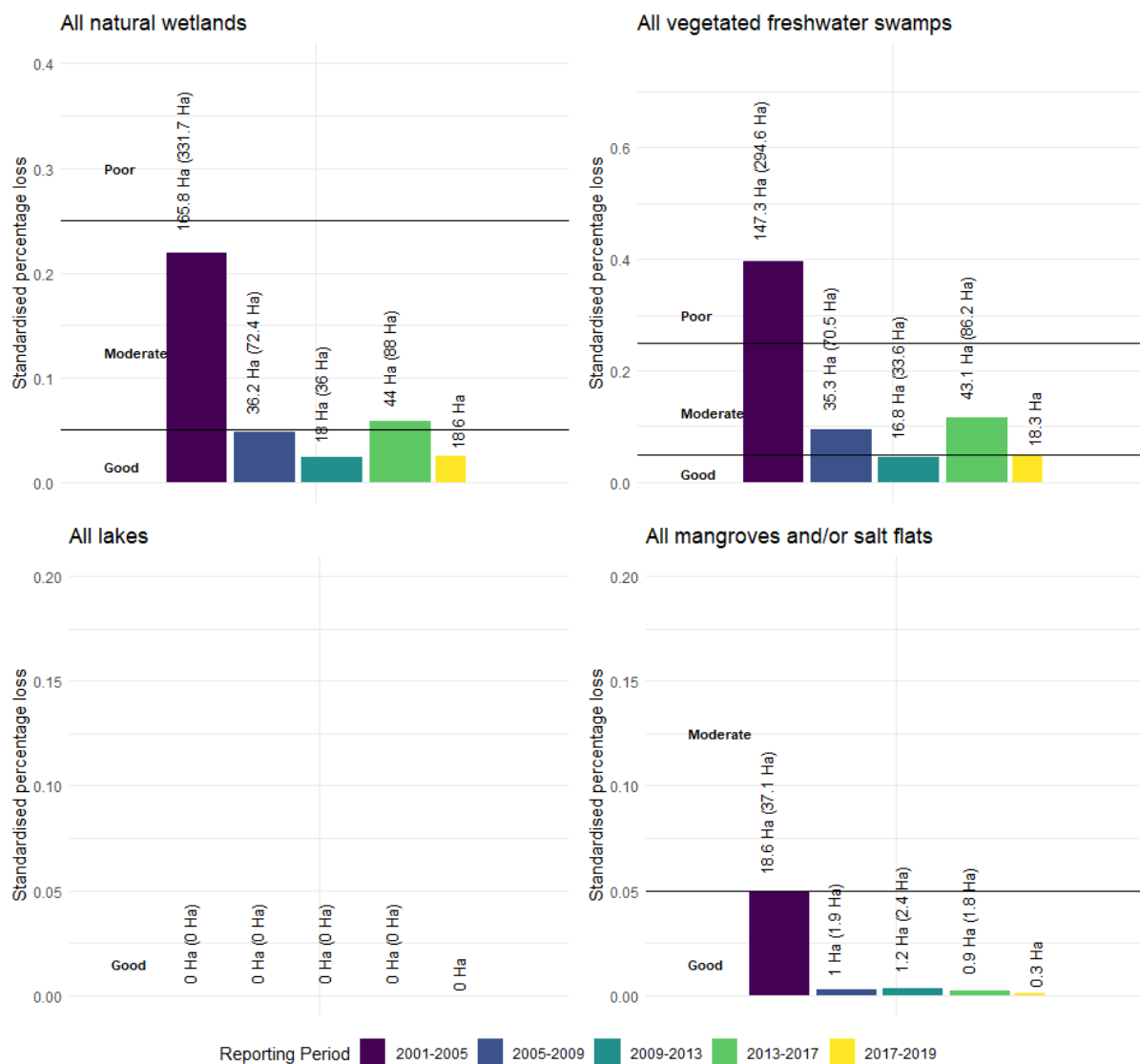
Across the Wet Tropics region approximately 75,216.7 hectares of natural wetlands were mapped in 2019 including 36,941.5 hectares of vegetated freshwater swamps, 602.7 hectares of lakes, and 37,672.6 hectares of mangroves and/or salt flats.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Wet Tropics	Moderate: 0.219 % loss	Good: 0.048% loss	Good: 0.024% loss	Moderate: 0.058% loss	Good: 0.025% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.

Change in wetland extent of natural wetlands

There was a loss of 18.6 hectares (or 0.02 percent) of natural wetlands across the Wet Tropics region between 2017 and 2019 (Figure 2.6-1, Table 2.6-1). This loss of natural wetlands included: a loss of 18.3 hectares of natural vegetated freshwater swamps wetlands; no loss of natural lakes; and a loss of 0.3 hectares of natural mangroves and/or salt flats. These natural wetlands were lost to infilling or clearing (18.6 hectares) and modification (0 hectares). A loss of natural wetlands was reported for all reporting periods, however, the rate of natural wetland loss between 2017 and 2019 has decreased relative to the previous reporting period receiving a score of 'Good'.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.6-1. Change in natural wetland extent across the Wet Tropics region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.6-1a. Change in extent of natural wetlands across the Wet Tropics region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural wetlands		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.219	165.8 Ha (331.7 Ha)
2005-2009	0.048	36.2 Ha (72.4 Ha)
2009-2013	0.024	18 Ha (36 Ha)
2013-2017	0.058	44 Ha (88 Ha)
2017-2019	0.025	18.6 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-1b. Change in extent of natural vegetated freshwater swamps across the Wet Tropics region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural vegetated freshwater swamps		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.395	147.3 Ha (294.6 Ha)
2005-2009	0.095	35.3 Ha (70.5 Ha)
2009-2013	0.045	16.8 Ha (33.6 Ha)
2013-2017	0.116	43.1 Ha (86.2 Ha)
2017-2019	0.049	18.3 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-1c. Change in extent of natural lakes across the Wet Tropics region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural lakes		
Reporting Period	Percent loss	Hectare loss
2001-2005	0	0 Ha (0 Ha)
2005-2009	0	0 Ha (0 Ha)
2009-2013	0	0 Ha (0 Ha)
2013-2017	0	0 Ha (0 Ha)
2017-2019	0	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-1d. Change in extent of natural mangroves and/or salt flats across the Wet Tropics region for all reporting periods as a percentage of the initial extent for each reporting period.

All natural mangroves and/or salt flats		
Reporting Period	Percent loss	Hectare loss
2001-2005	0.049	18.6 Ha (37.1 Ha)
2005-2009	0.003	1 Ha (1.9 Ha)
2009-2013	0.003	1.2 Ha (2.4 Ha)
2013-2017	0.002	0.9 Ha (1.8 Ha)
2017-2019	0.001	0.3 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

In 2019, approximately 62.1% of total pre-clearing extent of all wetlands remained across the Wet Tropics region (Figure 2.6-2). This includes 46.3% of the pre-clearing extent of vegetated freshwater swamps, 99.9% of the pre-clearing extent of lakes, and 92.2% of the pre-clearing extent of mangroves and/or salt flats. Wetland extent loss has largely occurred prior to 2001 when this state-wide wetland extent monitoring began.

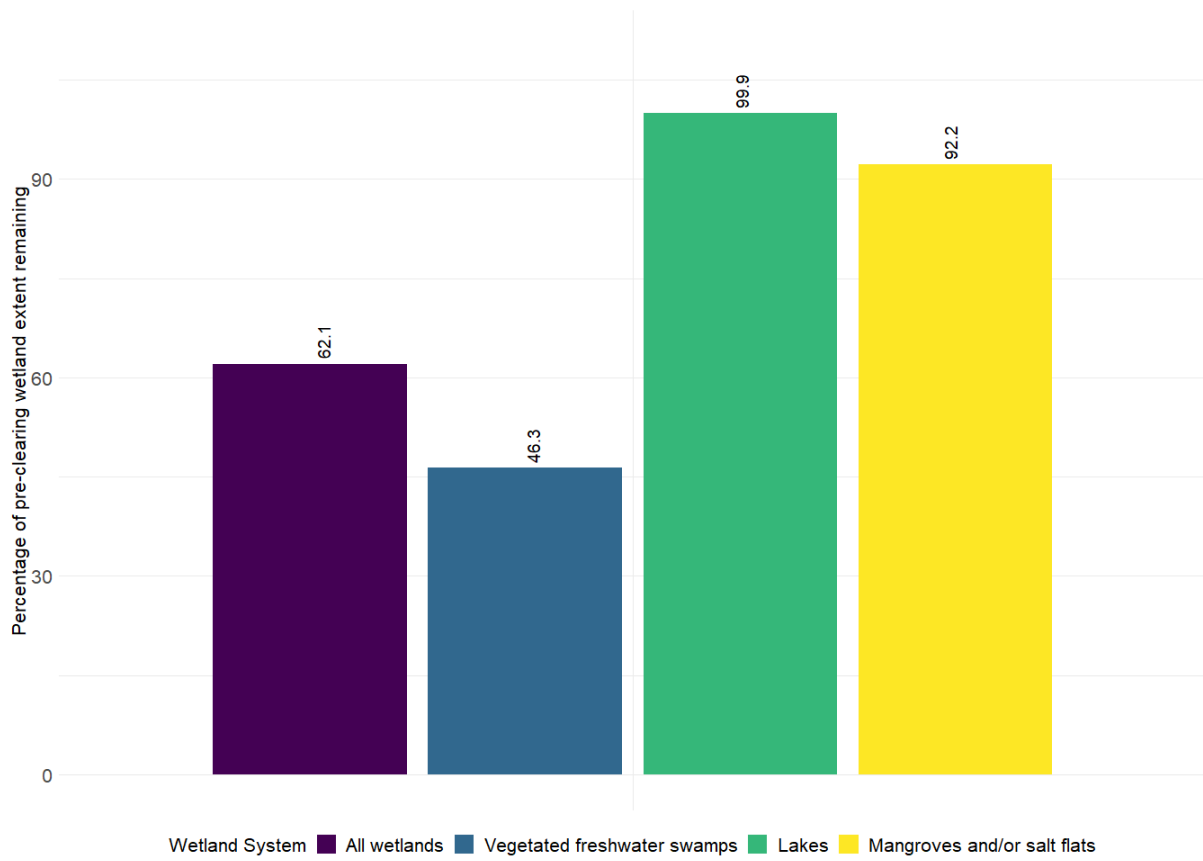
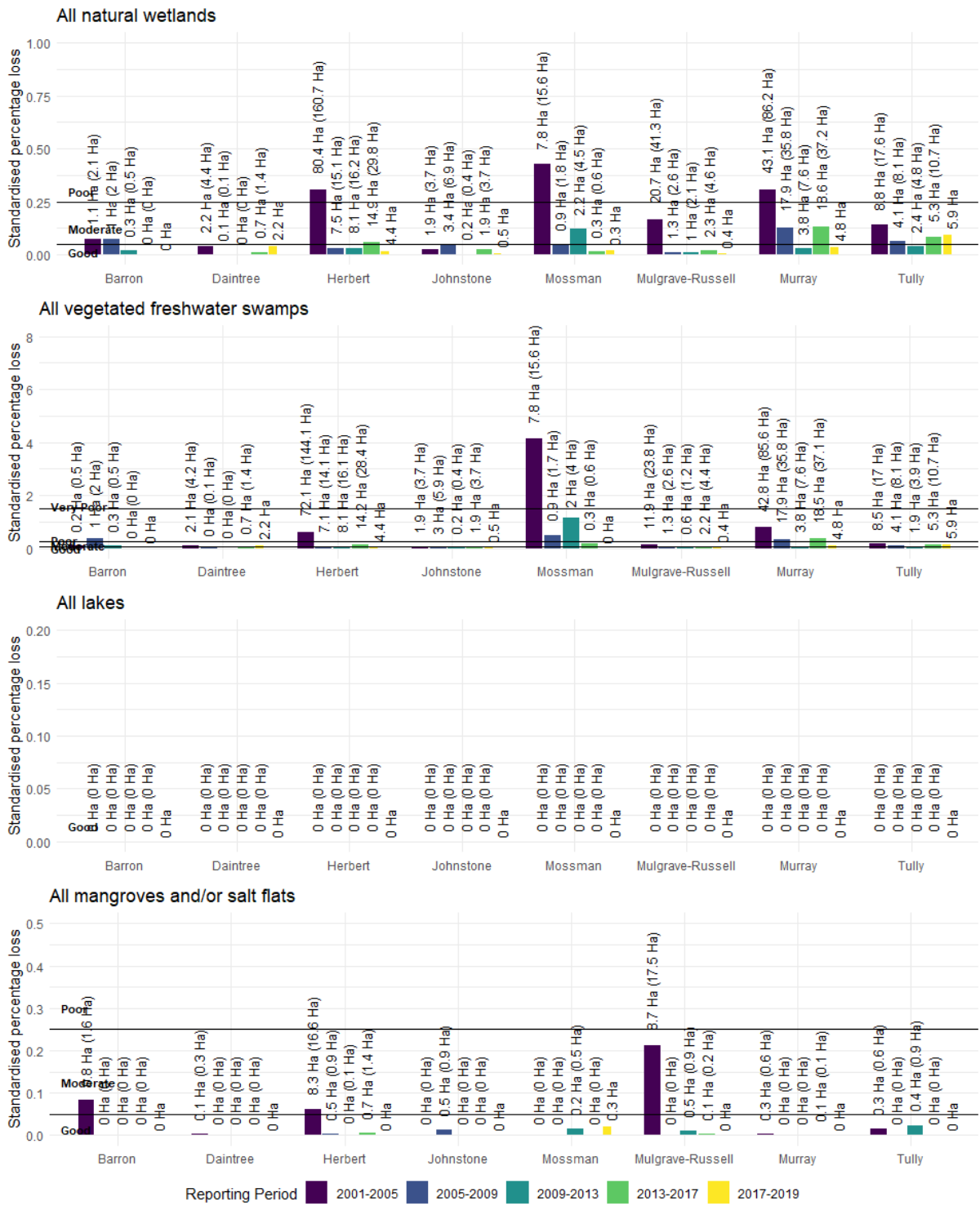


Figure 2.6-2. Extent of natural wetlands remaining in the Wet Tropics region as a percentage of the initial pre-clearing wetland extent.

The trends observed in extent change of natural wetlands across the Wet Tropics region may vary across different catchments (Figure 2.6-3, Table 2.6-2). The highest proportional loss of natural wetlands between 2017 and 2019 was in Tully where 5.9 hectares (0.09 percent) loss occurred.

Region	2001-2005 ⁱ	2005-2009 ⁱ	2009-2013 ⁱ	2013-2017 ⁱ	2017-2019
Barron	Moderate: 0.076 % loss	Moderate: 0.072% loss	Good: 0.019% loss	Very Good: No (0%) loss of wetlands	Very Good: No (0%) loss of wetlands
Daintree	Good: 0.04% loss	Good: 0.001% loss	Very Good: No (0%) loss of wetlands	Good: 0.012% loss	Good: 0.04% loss
Herbert	Poor: 0.306% loss	Good: 0.029% loss	Good: 0.031% loss	Moderate: 0.057% loss	Good: 0.017% loss
Johnstone	Good: 0.024% loss	Good: 0.044% loss	Good: 0.002% loss	Good: 0.023% loss	Good: 0.007% loss
Mossman	Poor: 0.428% loss	Good: 0.049% loss	Moderate: 0.123% loss	Good: 0.015% loss	Good: 0.018% loss
Mulgrave-Russell	Moderate: 0.167 % loss	Good: 0.011% loss	Good: 0.008% loss	Good: 0.019% loss	Good: 0.004% loss
Murray	Poor: 0.308% loss	Moderate: 0.129% loss	Good: 0.027% loss	Moderate: 0.134% loss	Good: 0.035% loss
Tully	Moderate: 0.14 % loss	Moderate: 0.065% loss	Good: 0.038% loss	Moderate: 0.085% loss	Moderate: 0.094% loss

ⁱPlease note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference. Also note that no loss in wetland extent (i.e., a standardised percentage loss of 0) represents a very good score.

Figure 2.6-3. Change in natural wetland extent by reporting catchment across the Wet Tropics region for all reporting periods as a percentage of the initial extent for each reporting period.

Table 2.6-2a. Change in extent of natural wetlands across the Wet Tropics region by reporting catchment and reporting period.

Year	Barron	Daintree	Herbert	Johnstone	Mossman	Mulgrave-Russell	Murray	Tully
2001-2005 ⁱ	1.1 Ha (2.1 Ha)	2.2 Ha (4.4 Ha)	80.4 Ha (160.7 Ha)	1.9 Ha (3.7 Ha)	7.8 Ha (15.6 Ha)	20.7 Ha (41.3 Ha)	43.1 Ha (86.2 Ha)	8.8 Ha (17.6 Ha)
2005-2009 ⁱ	1 Ha (2 Ha)	0.1 Ha (0.1 Ha)	7.5 Ha (15.1 Ha)	3.4 Ha (6.9 Ha)	0.9 Ha (1.8 Ha)	1.3 Ha (2.6 Ha)	17.9 Ha (35.8 Ha)	4.1 Ha (8.1 Ha)
2009-2013 ⁱ	0.3 Ha (0.5 Ha)	0 Ha (0 Ha)	8.1 Ha (16.2 Ha)	0.2 Ha (0.4 Ha)	2.2 Ha (4.5 Ha)	1 Ha (2.1 Ha)	3.8 Ha (7.6 Ha)	2.4 Ha (4.8 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0.7 Ha (1.4 Ha)	14.9 Ha (29.8 Ha)	1.9 Ha (3.7 Ha)	0.3 Ha (0.6 Ha)	2.3 Ha (4.6 Ha)	18.6 Ha (37.2 Ha)	5.3 Ha (10.7 Ha)
2017-2019	0 Ha	2.2 Ha	4.4 Ha	0.5 Ha	0.3 Ha	0.4 Ha	4.8 Ha	5.9 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-2b. Change in extent of natural vegetated freshwater swamps across the Wet Tropics region by reporting catchment and reporting period.

Year	Barron	Daintree	Herbert	Johnstone	Mossman	Mulgrave-Russell	Murray	Tully
2001-2005 ⁱ	0.2 Ha (0.5 Ha)	2.1 Ha (4.2 Ha)	72.1 Ha (144.1 Ha)	1.9 Ha (3.7 Ha)	7.8 Ha (15.6 Ha)	11.9 Ha (23.8 Ha)	42.8 Ha (85.6 Ha)	8.5 Ha (17 Ha)
2005-2009 ⁱ	1 Ha (2 Ha)	0 Ha (0.1 Ha)	7.1 Ha (14.1 Ha)	3 Ha (5.9 Ha)	0.9 Ha (1.7 Ha)	1.3 Ha (2.6 Ha)	17.9 Ha (35.8 Ha)	4.1 Ha (8.1 Ha)
2009-2013 ⁱ	0.3 Ha (0.5 Ha)	0 Ha (0 Ha)	8.1 Ha (16.1 Ha)	0.2 Ha (0.4 Ha)	2 Ha (4 Ha)	0.6 Ha (1.2 Ha)	3.8 Ha (7.6 Ha)	1.9 Ha (3.9 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0.7 Ha (1.4 Ha)	14.2 Ha (28.4 Ha)	1.9 Ha (3.7 Ha)	0.3 Ha (0.6 Ha)	2.2 Ha (4.4 Ha)	18.5 Ha (37.1 Ha)	5.3 Ha (10.7 Ha)
2017-2019	0 Ha	2.2 Ha	4.4 Ha	0.5 Ha	0 Ha	0.4 Ha	4.8 Ha	5.9 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-2c. Change in extent of natural lakes across the Wet Tropics region by reporting catchment and reporting period.

Year	Barron	Daintree	Herbert	Johnstone	Mossman	Mulgrave-Russell	Murray	Tully
2001-2005 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-2d. Change in extent of natural mangroves and/or salt flats across the Wet Tropics region by reporting catchment and reporting period.

Year	Barron	Daintree	Herbert	Johnstone	Mossman	Mulgrave-Russell	Murray	Tully
2001-2005 ⁱ	0.8 Ha (1.6 Ha)	0.1 Ha (0.3 Ha)	8.3 Ha (16.6 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	8.7 Ha (17.5 Ha)	0.3 Ha (0.6 Ha)	0.3 Ha (0.6 Ha)
2005-2009 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0.5 Ha (0.9 Ha)	0.5 Ha (0.9 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)
2009-2013 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0 Ha (0.1 Ha)	0 Ha (0 Ha)	0.2 Ha (0.5 Ha)	0.5 Ha (0.9 Ha)	0 Ha (0 Ha)	0.4 Ha (0.9 Ha)
2013-2017 ⁱ	0 Ha (0 Ha)	0 Ha (0 Ha)	0.7 Ha (1.4 Ha)	0 Ha (0 Ha)	0 Ha (0 Ha)	0.1 Ha (0.2 Ha)	0.1 Ha (0.1 Ha)	0 Ha (0 Ha)
2017-2019	0 Ha	0 Ha	0 Ha	0 Ha	0.3 Ha	0 Ha	0 Ha	0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Notable contributions to the observed loss of natural wetlands between 2017 and 2019 in the Wet Tropics have been: (1) in Tully catchment where the highest proportional loss of vegetated freshwater swamps (0.13 percent) occurred and comprised of 5.9 hectares of wetlands lost to infilling and/or clearing.

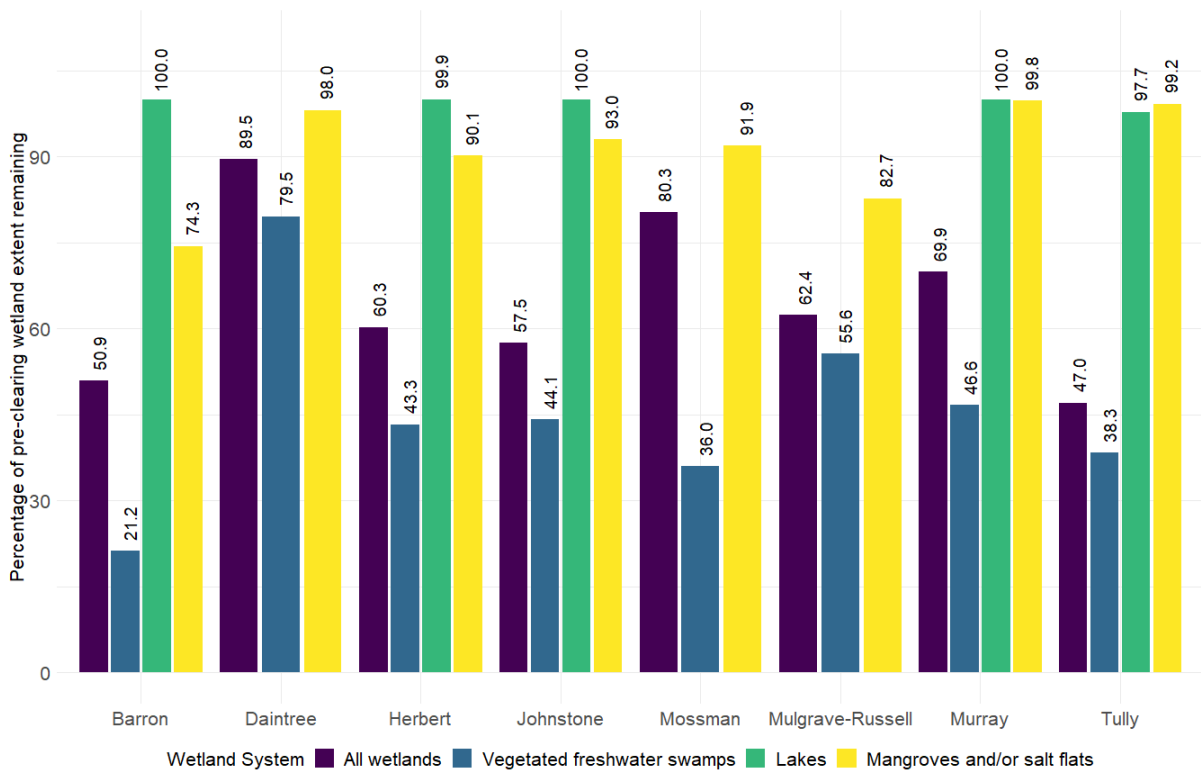
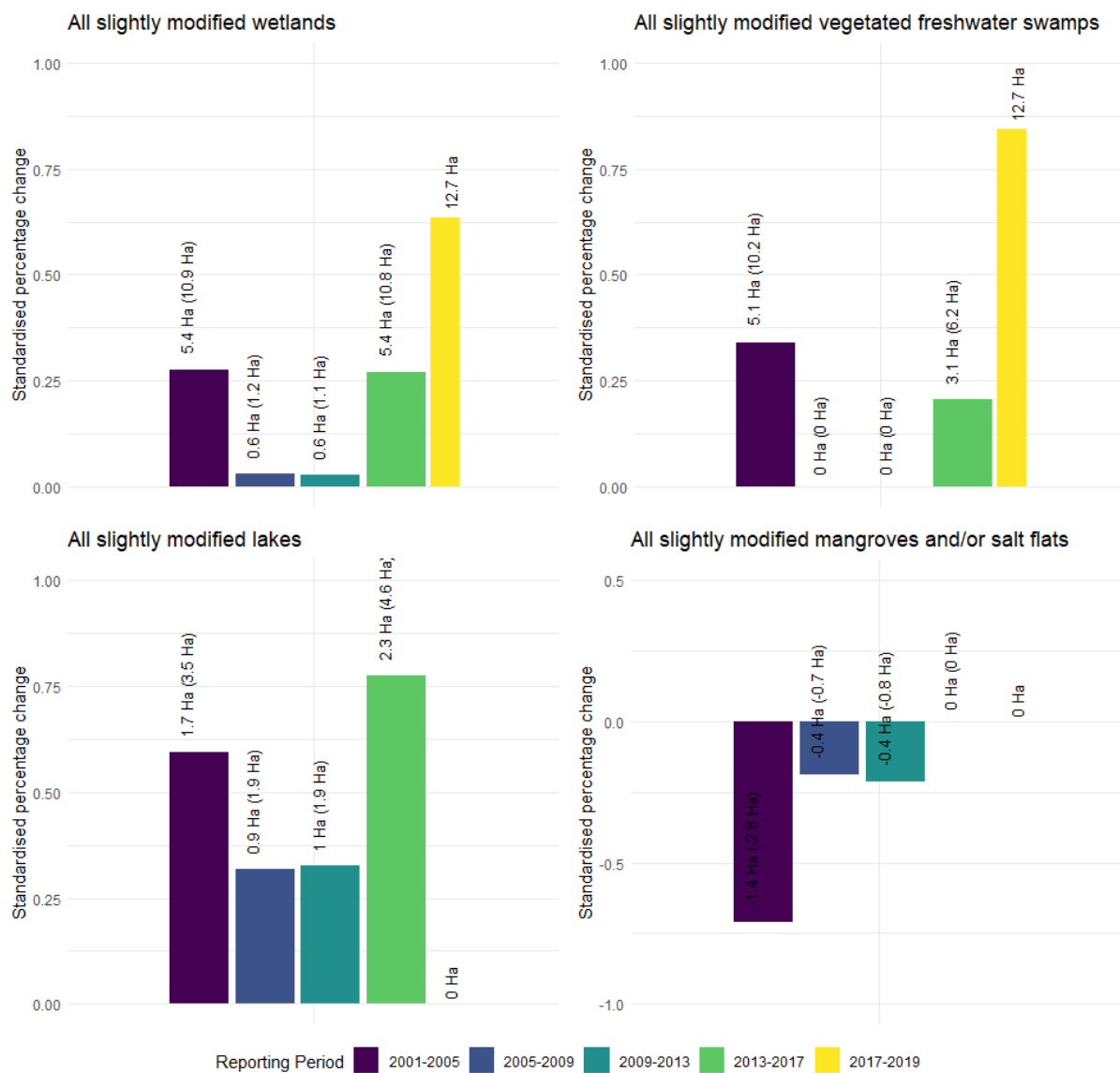


Figure 2.6-4. Extent of natural wetlands remaining across the Wet Tropics region as a percentage of the initial pre-clearing wetland extent.

Change in wetland extent of slightly modified wetlands

Approximately 2,017.2 of slightly modified wetlands were mapped across the Wet Tropics region in 2019. This includes 1,522.4 hectares of slightly modified vegetated freshwater swamps, 304.2 hectares of slightly modified lakes, and 190.7 hectares of slightly modified mangroves and/or salt flats respectively.

A net increase of 12.7 hectares of slightly modified wetlands occurred across the Wet Tropics region between 2017 and 2019 (Figure 2.6-5). However, net change in slightly modified wetlands can mask the real loss of these wetlands that occurs simultaneously (Figure 2.6-6). 0.1 hectares of slightly modified wetlands were lost to infilling and clearing activities between 2017 and 2019 including 0.1 hectares of slightly modified vegetated freshwater swamps.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.6-5. Net change in slightly modified wetland extent in the Wet Tropics region for all reporting periods as a percentage of the initial extent for each reporting period.

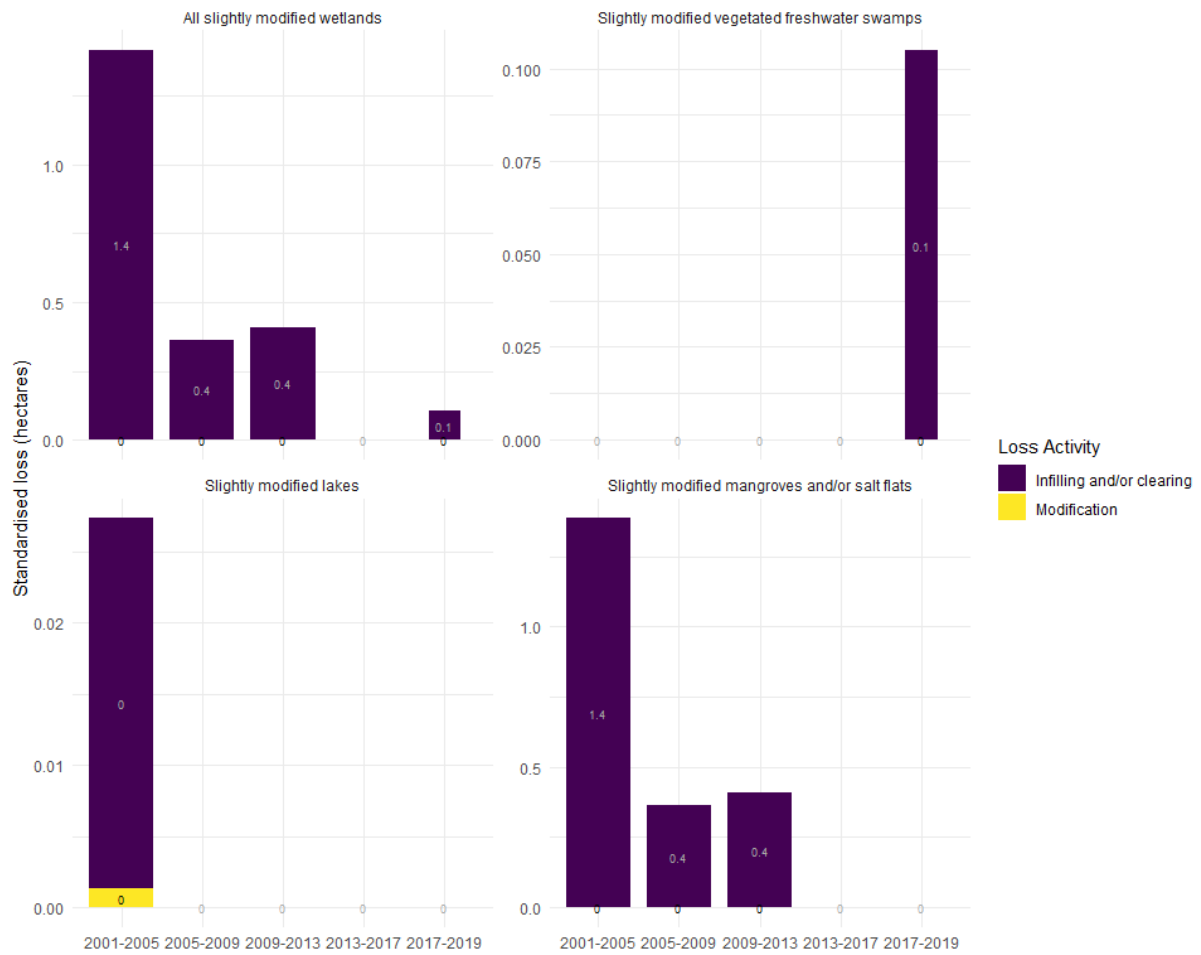
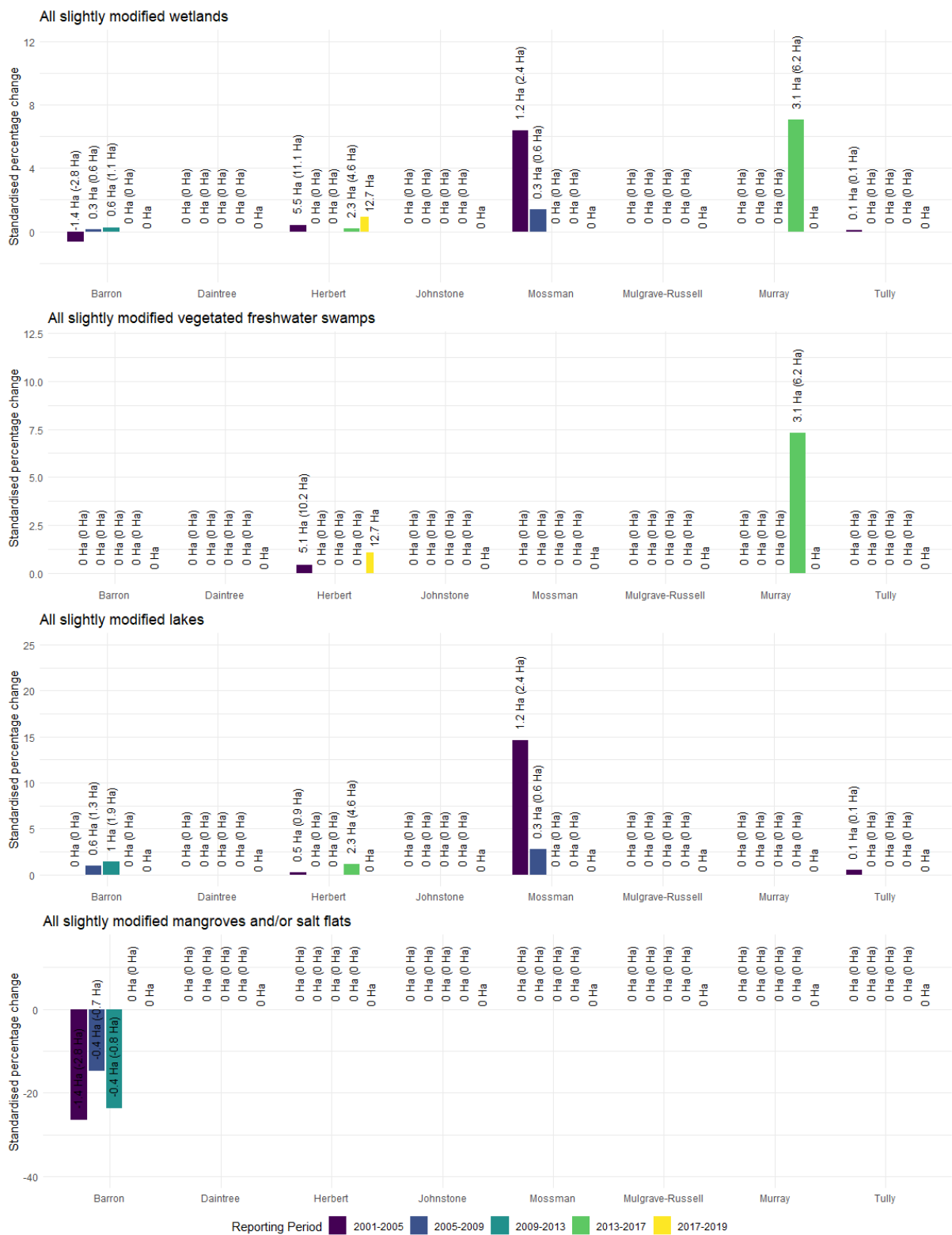


Figure 2.6-6. Change in slightly modified wetland extent in the Wet Tropics region for all reporting periods in hectares.

The trends observed in the net change (Figure 2.6-7) and loss (Figure 2.6-8, Table 2.6-3) of slightly modified wetlands across the Wet Tropics region may vary across different catchments. The highest proportional loss of slightly modified wetlands between 2017 and 2019 was in Tully where a 5.9 hectares (0.09 percent) loss occurred.



Please note that scores are calculated on loss over standardised reporting period. Standardisation accounts for the different lengths of reporting periods to enable direct comparison. Raw figures for each reporting period are also provided in brackets for reference.

Figure 2.6-7. Net change in slightly modified wetland extent across the Wet Tropics region by reporting catchment for all reporting periods as a percentage of the initial extent for each reporting period.

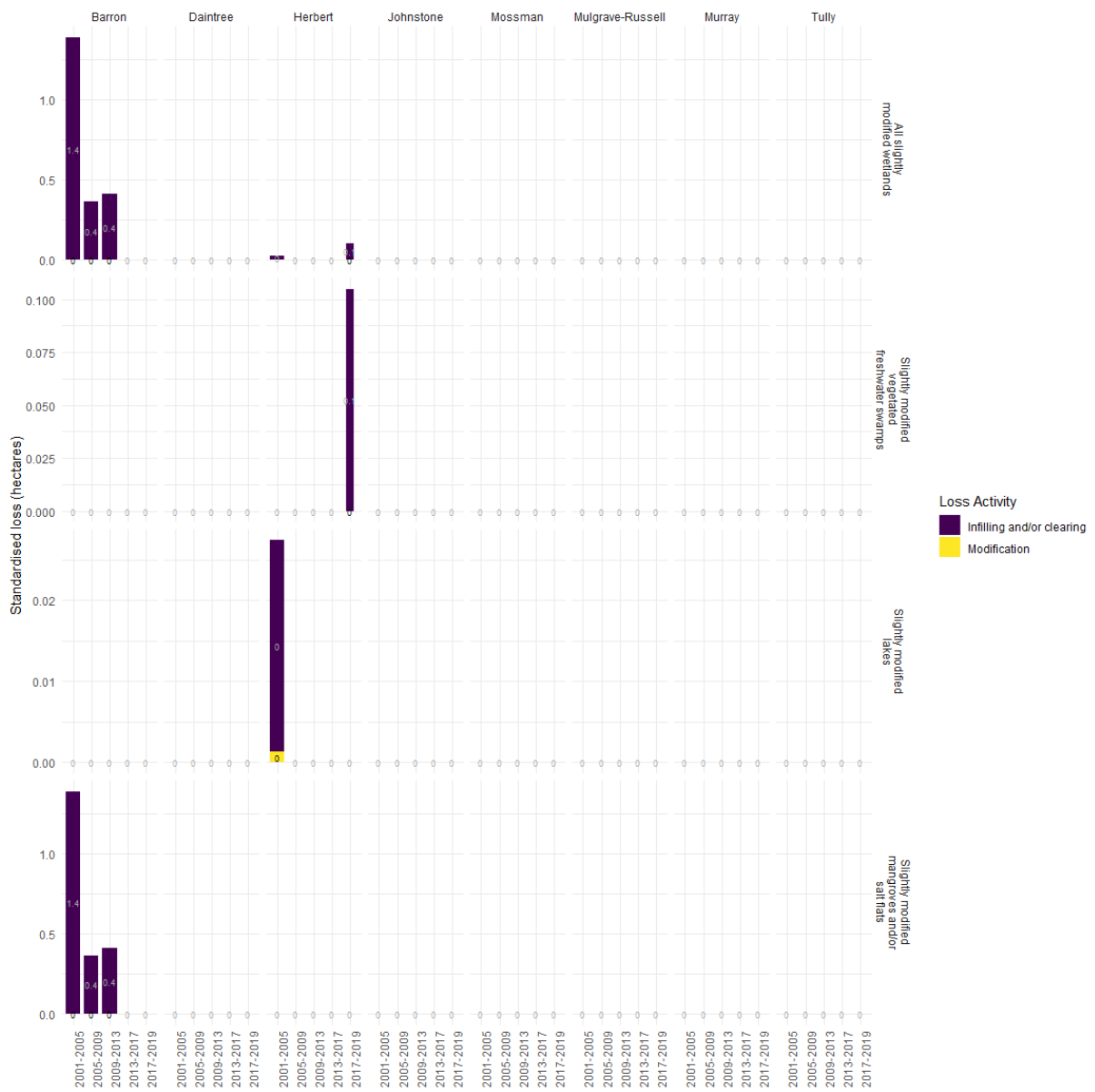


Figure 2.6-8. Change in slightly modified wetland extent across the Wet Tropics region by reporting catchment for all reporting periods in hectares.

Table 2.6-3a. Change in extent of slightly modified wetlands across the Wet Tropics region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Barron ⁱ	Infilling and/or Clearing: 1.4 Ha (2.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.7 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Daintree ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Herbert ⁱ	Infilling and/or Clearing: 0 Ha (0.1 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.1 Ha Modification: 0 Ha
Johnstone ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mossman	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mulgrave-Russell	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Murray	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Tully	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-3b. Change in extent of slightly modified vegetated freshwater swamps across the Wet Tropics region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Barronⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha
Daintreeⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Herbertⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.1 Ha Modification: 0 Ha
Johnstoneⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mossman	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mulgrave- Russell	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Murray	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Tully	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-3c. Change in extent of slightly modified lakes across the Wet Tropics region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Barron ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Daintree ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Herbert ⁱ	Infilling and/or Clearing: 0 Ha (0.1 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Johnstone ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mossman	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mulgrave- Russell	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Murray	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Tully	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Table 2.6-3d. Change in extent of slightly modified mangroves and/or salt flats across the Wet Tropics region by reporting catchment and reporting period.

Region	2001-2005	2005-2009	2009-2013	2013-2017	2017-2019
Barron ⁱ	Infilling and/or Clearing: 1.4 Ha (2.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.7 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0.4 Ha (0.8 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Daintree ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Herbert ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Johnstone ⁱ	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mossman	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Mulgrave-Russell	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Murray	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha
Tully	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha (0 Ha) Modification: 0 Ha (0 Ha)	Infilling and/or Clearing: 0 Ha Modification: 0 Ha

ⁱPlease note that the figures not contained in brackets are standardised to enable direct comparison. Standardisation accounts for the different lengths of reporting periods. Raw figures for each reporting period are also provided in brackets for reference.

Highly modified and artificial

Approximately 10,065.1 of highly modified and artificial wetlands were mapped across the Wet Tropics region in 2019. This includes 2,302 hectares of highly modified and artificial vegetated freshwater swamps, 7,763.1 hectares of highly modified and artificial lakes, and 0 hectares of highly modified and artificial mangroves and/or salt flats. Highly modified and artificial wetlands are excluded from the Reef 2050 Water Quality Improvement Plan 2017-2022 (Reef 2050 WQIP) 2025 land and catchment management target of "No loss of the extent of natural wetlands" and therefore any trends in their extent are not further analysed.

4 GLOSSARY

Natural wetlands

Wetlands where activities that modify wetland hydrology and/or structures associated with these activities cannot be observed from aerial or satellite imagery and are not known from field survey data.

Modified wetlands

Former natural wetlands where activities that modify wetland hydrology and/or structures associated with these activities have been observed from aerial or satellite imagery or from field survey data.

Slightly modified wetlands

Modified wetlands where the nature of these activities and/or structures are considered to enable the wetland to retain many of their functional and ecological characteristics.

Highly modified wetlands

Modified wetlands where the nature of these activities and/or structures are considered to significantly degrade the wetland's functional and ecological characteristics.

Artificial wetlands

Artificial wetlands refer to anthropogenically constructed wetlands where no natural or modified wetlands existed prior to the commencement of construction.

Wetland extent

Wetland extent refers to the maximum areal extent of the wetland. Baseline wetland extent: Baseline wetland extent is a relative term referring to the maximum areal extent of the wetland at the start of a given reporting period.

Pre-clearing wetland extent

Pre-clearing wetland extent refers to the maximum areal extent of the wetland prior to clearing (Nelder et al. 2020).

Historical loss

Estimated difference between pre-clearing wetland extent and 2001 wetland extent. As wetland mapping does not have a pre-clearing baseline, historical loss is estimated from an analysis of Regional Ecosystem mapping.

Reporting period

Reporting period refers to the time over which changes in wetland extent are calculated. Generally, reporting periods parallel the temporal resolution of available wetland extent time-series data. Wetland mapping reporting periods will be four years in length from 2001-2017 and every two years thereafter.

Palustrine wetland system

Palustrine wetland system "includes all nontidal wetlands dominated by trees, shrubs, persistent emergent, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5‰. It also includes wetlands lacking such vegetation, but with all the following three characteristics: (1) where active waves are formed or bedrock features are lacking; (2) where the water depth in the deepest part of basin less than 2 m at low water; and (3) the salinity due to ocean-derived salts is still less than 0.5‰." (Department of Environment and Science 2022b).

Lacustrine wetland system

Lacustrine wetland system: Lacustrine wetland system “includes wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30% areal coverage; and (3) total area exceeds 8 ha...Similar wetland and deepwater habitats totaling less than 8 ha are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 2 m...at low water. Lacustrine waters may be tidal or nontidal, but ocean-derived salinity is always less than 0.5‰.” (Department of Environment and Science 2022b).

Intertidal wetland system

Intertidal wetland system: “Intertidal wetlands consist of estuarine and/or marine systems located”between the level of high tide and low tide” (Department of Environment and Science 2022b).