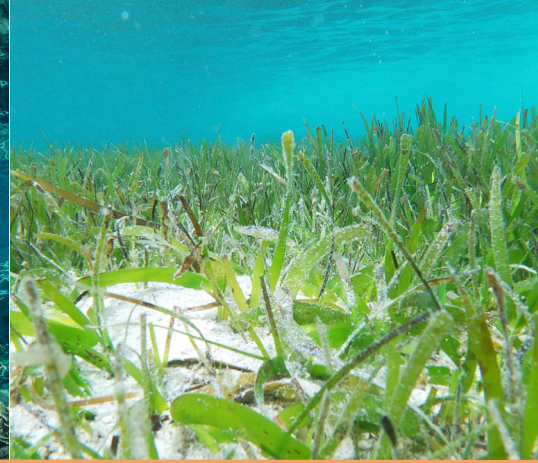
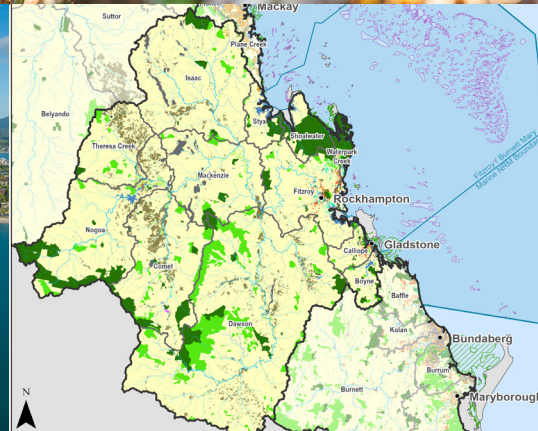




# Decision support framework for management options to maintain and improve water quality in the Great Barrier Reef catchment area:

## Appendices

Analysis of key spatial factors impacting water quality and the condition of wetlands, corals and seagrass in the Great Barrier Reef



Prepared by Jane Waterhouse<sup>1,2</sup>, Megan Star<sup>3</sup>, Bianca Molinari<sup>1,2</sup>, Katie Sambrook<sup>1</sup>, Maria VanderGragt<sup>4</sup>, Catherine Leigh<sup>4</sup>, Terri Sutcliffe<sup>4</sup>, Rachael Smith<sup>4</sup>, Severine Choukroun<sup>2</sup>, Dieter Tracey<sup>2</sup> and Stephen Lewis<sup>2</sup>

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# Decision support framework for management options to maintain and improve water quality in the Great Barrier Reef catchment area

*Analysis of key spatial factors impacting water quality and the condition of wetlands, corals and seagrass in the Great Barrier Reef*

## Appendices, version 2.0, August 2026

Prepared by Jane Waterhouse<sup>1,2</sup>, Megan Star<sup>3</sup>, Bianca Molinari<sup>1,2</sup>, Katie Sambrook<sup>1</sup>, Maria VanderGragt<sup>4</sup>, Catherine Leigh<sup>4</sup>, Terri Sutcliffe<sup>4</sup>, Rachael Smith<sup>4</sup>, Severine Choukroun<sup>2</sup>, Dieter Tracey<sup>2</sup> and Stephen Lewis<sup>2</sup>

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### Notes:

The first version of these Appendices (Version 1.2) was released in November 2025. Version 2.0 contains the following corrections: Table 1, clarification of the source of the pollutant load data; Tables 2 to 6 Haughton basin vegetation clearing figures and associated Burdekin regional totals; Table 8, clarification of terminology including amendment of wording from ‘wetland loss’ to ‘wetland loss and modification’, and specific reference to ‘natural unmodified wetlands’ when comparing current and historical extent; Table 11, gully density figures for the Belyando catchment and associated Burdekin regional totals; Table 41, correction of table caption to refer to sediment.

All references contained in the Appendices are included within the Reference list in the main report and not repeated here.

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## Appendix 1: Summary of datasets used in the assessment

Table 1. Summary of datasets and sources used in the assessment. \*Refer to main report for references.

| Factor                           | Indicator                                                                                                                                                       | Assessment unit                                                                                                                                        | Description (including resolution)                                                                                                                                                                                                                                                                                                                                                                                                         |  | Data source and version*                                                                                                                                                                                                                                                             |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Landscape characteristics</b> |                                                                                                                                                                 |                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                      |
| Area (ha)                        | Area of land                                                                                                                                                    | Management Unit                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Based on data from QLUMP, 2021                                                                                                                                                                                                                                                       |
| Climate                          |                                                                                                                                                                 |                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Reef Water Quality Report Card 2021 and 2022                                                                                                                                                                                                                                         |
| Rainfall                         | Annual average rainfall                                                                                                                                         |                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Reef Water Quality Report Card 2021 and 2022                                                                                                                                                                                                                                         |
| River discharge (megalitres)     | Annual long-term median                                                                                                                                         | Basin                                                                                                                                                  | Long-term median of annual river discharge from 1990–91 to 2019–20.                                                                                                                                                                                                                                                                                                                                                                        |  | Gruber et al. 2024                                                                                                                                                                                                                                                                   |
| Land uses (ha)                   | Bananas<br>Conservation<br>Dairy<br>Dryland<br>Cropping<br>Forestry<br>Grazing<br>Horticulture<br>Irrigated<br>Cropping<br>Other<br>Sugarcane<br>Urban<br>Water | Management Unit                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Based on data from QLUMP, 2021                                                                                                                                                                                                                                                       |
| <b>Water quality drivers</b>     |                                                                                                                                                                 |                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                      |
| Vegetation cleared (ha)          | Cleared prior to 2018                                                                                                                                           | <ul style="list-style-type: none"> <li>- Management unit</li> <li>- Floodplains</li> <li>- Riparian areas of freshwater floodplain wetlands</li> </ul> | <p><b>Area historically cleared of native vegetation prior to 2018</b><br/>Determined by calculating the difference between the remnant extent and the full extent of regional ecosystems. Scale: 1:100,000 and 1: 50,000.</p> <p><b>Assessment units</b></p> <ul style="list-style-type: none"> <li>- Floodplains:<br/>Regional ecosystems that occur within floodplains or those that fall both within and outside floodplain</li> </ul> |  | <p><b>Area historically cleared</b><br/>Queensland Department of Environment and Science 2018. Biodiversity status of 2017 remnant regional ecosystems – Queensland. Version 11.</p> <p><b>Assessment units</b></p> <ul style="list-style-type: none"> <li>- Floodplains:</li> </ul> |

| Factor                       | Indicator                         | Assessment unit                                                                                                                                                                                      | Description (including resolution)                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Data source and version*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |                                   | <ul style="list-style-type: none"> <li>- Riparian areas of rivers and streams</li> </ul>                                                                                                             | <ul style="list-style-type: none"> <li>boundaries but are situated on recent Quaternary alluvial systems</li> <li>- Riparian areas of freshwater wetlands: Estimated by creating a 200m buffer zone around lacustrine and palustrine floodplain natural and semi-natural wetlands. Scale: 1:100,000 (1:50,000 scale for some coastal areas).</li> <li>- Riparian areas of rivers and streams: Mapped using a 50m buffer around topographic drainage lines and riverine wetlands</li> </ul> |  | <ul style="list-style-type: none"> <li>Department of Environment, Science and Innovation, 2024. Biodiversity Status of Pre-clearing Regional Ecosystems of Queensland. Version 13.1.</li> <li>- Riparian areas of freshwater wetlands: Department of Environment and Science 2023. Queensland Wetland Data Version 6 – Wetland Areas 2019.</li> <li>- Riparian areas of rivers and streams: Department of Environment, Science and Innovation, 2024. Riparian Areas (for Riparian Vegetation Extent Monitoring).</li> </ul> |
|                              | Clearing since 2018               | <ul style="list-style-type: none"> <li>- Management unit</li> <li>- Floodplains</li> <li>- Riparian areas of freshwater floodplain wetlands</li> <li>Riparian areas of rivers and streams</li> </ul> | <p><b>Vegetation clearing since 2018</b><br/>Queensland Statewide and Trees Study (SLATS) Sentinel-2 woody vegetation change data for years from 2018 onwards (2018–19, 2019–20, 2020–21, and 2021–22). Resolution: 10m.</p> <p><b>Assessment units</b><br/>As described above for ‘cleared prior to 2018’</p>                                                                                                                                                                             |  | <p><b>Vegetation clearing</b><br/>Queensland Department of Environment, Science and Innovation 2024c</p> <p><b>Assessment units</b><br/>As described above for ‘cleared prior to 2018’</p>                                                                                                                                                                                                                                                                                                                                  |
| Floodplain wetland loss (ha) | Loss prior to 2017                | <ul style="list-style-type: none"> <li>- Management unit</li> </ul>                                                                                                                                  | Extent of natural 2017 wetlands as a percentage of pre-clear extent                                                                                                                                                                                                                                                                                                                                                                                                                        |  | Queensland Department of Environment and Science 2023. Queensland Wetland Data Version 6 – Wetland Areas.                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                              | Loss of lacustrine and since 2017 | Management unit                                                                                                                                                                                      | <p><b>Loss of function</b><br/>For the period since 2017 (2017-2021):</p> <ul style="list-style-type: none"> <li>• Natural wetlands that have been infilled or cleared</li> </ul>                                                                                                                                                                                                                                                                                                          |  | Queensland Department of Environment and Science 2023. Queensland Wetland Data Version 6 – Wetland Areas.                                                                                                                                                                                                                                                                                                                                                                                                                   |

Appendix 1: Summary of datasets used in the assessment

| Factor                                                                                                                                   | Indicator                                                                                                                        | Assessment unit | Description (including resolution)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | Data source and version*                                            |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------|
|                                                                                                                                          |                                                                                                                                  |                 | <ul style="list-style-type: none"> <li>Slightly modified wetlands that have been infilled or cleared</li> </ul> <p><b>Modification/altered function</b><br/>For the period since 2017 (2017-2021):</p> <ul style="list-style-type: none"> <li>Natural wetlands that have been slightly modified</li> <li>Natural wetlands that have been highly modified</li> <li>Slightly modified wetlands that have been highly modified</li> </ul>                                                                 |  |                                                                     |
| Groundcover                                                                                                                              | Median end of dry season long-term cover 2018 – 2023 (5 years)                                                                   |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                     |
| Gullies                                                                                                                                  | Gully density (km <sup>2</sup> )                                                                                                 | Management unit | Gully Count was classified into five categories: 0 (no gully erosion present), 1–3 (low presence), 4–7 (moderate presence), 8–15 (high presence), and 16–59 (very high presence). Similarly, Total Erosion Count was categorised as 0 (no erosion), 1–10 (low erosion), 11–30 (moderate erosion), 31–60 (high erosion), and 61–100 (very high erosion).                                                                                                                                                |  | Queensland Gully 1 km layer (State of Queensland 2021)              |
| <b>Pollutant sources – Fine sediments, dissolved inorganic nitrogen (DIN), particulate nitrogen (PN) and particulate phosphorus (PP)</b> |                                                                                                                                  |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                     |
| Change in loads since European settlement                                                                                                | Pre-development vs. Anthropogenic loads                                                                                          | Management Unit | <ul style="list-style-type: none"> <li>Separates the contribution from the levels estimated to occur before European settlement (considered the natural loads to the GBR) to the current loads as a result of catchment development and anthropogenic modifications.</li> <li>Modelled annual average loads for fine sediment, DIN, PN, and PP by pre-development and anthropogenic loads.</li> <li>Fine sediment loads reported in kilotonnes.</li> <li>DIN, PN and PP reported in tonnes.</li> </ul> |  | P2R catchment model run, Catchment model Version 2.0, November 2024 |
| Land use (all those defined in the Report Card)                                                                                          | Bananas<br>Conservation<br>Dairy<br>Dryland<br>Cropping<br>Forestry<br>Grazing<br>Horticulture<br>Irrigated<br>Cropping<br>Other | Management Unit | <ul style="list-style-type: none"> <li>Compares the contribution among different land uses including natural, agricultural and non-agricultural land uses.</li> <li>Modelled annual average loads for fine sediment, DIN, PN, and PP by pre-development and anthropogenic loads.</li> <li>Fine sediment loads reported in kilotonnes.</li> <li>DIN, PN and PP reported in tonnes.</li> </ul>                                                                                                           |  | P2R catchment model run, Catchment model Version 2.0, November 2024 |

Appendix 1: Summary of datasets used in the assessment

| Factor                                               | Indicator                                                                                                                                     | Assessment unit                                                                                                              | Description (including resolution)                                                                                                                                                                                                                                                                                                                                                                                |  | Data source and version*                                                                          |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------|
|                                                      | Point sources<br>inc. Sewage<br>Treatment Plants<br>(DIN only)<br>Streambank<br>(sediments, PN<br>and PP only)<br>Sugarcane<br>Urban<br>Water |                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                   |
| Loss pathways<br>for fine<br>sediments, PN<br>and PP | Hillslope erosion<br>Streambank<br>erosion<br>Gully erosion                                                                                   | Management Unit                                                                                                              | <ul style="list-style-type: none"> <li>Examines the amount of fine sediments, PN and PP that are transported into GBR catchments through different loss pathways, specifically different types of erosion.</li> <li>Modelled annual average loads for fine sediment, DIN, PN, and PP by loss pathway.</li> <li>Fine sediment loads reported in kilotonnes.</li> <li>DIN, PN and PP reported in tonnes.</li> </ul> |  | P2R catchment model run, Catchment model Version 2.0, November 2024                               |
| Loss pathways<br>for DIN                             | Diffuse dissolved<br>Hillslope<br>Point source<br>Seepage                                                                                     | Management Unit                                                                                                              | <ul style="list-style-type: none"> <li>Examines the amount of DIN that is transported into GBR catchments through different loss pathways.</li> <li>Modelled annual average loads for fine sediment, DIN, PN, and PP by loss pathway.</li> <li>Fine sediment loads reported in kilotonnes.</li> <li>DIN, PN and PP reported in tonnes.</li> </ul>                                                                 |  | P2R catchment model run, Catchment model Version 2.0, November 2024                               |
| Pesticides                                           | Pesticide risk<br>(end-of-<br>catchment)                                                                                                      | % species<br>affected<br>Total PAF and %<br>contribution                                                                     | <ul style="list-style-type: none"> <li>GBRCLMP monitoring data for 22 pesticides from 32 major catchments monitored from 2015 – 2023.</li> </ul>                                                                                                                                                                                                                                                                  |  | P2R Catchment Loads Monitoring Program, 2015 to 2023 (Water Quality Investigations, DETSI)        |
|                                                      | Diuron risk<br>(marine)                                                                                                                       | % species<br>affected                                                                                                        | <ul style="list-style-type: none"> <li>eReefs GBR1 model, 2016-2017 and 2017-2018</li> </ul>                                                                                                                                                                                                                                                                                                                      |  | eReefs GBR1                                                                                       |
| <b>Freshwater wetland assessment</b>                 |                                                                                                                                               |                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                   |
| Freshwater<br>floodplain<br>wetland<br>condition     | P1<br>P7<br>P8<br>P2<br>P20<br>P21<br>P14                                                                                                     | Condition for SMP<br>calculated from the<br>indicator scores at<br>wetland<br>aggregation (for<br>management unit)<br>scale. | P1: Land use associated with the introduction or perpetuation of pest plant and/or animal species (wetland & 1 km buffer)<br>P7: Wetland pest plant cover (wetland)<br>P8: Wetland pest plant cover (200 m buffer)<br>P2: Modification of native vegetation (200 m buffer)<br>P20: Native vegetation cleared (wetland & 5 km buffer)                                                                              |  | GBR wetland condition monitoring program (2015 to 2024 score data). (Tilden and Vandergragt 2022) |

Appendix 1: Summary of datasets used in the assessment

| Factor           | Indicator                                                                                                   | Assessment unit | Description (including resolution)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Data source and version*                                                  |
|------------------|-------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|
|                  | P16<br>P19<br>P3<br>P4<br>P5<br>P10<br>P12<br>S1<br>S3<br>S7<br>S8<br>S9<br>S12<br>S15<br>S16<br>S13<br>S14 |                 | <p>P21: Loss of wetland regional ecosystems (wetland &amp; 5 km buffer)</p> <p>P14: Altered surface water flow due to vegetation cleared (1 km buffer)</p> <p>P16: Change in landscape hydrological integrity (wetland &amp; 1 km buffer)</p> <p>P19: Water abstraction, or consumption by livestock or feral animals (wetland &amp; 200 m buffer)</p> <p>P3: Land use associated with pesticide residue inputs (wetland &amp; 1 km buffer)</p> <p>P4: Land use associated with nutrient inputs (wetland &amp; 1 km buffer)</p> <p>P5: Number of septic systems per hectare of mapped wetland (wetland &amp; 200 m buffer)</p> <p>P10: Sediment supply (modelled) (wetland &amp; 1 km buffer)</p> <p>P12: Number of stormwater or other point inflows per hectare of wetland (wetland &amp; 200 m buffer)</p> <p>S1: Floristic composition and vegetation structure (wetland &amp; 200 m buffer)</p> <p>S3: Exotic plant cover (wetland &amp; 200 m buffer)</p> <p>S7: Direct disturbance by humans, livestock or feral animals physically impacting soil (wetland &amp; 200 m buffer)</p> <p>S8: Soil surface deformation from ungulates (wetland)</p> <p>S9: Drainage modifications and artificial structures altering natural surface flows (wetland &amp; 200 m buffer)</p> <p>S12: Hydrological modifier code (wetland)</p> <p>S15: Modified and artificial wetlands (1 km buffer)</p> <p>S16: Altered surface flow due to linear transport infrastructure (wetland &amp; 1 km buffer)</p> <p>S13: Landscape vegetation connectivity (wetland &amp; 32 km buffer)</p> <p>S14: Native vegetation (200 m buffer)</p> <p>Wetland extents from the program are based on the version of Queensland Wetland Data that was current at the time of each wetland's first survey. Some wetland extents may have been refined based on aerial imagery in order to meet the precision required for the wetland survey.</p> |  |                                                                           |
| Pollutant hazard | Hazard to freshwater                                                                                        | Management unit | Hazard from Nutrient, Sediment and Pesticide Inputs mapped to ACA subsections, based on "A landscape hazard assessment for wetlands in the Great Barrier Reef"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | <b>Land use</b><br>Department of Environment and Science 2022. Queensland |

Appendix 1: Summary of datasets used in the assessment

| Factor                                     | Indicator                                  | Assessment unit | Description (including resolution)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Data source and version*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|--------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            | floodplain wetlands                        |                 | catchment” mapped to Aquatic Conservation Assessment (ACA) mapping units with updated land use mapping. Scale: 1:100,000 and 1: 50,000 in some coastal areas.                                                                                                                                                                                                                                                                                                                                                                                                           |  | <p>land use mapping series (Great Barrier Reef NRM regions 2021; Burdekin 2016; Burnett-Mary 2017; Cape York 2013; Fitzroy 2017; Mackay-Whitsunday 2016; Wet Tropics 2015)</p> <p><b>ACAs</b><br/>Queensland Department of Environment, Science and Innovation 2024. Aquatic Conservation Assessment. (Cape York catchments v1.1; Great Barrier Reef catchments v1.3; Wide Bay Burnett v2.1).</p> <p><b>Land use weightings</b><br/>Queensland Department of Science, Information Technology, Innovation and the Arts 2015, A landscape hazard assessment for wetlands in the Great Barrier Reef catchment.</p> |
| Likelihood of exposure to pollutant hazard | Exposure to freshwater floodplain wetlands | Management unit | <p>The likelihood of exposure of freshwater floodplain wetlands to elevated nutrients, sediment and pesticides was assessed using the area of floodplain wetland within a management unit that is exposed to high and very high hazard from nutrients, sediment and pesticides.</p> <p><b>Hazard from Nutrient, Sediment and Pesticide Inputs mapped to ACA subsections</b><br/>As described above for ‘pollutant hazards’.</p> <p><b>Wetland data:</b><br/>Lacustrine and palustrine floodplain natural and semi-natural wetlands. Scale: 1:100,000 and 1: 50,000.</p> |  | <p><b>Wetland areas</b><br/>Queensland Department of Environment and Science 2023. Queensland Wetland Data Version 6 – Wetland Areas 2019.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Influencing factors                        | High and Very High                         | Management unit | Percentage of freshwater floodplain wetland area of High and/or Very High Conservation Value (HVHCV). Scale: 1:100,000 and 1: 50,000.                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | Department of Environment, Science and Innovation (2024). Non-riverine aquatic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Appendix 1: Summary of datasets used in the assessment

| Factor                                 | Indicator                           | Assessment unit                                                                                | Description (including resolution)                                                                   |  | Data source and version*                                                                                        |
|----------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------|
|                                        | Conservation Value                  |                                                                                                |                                                                                                      |  | conservation assessment (Cape York catchments v1.1; Great Barrier Reef catchments v1.3; Wide Bay Burnett v2.1). |
| <b>Marine assessment</b>               |                                     |                                                                                                |                                                                                                      |  |                                                                                                                 |
| Likelihood of exposure                 | Chl-a                               | Spatial extent: Whole GBR<br>Timeframe: 11 years (2011-2022), one layer per year               | Annual average of daily difference between observed/scenario and pre-dev<br>Multiyear average        |  | eReefs GBR4, 2014 to 2022                                                                                       |
|                                        | DIN Loading                         | Spatial extent: Whole GBR<br>Timeframe: 9 wet seasons (2014-15 to 2022-23), one layer per year | Difference of annual DIN loading maps<br>Multiyear average                                           |  | Marine Monitoring Program, 2014 to 2023                                                                         |
|                                        | Secchi                              | Spatial extent: Whole GBR<br>Timeframe: 11 years (2011-2022), one layer per year               | Annual average of daily difference between observed/scenario and pre-dev                             |  | eReefs GBR4, 2014 to 2022                                                                                       |
|                                        | TSS Loading                         | Timeframe: 9 wet seasons (2014-15 to 2022-23), one layer per year                              | Difference of annual DIN loading maps<br>Multiyear average                                           |  | Marine Monitoring Program, 2014 to 2023                                                                         |
| <b>Catchment management</b>            |                                     |                                                                                                |                                                                                                      |  |                                                                                                                 |
| Priority management actions            | Land use Pollutant                  | Management Unit                                                                                | Management actions that pertain to the targeted load reduction and land use for the management unit. |  | P2R Water Quality Risk Framework<br>Review of Land Management Targets, DPI 2024                                 |
| Current adoption of management actions | % of growers at a level of adoption | Management Unit                                                                                | High Risk through to Low risk levels of adoption.                                                    |  | P2R Management Practice adoption data, 2023-24<br>Review of Land Management Targets, DPI 2024                   |
| Cost range of management actions       | \$/t/pollutant or \$ per action     | Management Unit- some are cost transferred                                                     | Cost for actions or per pollutant reduced.                                                           |  | Aust Govt Data, OGBR data and GBRF data.                                                                        |

## Appendix 2: Water quality drivers

### Vegetation extent and clearing

Table 2. Remnant and full extent of vegetation in the GBR catchment area and percentage of remnant vegetation remaining up to 2018. % rem. = percent remaining.

| NRM region              | Basin            | Mgmt. Unit | All vegetation |             |        | Floodplain vegetation |             |        | Riparian streams and rivers vegetation |             |        | Riparian floodplain palustrine and lacustrine wetland vegetation |             |        |
|-------------------------|------------------|------------|----------------|-------------|--------|-----------------------|-------------|--------|----------------------------------------|-------------|--------|------------------------------------------------------------------|-------------|--------|
|                         |                  |            | Extent (ha)    |             | % rem. | Extent (ha)           |             | % rem. | Extent (ha)                            |             | % rem. | Extent (ha)                                                      |             | % rem. |
|                         |                  |            | Remnant        | Full extent |        | Remnant               | Full extent |        | Remnant                                | Full extent |        | Remnant                                                          | Full extent |        |
| Cape York               | Jacky Jacky      |            | 297,044        | 297,406     | 100    | 26,016                | 26,071      | 100    | 35,046                                 | 35,052      | 100    | 4,440                                                            | 4,440       | 100    |
|                         | Olive-Pascoe     |            | 416,679        | 416,733     | 100    | 37,960                | 37,960      | 100    | 85,602                                 | 85,603      | 100    | 7,348                                                            | 7,348       | 100    |
|                         | Lockhart         |            | 277,296        | 277,726     | 100    | 92,431                | 92,455      | 100    | 57,775                                 | 57,834      | 100    | 0                                                                | 0           | 0      |
|                         | Stewart          |            | 281,282        | 283,244     | 99     | 125,873               | 127,813     | 98     | 54,049                                 | 54,761      | 99     | 2,118                                                            | 2,125       | 100    |
|                         | Normanby         |            | 2,409,564      | 2,437,504   | 99     | 848,868               | 853,170     | 99     | 356,657                                | 358,580     | 99     | 58,732                                                           | 58,915      | 100    |
|                         | Jeannie          |            | 356,283        | 362,490     | 98     | 91,501                | 93,797      | 98     | 72,073                                 | 72,458      | 99     | 0                                                                | 0           | 0      |
|                         | Endeavour        |            | 208,783        | 217,776     | 96     | 41,206                | 45,807      | 90     | 42,010                                 | 42,941      | 98     | 1,193                                                            | 1,549       | 77     |
| Cape York region totals |                  |            | 4,246,930      | 4,292,878   | 99%    | 1,263,854             | 1,277,074   | 99%    | 703,210                                | 707,228     | 99%    | 73,831                                                           | 74,376      | 99%    |
| Wet Tropics             | Daintree         |            | 197,220        | 209,498     | 94     | 6,729                 | 14,050      | 48     | 43,738                                 | 46,275      | 95     | 3,702                                                            | 5,611       | 66     |
|                         | Mossman          |            | 37,145         | 47,384      | 78     | 1,149                 | 7,532       | 15     | 7,668                                  | 9,081       | 84     | 10                                                               | 82          | 12     |
|                         | Barron           |            | 136,636        | 214,681     | 64     | 6,777                 | 15,497      | 44     | 33,031                                 | 42,401      | 78     | 230                                                              | 1,277       | 18     |
|                         | Mulgrave-Russell |            | 144,062        | 196,621     | 73     | 11,921                | 42,396      | 28     | 30,225                                 | 38,275      | 79     | 11,467                                                           | 15,726      | 73     |
|                         | Johnstone        |            | 127,811        | 230,824     | 55     | 5,765                 | 39,044      | 15     | 29,135                                 | 48,362      | 60     | 3,106                                                            | 6,897       | 45     |

| NRM region                | Basin    | Mgmt. Unit                 | All vegetation |                |            | Floodplain vegetation |                |            | Riparian streams and rivers vegetation |                |            | Riparian floodplain palustrine and lacustrine wetland vegetation |               |            |
|---------------------------|----------|----------------------------|----------------|----------------|------------|-----------------------|----------------|------------|----------------------------------------|----------------|------------|------------------------------------------------------------------|---------------|------------|
|                           |          |                            | Extent (ha)    |                | % rem.     | Extent (ha)           |                | % rem.     | Extent (ha)                            |                | % rem.     | Extent (ha)                                                      |               | % rem.     |
|                           |          |                            | Remnant        | Full extent    |            | Remnant               | Full extent    |            | Remnant                                | Full extent    |            | Remnant                                                          | Full extent   |            |
|                           | Tully    |                            | 123,594        | 165,159        | 75         | 10,143                | 43,287         | 23         | 27,188                                 | 33,812         | 80         | 6,669                                                            | 12,903        | 52         |
|                           | Murray   |                            | 74,445         | 111,738        | 67         | 13,052                | 45,440         | 29         | 15,700                                 | 20,347         | 77         | 5,940                                                            | 11,469        | 52         |
|                           | Herbert  | Upper Herbert              | 632,723        | 671,807        | 94         | 52,465                | 57,255         | 92         | 113,870                                | 119,093        | 96         | 6,105                                                            | 7,300         | 84         |
|                           |          | Lower Herbert              | 207,076        | 312,005        | 66         | 37,035                | 132,571        | 28         | 41,853                                 | 53,092         | 79         | 6,531                                                            | 18,400        | 35         |
|                           |          | <i>Herbert basin total</i> | <i>839,798</i> | <i>983,812</i> | <i>85%</i> | <i>89,500</i>         | <i>189,826</i> | <i>47%</i> | <i>155,723</i>                         | <i>172,185</i> | <i>90%</i> | <i>12,637</i>                                                    | <i>25,700</i> | <i>49%</i> |
| Wet Tropics region totals |          |                            | 1,680,711      | 2,159,717      | 78%        | 145,037               | 397,072        | 37%        | 342,408                                | 410,737        | 83%        | 43,760                                                           | 79,666        | 55%        |
| Burdekin                  | Black    |                            | 84,524         | 103,435        | 82         | 31,378                | 48,920         | 64         | 23,503                                 | 26,372         | 89         | 531                                                              | 784           | 68         |
|                           | Ross     |                            | 116,862        | 162,383        | 72         | 38,424                | 72,280         | 53         | 25,362                                 | 29,939         | 85         | 2,359                                                            | 3,718         | 63         |
|                           | Haughton |                            | 273,553        | 382,541        | 72         | 111,650               | 212,829        | 52         | 59,415                                 | 65,829         | 90         | 18,030                                                           | 24,789        | 73         |
|                           | Burdekin | East Burdekin              | 314,011        | 332,640        | 94         | 65,534                | 79,301         | 83         | 60,937                                 | 62,503         | 97         | 296                                                              | 412           | 72         |
|                           |          | Burdekin Delta             | 34,354         | 95,541         | 36         | 14,092                | 70,806         | 20         | 7,792                                  | 11,209         | 70         | 3,194                                                            | 10,429        | 31         |
|                           |          | Belyando                   | 1,691,874      | 3,535,058      | 48         | 365,432               | 885,028        | 41         | 173,902                                | 274,106        | 63         | 9,631                                                            | 16,050        | 60         |
|                           |          | Suttor                     | 952,626        | 1,839,772      | 52         | 179,150               | 278,903        | 64         | 129,564                                | 175,626        | 74         | 2,350                                                            | 3,927         | 60         |
|                           |          | Upper Burdekin             | 3,909,393      | 4,037,594      | 97         | 389,582               | 408,541        | 95         | 700,843                                | 715,199        | 98         | 17,293                                                           | 17,807        | 97         |
| Bowen Bogie               | 959,494  | 1,170,785                  | 82             | 110,719        | 152,550    | 73                    | 175,452        | 199,487    | 88                                     | 218            | 293        | 74                                                               |               |            |

| NRM region                             | Basin           | Mgmt. Unit                  | All vegetation    |                   |            | Floodplain vegetation |                  |            | Riparian streams and rivers vegetation |                  |            | Riparian floodplain palustrine and lacustrine wetland vegetation |                |            |
|----------------------------------------|-----------------|-----------------------------|-------------------|-------------------|------------|-----------------------|------------------|------------|----------------------------------------|------------------|------------|------------------------------------------------------------------|----------------|------------|
|                                        |                 |                             | Extent (ha)       |                   | % rem.     | Extent (ha)           |                  | % rem.     | Extent (ha)                            |                  | % rem.     | Extent (ha)                                                      |                | % rem.     |
|                                        |                 |                             | Remnant           | Full extent       |            | Remnant               | Full extent      |            | Remnant                                | Full extent      |            | Remnant                                                          | Full extent    |            |
|                                        |                 | Cape Campaspe               | 1,798,704         | 2,024,205         | 89         | 438,084               | 494,389          | 89         | 223,301                                | 238,775          | 94         | 17,450                                                           | 18,889         | 92         |
|                                        |                 | <b>Burdekin basin total</b> | <b>9,660,457</b>  | <b>13,035,595</b> | <b>74%</b> | <b>1,562,592</b>      | <b>2,369,517</b> | <b>66%</b> | <b>1,471,790</b>                       | <b>1,676,906</b> | <b>88%</b> | <b>50,433</b>                                                    | <b>67,807</b>  | <b>74%</b> |
|                                        | Don River       |                             | 240,803           | 345,562           | 70         | 81,234                | 159,316          | 51         | 63,574                                 | 82,004           | 78         | 1,582                                                            | 3,130          | 51         |
| <b>Burdekin region totals</b>          |                 |                             | <b>10,376,199</b> | <b>14,029,515</b> | <b>74%</b> | <b>1,970,314</b>      | <b>3,259,934</b> | <b>60%</b> | <b>1,986,052</b>                       | <b>2,291,786</b> | <b>87%</b> | <b>72,935</b>                                                    | <b>100,227</b> | <b>73%</b> |
| Mackay Whitsunday                      | Proserpine      |                             | 157,133           | 246,095           | 64         | 20,148                | 71,844           | 28         | 28,619                                 | 42,371           | 68         | 3,881                                                            | 9,247          | 42         |
|                                        | O'Connell       |                             | 120,765           | 228,900           | 53         | 10,221                | 63,552           | 16         | 27,552                                 | 48,809           | 56         | 652                                                              | 1,135          | 57         |
|                                        | Pioneer         |                             | 105,805           | 165,050           | 64         | 12,981                | 56,794           | 23         | 25,850                                 | 35,553           | 73         | 659                                                              | 1,293          | 51         |
|                                        | Plane Creek     |                             | 119,759           | 251,881           | 48         | 15,151                | 107,655          | 14         | 22,573                                 | 41,264           | 55         | 3,154                                                            | 5,348          | 59         |
| <b>Mackay Whitsunday region totals</b> |                 |                             | <b>503,461</b>    | <b>891,925</b>    | <b>56%</b> | <b>58,501</b>         | <b>299,845</b>   | <b>20%</b> | <b>104,594</b>                         | <b>167,997</b>   | <b>62%</b> | <b>8,346</b>                                                     | <b>17,023</b>  | <b>49%</b> |
| Fitzroy                                | Styx            |                             | 163,064           | 298,222           | 55         | 18,534                | 66,702           | 28         | 30,868                                 | 55,201           | 56         | 1,294                                                            | 1,547          | 84         |
|                                        | Shoalwater      |                             | 274,549           | 359,379           | 76         | 62,441                | 117,993          | 53         | 51,892                                 | 64,732           | 80         | 721                                                              | 1,465          | 49         |
|                                        | Waterpark Creek |                             | 147,489           | 181,145           | 81         | 18,869                | 28,790           | 66         | 22,844                                 | 29,852           | 77         | 7,639                                                            | 9,932          | 77         |
|                                        | Fitzroy         | Fitzroy                     | 400,202           | 1,128,954         | 35         | 74,099                | 397,081          | 19         | 69,225                                 | 159,072          | 44         | 8,927                                                            | 37,922         | 24         |
|                                        |                 | Dawson                      | 1,751,099         | 5,071,953         | 35         | 155,931               | 744,667          | 21         | 221,884                                | 533,020          | 42         | 7,841                                                            | 39,645         | 20         |
|                                        |                 | Isaac                       | 1,138,591         | 2,222,095         | 51         | 180,638               | 391,404          | 46         | 204,606                                | 295,133          | 69         | 3,224                                                            | 6,927          | 47         |

| NRM region                        | Basin    | Mgmt. Unit                 | All vegetation   |                   |            | Floodplain vegetation |                  |            | Riparian streams and rivers vegetation |                  |            | Riparian floodplain palustrine and lacustrine wetland vegetation |                |            |
|-----------------------------------|----------|----------------------------|------------------|-------------------|------------|-----------------------|------------------|------------|----------------------------------------|------------------|------------|------------------------------------------------------------------|----------------|------------|
|                                   |          |                            | Extent (ha)      |                   | % rem.     | Extent (ha)           |                  | % rem.     | Extent (ha)                            |                  | % rem.     | Extent (ha)                                                      |                | % rem.     |
|                                   |          |                            | Remnant          | Full extent       |            | Remnant               | Full extent      |            | Remnant                                | Full extent      |            | Remnant                                                          | Full extent    |            |
|                                   |          | Mackenzie                  | 365,142          | 1,312,743         | 28         | 54,103                | 293,820          | 18         | 51,921                                 | 127,363          | 41         | 2,289                                                            | 10,408         | 22         |
|                                   |          | Comet                      | 728,721          | 1,728,702         | 42         | 85,102                | 297,034          | 29         | 105,670                                | 171,837          | 61         | 5,725                                                            | 14,421         | 40         |
|                                   |          | Nogoa                      | 990,011          | 1,909,668         | 52         | 150,668               | 316,156          | 48         | 156,009                                | 253,234          | 62         | 2,529                                                            | 6,244          | 41         |
|                                   |          | Theresa Creek              | 409,359          | 847,032           | 48         | 57,322                | 116,288          | 49         | 66,336                                 | 97,299           | 68         | 506                                                              | 1,580          | 32         |
|                                   |          | <b>Fitzroy basin total</b> | <b>5,783,125</b> | <b>14,221,148</b> | <b>41%</b> | <b>757,863</b>        | <b>2,556,450</b> | <b>30%</b> | <b>875,652</b>                         | <b>1,636,958</b> | <b>53%</b> | <b>31,041</b>                                                    | <b>117,147</b> | <b>26%</b> |
|                                   | Calliope |                            | 67,746           | 216,833           | 31         | 7,288                 | 51,104           | 14         | 13,763                                 | 47,064           | 29         | 7                                                                | 412            | 2          |
|                                   | Boyne    |                            | 134,984          | 244,267           | 55         | 5,523                 | 18,137           | 30         | 29,178                                 | 51,279           | 57         | 6                                                                | 200            | 3          |
| <b>Fitzroy region totals</b>      |          |                            | <b>6,570,956</b> | <b>15,520,994</b> | <b>42%</b> | <b>870,518</b>        | <b>2,839,176</b> | <b>31%</b> | <b>1,024,196</b>                       | <b>1,885,086</b> | <b>54%</b> | <b>40,707</b>                                                    | <b>130,704</b> | <b>31%</b> |
| Burnett Mary                      | Baffle   |                            | 256,922          | 406,929           | 63         | 33,047                | 62,391           | 53         | 64,593                                 | 104,183          | 62         | 20,612                                                           | 28,031         | 74         |
|                                   | Kolan    |                            | 135,797          | 282,849           | 48         | 11,099                | 38,167           | 29         | 37,006                                 | 73,742           | 50         | 370                                                              | 1,436          | 26         |
|                                   | Burnett  |                            | 1,258,843        | 3,320,269         | 38         | 46,238                | 327,886          | 14         | 244,017                                | 702,661          | 35         | 1,281                                                            | 6,931          | 18         |
|                                   | Burrum   |                            | 202,639          | 331,589           | 61         | 29,438                | 45,556           | 65         | 47,442                                 | 63,841           | 74         | 21,957                                                           | 28,491         | 77         |
|                                   | Mary     |                            | 414,149          | 939,563           | 44         | 40,459                | 153,082          | 26         | 105,486                                | 248,622          | 42         | 11,390                                                           | 25,893         | 44         |
| <b>Burnett Mary region totals</b> |          |                            | <b>2,268,350</b> | <b>5,281,198</b>  | <b>43%</b> | <b>160,281</b>        | <b>627,082</b>   | <b>26%</b> | <b>498,545</b>                         | <b>1,193,048</b> | <b>42%</b> | <b>55,610</b>                                                    | <b>90,782</b>  | <b>61%</b> |

Table 3. Vegetation clearing between 2019 and 2022 in the GBR catchment area.

| NRM Region                     | Basin            | Mgmt. Unit | All vegetation              |                            |            | Floodplain vegetation       |                       |            | Riparian stream & river vegetation |                            |            | Riparian floodplain wetland vegetation |                            |            |
|--------------------------------|------------------|------------|-----------------------------|----------------------------|------------|-----------------------------|-----------------------|------------|------------------------------------|----------------------------|------------|----------------------------------------|----------------------------|------------|
|                                |                  |            | Total clearing 2019-22 (ha) | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha) | 2019 Woody vegetation | % cleared  | Total clearing 2019-22 (ha)        | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha)            | 2019 woody vegetation (ha) | % cleared  |
| Cape York                      | Jacky Jacky      |            | 23                          | 287,289                    | 0.0        | 0                           | 22,785                | 0.0        | 1                                  | 34,354                     | 0.0        | 0                                      | 4,059                      | 0.0        |
|                                | Olive-Pascoe     |            | 4                           | 413,466                    | 0.0        | 0                           | 37,552                | 0.0        | 0                                  | 85,148                     | 0.0        | 0                                      | 7,028                      | 0.0        |
|                                | Lockhart         |            | 19                          | 273,942                    | 0.0        | 2                           | 91,019                | 0.0        | 1                                  | 57,478                     | 0.0        | 0                                      | 0                          | 0.0        |
|                                | Stewart          |            | 7                           | 277,069                    | 0.0        | 3                           | 125,654               | 0.0        | 0                                  | 54,359                     | 0.0        | 0                                      | 1,918                      | 0.0        |
|                                | Normanby         |            | 391                         | 2,317,835                  | 0.0        | 112                         | 784,388               | 0.0        | 55                                 | 347,961                    | 0.0        | 2                                      | 41,506                     | 0.0        |
|                                | Jeannie          |            | 652                         | 338,324                    | 0.2        | 63                          | 91,813                | 0.1        | 29                                 | 70,593                     | 0.0        | 0                                      | 0                          | 0.0        |
|                                | Endeavour        |            | 312                         | 209,419                    | 0.1        | 186                         | 42,941                | 0.4        | 26                                 | 42,151                     | 0.1        | 12                                     | 1,306                      | 0.9        |
| <b>Cape York region totals</b> |                  |            | <b>1,408</b>                | <b>4,117,343</b>           | <b>0.0</b> | <b>366</b>                  | <b>1,196,152</b>      | <b>0.0</b> | <b>111</b>                         | <b>692,044</b>             | <b>0.0</b> | <b>14</b>                              | <b>55,816</b>              | <b>0.0</b> |
| Wet Tropics                    | Daintree         |            | 21                          | 200,326                    | 0.0        | 2                           | 8,104                 | 0.0        | 5                                  | 44,423                     | 0.0        | 0                                      | 4,428                      | 0.0        |
|                                | Mossman          |            | 38                          | 39,661                     | 0.1        | 25                          | 2,330                 | 1.1        | 11                                 | 8,343                      | 0.1        | 0                                      | 30                         | 0.0        |
|                                | Barron           |            | 899                         | 160,500                    | 0.6        | 68                          | 8,943                 | 0.8        | 98                                 | 38,203                     | 0.3        | 7                                      | 593                        | 1.2        |
|                                | Mulgrave-Russell |            | 129                         | 155,000                    | 0.1        | 70                          | 15,271                | 0.5        | 21                                 | 33,584                     | 0.1        | 2                                      | 12,403                     | 0.0        |
|                                | Johnstone        |            | 325                         | 148,498                    | 0.2        | 90                          | 8,970                 | 1.0        | 67                                 | 36,573                     | 0.2        | 9                                      | 4,142                      | 0.2        |
|                                | Tully            |            | 70                          | 129,410                    | 0.1        | 31                          | 13,205                | 0.2        | 13                                 | 29,190                     | 0.0        | 11                                     | 7,870                      | 0.1        |
|                                | Murray           |            | 258                         | 79,157                     | 0.3        | 225                         | 17,400                | 1.3        | 42                                 | 17,431                     | 0.2        | 38                                     | 6,705                      | 0.6        |

| NRM Region                | Basin    | Mgmt. Unit                 | All vegetation              |                            |            | Floodplain vegetation       |                       |            | Riparian stream & river vegetation |                            |            | Riparian floodplain wetland vegetation |                            |           |
|---------------------------|----------|----------------------------|-----------------------------|----------------------------|------------|-----------------------------|-----------------------|------------|------------------------------------|----------------------------|------------|----------------------------------------|----------------------------|-----------|
|                           |          |                            | Total clearing 2019-22 (ha) | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha) | 2019 Woody vegetation | % cleared  | Total clearing 2019-22 (ha)        | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha)            | 2019 woody vegetation (ha) | % cleared |
|                           | Herbert  | Upper Herbert              | 1,281                       | 636,149                    | 0.2        | 80                          | 48,841                | 0.2        | 77                                 | 113,900                    | 0.1        | 7                                      | 5,725                      | 0.1       |
|                           |          | Lower Herbert              | 1,672                       | 215,020                    | 0.8        | 979                         | 44,151                | 2.2        | 116                                | 44,648                     | 0.3        | 57                                     | 6,219                      | 0.9       |
|                           |          | <i>Herbert basin total</i> | <i>2,953</i>                | <i>851,169</i>             | <i>0.3</i> | <i>1,058</i>                | <i>92,992</i>         | <i>1.1</i> | <i>193</i>                         | <i>158,548</i>             | <i>0.1</i> | <i>64</i>                              | <b>11,944</b>              | 0.5       |
| Wet Tropics region totals |          |                            | 4,692                       | 1,763,720                  | 0.3        | 1,570                       | 167,216               | 0.9        | 451                                | 366,296                    | 0.1        | 130                                    | 48,114                     | 0.3       |
| Burdekin                  | Black    |                            | 832                         | 92,215                     | 0.9        | 813                         | 38,496                | 2.1        | 135                                | 25,075                     | 0.5        | 9                                      | 639                        | 0.6       |
|                           | Ross     |                            | 1,937                       | 112,574                    | 1.7        | 1,669                       | 41,398                | 4.0        | 384                                | 26,760                     | 1.4        | 14                                     | 933                        | 1.5       |
|                           | Haughton |                            | 1,809                       | 240,872                    | 0.8        | 1,636                       | 100,845               | 1.6        | 277                                | 58,837                     | 0.5        | 91                                     | 5,122                      | 1.8       |
|                           | Burdekin | East Burdekin              | 943                         | 296,336                    | 0.3        | 468                         | 55,602                | 0.8        | 210                                | 56,305                     | 0.4        | 0                                      | 192                        | 0.0       |
|                           |          | Burdekin Delta             | 739                         | 28,091                     | 2.6        | 586                         | 11,762                | 5.0        | 55                                 | 5,017                      | 1.1        | 70                                     | 1,763                      | 4.0       |
|                           |          | Belyando                   | 65,441                      | 1,781,987                  | 3.7        | 16,079                      | 404,442               | 4.0        | 2,708                              | 189,255                    | 1.4        | 231                                    | 10,095                     | 1.7       |
|                           |          | Suttor                     | 29,400                      | 958,009                    | 3.1        | 5,045                       | 178,184               | 2.8        | 1,399                              | 136,856                    | 1.0        | 46                                     | 2,267                      | 1.0       |
|                           |          | Upper Burdekin             | 7,038                       | 3,544,762                  | 0.2        | 984                         | 337,424               | 0.3        | 823                                | 662,936                    | 0.1        | 10                                     | 11,211                     | 0.0       |
|                           |          | Bowen Bogie                | 6,824                       | 943,465                    | 0.7        | 1,145                       | 109,738               | 1.0        | 977                                | 176,419                    | 0.6        | 0                                      | 164                        | 0.1       |
| Cape Campaspe             |          | 14,876                     | 1,719,918                   | 0.9                        | 2,347      | 420,003                     | 0.6                   | 898        | 221,259                            | 0.4                        | 38         | 13,210                                 | 0.2                        |           |

| NRM Region                             | Basin           | Mgmt. Unit                  | All vegetation              |                            |            | Floodplain vegetation       |                       |            | Riparian stream & river vegetation |                            |            | Riparian floodplain wetland vegetation |                            |            |
|----------------------------------------|-----------------|-----------------------------|-----------------------------|----------------------------|------------|-----------------------------|-----------------------|------------|------------------------------------|----------------------------|------------|----------------------------------------|----------------------------|------------|
|                                        |                 |                             | Total clearing 2019-22 (ha) | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha) | 2019 Woody vegetation | % cleared  | Total clearing 2019-22 (ha)        | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha)            | 2019 woody vegetation (ha) | % cleared  |
|                                        |                 | <i>Burdekin basin total</i> | 125,262                     | 9,272,567                  | 1.4        | 26,653                      | 1,517,156             | 1.8        | 7,069                              | 1,448,048                  | 0.5        | 396                                    | <b>38,900</b>              | 0.4        |
|                                        | Don River       |                             | 6,000                       | 251,869                    | 2.4        | 5,306                       | 94,462                | 5.6        | 959                                | 68,980                     | 1.4        | 16                                     | 518.56                     | 2.5        |
| <b>Burdekin region totals</b>          |                 |                             | <b>135,839</b>              | <b>9,970,097</b>           | <b>1.4</b> | <b>36,078</b>               | <b>1,792,357</b>      | <b>2.0</b> | <b>8,824</b>                       | <b>1,627,699</b>           | <b>0.5</b> | <b>525</b>                             | <b>46,113</b>              | <b>1.1</b> |
| Mackay Whitsunday                      | Proserpine      |                             | 1,219                       | 168,832                    | 0.7        | 307                         | 24,235                | 1.3        | 176                                | 32,955                     | 0.5        | 3                                      | 2,465                      | 0.1        |
|                                        | O'Connell       |                             | 1,540                       | 140,262                    | 1.1        | 483                         | 18,244                | 2.6        | 263                                | 34,724                     | 0.8        | 3                                      | 553                        | 0.1        |
|                                        | Pioneer         |                             | 253                         | 112,246                    | 0.2        | 77                          | 15,180                | 0.5        | 53                                 | 27,893                     | 0.2        | 1                                      | 449                        | 0.1        |
|                                        | Plane Creek     |                             | 1,030                       | 133,871                    | 0.8        | 339                         | 24,465                | 1.4        | 188                                | 29,585                     | 0.6        | 3                                      | 2,538                      | 0.0        |
| <b>Mackay Whitsunday region totals</b> |                 |                             | <b>4,042</b>                | <b>555,211</b>             | <b>0.7</b> | <b>1,206</b>                | <b>82,124</b>         | <b>1.5</b> | <b>681</b>                         | <b>125,156</b>             | <b>0.5</b> | <b>9</b>                               | <b>6,005</b>               | <b>0.0</b> |
| Fitzroy                                | Styx            |                             | 3,098                       | 169,494                    | 1.8        | 372                         | 27,651                | 1.3        | 466                                | 38,660                     | 1.2        | 0                                      | 178                        | 0.1        |
|                                        | Shoalwater      |                             | 2,245                       | 258,231                    | 0.9        | 744                         | 71,351                | 1.0        | 595                                | 51,924                     | 1.1        | 0                                      | 555                        | 0.0        |
|                                        | Waterpark Creek |                             | 1,103                       | 154,663                    | 0.7        | 486                         | 22,645                | 2.1        | 284                                | 26,412                     | 1.1        | 12                                     | 7,844                      | 0.1        |
|                                        | Fitzroy         | Fitzroy                     | 23,163                      | 643,325                    | 3.6        | 7,525                       | 161,006               | 4.7        | 2,933                              | 116,738                    | 2.5        | 494                                    | 11,189                     | 3.5        |
|                                        |                 | Dawson                      | 79,893                      | 2,409,080                  | 3.3        | 13,283                      | 284,342               | 4.7        | 7,525                              | 339,488                    | 2.2        | 754                                    | 14,068                     | 4.0        |
|                                        |                 | Isaac                       | 41,385                      | 1,265,886                  | 3.3        | 9,771                       | 213,397               | 4.6        | 3,717                              | 225,350                    | 1.6        | 156                                    | 3,665                      | 1.3        |
|                                        |                 | Mackenzie                   | 19,758                      | 529,717                    | 3.7        | 6,229                       | 97,620                | 6.4        | 1,777                              | 78,811                     | 2.3        | 280                                    | 4,362                      | 3.7        |
|                                        |                 | Comet                       | 15,822                      | 814,434                    | 1.9        | 3,022                       | 107,640               | 2.8        | 1,019                              | 122,106                    | 0.8        | 98                                     | 3,807                      | 2.1        |
|                                        |                 | Nogoa                       | 19,774                      | 1,000,064                  | 2.0        | 3,274                       | 153,813               | 2.1        | 2,534                              | 169,806                    | 1.5        | 207                                    | 3,216                      | 5.0        |

| NRM Region                        | Basin    | Mgmt. Unit                 | All vegetation              |                            |            | Floodplain vegetation       |                       |            | Riparian stream & river vegetation |                            |            | Riparian floodplain wetland vegetation |                            |            |
|-----------------------------------|----------|----------------------------|-----------------------------|----------------------------|------------|-----------------------------|-----------------------|------------|------------------------------------|----------------------------|------------|----------------------------------------|----------------------------|------------|
|                                   |          |                            | Total clearing 2019-22 (ha) | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha) | 2019 Woody vegetation | % cleared  | Total clearing 2019-22 (ha)        | 2019 woody vegetation (ha) | % cleared  | Total clearing 2019-22 (ha)            | 2019 woody vegetation (ha) | % cleared  |
|                                   |          | Theresa Creek              | 6,900                       | 392,898                    | 1.8        | 666                         | 62,982                | 1.1        | 526                                | 68,182                     | 0.8        | 9                                      | 698                        | 1.0        |
|                                   |          | <i>Fitzroy basin total</i> | <i>206,695</i>              | <i>7,055,403</i>           | <i>2.9</i> | <i>43,770</i>               | <i>1,080,799</i>      | <i>4.0</i> | <i>20,031</i>                      | <i>1,120,480</i>           | <i>1.8</i> | <i>1,997</i>                           | <i>41,005</i>              | <i>3.2</i> |
|                                   | Calliope |                            | 3,322                       | 135,941                    | 2.4        | 424                         | 24,926                | 1.7        | 685                                | 32,721                     | 2.1        | 0                                      | 193                        | 0.0        |
|                                   | Boyne    |                            | 2,166                       | 203,455                    | 1.1        | 67                          | 10,351                | 0.6        | 326                                | 45,100                     | 0.7        | 0                                      | 27                         | 0.0        |
| <b>Fitzroy region totals</b>      |          |                            | <b>218,629</b>              | <b>7,977,187</b>           | <b>2.7</b> | <b>45,863</b>               | <b>1,237,723</b>      | <b>3.7</b> | <b>22,388</b>                      | <b>1,315,298</b>           | <b>1.7</b> | <b>2,010</b>                           | <b>49,802</b>              | <b>2.7</b> |
| Burnett Mary                      | Baffle   |                            | 4,757                       | 323,900                    | 1.5        | 554                         | 45,421                | 1.2        | 942                                | 83,934                     | 1.1        | 247                                    | 23,743                     | 1.0        |
|                                   | Kolan    |                            | 4,847                       | 202,832                    | 2.4        | 524                         | 19,878                | 2.6        | 954                                | 56,315                     | 1.7        | 26                                     | 593                        | 4.4        |
|                                   | Burnett  |                            | 55,943                      | 2,064,166                  | 2.7        | 3,792                       | 122,737               | 3.1        | 9,982                              | 460,530                    | 2.2        | 63                                     | 2,057                      | 2.1        |
|                                   | Burrum   |                            | 5,571                       | 252,661                    | 2.2        | 391                         | 37,443                | 1.0        | 531                                | 56,839                     | 0.9        | 500                                    | 25,559                     | 2.0        |
|                                   | Mary     |                            | 14,516                      | 648,233                    | 2.2        | 1,638                       | 78,614                | 2.1        | 2,612                              | 172,171                    | 1.5        | 534                                    | 17,422                     | 3.1        |
| <b>Burnett Mary region totals</b> |          |                            | <b>85,634</b>               | <b>3,491,792</b>           | <b>2.5</b> | <b>6,898</b>                | <b>304,094</b>        | <b>2.3</b> | <b>15,021</b>                      | <b>829,789</b>             | <b>1.8</b> | <b>1,370</b>                           | <b>69,374</b>              | <b>1.9</b> |

Table 4. Vegetation clearing between 2019 and 2022 in the GBR catchment area.

| NRM region              | Basin            | Management Unit | All vegetation (ha)                                              |                 |                                                   |                                                                            |                |                       |           |
|-------------------------|------------------|-----------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-----------|
|                         |                  |                 | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared |
| Cape York               | Jacky Jacky      |                 | 23                                                               | 0               | 0                                                 | 0                                                                          | 23             | 287,289               | 0.0       |
|                         | Olive-Pascoe     |                 | 0                                                                | 0               | 4                                                 | 0                                                                          | 4              | 413,466               | 0.0       |
|                         | Lockhart         |                 | 9                                                                | 0               | 10                                                | 0                                                                          | 19             | 273,942               | 0.0       |
|                         | Stewart          |                 | 5                                                                | 0               | 2                                                 | 0                                                                          | 7              | 277,069               | 0.0       |
|                         | Normanby         |                 | 288                                                              | 24              | 79                                                | 0                                                                          | 391            | 2,317,835             | 0.0       |
|                         | Jeannie          |                 | 9                                                                | 6               | 3                                                 | 635                                                                        | 652            | 338,324               | 0.2       |
|                         | Endeavour        |                 | 278                                                              | 11              | 22                                                | 0                                                                          | 312            | 209,419               | 0.1       |
| Cape York region totals |                  |                 | 611                                                              | 41              | 121                                               | 636                                                                        | 1,408          | 4,117,343             | 0.0%      |
| Wet Tropics             | Daintree         |                 | 17                                                               | 1               | 2                                                 | 0                                                                          | 21             | 200,326               | 0.0       |
|                         | Mossman          |                 | 6                                                                | 3               | 29                                                | 0                                                                          | 38             | 39,661                | 0.1       |
|                         | Barron           |                 | 328                                                              | 257             | 36                                                | 278                                                                        | 899            | 160,500               | 0.6       |
|                         | Mulgrave-Russell |                 | 62                                                               | 47              | 13                                                | 6                                                                          | 129            | 155,000               | 0.1       |
|                         | Johnstone        |                 | 261                                                              | 51              | 2                                                 | 11                                                                         | 325            | 148,498               | 0.2       |
|                         | Tully            |                 | 59                                                               | 6               | 5                                                 | 0                                                                          | 70             | 129,410               | 0.1       |
|                         | Murray           |                 | 78                                                               | 45              | 2                                                 | 133                                                                        | 258            | 79,157                | 0.3       |
|                         | Herbert          | Upper Herbert   | 1,101                                                            | 125             | 52                                                | 4                                                                          | 1,281          | 636,149               | 0.2       |

| NRM region        | Basin                         | Management Unit                  | All vegetation (ha)                                              |                 |                                                   |                                                                            |                |                       |             |
|-------------------|-------------------------------|----------------------------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-------------|
|                   |                               |                                  | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared   |
|                   |                               | Lower Herbert                    | 334                                                              | 77              | 14                                                | 1,246                                                                      | 1,672          | 215,020               | 0.8         |
|                   |                               | <b>Herbert basin total</b>       | <b>1,435</b>                                                     | <b>202</b>      | <b>66</b>                                         | <b>1,250</b>                                                               | <b>2,953</b>   | <b>851,169</b>        | <b>0.3%</b> |
|                   |                               | <b>Wet Tropics region totals</b> | <b>2,246</b>                                                     | <b>612</b>      | <b>156</b>                                        | <b>1,678</b>                                                               | <b>4,692</b>   | <b>1,763,720</b>      | <b>0.3%</b> |
| Burdekin          | Black                         |                                  | 761                                                              | 7               | 48                                                | 15                                                                         | 832            | 92,215                | 0.9         |
|                   | Ross                          |                                  | 1,727                                                            | 27              | 183                                               | 0                                                                          | 1,937          | 112,574               | 1.7         |
|                   | Haughton                      |                                  | 1,633                                                            | 163             | 12                                                | 0                                                                          | 1,809          | 240,872               | 0.8         |
|                   | Burdekin                      | East Burdekin                    | 920                                                              | 3               | 20                                                | 0                                                                          | 943            | 296,336               | 0.3         |
|                   |                               | Burdekin Delta                   | 690                                                              | 40              | 1                                                 | 7                                                                          | 739            | 28,091                | 2.6         |
|                   |                               | Belyando                         | 64,914                                                           | 148             | 355                                               | 24                                                                         | 65,441         | 1,781,987             | 3.7         |
|                   |                               | Suttor                           | 28,397                                                           | 343             | 660                                               | 0                                                                          | 29,400         | 958,009               | 3.1         |
|                   |                               | Upper Burdekin                   | 6,771                                                            | 121             | 147                                               | 0                                                                          | 7,038          | 3,544,762             | 0.2         |
|                   |                               | Bowen Bogie                      | 6,691                                                            | 0               | 119                                               | 15                                                                         | 6,824          | 943,465               | 0.7         |
|                   |                               | Cape Campaspe                    | 14,834                                                           | 2               | 40                                                | 0                                                                          | 14,876         | 1,719,918             | 0.9         |
|                   |                               | <b>Burdekin basin total</b>      | <b>123,217</b>                                                   | <b>657</b>      | <b>1,342</b>                                      | <b>45</b>                                                                  | <b>125,262</b> | <b>9,272,567</b>      | <b>1.4%</b> |
|                   | Don River                     |                                  | 5,303                                                            | 684             | 13                                                | 0                                                                          | 6,000          | 251,869               | 2.4         |
|                   | <b>Burdekin region totals</b> |                                  | <b>132,643</b>                                                   | <b>1,538</b>    | <b>1,597</b>                                      | <b>60</b>                                                                  | <b>135,839</b> | <b>9,970,097</b>      | <b>1.4%</b> |
| Mackay Whitsunday | Proserpine                    |                                  | 885                                                              | 113             | 221                                               | 0                                                                          | 1,219          | 168,832               | 0.7         |
|                   | O'Connell                     |                                  | 1,376                                                            | 144             | 16                                                | 4                                                                          | 1,540          | 140,262               | 1.1         |
|                   | Pioneer                       |                                  | 202                                                              | 35              | 15                                                | 1                                                                          | 253            | 112,246               | 0.2         |

| NRM region                             | Basin           | Management Unit            | All vegetation (ha)                                              |                 |                                                   |                                                                            |                |                       |             |
|----------------------------------------|-----------------|----------------------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-------------|
|                                        |                 |                            | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared   |
|                                        | Plane Creek     |                            | 906                                                              | 99              | 22                                                | 3                                                                          | 1,030          | 133,871               | 0.8         |
| <b>Mackay Whitsunday region totals</b> |                 |                            | <b>3,370</b>                                                     | <b>391</b>      | <b>273</b>                                        | <b>8</b>                                                                   | <b>4,042</b>   | <b>555,211</b>        | <b>0.7%</b> |
| Fitzroy                                | Styx            |                            | 3,048                                                            | 0               | 50                                                | 0                                                                          | 3,098          | 169,494               | 1.8         |
|                                        | Shoalwater      |                            | 2,215                                                            | 0               | 29                                                | 0                                                                          | 2,245          | 258,231               | 0.9         |
|                                        | Waterpark Creek |                            | 512                                                              | 13              | 58                                                | 521                                                                        | 1,103          | 154,663               | 0.7         |
|                                        | Fitzroy         | Lower Fitzroy              | 21,354                                                           | 223             | 104                                               | 1,481                                                                      | 23,163         | 643,325               | 3.6         |
|                                        |                 | Dawson                     | 74,595                                                           | 465             | 293                                               | 4,539                                                                      | 79,893         | 2,409,080             | 3.3         |
|                                        |                 | Isaac                      | 40,132                                                           | 933             | 294                                               | 26                                                                         | 41,385         | 1,265,886             | 3.3         |
|                                        |                 | Mackenzie                  | 19,273                                                           | 215             | 248                                               | 23                                                                         | 19,758         | 529,717               | 3.7         |
|                                        |                 | Comet                      | 14,206                                                           | 888             | 58                                                | 670                                                                        | 15,822         | 814,434               | 1.9         |
|                                        |                 | Nogoa                      | 19,071                                                           | 637             | 65                                                | 1                                                                          | 19,774         | 1,000,064             | 2.0         |
|                                        |                 | Theresa Creek              | 6,622                                                            | 219             | 43                                                | 17                                                                         | 6,900          | 392,898               | 1.8         |
|                                        |                 | <b>Fitzroy basin total</b> | <b>195,253</b>                                                   | <b>3,581</b>    | <b>1,104</b>                                      | <b>6,757</b>                                                               | <b>206,695</b> | <b>7,055,403</b>      | <b>2.9%</b> |
|                                        | Calliope        |                            | 2,373                                                            | 41              | 19                                                | 889                                                                        | 3,322          | 135,941               | 2.4         |
|                                        | Boyne           |                            | 2,125                                                            | 1               | 16                                                | 24                                                                         | 2,166          | 203,455               | 1.1         |
| <b>Fitzroy region totals</b>           |                 |                            | <b>205,526</b>                                                   | <b>3,635</b>    | <b>1,276</b>                                      | <b>8,191</b>                                                               | <b>218,629</b> | <b>7,977,187</b>      | <b>2.7%</b> |
| Burnett Mary                           | Baffle          |                            | 4,187                                                            | 115             | 84                                                | 371                                                                        | 4,757          | 323,900               | 1.5         |
|                                        | Kolan           |                            | 3,236                                                            | 211             | 36                                                | 1,364                                                                      | 4,847          | 202,832               | 2.4         |

| NRM region                 | Basin   | Management Unit | All vegetation (ha)                                              |                 |                                                   |                                                                            |                |                       |           |
|----------------------------|---------|-----------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-----------|
|                            |         |                 | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared |
|                            | Burnett |                 | 48,436                                                           | 1,158           | 203                                               | 6,146                                                                      | 55,943         | 2,064,166             | 2.7       |
|                            | Burrum  |                 | 2,090                                                            | 380             | 202                                               | 2,899                                                                      | 5,571          | 252,661               | 2.2       |
|                            | Mary    |                 | 5,983                                                            | 198             | 516                                               | 7,819                                                                      | 14,516         | 648,233               | 2.2       |
| Burnett Mary region totals |         |                 | 63,931                                                           | 2,063           | 1,041                                             | 18,599                                                                     | 85,634         | 3,491,792             | 2.5%      |

Table 5. Clearing of floodplain vegetation between 2019 and 2022 in the GBR catchment area. Floodplains are classified as the low-lying land adjacent to a river that periodically floods.

| NRM region | Basin        | Management Unit | Floodplain vegetation (ha)                                       |                 |                                                   |                                                                            |                |                       |           |
|------------|--------------|-----------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-----------|
|            |              |                 | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared |
| Cape York  | Jacky Jacky  |                 | 0                                                                | 0               | 0                                                 | 0                                                                          | 0              | 22,785                | 0.0       |
|            | Olive-Pascoe |                 | 0                                                                | 0               | 0                                                 | 0                                                                          | 0              | 37,552                | 0.0       |
|            | Lockhart     |                 | 2                                                                | 0               | 1                                                 | 0                                                                          | 2              | 91,019                | 0.0       |
|            | Stewart      |                 | 3                                                                | 0               | 0                                                 | 0                                                                          | 3              | 125,654               | 0.0       |
|            | Normanby     |                 | 89                                                               | 0               | 24                                                | 0                                                                          | 112            | 784,388               | 0.0       |
|            | Jeannie      |                 | 4                                                                | 0               | 1                                                 | 57                                                                         | 63             | 91,813                | 0.1       |

| NRM region                | Basin            | Management Unit     | Floodplain vegetation (ha)                                       |                 |                                                   |                                                                            |                |                       |           |
|---------------------------|------------------|---------------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-----------|
|                           |                  |                     | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared |
|                           | Endeavour        |                     | 158                                                              | 11              | 16                                                | 0                                                                          | 186            | 42,941                | 0.4       |
| Cape York region totals   |                  |                     | 257                                                              | 11              | 41                                                | 58                                                                         | 366            | 1,196,152             | 0.0%      |
| Wet Tropics               | Daintree         |                     | 1                                                                | 1               | 0                                                 | 0                                                                          | 2              | 8,104                 | 0.0       |
|                           | Mossman          |                     | 1                                                                | 0               | 24                                                | 0                                                                          | 25             | 2,330                 | 1.1       |
|                           | Barron           |                     | 42                                                               | 14              | 12                                                | 0                                                                          | 68             | 8,943                 | 0.8       |
|                           | Mulgrave-Russell |                     | 21                                                               | 41              | 8                                                 | 0                                                                          | 70             | 15,271                | 0.5       |
|                           | Johnstone        |                     | 75                                                               | 14              | 0                                                 | 0                                                                          | 90             | 8,970                 | 1.0       |
|                           | Tully            |                     | 26                                                               | 4               | 2                                                 | 0                                                                          | 31             | 13,205                | 0.2       |
|                           | Murray           |                     | 60                                                               | 41              | 0                                                 | 123                                                                        | 225            | 17,400                | 1.3       |
|                           | Herbert          | Upper Herbert       | 77                                                               | 3               | 0                                                 | 0                                                                          | 80             | 48,841                | 0.2       |
|                           |                  | Lower Herbert       | 168                                                              | 41              | 4                                                 | 766                                                                        | 979            | 44,151                | 2.2       |
|                           |                  | Herbert basin total | 245                                                              | 44              | 4                                                 | 766                                                                        | 1,058          | 92,992                | 1.1%      |
| Wet Tropics region totals |                  |                     | 471                                                              | 159             | 50                                                | 889                                                                        | 1,570          | 167,216               | 0.9%      |
| Burdekin                  | Black            |                     | 747                                                              | 7               | 46                                                | 12                                                                         | 813            | 38,496                | 2.1       |
|                           | Ross             |                     | 1,486                                                            | 27              | 156                                               | 0                                                                          | 1,669          | 41,398                | 4.0       |
|                           | Haughton         |                     | 1,483                                                            | 146             | 8                                                 | 0                                                                          | 1,636          | 100,845               | 1.6       |
|                           | Burdekin         | East Burdekin       | 464                                                              | 1               | 3                                                 | 0                                                                          | 468            | 55,602                | 0.8       |
|                           |                  | Burdekin Delta      | 537                                                              | 40              | 1                                                 | 7                                                                          | 586            | 11,762                | 5.0       |

| NRM region                      | Basin           | Management Unit             | Floodplain vegetation (ha)                                       |                 |                                                   |                                                                            |                |                       |             |
|---------------------------------|-----------------|-----------------------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-------------|
|                                 |                 |                             | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared   |
|                                 |                 | Belyando                    | 15,895                                                           | 15              | 167                                               | 2                                                                          | 16,079         | 404,442               | 4.0         |
|                                 |                 | Suttor                      | 4,827                                                            | 61              | 156                                               | 0                                                                          | 5,045          | 178,184               | 2.8         |
|                                 |                 | Upper Burdekin              | 961                                                              | 5               | 18                                                | 0                                                                          | 984            | 337,424               | 0.3         |
|                                 |                 | Bowen Bogie                 | 1,144                                                            | 0               | 1                                                 | 0                                                                          | 1,145          | 109,738               | 1.0         |
|                                 |                 | Cape Campaspe               | 2,330                                                            | 0               | 16                                                | 0                                                                          | 2,347          | 420,003               | 0.6         |
|                                 |                 | <i>Burdekin basin total</i> | <i>26,159</i>                                                    | <i>121</i>      | <i>364</i>                                        | <i>9</i>                                                                   | <i>26,653</i>  | <i>1,517,156</i>      | <i>1.8%</i> |
|                                 | Don River       |                             | 4,617                                                            | 676             | 12                                                | 0                                                                          | 5,306          | 94,462                | 5.6         |
| Burdekin region totals          |                 |                             | 34,492                                                           | 977             | 587                                               | 21                                                                         | 36,078         | 1,792,357             | 2.0%        |
| Mackay Whitsunday               | Proserpine      |                             | 168                                                              | 32              | 107                                               | 0                                                                          | 307            | 24,235                | 1.3         |
|                                 | O'Connell       |                             | 353                                                              | 123             | 6                                                 | 1                                                                          | 483            | 18,244                | 2.6         |
|                                 | Pioneer         |                             | 51                                                               | 23              | 1                                                 | 1                                                                          | 77             | 15,180                | 0.5         |
|                                 | Plane Creek     |                             | 259                                                              | 73              | 7                                                 | 0                                                                          | 339            | 24,465                | 1.4         |
| Mackay Whitsunday region totals |                 |                             | 832                                                              | 251             | 121                                               | 2                                                                          | 1,206          | 82,124                | 1.5%        |
| Fitzroy                         | Styx            |                             | 371                                                              | 0               | 1                                                 | 0                                                                          | 372            | 27,651                | 1.3         |
|                                 | Shoalwater      |                             | 718                                                              | 0               | 26                                                | 0                                                                          | 744            | 71,351                | 1.0         |
|                                 | Waterpark Creek |                             | 91                                                               | 3               | 9                                                 | 382                                                                        | 486            | 22,645                | 2.1         |
|                                 | Fitzroy         | Lower Fitzroy               | 5,904                                                            | 202             | 27                                                | 1,392                                                                      | 7,525          | 161,006               | 4.7         |
|                                 |                 | Dawson                      | 12,860                                                           | 295             | 36                                                | 92                                                                         | 13,283         | 284,342               | 4.7         |

| NRM region                 | Basin    | Management Unit            | Floodplain vegetation (ha)                                       |                 |                                                   |                                                                            |                |                       |             |
|----------------------------|----------|----------------------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|----------------------------------------------------------------------------|----------------|-----------------------|-------------|
|                            |          |                            | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing - (other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared   |
|                            |          | Isaac                      | 8,949                                                            | 760             | 61                                                | 2                                                                          | 9,771          | 213,397               | 4.6         |
|                            |          | Mackenzie                  | 5,934                                                            | 213             | 83                                                | 0                                                                          | 6,229          | 97,620                | 6.4         |
|                            |          | Comet                      | 2,180                                                            | 690             | 24                                                | 127                                                                        | 3,022          | 107,640               | 2.8         |
|                            |          | Nogoa                      | 3,044                                                            | 217             | 13                                                | 0                                                                          | 3,274          | 153,813               | 2.1         |
|                            |          | Theresa Creek              | 645                                                              | 18              | 2                                                 | 0                                                                          | 666            | 62,982                | 1.1         |
|                            |          | <i>Fitzroy basin total</i> | <i>39,516</i>                                                    | <i>2,395</i>    | <i>246</i>                                        | <i>1,614</i>                                                               | <i>43,770</i>  | <i>1,080,799</i>      | <i>4.0%</i> |
|                            | Calliope |                            | 389                                                              | 25              | 10                                                | 0                                                                          | 424            | 24,926                | 1.7         |
|                            | Boyne    |                            | 60                                                               | 1               | 6                                                 | 0                                                                          | 67             | 10,351                | 0.6         |
| Fitzroy region totals      |          |                            | 41,145                                                           | 2,424           | 298                                               | 1,996                                                                      | 45,863         | 1,237,723             | 3.7%        |
| Burnett Mary               | Baffle   |                            | 459                                                              | 35              | 36                                                | 24                                                                         | 554            | 45,421                | 1.2         |
|                            | Kolan    |                            | 470                                                              | 29              | 5                                                 | 19                                                                         | 524            | 19,878                | 2.6         |
|                            | Burnett  |                            | 3,213                                                            | 230             | 32                                                | 317                                                                        | 3,792          | 122,737               | 3.1         |
|                            | Burrum   |                            | 179                                                              | 45              | 36                                                | 131                                                                        | 391            | 37,443                | 1.0         |
|                            | Mary     |                            | 700                                                              | 52              | 80                                                | 806                                                                        | 1,638          | 78,614                | 2.1         |
| Burnett Mary region totals |          |                            | 5,021                                                            | 391             | 189                                               | 1,297                                                                      | 6,898          | 304,094               | 2.3%        |

Table 6. Clearing of riparian stream and river vegetation between 2019 and 2022 in the GBR catchment area. Riparian areas of rivers and streams as defined by the Riparian Vegetation Extent Monitoring Method, were mapped using a 50 m buffer around topographic drainage lines and riverine wetlands, excluding estuarine areas (Australian and Queensland governments 2024). These areas encompass regions along watercourses, from small headwater creeks to major rivers.

| NRM Region              | Basin            | Management Unit | Riparian streams and rivers vegetation (ha)                      |                 |                                                   |                                                                           |                |                       |           |
|-------------------------|------------------|-----------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|---------------------------------------------------------------------------|----------------|-----------------------|-----------|
|                         |                  |                 | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing -(other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared |
| Cape York               | Jacky Jacky      |                 | 1                                                                | 0               | 0                                                 | 0                                                                         | 1              | 34,354                | 0.0       |
|                         | Olive-Pascoe     |                 | 0                                                                | 0               | 0                                                 | 0                                                                         | 0              | 85,148                | 0.0       |
|                         | Lockhart         |                 | 0                                                                | 0               | 1                                                 | 0                                                                         | 1              | 57,478                | 0.0       |
|                         | Stewart          |                 | 0                                                                | 0               | 0                                                 | 0                                                                         | 0              | 54,359                | 0.0       |
|                         | Normanby         |                 | 33                                                               | 0               | 21                                                | 0                                                                         | 55             | 347,961               | 0.0       |
|                         | Jeannie          |                 | 1                                                                | 0               | 0                                                 | 28                                                                        | 29             | 70,593                | 0.0       |
|                         | Endeavour        |                 | 22                                                               | 0               | 4                                                 | 0                                                                         | 26             | 42,151                | 0.1       |
| Cape York region totals |                  |                 | 57                                                               | 0               | 26                                                | 28                                                                        | 111            | 692,044               | 0.0%      |
| Wet Tropics             | Daintree         |                 | 3                                                                | 0               | 1                                                 | 0                                                                         | 5              | 44,423                | 0.0       |
|                         | Mossman          |                 | 0                                                                | 0               | 11                                                | 0                                                                         | 11             | 8,343                 | 0.1       |
|                         | Barron           |                 | 27                                                               | 14              | 3                                                 | 54                                                                        | 98             | 38,203                | 0.3       |
|                         | Mulgrave-Russell |                 | 7                                                                | 11              | 3                                                 | 0                                                                         | 21             | 33,584                | 0.1       |
|                         | Johnstone        |                 | 59                                                               | 7               | 0                                                 | 0                                                                         | 67             | 36,573                | 0.2       |
|                         | Tully            |                 | 9                                                                | 3               | 1                                                 | 0                                                                         | 13             | 29,190                | 0.0       |
|                         | Murray           |                 | 9                                                                | 7               | 0                                                 | 27                                                                        | 42             | 17,431                | 0.2       |

| NRM Region                | Basin      | Management Unit             | Riparian streams and rivers vegetation (ha)                      |                 |                                                   |                                                                           |                |                       |             |
|---------------------------|------------|-----------------------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|---------------------------------------------------------------------------|----------------|-----------------------|-------------|
|                           |            |                             | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing -(other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared   |
|                           | Herbert    | Upper Herbert               | 68                                                               | 1               | 7                                                 | 1                                                                         | 77             | 113,900               | 0.1         |
|                           |            | Lower Herbert               | 56                                                               | 21              | 2                                                 | 37                                                                        | 116            | 44,648                | 0.3         |
|                           |            | <i>Herbert basin total</i>  | <i>124</i>                                                       | <i>22</i>       | <i>9</i>                                          | <i>38</i>                                                                 | <i>193</i>     | <i>158,548</i>        | <i>0.1%</i> |
| Wet Tropics region totals |            |                             | 240                                                              | 63              | 29                                                | 119                                                                       | 451            | 366,296               | 0.1%        |
| Burdekin                  | Black      |                             | 124                                                              | 2               | 6                                                 | 3                                                                         | 135            | 25,075                | 0.5         |
|                           | Ross       |                             | 343                                                              | 2               | 38                                                | 0                                                                         | 384            | 26,760                | 1.4         |
|                           | Haughton   |                             | 263                                                              | 11              | 3                                                 | 0                                                                         | 277            | 58,837                | 0.5         |
|                           | Burdekin   | East Burdekin               | 199                                                              | 2               | 8                                                 | 0                                                                         | 210            | 56,305                | 0.4         |
|                           |            | Burdekin Delta              | 52                                                               | 1               | 0                                                 | 2                                                                         | 55             | 5,017                 | 1.1         |
|                           |            | Belyando                    | 2,649                                                            | 14              | 43                                                | 2                                                                         | 2,708          | 189,255               | 1.4         |
|                           |            | Suttor                      | 1,262                                                            | 35              | 102                                               | 0                                                                         | 1,399          | 136,856               | 1.0         |
|                           |            | Upper Burdekin              | 790                                                              | 2               | 31                                                | 0                                                                         | 823            | 662,936               | 0.1         |
|                           |            | Bowen Bogie                 | 946                                                              | 0               | 30                                                | 1                                                                         | 977            | 176,419               | 0.6         |
|                           |            | Cape Campaspe               | 893                                                              | 0               | 4                                                 | 0                                                                         | 898            | 221,259               | 0.4         |
|                           |            | <i>Burdekin basin total</i> | <i>6,792</i>                                                     | <i>53</i>       | <i>218</i>                                        | <i>6</i>                                                                  | <i>7,069</i>   | <i>1,448,048</i>      | <i>0.5%</i> |
| Don River                 |            | 890                         | 63                                                               | 6               | 0                                                 | 959                                                                       | 68,980         | 1.4                   |             |
| Burdekin region totals    |            |                             | 8,412                                                            | 132             | 271                                               | 9                                                                         | 8,824          | 1,627,699             | 0.5%        |
| Mackay Whitsunday         | Proserpine |                             | 157                                                              | 12              | 7                                                 | 0                                                                         | 176            | 32,955                | 0.5         |
|                           | O'Connell  |                             | 252                                                              | 10              | 1                                                 | 1                                                                         | 263            | 34,724                | 0.8         |

| NRM Region            | Basin                           | Management Unit            | Riparian streams and rivers vegetation (ha)                      |                 |                                                   |                                                                           |                |                       |             |    |   |     |         |
|-----------------------|---------------------------------|----------------------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|---------------------------------------------------------------------------|----------------|-----------------------|-------------|----|---|-----|---------|
|                       |                                 |                            | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing -(other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared   |    |   |     |         |
|                       | Pioneer                         |                            | 41                                                               | 11              | 1                                                 | 0                                                                         | 53             | 27,893                | 0.2         |    |   |     |         |
|                       | Plane Creek                     |                            | 159                                                              | 27              | 1                                                 | 1                                                                         | 188            | 29,585                | 0.6         |    |   |     |         |
|                       | Mackay Whitsunday region totals |                            |                                                                  |                 |                                                   |                                                                           |                | 609                   | 60          | 10 | 2 | 681 | 125,156 |
| Fitzroy               | Styx                            |                            | 460                                                              | 0               | 5                                                 | 0                                                                         | 466            | 38,660                | 1.2         |    |   |     |         |
|                       | Shoalwater                      |                            | 593                                                              | 0               | 3                                                 | 0                                                                         | 595            | 51,924                | 1.1         |    |   |     |         |
|                       | Waterpark Creek                 |                            | 103                                                              | 0               | 11                                                | 171                                                                       | 284            | 26,412                | 1.1         |    |   |     |         |
|                       | Fitzroy                         | Lower Fitzroy              | 2,800                                                            | 3               | 15                                                | 116                                                                       | 2,933          | 116,738               | 2.5         |    |   |     |         |
|                       |                                 | Dawson                     | 7,239                                                            | 44              | 47                                                | 195                                                                       | 7,525          | 339,488               | 2.2         |    |   |     |         |
|                       |                                 | Isaac                      | 3,557                                                            | 109             | 49                                                | 1                                                                         | 3,717          | 225,350               | 1.6         |    |   |     |         |
|                       |                                 | Mackenzie                  | 1,694                                                            | 35              | 43                                                | 6                                                                         | 1,777          | 78,811                | 2.3         |    |   |     |         |
|                       |                                 | Comet                      | 797                                                              | 116             | 19                                                | 87                                                                        | 1,019          | 122,106               | 0.8         |    |   |     |         |
|                       |                                 | Nogoa                      | 2,493                                                            | 33              | 7                                                 | 0                                                                         | 2,534          | 169,806               | 1.5         |    |   |     |         |
|                       |                                 | Theresa Creek              | 473                                                              | 36              | 11                                                | 6                                                                         | 526            | 68,182                | 0.8         |    |   |     |         |
|                       |                                 | <i>Fitzroy basin total</i> | <i>19,053</i>                                                    | <i>376</i>      | <i>191</i>                                        | <i>411</i>                                                                | <i>20,031</i>  | <i>1,120,480</i>      | <i>1.8%</i> |    |   |     |         |
|                       | Calliope                        |                            | 518                                                              | 6               | 1                                                 | 160                                                                       | 685            | 32,721                | 2.1         |    |   |     |         |
| Boyne                 |                                 | 316                        | 0                                                                | 6               | 4                                                 | 326                                                                       | 45,100         | 0.7                   |             |    |   |     |         |
| Fitzroy region totals |                                 |                            | 21,043                                                           | 383             | 217                                               | 745                                                                       | 22,388         | 1,315,298             | 1.7%        |    |   |     |         |
| Burnett Mary          | Baffle                          |                            | 813                                                              | 23              | 15                                                | 91                                                                        | 942            | 83,934                | 1.1         |    |   |     |         |
|                       | Kolan                           |                            | 702                                                              | 14              | 12                                                | 226                                                                       | 954            | 56,315                | 1.7         |    |   |     |         |

| NRM Region                 | Basin   | Management Unit | Riparian streams and rivers vegetation (ha)                      |                 |                                                   |                                                                           |                |                       |           |
|----------------------------|---------|-----------------|------------------------------------------------------------------|-----------------|---------------------------------------------------|---------------------------------------------------------------------------|----------------|-----------------------|-----------|
|                            |         |                 | Clearing - Pasture & Clearing - Partial clearing major - Pasture | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing -(other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared |
|                            | Burnett |                 | 8,945                                                            | 165             | 78                                                | 794                                                                       | 9,982          | 460,530               | 2.2       |
|                            | Burrum  |                 | 339                                                              | 66              | 29                                                | 97                                                                        | 531            | 56,839                | 0.9       |
|                            | Mary    |                 | 1,423                                                            | 40              | 118                                               | 1,030                                                                     | 2,612          | 172,171               | 1.5       |
| Burnett Mary region totals |         |                 | 12,222                                                           | 309             | 252                                               | 2,238                                                                     | 15,021         | 829,789               | 1.8%      |

Table 7. Clearing of riparian floodplain palustrine and lacustrine wetland vegetation between 2019 and 2022 in the GBR catchment area. Riparian areas of floodplain freshwater wetlands were estimated by creating a 200 m buffer zone around these wetland extents.

| NRM Region | Basin        | Management Unit | Riparian floodplain palustrine and lacustrine wetland vegetation (ha) |                 |                                                   |                                                                           |                |                       |           |
|------------|--------------|-----------------|-----------------------------------------------------------------------|-----------------|---------------------------------------------------|---------------------------------------------------------------------------|----------------|-----------------------|-----------|
|            |              |                 | Clearing - Pasture & Clearing - Partial clearing major - Pasture      | Clearing - Crop | Clearing - Settlement & Clearing - Infrastructure | Clearing -(other) - Timber plantation & Partial clearing major - Forestry | Total Clearing | 2019 Woody vegetation | % cleared |
| Cape York  | Jacky Jacky  |                 | 0.0                                                                   | 0.0             | 0.0                                               | 0.0                                                                       | 0.0            | 4,059                 | 0.0       |
|            | Olive-Pascoe |                 | 0.0                                                                   | 0.0             | 0.0                                               | 0.0                                                                       | 0.0            | 7,028                 | 0.0       |
|            | Lockhart     |                 | 0.0                                                                   | 0.0             | 0.0                                               | 0.0                                                                       | 0.0            | 0                     | 0.0       |
|            | Stewart      |                 | 0.0                                                                   | 0.0             | 0.0                                               | 0.0                                                                       | 0.0            | 1,918                 | 0.0       |
|            | Normanby     |                 | 2.1                                                                   | 0.0             | 0.0                                               | 0.0                                                                       | 2.1            | 41,506                | 0.0       |
|            | Jeannie      |                 | 0.0                                                                   | 0.0             | 0.0                                               | 0.0                                                                       | 0.0            | 0                     | 0.0       |
|            | Endeavour    |                 | 11                                                                    | 0.0             | 1.3                                               | 0.0                                                                       | 12             | 1,306                 | 0.9       |

| NRM Region                | Basin            | Management Unit     | Riparian floodplain palustrine and lacustrine wetland vegetation (ha)        |                    |                                                            |                                                                                       |                   |                             |           |
|---------------------------|------------------|---------------------|------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------|-----------------------------|-----------|
|                           |                  |                     | Clearing -<br>Pasture &<br>Clearing - Partial<br>clearing major -<br>Pasture | Clearing -<br>Crop | Clearing -<br>Settlement &<br>Clearing -<br>Infrastructure | Clearing -(other)<br>- Timber<br>plantation &<br>Partial clearing<br>major - Forestry | Total<br>Clearing | 2019<br>Woody<br>vegetation | % cleared |
| Cape York region totals   |                  |                     | 13                                                                           | 0.0                | 1.3                                                        | 0.0                                                                                   | 14                | 55,816                      | 0.0       |
| Wet Tropics               | Daintree         |                     | 0.0                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.0               | 4,428                       | 0.0       |
|                           | Mossman          |                     | 0.0                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.0               | 30                          | 0.0       |
|                           | Barron           |                     | 1.4                                                                          | 0.0                | 5.8                                                        | 0.0                                                                                   | 7.3               | 593                         | 1.2       |
|                           | Mulgrave-Russell |                     | 0.9                                                                          | 1.0                | 0.0                                                        | 0.0                                                                                   | 1.8               | 12,403                      | 0.0       |
|                           | Johnstone        |                     | 3.1                                                                          | 5.8                | 0.0                                                        | 0.0                                                                                   | 8.9               | 4,142                       | 0.2       |
|                           | Tully            |                     | 8.7                                                                          | 0.4                | 1.5                                                        | 0.0                                                                                   | 11                | 7,870                       | 0.1       |
|                           | Murray           |                     | 29                                                                           | 1.1                | 0.0                                                        | 7.3                                                                                   | 38                | 6,705                       | 0.6       |
|                           | Herbert          | Upper Herbert       | 5.0                                                                          | 0.4                | 1.4                                                        | 0.0                                                                                   | 6.9               | 5,725                       | 0.1       |
|                           |                  | Lower Herbert       | 45                                                                           | 5.7                | 0.6                                                        | 5.7                                                                                   | 57                | 6,219                       | 0.9       |
|                           |                  | Herbert basin total | 50                                                                           | 6.1                | 2.0                                                        | 5.7                                                                                   | 64                | 11,944                      | 0.5       |
| Wet Tropics region totals |                  |                     | 93                                                                           | 15                 | 9.4                                                        | 13                                                                                    | 130               | 48,114                      | 0.3       |
| Burdekin                  | Black            |                     | 9.1                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 9.1               | 639                         | 1.4       |
|                           | Ross             |                     | 14                                                                           | 0.0                | 0.1                                                        | 0.0                                                                                   | 14                | 933                         | 1.5       |
|                           | Haughton         |                     | 89                                                                           | 2.0                | 0.1                                                        | 0.0                                                                                   | 901               | 5,122                       | 1.8       |
|                           | Burdekin         | East Burdekin       | 0.0                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.0               | 192                         | 0.0       |
|                           |                  | Burdekin Delta      | 67                                                                           | 0.0                | 0.0                                                        | 2.9                                                                                   | 70                | 1,763                       | 4.0       |
|                           |                  | Belyando            | 231                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 231               | 10,095                      | 2.3       |

Appendix 2: Water quality drivers

| NRM Region                             | Basin           | Management Unit             | Riparian floodplain palustrine and lacustrine wetland vegetation (ha)        |                    |                                                            |                                                                                       |                   |                             |            |
|----------------------------------------|-----------------|-----------------------------|------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------|-----------------------------|------------|
|                                        |                 |                             | Clearing -<br>Pasture &<br>Clearing - Partial<br>clearing major -<br>Pasture | Clearing -<br>Crop | Clearing -<br>Settlement &<br>Clearing -<br>Infrastructure | Clearing -(other)<br>- Timber<br>plantation &<br>Partial clearing<br>major - Forestry | Total<br>Clearing | 2019<br>Woody<br>vegetation | % cleared  |
|                                        |                 | Suttor                      | 46                                                                           | 0.0                | 0.0                                                        | 0.0                                                                                   | 46                | 2,267                       | 2.0        |
|                                        |                 | Upper Burdekin              | 9.1                                                                          | 0.0                | 0.7                                                        | 0.0                                                                                   | 9.8               | 11,211                      | 0.1        |
|                                        |                 | Bowen Bogie                 | 0.5                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.5               | 164                         | 0.3        |
|                                        |                 | Cape Campaspe               | 37                                                                           | 0.0                | 1.2                                                        | 0.0                                                                                   | 38                | 13,210                      | 0.3        |
|                                        |                 | <b>Burdekin basin total</b> | <b>391</b>                                                                   | <b>0.0</b>         | <b>1.9</b>                                                 | <b>2.9</b>                                                                            | <b>396</b>        | <b>38,900</b>               | <b>1.0</b> |
|                                        | Don River       |                             | 16                                                                           | 0.0                | 0.0                                                        | 0.0                                                                                   | 16                | 519                         | 3.0        |
| <b>Burdekin region totals</b>          |                 |                             | <b>518</b>                                                                   | <b>2.0</b>         | <b>2.1</b>                                                 | <b>2.9</b>                                                                            | <b>525.3</b>      | <b>46,113</b>               | <b>1.1</b> |
| Mackay<br>Whitsunday                   | Proserpine      |                             | 0.9                                                                          | 1.8                | 0.0                                                        | 0.0                                                                                   | 2.7               | 2,465                       | 0.1        |
|                                        | O'Connell       |                             | 3.0                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 3.0               | 553                         | 0.5        |
|                                        | Pioneer         |                             | 0.0                                                                          | 0.0                | 0.8                                                        | 0.0                                                                                   | 0.8               | 449                         | 0.2        |
|                                        | Plane Creek     |                             | 2.9                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 2.9               | 2,538                       | 0.1        |
| <b>Mackay Whitsunday region totals</b> |                 |                             | <b>6.7</b>                                                                   | <b>1.8</b>         | <b>0.8</b>                                                 | <b>0.0</b>                                                                            | <b>9.4</b>        | <b>6,005</b>                | <b>0.2</b> |
| Fitzroy                                | Styx            |                             | 0.3                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.3               | 178                         | 0.2        |
|                                        | Shoalwater      |                             | 0.0                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.0               | 555                         | 0.0        |
|                                        | Waterpark Creek |                             | 8.9                                                                          | 0.0                | 0.0                                                        | 3.1                                                                                   | 12                | 7,844                       | 0.2        |
|                                        | Fitzroy         | Lower Fitzroy               | 195                                                                          | 0.7                | 2.1                                                        | 296                                                                                   | 494               | 11,189                      | 4.4        |
|                                        |                 | Dawson                      | 747                                                                          | 5.9                | 1.3                                                        | 0.0                                                                                   | 754               | 14,068                      | 5.4        |
|                                        |                 | Isaac                       | 111                                                                          | 44.7               | 0.0                                                        | 0.0                                                                                   | 156               | 3,665                       | 4.3        |

| NRM Region                 | Basin    | Management Unit            | Riparian floodplain palustrine and lacustrine wetland vegetation (ha)        |                    |                                                            |                                                                                       |                   |                             |           |
|----------------------------|----------|----------------------------|------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------|-----------------------------|-----------|
|                            |          |                            | Clearing -<br>Pasture &<br>Clearing - Partial<br>clearing major -<br>Pasture | Clearing -<br>Crop | Clearing -<br>Settlement &<br>Clearing -<br>Infrastructure | Clearing -(other)<br>- Timber<br>plantation &<br>Partial clearing<br>major - Forestry | Total<br>Clearing | 2019<br>Woody<br>vegetation | % cleared |
|                            |          | Mackenzie                  | 273                                                                          | 6.3                | 0.0                                                        | 0.0                                                                                   | 280               | 4,362                       | 6.4       |
|                            |          | Comet                      | 92                                                                           | 0.1                | 2.8                                                        | 3.7                                                                                   | 98                | 3,807                       | 2.6       |
|                            |          | Nogoa                      | 207                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 206.6             | 3,216                       | 6.4       |
|                            |          | Theresa Creek              | 8.6                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 8.6               | 698                         | 1.2       |
|                            |          | <i>Fitzroy basin total</i> | <i>1,634</i>                                                                 | <i>57.7</i>        | <i>6.2</i>                                                 | <i>299.8</i>                                                                          | <i>1,997.2</i>    | <i>41,005</i>               | 4.9       |
|                            | Calliope |                            | 0.0                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.0               | 193                         | 0.0       |
|                            | Boyne    |                            | 0.0                                                                          | 0.0                | 0.0                                                        | 0.0                                                                                   | 0.0               | 27                          | 0.0       |
| Fitzroy region totals      |          |                            | 1,643                                                                        | 58                 | 6.2                                                        | 303                                                                                   | 2,010             | 49,802                      | 4.0       |
| Burnett Mary               | Baffle   |                            | 194                                                                          | 43                 | 3.1                                                        | 6.9                                                                                   | 247               | 23,743                      | 1.0       |
|                            | Kolan    |                            | 23                                                                           | 2.1                | 0.8                                                        | 0.0                                                                                   | 26                | 593                         | 4.4       |
|                            | Burnett  |                            | 44                                                                           | 1.8                | 1.4                                                        | 16                                                                                    | 63                | 2,057                       | 3.1       |
|                            | Burrum   |                            | 103                                                                          | 12                 | 12                                                         | 372                                                                                   | 500               | 25,559                      | 2.0       |
|                            | Mary     |                            | 115                                                                          | 8.8                | 6.6                                                        | 405                                                                                   | 534               | 17,422                      | 3.1       |
| Burnett Mary region totals |          |                            | 479                                                                          | 68                 | 24                                                         | 800                                                                                   | 1,370             | 69,374                      | 2.0       |
|                            |          |                            |                                                                              |                    |                                                            |                                                                                       |                   |                             |           |

## Freshwater floodplain wetland loss and modification

Table 8. Loss and/or modification of natural freshwater floodplain wetlands up to 2017 and the natural and unmodified extent remaining in 2017, and recent loss or modification between 2017 and 2019 across the GBR catchment area.

| NRM Region                     | Basin            | Management Unit | Wetland Modification and Loss                      |                                              |                                                                                          | Recent Wetland Loss                                                         |                                                                                                | Recent Wetland Modification                                           |                                                                     |                                                                               |
|--------------------------------|------------------|-----------------|----------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|
|                                |                  |                 | Extent of natural unmodified wetlands in 2017 (ha) | Extent of pre-clearing natural wetlands (ha) | Extent of natural unmodified wetlands in 2017 as a percentage of pre-clearing extent (%) | Extent of natural wetlands lost to infilling and/or clearing 2017-2019 (ha) | Extent of slightly modified wetlands that have been infilled or cleared between 2017-2019 (ha) | Extent of natural wetlands lost to slight modification 2017-2019 (ha) | Extent of natural wetlands lost to high modification 2017-2019 (ha) | Extent of slightly modified wetlands lost to high modification 2017-2019 (ha) |
| Cape York                      | Jacky Jacky      |                 | 1,354                                              | 1,354                                        | 100                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Olive-Pascoe     |                 | 2,558                                              | 2,560                                        | 100                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Lockhart         |                 | 0                                                  | 0                                            | N/A                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Stewart          |                 | 857                                                | 858                                          | 100                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Normanby         |                 | 14,253                                             | 14,323                                       | 100                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Jeannie          |                 | 0                                                  | 0                                            | N/A                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Endeavour        |                 | 277                                                | 345                                          | 80                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
| <b>Cape York region totals</b> |                  |                 | <b>19,299</b>                                      | <b>20,889</b>                                | <b>480</b>                                                                               | <b>0</b>                                                                    | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
| Wet Tropics                    | Daintree         |                 | 1,353                                              | 1,772                                        | 76                                                                                       | 2                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Mossman          |                 | 4                                                  | 140                                          | 3                                                                                        | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Barron           |                 | 97                                                 | 728                                          | 13                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                | Mulgrave-Russell |                 | 7,466                                              | 13,492                                       | 55                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |

| NRM Region | Basin                            | Management Unit            | Wetland Modification and Loss                      |                                              |                                                                                          | Recent Wetland Loss                                                         |                                                                                                | Recent Wetland Modification                                           |                                                                     |                                                                               |
|------------|----------------------------------|----------------------------|----------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|
|            |                                  |                            | Extent of natural unmodified wetlands in 2017 (ha) | Extent of pre-clearing natural wetlands (ha) | Extent of natural unmodified wetlands in 2017 as a percentage of pre-clearing extent (%) | Extent of natural wetlands lost to infilling and/or clearing 2017-2019 (ha) | Extent of slightly modified wetlands that have been infilled or cleared between 2017-2019 (ha) | Extent of natural wetlands lost to slight modification 2017-2019 (ha) | Extent of natural wetlands lost to high modification 2017-2019 (ha) | Extent of slightly modified wetlands lost to high modification 2017-2019 (ha) |
|            | Johnstone                        |                            | 1,494                                              | 6,774                                        | 22                                                                                       | 1                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            | Tully                            |                            | 3,665                                              | 10,411                                       | 35                                                                                       | 6                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            | Murray                           |                            | 3,280                                              | 8,606                                        | 38                                                                                       | 3                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            | Herbert                          | Upper Herbert              | 1,553                                              | 2,061                                        | 75                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            |                                  | Lower Herbert              | 5,091                                              | 18,672                                       | 27                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            |                                  | <b>Herbert basin total</b> | <b>6,644</b>                                       | <b>20,732</b>                                | <b>32</b>                                                                                | <b>0</b>                                                                    | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
|            | <b>Wet Tropics region totals</b> |                            | <b>24,003</b>                                      | <b>62,656</b>                                | <b>39</b>                                                                                | <b>12</b>                                                                   | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
| Burdekin   | Black                            |                            | 44                                                 | 55                                           | 79                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            | Ross                             |                            | 335                                                | 1,014                                        | 33                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            | Haughton                         |                            | 4,102                                              | 7,599                                        | 54                                                                                       | 12                                                                          | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            | Burdekin                         | East Burdekin              | 27                                                 | 27                                           | 100                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            |                                  | Burdekin Delta             | 779                                                | 3,030                                        | 26                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            |                                  | Belyando                   | 3,928                                              | 4,155                                        | 95                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|            |                                  | Suttor                     | 628                                                | 832                                          | 76                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |

| NRM Region                             | Basin       | Management Unit             | Wetland Modification and Loss                      |                                              |                                                                                          | Recent Wetland Loss                                                         |                                                                                                | Recent Wetland Modification                                           |                                                                     |                                                                               |
|----------------------------------------|-------------|-----------------------------|----------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|
|                                        |             |                             | Extent of natural unmodified wetlands in 2017 (ha) | Extent of pre-clearing natural wetlands (ha) | Extent of natural unmodified wetlands in 2017 as a percentage of pre-clearing extent (%) | Extent of natural wetlands lost to infilling and/or clearing 2017-2019 (ha) | Extent of slightly modified wetlands that have been infilled or cleared between 2017-2019 (ha) | Extent of natural wetlands lost to slight modification 2017-2019 (ha) | Extent of natural wetlands lost to high modification 2017-2019 (ha) | Extent of slightly modified wetlands lost to high modification 2017-2019 (ha) |
|                                        |             | Upper Burdekin              | 5,036                                              | 5,229                                        | 96                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                        |             | Bowen Bogie                 | 26                                                 | 26                                           | 99                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                        |             | Cape Campaspe               | 4,895                                              | 5,479                                        | 89                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                        |             | <b>Burdekin basin total</b> | <b>15,319</b>                                      | <b>18,778</b>                                | <b>82</b>                                                                                | <b>0</b>                                                                    | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
|                                        | Don River   |                             | 267                                                | 1,837                                        | 15                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
| <b>Burdekin region totals</b>          |             |                             | <b>20,067</b>                                      | <b>29,282</b>                                | <b>69</b>                                                                                | <b>12</b>                                                                   | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
| Mackay Whitsunday                      | Proserpine  |                             | 4,089                                              | 6,254                                        | 65                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                        | O'Connell   |                             | 132                                                | 751                                          | 18                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                        | Pioneer     |                             | 227                                                | 2,883                                        | 8                                                                                        | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                        | Plane Creek |                             | 975                                                | 4,496                                        | 22                                                                                       | 1                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
| <b>Mackay Whitsunday region totals</b> |             |                             | <b>5,423</b>                                       | <b>14,385</b>                                | <b>38</b>                                                                                | <b>1</b>                                                                    | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
| Fitzroy                                | Styx        |                             | 494                                                | 494                                          | 100                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                                        | Shoalwater  |                             | 186                                                | 490                                          | 38                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |

| NRM Region                   | Basin           | Management Unit            | Wetland Modification and Loss                      |                                              |                                                                                          | Recent Wetland Loss                                                         |                                                                                                | Recent Wetland Modification                                           |                                                                     |                                                                               |
|------------------------------|-----------------|----------------------------|----------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|
|                              |                 |                            | Extent of natural unmodified wetlands in 2017 (ha) | Extent of pre-clearing natural wetlands (ha) | Extent of natural unmodified wetlands in 2017 as a percentage of pre-clearing extent (%) | Extent of natural wetlands lost to infilling and/or clearing 2017-2019 (ha) | Extent of slightly modified wetlands that have been infilled or cleared between 2017-2019 (ha) | Extent of natural wetlands lost to slight modification 2017-2019 (ha) | Extent of natural wetlands lost to high modification 2017-2019 (ha) | Extent of slightly modified wetlands lost to high modification 2017-2019 (ha) |
|                              | Waterpark Creek |                            | 3,042                                              | 3,332                                        | 91                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              | Fitzroy         | Lower Fitzroy              | 7,800                                              | 15,845                                       | 49                                                                                       | 1                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              |                 | Dawson                     | 7,939                                              | 8,709                                        | 91                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              |                 | Isaac                      | 1,400                                              | 1,652                                        | 85                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              |                 | Mackenzie                  | 1,375                                              | 1,734                                        | 79                                                                                       | 27                                                                          | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              |                 | Comet                      | 5,888                                              | 6,488                                        | 91                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              |                 | Nogoa                      | 1,294                                              | 1,543                                        | 84                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              |                 | Theresa Creek              | 187                                                | 229                                          | 82                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              |                 | <b>Fitzroy basin total</b> | <b>25,883</b>                                      | <b>36,199</b>                                | <b>72</b>                                                                                | <b>29</b>                                                                   | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
|                              | Calliope        |                            | 40                                                 | 40                                           | 100                                                                                      | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              | Boyne           |                            | 4                                                  | 145                                          | 3                                                                                        | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
| <b>Fitzroy region totals</b> |                 |                            | <b>29,648</b>                                      | <b>40,700</b>                                | <b>73</b>                                                                                | <b>29</b>                                                                   | <b>0</b>                                                                                       | <b>0</b>                                                              | <b>0</b>                                                            | <b>0</b>                                                                      |
| Burnett Mary                 | Baffle          |                            | 6,541                                              | 8,498                                        | 77                                                                                       | 9                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                              | Kolan           |                            | 178                                                | 335                                          | 53                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |

| NRM Region                 | Basin   | Management Unit | Wetland Modification and Loss                      |                                              |                                                                                          | Recent Wetland Loss                                                         |                                                                                                | Recent Wetland Modification                                           |                                                                     |                                                                               |
|----------------------------|---------|-----------------|----------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------|
|                            |         |                 | Extent of natural unmodified wetlands in 2017 (ha) | Extent of pre-clearing natural wetlands (ha) | Extent of natural unmodified wetlands in 2017 as a percentage of pre-clearing extent (%) | Extent of natural wetlands lost to infilling and/or clearing 2017-2019 (ha) | Extent of slightly modified wetlands that have been infilled or cleared between 2017-2019 (ha) | Extent of natural wetlands lost to slight modification 2017-2019 (ha) | Extent of natural wetlands lost to high modification 2017-2019 (ha) | Extent of slightly modified wetlands lost to high modification 2017-2019 (ha) |
|                            | Burnett |                 | 840                                                | 1,384                                        | 61                                                                                       | 0                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                            | Burrum  |                 | 5,935                                              | 7,873                                        | 75                                                                                       | 1                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
|                            | Mary    |                 | 4,612                                              | 10,489                                       | 44                                                                                       | 1                                                                           | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |
| Burnett Mary region totals |         |                 | 18,107                                             | 28,579                                       | 63                                                                                       | 11                                                                          | 0                                                                                              | 0                                                                     | 0                                                                   | 0                                                                             |

## Groundcover

Table 9. Percentage of grazing lands with over 70% late dry season groundcover.

| NRM Region                      | Basin            | Management Unit      | Percentage of grazing lands with over 70% late dry season groundcover |                  |
|---------------------------------|------------------|----------------------|-----------------------------------------------------------------------|------------------|
|                                 |                  |                      | 2022                                                                  | Mean (1987-2022) |
| Cape York                       | Jacky Jacky      |                      | 92.7                                                                  | 78.5             |
|                                 | Olive-Pascoe     |                      | 91.5                                                                  | 82.6             |
|                                 | Lockhart         |                      | 90.6                                                                  | 79.3             |
|                                 | Stewart          |                      | 86.5                                                                  | 82.2             |
|                                 | Normanby         |                      | 91.4                                                                  | 87.9             |
|                                 | Jeannie          |                      | 69.9                                                                  | 72.6             |
|                                 | Endeavour        |                      | 91.3                                                                  | 86.4             |
| Cape York region totals         |                  |                      | 89.9                                                                  | 86               |
| Wet Tropics                     | Daintree         |                      | 96.1                                                                  | 87.3             |
|                                 | Mossman          |                      | 79.1                                                                  | 83.1             |
|                                 | Barron           |                      | 92                                                                    | 89.3             |
|                                 | Mulgrave-Russell |                      | 62.2                                                                  | 73.1             |
|                                 | Johnstone        |                      | 48.7                                                                  | 69.6             |
|                                 | Tully            |                      | 69.3                                                                  | 83               |
|                                 | Murray           |                      | 81.8                                                                  | 87.2             |
|                                 | Herbert          |                      | 97.3                                                                  | 94.6             |
| Wet Tropics region totals       |                  |                      | 95.1                                                                  | 93.1             |
| Burdekin                        | Black            |                      | 96.7                                                                  | 90.4             |
|                                 | Ross             |                      | 95.5                                                                  | 87               |
|                                 | Haughton         |                      | 93.5                                                                  | 83.8             |
|                                 | Burdekin         | East Burdekin        | 94.9                                                                  | 79.3             |
|                                 |                  | Burdekin Delta       | 91.7                                                                  | 86.8             |
|                                 |                  | Belyando             | 80.6                                                                  | 51.8             |
|                                 |                  | Suttor               | 78                                                                    | 55.1             |
|                                 |                  | Upper Burdekin       | 95.1                                                                  | 76.1             |
|                                 |                  | Bowen Bogie          | 94.7                                                                  | 82.5             |
|                                 |                  | Cape Campaspe        | 87.9                                                                  | 63.8             |
|                                 |                  | Burdekin basin total | 87.3                                                                  | 64.9             |
| Don River                       |                  | 96.4                 | 89.5                                                                  |                  |
| Burdekin region totals          |                  |                      | 87.7                                                                  | 66               |
| Mackay Whitsunday               | Proserpine       |                      | 98                                                                    | 93.9             |
|                                 | O'Connell        |                      | 98.4                                                                  | 96.1             |
|                                 | Pioneer          |                      | 95.4                                                                  | 93.9             |
|                                 | Plane Creek      |                      | 94.3                                                                  | 92.9             |
| Mackay Whitsunday region totals |                  |                      | 97.2                                                                  | 94.4             |
| Fitzroy                         | Styx             |                      | 97.2                                                                  | 91.1             |
|                                 | Shoalwater       |                      | 96.3                                                                  | 90.3             |
|                                 | Waterpark Creek  |                      | 96.5                                                                  | 92.1             |
|                                 | Fitzroy          | Lower Fitzroy        | 97.3                                                                  | 88.9             |

| NRM Region                        | Basin    | Management Unit            | Percentage of grazing lands with over 70% late dry season groundcover |                  |
|-----------------------------------|----------|----------------------------|-----------------------------------------------------------------------|------------------|
|                                   |          |                            | 2022                                                                  | Mean (1987-2022) |
|                                   |          | Dawson                     | 97.9                                                                  | 86               |
|                                   |          | Isaac                      | 90.4                                                                  | 76.4             |
|                                   |          | Mackenzie                  | 93.2                                                                  | 71.5             |
|                                   |          | Comet                      | 92.3                                                                  | 69.2             |
|                                   |          | Nogoa                      | 88.1                                                                  | 63.7             |
|                                   |          | Theresa Creek              | 92.6                                                                  | 66.6             |
|                                   |          | <b>Fitzroy basin total</b> | 93.9                                                                  | 77.2             |
|                                   | Calliope |                            | 99.1                                                                  | 93.5             |
|                                   | Boyne    |                            | 99.6                                                                  | 94.1             |
| <b>Fitzroy region totals</b>      |          |                            | <b>94.2</b>                                                           | <b>78.1</b>      |
| Burnett Mary                      | Baffle   |                            | 98.5                                                                  | 94.2             |
|                                   | Kolan    |                            | 98.8                                                                  | 95.8             |
|                                   | Burnett  |                            | 99.1                                                                  | 92.3             |
|                                   | Burrum   |                            | 97.9                                                                  | 91.3             |
|                                   | Mary     |                            | 96.7                                                                  | 94               |
| <b>Burnett Mary region totals</b> |          |                            | <b>98.7</b>                                                           | <b>92.7</b>      |

Table 10. LCAT count of sites.

| Catchment         | Cumulative Count of Sites |         | Sub-catchment         | Cumulative Count of Sites |         |
|-------------------|---------------------------|---------|-----------------------|---------------------------|---------|
|                   | 03/2021                   | 03/2022 |                       | 03/2021                   | 03/2022 |
| Cape York         | 2                         | 81      | Jeannie River         | 0                         | 6       |
|                   |                           |         | Normanby River        | 2                         | 54      |
|                   |                           |         | Endeavour River       | 0                         | 21      |
| Wet Tropics       | 6                         | 26      | Tully River           | 0                         | 0       |
|                   |                           |         | Mossman River         | 0                         | 0       |
|                   |                           |         | Johnstone River       | 6                         | 24      |
|                   |                           |         | Daintree River        | 0                         | 0       |
|                   |                           |         | Mulgrave-Russel River | 0                         | 0       |
|                   |                           |         | Murray River          | 0                         | 0       |
|                   |                           |         | Herbert River         | 0                         | 2       |
|                   |                           |         | Barron River          | 0                         | 0       |
| Burdekin          | 412                       | 947     | Black                 | 0                         | 3       |
|                   |                           |         | Don                   | 11                        | 41      |
|                   |                           |         | Haughton              | 7                         | 37      |
|                   |                           |         | Ross                  | 12                        | 12      |
|                   |                           |         | Upper Burdekin        | 106                       | 314     |
|                   |                           |         | Bowen                 | 71                        | 107     |
|                   |                           |         | Suttor                | 152                       | 282     |
|                   |                           |         | Lower Burdekin River  | 53                        | 151     |
| Mackay Whitsunday |                           |         | O'Connell River       | 68                        | 96      |
|                   |                           |         | Pioneer River         | 30                        | 48      |

| Catchment    | Cumulative Count of Sites |              | Sub-catchment       | Cumulative Count of Sites |              |
|--------------|---------------------------|--------------|---------------------|---------------------------|--------------|
|              | 03/2021                   | 03/2022      |                     | 03/2021                   | 03/2022      |
|              | 157                       | 222          | Plane Creek         | 26                        | 36           |
|              |                           |              | Proserpine River    | 33                        | 42           |
| Fitzroy      | 497                       | 1000         | Styx River          | 14                        | 14           |
|              |                           |              | Shoalwater          | 0                         | 13           |
|              |                           |              | Waterpark Creek     | 4                         | 4            |
|              |                           |              | Comet River         | 1                         | 62           |
|              |                           |              | Mackenzie River     | 40                        | 55           |
|              |                           |              | Nogoa River         | 109                       | 165          |
|              |                           |              | Lower Fitzroy River | 108                       | 265          |
|              |                           |              | Calliope River      | 14                        | 18           |
|              |                           |              | Isaac River         | 87                        | 145          |
|              |                           |              | Boyne River         | 11                        | 11           |
|              |                           |              | Dawson River        | 109                       | 248          |
| Burnett Mary | 148                       | 446          | Burrum River        | 2                         | 25           |
|              |                           |              | Burnett River       | 85                        | 206          |
|              |                           |              | Upper Mary River    | 23                        | 65           |
|              |                           |              | Baffle Creek        | 12                        | 60           |
|              |                           |              | Kolan River         | 26                        | 90           |
| Total GBR    | <b>1,222</b>              | <b>2,722</b> |                     | <b>1,222</b>              | <b>2,722</b> |
| Total QLD    | 1,465                     | 3,666        |                     | 1,465                     | 3,666        |

## Gully and erosion hotspots

Table 11. Gully erosion across the GBR catchment area.

| NRM Region              | Basin            | Management Unit | Gully Average Annual Sediment Supply (AASS) (t/y) | Gully Length (km) | Gully erosion rate AASS/GL (t/y per km of Gully) |
|-------------------------|------------------|-----------------|---------------------------------------------------|-------------------|--------------------------------------------------|
| Cape York               | Jacky Jacky      |                 | 310                                               | 12.3              | 25.2                                             |
|                         | Olive-Pascoe     |                 | 1,508                                             | 70.7              | 21.3                                             |
|                         | Lockhart         |                 | 1,757                                             | 60.1              | 29.2                                             |
|                         | Stewart          |                 | 5,326                                             | 206.1             | 25.8                                             |
|                         | Normanby         |                 | 628,191                                           | 9,692.1           | 64.8                                             |
|                         | Jeannie          |                 | 17,206                                            | 653.5             | 26.3                                             |
|                         | Endeavour        |                 | 4,891                                             | 201.6             | 24.3                                             |
| <b>Cape York region</b> |                  |                 | <b>659,189</b>                                    | <b>10,896.4</b>   | <b>31.0</b>                                      |
| Wet Tropics             | Daintree         |                 | 128                                               | 5.1               | 25.1                                             |
|                         | Mossman          |                 | 19                                                | 0.9               | 20.6                                             |
|                         | Barron           |                 | 7,494                                             | 271.5             | 27.6                                             |
|                         | Mulgrave-Russell |                 | 469                                               | 18.2              | 25.9                                             |

| NRM Region               | Basin      | Management Unit       | Gully Average Annual Sediment Supply (AASS) (t/y) | Gully Length (km) | Gully erosion rate AASS/GL (t/y per km of Gully) |
|--------------------------|------------|-----------------------|---------------------------------------------------|-------------------|--------------------------------------------------|
|                          | Johnstone  |                       | 1,520                                             | 76.2              | 19.9                                             |
|                          | Tully      |                       | 776                                               | 30.5              | 25.5                                             |
|                          | Murray     |                       | 362                                               | 14.0              | 25.9                                             |
|                          | Herbert    | Upper Herbert         | 75,178                                            | 2,739.2           | 27.5                                             |
|                          |            | Lower Herbert         | 8,211                                             | 275.6             | 29.8                                             |
|                          |            | <i>Herbert basin</i>  | 83,389                                            | <i>3,014.8</i>    | <i>28.6</i>                                      |
| Wet Tropics region       |            |                       | 94,156                                            | 3,431.1           | 25.3                                             |
| Burdekin                 | Black      |                       | 17,040                                            | 163.6             | 104.1                                            |
|                          | Ross       |                       | 29,597                                            | 291.2             | 101.6                                            |
|                          | Haughton   |                       | 49,598                                            | 487.5             | 101.7                                            |
|                          | Burdekin   | Upper Burdekin        | 2,260,086                                         | 18,057.1          | 125.2                                            |
|                          |            | East Burdekin         | 606,609                                           | 1,619.9           | 374.5                                            |
|                          |            | Burdekin Delta        | 3,256                                             | 34.4              | 94.8                                             |
|                          |            | Belyando              | 764,434                                           | 7,910.7           | 96.6                                             |
|                          |            | Suttor                | 541,455                                           | 5,751.0           | 94.1                                             |
|                          |            | Bowen Bogie           | 1,246,789                                         | 6,301.3           | 197.9                                            |
|                          |            | Cape Campaspe         | 451,578                                           | 4,444.4           | 101.6                                            |
|                          |            | <i>Burdekin basin</i> | 5,874,207                                         | <i>44,119</i>     | <i>133</i>                                       |
|                          | Don River  |                       | 186,677                                           | 1,973.6           | 94.6                                             |
| Burdekin region          |            |                       | 6,157,119                                         | 47,035            | 130.9                                            |
| Mackay Whitsunday        | Proserpine |                       | 38,848                                            | 381.0             | 102.0                                            |
|                          | O'Connell  |                       | 15,841                                            | 161.1             | 98.3                                             |
|                          | Pioneer    |                       | 6,615                                             | 66.9              | 98.9                                             |
|                          | Plane      |                       | 7,689                                             | 75.0              | 102.5                                            |
| Mackay Whitsunday region |            |                       | 68,992                                            | 684.0             | 100.4                                            |
| Fitzroy                  | Styx       |                       | 58,537                                            | 685.5             | 85.4                                             |
|                          | Shoalwater |                       | 32,761                                            | 410.0             | 79.9                                             |
|                          | Waterpark  |                       | 2,505                                             | 29.1              | 86.0                                             |
|                          |            | Lower Fitzroy         | 230,836                                           | 2,694.1           | 85.7                                             |
|                          |            | Dawson                | 1,345,369                                         | 18,960.1          | 71.0                                             |
|                          |            | Isaac                 | 1,236,671                                         | 8,306.7           | 148.9                                            |
|                          |            | Mackenzie             | 294,050                                           | 3,546.7           | 82.9                                             |
|                          |            | Comet                 | 370,043                                           | 5,362.2           | 69.0                                             |

| NRM Region                 | Basin    | Management Unit             | Gully Average Annual Sediment Supply (AASS) (t/y) | Gully Length (km)      | Gully erosion rate AASS/GL (t/y per km of Gully) |
|----------------------------|----------|-----------------------------|---------------------------------------------------|------------------------|--------------------------------------------------|
|                            |          | Nogoa                       | 516,062                                           | 6,661.2                | 77.5                                             |
|                            |          | Theresa                     | 173,822                                           | 2,476.3                | 70.2                                             |
|                            |          | <b><i>Fitzroy basin</i></b> | 4,166,853                                         | <b><i>48,007.4</i></b> | <b><i>86.4</i></b>                               |
|                            | Calliope |                             | 46,915                                            | 500.4                  | 93.7                                             |
|                            | Boyne    |                             | 24,630                                            | 316.0                  | 78.0                                             |
| <b>Fitzroy region</b>      |          |                             | <b>4,332,202</b>                                  | <b>49,948.4</b>        | <b>85.7</b>                                      |
| Burnett Mary               | Baffle   |                             | 7,844                                             | 206.6                  | 38.0                                             |
|                            | Kolan    |                             | 12,375                                            | 400.4                  | 30.9                                             |
|                            | Burnett  |                             | 153,403                                           | 4,819.7                | 31.8                                             |
|                            | Burrum   |                             | 1,563                                             | 51.3                   | 30.4                                             |
|                            | Mary     |                             | 12,593                                            | 406.8                  | 31.0                                             |
| <b>Burnett Mary region</b> |          |                             | <b>187,777</b>                                    | <b>5,884.8</b>         | <b>32.4</b>                                      |

## Appendix 3: Modelled annual average end-of-catchment pollutant loads

Note: The pollutant loads have been further refined since the presentation and interpretation of the data used in the assessment (Catchment model Version 2.0, DETSI 2024c). The associated Catchment Profiles contain updated pollutant load information (Catchment model V3.0, DETSI 2026), resulting in some minor inconsistencies between the outputs.

Table 12. Modelled annual average end-of-catchment dissolved inorganic nitrogen loads (tonnes). Source: Catchment model Version 2.0, DETSI (2024c).

| NRM         | Mgmt. Unit       | Pre-development and anthropogenic |               |            | Land use   |              |          |                  |            |            |              |                    |            |                                      |           |            |          | Process           |            |              |            |
|-------------|------------------|-----------------------------------|---------------|------------|------------|--------------|----------|------------------|------------|------------|--------------|--------------------|------------|--------------------------------------|-----------|------------|----------|-------------------|------------|--------------|------------|
|             |                  | Pre-development                   | Anthropogenic | Total load | Bananas    | Conservation | Dairy    | Dryland Cropping | Forestry   | Grazing    | Horticulture | Irrigated Cropping | Other      | Point source (inc. Sewage Treatment) | Sugarcane | Urban      | Water    | Diffuse dissolved | Hillslope  | Point source | Seepage    |
| Cape York   | Jacky Jacky      | 36                                | 0.8           | 37         | -          | 31           | -        | -                | -          | 5.7        | -            | -                  | 0.0        | -                                    | -         | 0.0        | -        | 37                | -          | -            | -          |
|             | Olive Pascoe     | 72                                | 2.6           | 74         | -          | 56           | -        | -                | -          | 18         | -            | -                  | 0.0        | -                                    | -         | -          | -        | 74                | -          | -            | -          |
|             | Lockhart         | 31                                | 0.2           | 31         | -          | 30           | -        | -                | -          | 1.2        | -            | -                  | 0.0        | -                                    | -         | 0.0        | -        | 31                | -          | -            | -          |
|             | Stewart          | 25                                | 0.2           | 25         | -          | 24           | -        | -                | -          | 1.0        | -            | -                  | 0.0        | -                                    | -         | 0.0        | -        | 25                | -          | -            | -          |
|             | Normanby         | 149                               | 0.3           | 149        | 0.1        | 69           | -        | 0.4              | 0.0        | 79         | 0.0          | 0.1                | 0.1        | -                                    | -         | 0.0        | -        | 149               | 0.1        | -            | 0.0        |
|             | Jeannie          | 26                                | 0.9           | 27         | -          | 22           | -        | 0.0              | 0.3        | 4.9        | 0.0          | -                  | 0.1        | -                                    | -         | 0.0        | -        | 27                | -          | -            | -          |
|             | Endeavour        | 30                                | 2.0           | 32         | 0.0        | 20           | -        | 0.1              | 0.5        | 10         | 0.0          | 0.0                | 0.1        | -                                    | -         | 0.7        | -        | 32                | 0.0        | -            | 0.0        |
|             | <b>Total</b>     | <b>368</b>                        | <b>7.0</b>    | <b>375</b> | <b>0.1</b> | <b>252</b>   | <b>-</b> | <b>0.4</b>       | <b>0.8</b> | <b>120</b> | <b>0.1</b>   | <b>0.1</b>         | <b>0.3</b> | <b>-</b>                             | <b>-</b>  | <b>0.7</b> | <b>-</b> | <b>375</b>        | <b>0.1</b> | <b>-</b>     | <b>0.0</b> |
| Wet Tropics | Daintree         | 323                               | 25            | 347        | 0.0        | 284          | 0.0      | 0.2              | 0.0        | 25         | 0.8          | 1.3                | 3.7        | 0.0                                  | 28        | 5.1        | 0.0      | 320               | 12         | 0.0          | 15         |
|             | Mossman          | 30                                | 75            | 105        | 0.1        | 21           | 0.0      | 0.0              | 0.1        | 3.8        | 0.3          | 0.1                | 7.9        | 2.0                                  | 64        | 5.6        | 0.0      | 39                | 7.4        | 2.0          | 56         |
|             | Barron           | 32                                | 82            | 114        | 12         | 14           | 0.1      | 0.1              | 3.9        | 7.9        | 1.3          | 1.7                | 12         | 25                                   | 11        | 25         | 0.0      | 67                | 5.4        | 25           | 17         |
|             | Mulgrave-Russell | 204                               | 486           | 689        | 118        | 139          | 0.2      | 5.1              | 1.7        | 33         | 3.9          | 2.1                | 19         | 19                                   | 333       | 15         | 0.0      | 219               | 119        | 19           | 332        |
|             | Johnstone        | 281                               | 848           | 1,129      | 376        | 127          | 11       | 7.3              | 1.0        | 110        | 8.0          | 4.1                | 19         | 3.7                                  | 448       | 14         | 0.0      | 302               | 81         | 3.7          | 744        |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM             | Mgmt. Unit                             | Pre-development and anthropogenic |               |              | Land use   |              |           |                  |           |            |              |                    |           |                                      |              |           |            | Process           |            |              |              |
|-----------------|----------------------------------------|-----------------------------------|---------------|--------------|------------|--------------|-----------|------------------|-----------|------------|--------------|--------------------|-----------|--------------------------------------|--------------|-----------|------------|-------------------|------------|--------------|--------------|
|                 |                                        | Pre-development                   | Anthropogenic | Total load   | Bananas    | Conservation | Dairy     | Dryland Cropping | Forestry  | Grazing    | Horticulture | Irrigated Cropping | Other     | Point source (inc. Sewage Treatment) | Sugarcane    | Urban     | Water      | Diffuse dissolved | Hillslope  | Point source | Seepage      |
|                 | Tully                                  | 192                               | 573           | 765          | 248        | 123          | 0.0       | 1.7              | 5.4       | 35         | 2.8          | 0.9                | 9.2       | 1.1                                  | 334          | 4.3       | 0.0        | 182               | 95         | 1.1          | 487          |
|                 | Murray                                 | 84                                | 339           | 423          | 51         | 46           | 0.0       | 0.7              | 23        | 14         | 1.8          | 0.2                | 5.5       | 0.0                                  | 277          | 2.8       | 0.0        | 95                | 79         | 0.0          | 249          |
|                 | Management Units in the Herbert basin  |                                   |               |              |            |              |           |                  |           |            |              |                    |           |                                      |              |           |            |                   |            |              |              |
|                 | Herbert basin total                    | 335                               | 1,423         | 1,758        | 0.0        | 98           | 0.4       | 1.7              | 53        | 179        | 0.8          | 7.5                | 8.1       | 1.2                                  | 1,393        | 15        | 0.0        | 364               | 215        | 1.2          | 1,177        |
|                 | Lower Herbert                          | 175                               | 1,390         | 1,565        | 0.0        | 60           | 0.0       | 0.0              | 39        | 63         | 0.4          | 0.4                | 6.3       | 0.0                                  | 1,387        | 9.0       | 0.0        | 178               | 215        | -            | 1,172        |
|                 | Upper Herbert                          | 160                               | 33            | 193          | 0.0        | 39           | 0.4       | 1.7              | 14        | 116        | 0.4          | 7.1                | 1.8       | 1.2                                  | 6.3          | 5.9       | 0.0        | 185               | 0.5        | 1.2          | 5.8          |
|                 | <b>Total</b>                           | <b>1,480</b>                      | <b>3,851</b>  | <b>5,331</b> | <b>806</b> | <b>853</b>   | <b>12</b> | <b>17</b>        | <b>88</b> | <b>408</b> | <b>20</b>    | <b>18</b>          | <b>85</b> | <b>52</b>                            | <b>2,886</b> | <b>87</b> | <b>0.0</b> | <b>1,587</b>      | <b>614</b> | <b>52</b>    | <b>3,078</b> |
| <b>Burdekin</b> | Black                                  | 34                                | 20            | 54           | -          | 16           | -         | 0.0              | 2.5       | 13         | 5.0          | 0.3                | 0.6       | -                                    | 13           | 3.6       | -          | 41                | 1.5        | -            | 12           |
|                 | Ross                                   | 31                                | 57            | 88           | -          | 9.1          | -         | 0.1              | 0.7       | 14         | 3.3          | 0.4                | 2.0       | 49                                   | -            | 9.2       | -          | 39                | -          | 49           | -            |
|                 | Haughton                               | 86                                | 324           | 413          | -          | 26           | -         | 0.0              | 0.8       | 58         | 7.6          | 2.0                | 0.9       | 9.7                                  | 307          | 1.7       | -          | 96                | 92         | 9.7          | 215          |
|                 | Management Units in the Burdekin basin |                                   |               |              |            |              |           |                  |           |            |              |                    |           |                                      |              |           |            |                   |            |              |              |
|                 | Burdekin basin total                   | 819                               | 390           | 1,208        | -          | 176          | -         | 9.0              | 12        | 611        | 4.1          | 2.2                | 2.4       | 3.4                                  | 384          | 3.5       | -          | 821               | 71         | 3.4          | 313          |
|                 | East Burdekin                          | 40                                | 20            | 59           | -          | 4.0          | -         | -                | -         | 35         | 2.1          | 0.5                | 0.0       | -                                    | 18           | 0.0       | -          | 42                | 5.9        | -            | 12           |
|                 | Burdekin Delta                         | 9.1                               | 372           | 381          | -          | 0.6          | -         | -                | 0.0       | 7.5        | 1.7          | 0.5                | 0.4       | 3.4                                  | 367          | 0.8       | -          | 12                | 66         | 3.4          | 301          |

| NRM               | Mgmt. Unit                            |                | Pre-development and anthropogenic |               |            | Land use |              |       |                  |          |         |              |                    |       |                                      |           |       |       | Process           |           |              |         |
|-------------------|---------------------------------------|----------------|-----------------------------------|---------------|------------|----------|--------------|-------|------------------|----------|---------|--------------|--------------------|-------|--------------------------------------|-----------|-------|-------|-------------------|-----------|--------------|---------|
|                   |                                       |                | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy | Dryland Cropping | Forestry | Grazing | Horticulture | Irrigated Cropping | Other | Point source (inc. Sewage Treatment) | Sugarcane | Urban | Water | Diffuse dissolved | Hillslope | Point source | Seepage |
|                   |                                       | Upper Burdekin | 457                               | 5.8           | 451        | -        | 130          | -     | 0.0              | 4.6      | 313     | 0.3          | 0.6                | 0.8   | -                                    | -         | 1.8   | -     | 451               | -         | -            | -       |
|                   |                                       | Belyando       | 29                                | 0.4           | 30         | -        | 0.8          | -     | 1.0              | 0.6      | 27      | -            | 0.1                | 0.0   | -                                    | -         | 0.0   | -     | 30                | -         | -            | -       |
|                   |                                       | Cape Campaspe  | 38                                | 0.6           | 37         | -        | 0.8          | -     | -                | -        | 36      | -            | 0.1                | 0.0   | -                                    | -         | 0.0   | -     | 37                | -         | -            | -       |
|                   |                                       | Suttor         | 42                                | 6.5           | 48         | -        | 0.1          | -     | 7.8              | 0.0      | 40      | -            | 0.3                | 0.2   | -                                    | -         | 0.1   | -     | 48                | -         | -            | -       |
|                   |                                       | Bowen Bogie    | 204                               | 2.9           | 201        | -        | 40           | -     | 0.1              | 7.1      | 153     | 0.0          | 0.0                | 1.0   | -                                    | -         | 0.7   | -     | 201               | -         | -            | -       |
|                   | Don                                   |                | 79                                | 30            | 108        | -        | 5.3          | -     | 0.1              | 0.0      | 70      | 25           | 2.3                | 0.6   | 1.0                                  | 2.5       | 1.4   | -     | 105               | 1.6       | 1.0          | 0.9     |
|                   | Total                                 |                | 1,049                             | 822           | 1,871      | -        | 232          | -     | 9.2              | 17       | 766     | 45           | 7.2                | 6.5   | 63                                   | 707       | 20    | -     | 1,101             | 166       | 63           | 540     |
| Mackay Whitsunday | Proserpine                            |                | 88                                | 100           | 188        | -        | 20           | -     | 0.1              | 2.8      | 55      | 0.7          | 0.1                | 2.4   | 1.4                                  | 87        | 18    | -     | 99                | 43        | 1.4          | 44      |
|                   | O'Connell                             |                | 97                                | 80            | 177        | -        | 17           | -     | -                | 3.8      | 63      | 0.2          | 0.4                | 2.3   | -                                    | 75        | 14    | -     | 101               | 44        | -            | 32      |
|                   | Pioneer                               |                | 49                                | 177           | 227        | -        | 11           | -     | 0.2              | 5.1      | 20      | 0.1          | -                  | 4.9   | -                                    | 168       | 18    | -     | 58                | 52        | -            | 116     |
|                   | Plane                                 |                | 97                                | 133           | 229        | -        | 11           | -     | 0.1              | 4.4      | 57      | 0.4          | 1.9                | 4.0   | 9.2                                  | 117       | 24    | -     | 103               | 90        | 9.2          | 26      |
|                   | Total                                 |                | 331                               | 489           | 820        | -        | 60           | -     | 0.3              | 16       | 195     | 1.5          | 2.3                | 14    | 11                                   | 447       | 74    | -     | 362               | 230       | 11           | 217     |
| Fitzroy           | Boyne                                 |                | 23                                | 0.2           | 24         | -        | 1.6          | -     | 0.1              | 1.5      | 19      | 0.0          | 0.1                | 0.4   | 0.3                                  | -         | 0.4   | -     | 23                | -         | 0.3          | -       |
|                   | Calliope                              |                | 31                                | 2.6           | 34         | -        | 1.5          | -     | 0.0              | 1.7      | 26      | 0.0          | 0.0                | 1.2   | 2.6                                  | -         | 1.3   | -     | 31                | -         | 2.6          | -       |
|                   | Management units in the Fitzroy basin |                |                                   |               |            |          |              |       |                  |          |         |              |                    |       |                                      |           |       |       |                   |           |              |         |
|                   | Fitzroy basin total                   |                | 864                               | 49            | 913        | -        | 43           | -     | 31               | 62       | 705     | 0.5          | 5.1                | 9.8   | 46                                   | 5.4       | 4.9   | -     | 862               | 4.7       | 46           | 0.7     |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM          | Mgmt. Unit |               | Pre-development and anthropogenic |               |            | Land use |              |       |                  |          |         |              |                    |       |                                      |           |       | Process |                   |           |              |         |
|--------------|------------|---------------|-----------------------------------|---------------|------------|----------|--------------|-------|------------------|----------|---------|--------------|--------------------|-------|--------------------------------------|-----------|-------|---------|-------------------|-----------|--------------|---------|
|              |            |               | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy | Dryland Cropping | Forestry | Grazing | Horticulture | Irrigated Cropping | Other | Point source (inc. Sewage Treatment) | Sugarcane | Urban | Water   | Diffuse dissolved | Hillslope | Point source | Seepage |
|              |            | Theresa       | 31                                | 0.0           | 31         | -        | 0.7          | -     | 4.1              | 1.7      | 24      | 0.0          | 0.3                | 0.2   | -                                    | -         | 0.1   | -       | 31                | -         | -            | -       |
|              |            | Nogoa         | 48                                | 0.0           | 48         | -        | 7.0          | -     | 1.7              | 1.7      | 37      | 0.0          | 0.3                | 0.2   | -                                    | -         | 0.0   | -       | 48                | -         | -            | -       |
|              |            | Dawson        | 178                               | 0.0           | 178        | -        | 7.0          | -     | 8.6              | 21       | 138     | 0.0          | 1.3                | 1.1   | -                                    | -         | 0.6   | -       | 178               | -         | -            | -       |
|              |            | Mackenzie     | 58                                | 0.0           | 58         | -        | 2.3          | -     | 1.0              | 2.7      | 48      | -            | 1.3                | 2.4   | -                                    | -         | 0.1   | -       | 58                | -         | -            | -       |
|              |            | Lower Fitzroy | 86                                | 46            | 131        | -        | 5.7          | -     | 1.0              | 6.6      | 68      | 0.4          | 0.4                | 0.9   | 46                                   | -         | 2.7   | -       | 86                | -         | 46           | -       |
|              |            | Isaac         | 383                               | 3.2           | 386        | -        | 13           | -     | 3.8              | 23       | 335     | -            | 0.7                | 4.2   | -                                    | 5.4       | 1.1   | -       | 381               | 4.7       | -            | 0.7     |
|              |            | Comet         | 81                                | 0.0           | 81         | -        | 7.9          | -     | 11               | 4.4      | 56      | -            | 0.9                | 0.7   | -                                    | -         | 0.1   | -       | 81                | -         | -            | -       |
|              |            | Water Park    | 51                                | -             | 51         | -        | 24           | -     | 0.0              | 16       | 7.3     | 0.2          | -                  | 0.4   | -                                    | -         | 2.5   | -       | 51                | -         | -            | -       |
|              |            | Shoalwater    | 16                                | -             | 16         | -        | 8.4          | -     | -                | 0.1      | 7.7     | -            | -                  | 0.1   | -                                    | -         | 0.0   | -       | 16                | -         | -            | -       |
|              |            | Styx          | 25                                | 14            | 39         | -        | 1.1          | -     | 0.0              | 1.2      | 22      | 0.0          | -                  | 0.2   | -                                    | 14        | 0.0   | -       | 25                | 1.3       | -            | 13      |
|              |            | Total         | 1,010                             | 66            | 1,076      | -        | 79           | -     | 31               | 83       | 787     | 0.8          | 5.2                | 12    | 49                                   | 20        | 9.2   | -       | 1,008             | 6.0       | 49           | 14      |
| Burnett Mary |            | Baffle        | 68                                | 16            | 84         | -        | 5.2          | -     | 0.0              | 1.0      | 60      | 1.0          | 0.2                | 0.7   | -                                    | 6.4       | 9.6   | -       | 77                | 3.6       | -            | 2.8     |
|              |            | Kolan         | 28                                | 54            | 82         | -        | 0.9          | -     | 0.1              | 0.9      | 22      | 3.0          | 0.2                | 0.2   | -                                    | 52        | 2.6   | -       | 30                | 21        | -            | 31      |
|              |            | Burnett       | 93                                | 149           | 242        | -        | 2.3          | 0.1   | 5.2              | 4.1      | 76      | 3.0          | 2.2                | 0.9   | 4.9                                  | 139       | 4.6   | -       | 99                | 22        | 4.9          | 117     |
|              |            | Burrum        | 26                                | 31            | 57         | -        | 2.5          | -     | 0.0              | 3.8      | 17      | 2.6          | 0.2                | 0.7   | 5.8                                  | 18        | 5.5   | -       | 33                | 12        | 5.8          | 6.9     |
|              |            | Mary          | 251                               | 372           | 623        | -        | 8.9          | 2.2   | 0.9              | 19       | 209     | 5.1          | 1.7                | 2.9   | 7.3                                  | 325       | 41    | -       | 291               | 26        | 7.3          | 299     |
|              |            | Total         | 465                               | 622           | 1,087      | -        | 20           | 2.3   | 6.2              | 29       | 384     | 15           | 4.5                | 5.5   | 18                                   | 540       | 63    | -       | 529               | 84        | 18           | 456     |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

Table 13. Modelled annual average end-of-catchment fine sediment loads (kilotonnes). Source: Catchment model Version 2.0, DETSI (2024c).

| NRM         | Mgmt. Unit                                   | Pre-development and anthropogenic |               |            | Land use   |              |          |                  |            |           |              |                    |            |            |           |            |          | Process   |            |            |
|-------------|----------------------------------------------|-----------------------------------|---------------|------------|------------|--------------|----------|------------------|------------|-----------|--------------|--------------------|------------|------------|-----------|------------|----------|-----------|------------|------------|
|             |                                              | Pre-development                   | Anthropogenic | Total load | Bananas    | Conservation | Dairy    | Dryland Cropping | Forestry   | Grazing   | Horticulture | Irrigated Cropping | Other      | Streambank | Sugarcane | Urban      | Water    | Gully     | Hillslope  | Streambank |
| Cape York   | Jacky Jacky                                  | 6.7                               | 0.6           | 7.3        | -          | 6.4          | -        | -                | -          | 0.9       | -            | -                  | 0.0        | 0.1        | -         | 0.0        | -        | 0.0       | 7.2        | 0.1        |
|             | Olive Pascoe                                 | 44                                | 3.8           | 48         | -          | 43           | -        | -                | -          | 4.3       | -            | -                  | 0.0        | 0.8        | -         | -          | -        | 0.4       | 47         | 0.8        |
|             | Lockhart                                     | 18                                | 1.7           | 20         | -          | 17           | -        | -                | -          | 0.4       | -            | -                  | 0.0        | 2.1        | -         | 0.0        | -        | 0.6       | 17         | 2.1        |
|             | Stewart                                      | 14                                | 2.5           | 17         | -          | 14           | -        | -                | -          | 0.3       | -            | -                  | 0.0        | 2.5        | -         | 0.0        | -        | 1.3       | 13         | 2.5        |
|             | Normanby                                     | 47                                | 34            | 81         | 0.1        | 34           | -        | 0.1              | 0.0        | 40        | 0.0          | 0.0                | 0.0        | 6.8        | -         | 0.0        | -        | 54        | 20         | 6.8        |
|             | Jeannie                                      | 37                                | 9.3           | 47         | -          | 41           | -        | 0.0              | 0.1        | 3.9       | 0.0          | -                  | 0.1        | 1.9        | -         | 0.0        | -        | 5.3       | 40         | 1.9        |
|             | Endeavour                                    | 56                                | 15            | 71         | 0.1        | 52           | -        | 0.1              | 0.8        | 9.8       | 0.0          | 0.0                | 0.1        | 7.2        | -         | 0.6        | -        | 1.8       | 62         | 7.2        |
|             | <b>Total</b>                                 | <b>223</b>                        | <b>67</b>     | <b>290</b> | <b>0.1</b> | <b>207</b>   | <b>-</b> | <b>0.3</b>       | <b>0.9</b> | <b>59</b> | <b>0.0</b>   | <b>0.0</b>         | <b>0.2</b> | <b>22</b>  | <b>-</b>  | <b>0.7</b> | <b>-</b> | <b>63</b> | <b>205</b> | <b>22</b>  |
| Wet Tropics | Daintree                                     | 75                                | 21            | 96         | 0.0        | 69           | -        | 0.1              | -          | 6.5       | 0.2          | 1.4                | 0.5        | 12         | 2.0       | 3.9        | -        | 0.0       | 84         | 12         |
|             | Mossman                                      | 7.3                               | 5.6           | 13         | 0.0        | 6.6          | -        | 0.0              | 0.0        | 0.8       | 0.1          | 0.1                | 1.0        | 0.4        | 1.7       | 2.2        | -        | 0.0       | 13         | 0.4        |
|             | Barron                                       | 74                                | 91            | 165        | 1.2        | 19           | 0.0      | 0.2              | 4.5        | 28        | 1.8          | 3.9                | 1.9        | 97         | 2.5       | 5.2        | -        | 2.5       | 66         | 97         |
|             | Mulgrave-Russell                             | 47                                | 50            | 97         | 2.0        | 39           | 0.0      | 2.3              | 0.2        | 7.6       | 1.1          | 1.0                | 2.3        | 26         | 9.6       | 6.4        | -        | 0.1       | 71         | 26         |
|             | Johnstone                                    | 93                                | 221           | 314        | 8.1        | 58           | 7.3      | 3.3              | 0.3        | 76        | 2.3          | 2.7                | 2.2        | 119        | 26        | 8.4        | -        | 0.6       | 194        | 119        |
|             | Tully                                        | 48                                | 60            | 109        | 5.2        | 35           | -        | 1.0              | 0.5        | 6.0       | 0.8          | 0.6                | 1.1        | 42         | 12        | 3.8        | -        | 0.1       | 66         | 42         |
|             | Murray                                       | 20                                | 22            | 42         | 0.3        | 15           | -        | 0.5              | 1.2        | 1.3       | 0.5          | 0.1                | 0.7        | 13         | 7.3       | 1.4        | -        | 0.1       | 29         | 13         |
|             | <i>Management Units in the Herbert basin</i> |                                   |               |            |            |              |          |                  |            |           |              |                    |            |            |           |            |          |           |            |            |
|             | Herbert basin total                          | 153                               | 207           | 360        | -          | 74           | 0.2      | 1.0              | 13.6       | 124       | 0.2          | 1.8                | 1.0        | 109        | 32        | 3.3        | -        | 28.6      | 222        | 109        |
|             | Lower Herbert                                | 63                                | 81            | 144        | -          | 44           | -        | -                | 2.6        | 26        | 0.1          | 0.2                | 0.8        | 36         | 32        | 2.2        | -        | 0.6       | 107        | 36         |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM               | Mgmt. Unit                             |                | Pre-development and anthropogenic |               |            | Land use |              |       |                  |          |         |              |                    |       |            |           |       |       | Process |           |            |
|-------------------|----------------------------------------|----------------|-----------------------------------|---------------|------------|----------|--------------|-------|------------------|----------|---------|--------------|--------------------|-------|------------|-----------|-------|-------|---------|-----------|------------|
|                   |                                        |                | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy | Dryland Cropping | Forestry | Grazing | Horticulture | Irrigated Cropping | Other | Streambank | Sugarcane | Urban | Water | Gully   | Hillslope | Streambank |
|                   |                                        | Upper Herbert  | 90                                | 126           | 216        | -        | 30           | 0.2   | 1.0              | 11       | 98      | 0.1          | 1.6                | 0.2   | 73         | 0.0       | 1.1   | -     | 28      | 115       | 73         |
|                   | WT Total                               |                | 518                               | 677           | 1,194      | 17       | 873          | 8.0   | 49               | 85       | 4,633   | 26           | 22                 | 42    | 1,906      | 180       | 108   | 14    | 32      | 744       | 418        |
| Burdekin          | Black                                  |                | 11                                | 13            | 24         | -        | 7.7          | -     | 0.1              | 1.8      | 10      | 0.5          | 0.2                | 0.4   | 0.8        | 0.3       | 2.0   | 0.1   | 7.9     | 15        | 0.8        |
|                   | Ross                                   |                | 8.9                               | 16            | 25         | -        | 7.6          | -     | 0.1              | 0.2      | 9.6     | 0.4          | 0.2                | 1.7   | 0.9        | -         | 4.4   | 0.7   | 7.2     | 18        | 0.9        |
|                   | Haughton                               |                | 22                                | 114           | 136        | -        | 8.3          | -     | 0.1              | 0.2      | 90      | 0.8          | 1.0                | 0.7   | 9.1        | 25        | 0.9   | 0.2   | 86      | 42        | 9.1        |
|                   | Management Units in the Burdekin basin |                |                                   |               |            |          |              |       |                  |          |         |              |                    |       |            |           |       |       |         |           |            |
|                   | Burdekin basin total                   |                | 430                               | 2,969         | 3,399      | 0.0      | 203          | 0.0   | 6.8              | 6.3      | 2,922   | 0.5          | 1.8                | 6.2   | 234        | 16        | 1.8   | 7.7   | 2,895   | 277       | 234        |
|                   |                                        | Bowen Bogie    | 197                               | 1,635         | 1,832      | -        | 7.8          | -     | 0.1              | 3.4      | 1,730   | 0.0          | 0.0                | 4.2   | 86         | -         | 0.4   | 2.1   | 1,631   | 117       | 86         |
|                   |                                        | Belyando       | 4.0                               | 23            | 27         | -        | 0.5          | -     | 1.1              | 0.1      | 20      | -            | 0.0                | 0.0   | 5.9        | -         | 0.0   | 1.4   | 19      | 4.0       | 5.9        |
|                   |                                        | Burdekin Delta | 5.5                               | 60            | 65         | -        | 0.3          | -     | -                | 0.0      | 3.9     | 0.2          | 1.0                | 0.1   | 44         | 15        | 0.4   | 0.1   | 2.9     | 18        | 44         |
|                   |                                        | Cape Campaspe  | 6.6                               | 45            | 51         | -        | 1.6          | -     | -                | -        | 47      | -            | 0.1                | 0.1   | 2.5        | -         | 0.0   | 0.9   | 42      | 7.4       | 2.5        |
|                   |                                        | East Burdekin  | 38                                | 302           | 340        | -        | 4.0          | -     | -                | -        | 291     | 0.3          | 0.4                | 0.0   | 42         | 1.4       | 0.1   | 0.5   | 277     | 21        | 42         |
|                   |                                        | Suttor         | 5.5                               | 43            | 48         | -        | 0.1          | -     | 5.7              | 0.0      | 38      | -            | 0.1                | 0.1   | 4.6        | -         | 0.0   | 1.3   | 34      | 11        | 4.6        |
|                   |                                        | Upper Burdekin | 174                               | 861           | 1,035      | -        | 189          | -     | 0.0              | 2.9      | 793     | 0.0          | 0.2                | 1.7   | 49         | -         | 0.8   | 1.5   | 889     | 100       | 49         |
|                   |                                        | Don River      | 35                                | 251           | 287        | -        | 8.1          | -     | 0.1              | 0.0      | 258     | 2.8          | 2.5                | 0.9   | 13         | 0.1       | 0.8   | 0.5   | 243     | 31        | 13         |
|                   |                                        | Total          | 507                               | 3,363         | 3,870      | -        | 235          | -     | 7.1              | 8.5      | 3,290   | 5.0          | 5.7                | 10    | 258        | 42        | 9.8   | 9.1   | 3,239   | 382       | 258        |
| Mackay Whitsunday | Proserpine                             |                | 35                                | 41            | 76         | -        | 21           | -     | 0.0              | 1.3      | 28      | 0.3          | 0.0                | 0.8   | 22         | 3.3       | 0.0   | -     | 8.7     | 46        | 22         |
|                   | O'Connell                              |                | 42                                | 156           | 197        | -        | 13           | -     | -                | 2.3      | 65      | 0.1          | 0.1                | 1.2   | 103        | 13        | 0.0   | -     | 7.7     | 87        | 103        |
|                   | Pioneer                                |                | 24                                | 61            | 84         | -        | 2.4          | -     | 0.0              | 1.0      | 7.0     | 0.0          | -                  | 2.4   | 66         | 5.3       | 0.0   | -     | 0.6     | 18        | 66         |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM                 | Mgmt. Unit                                   | Pre-development and anthropogenic |               |              | Land use |              |          |                  |            |            |              |                    |            |            |            |            |            | Process    |            |            |
|---------------------|----------------------------------------------|-----------------------------------|---------------|--------------|----------|--------------|----------|------------------|------------|------------|--------------|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                     |                                              | Pre-development                   | Anthropogenic | Total load   | Bananas  | Conservation | Dairy    | Dryland Cropping | Forestry   | Grazing    | Horticulture | Irrigated Cropping | Other      | Streambank | Sugarcane  | Urban      | Water      | Gully      | Hillslope  | Streambank |
|                     | Plane                                        | 22                                | 67            | 89           | -        | 5.4          | -        | 0.0              | 2.3        | 47         | 0.2          | 0.4                | 2.0        | 17         | 14         | 0.1        | -          | 3.7        | 69         | 17         |
|                     | <b>Total</b>                                 | <b>123</b>                        | <b>324</b>    | <b>447</b>   | <b>-</b> | <b>41</b>    | <b>-</b> | <b>0.1</b>       | <b>7.0</b> | <b>147</b> | <b>0.6</b>   | <b>0.5</b>         | <b>6.5</b> | <b>209</b> | <b>36</b>  | <b>0.2</b> | <b>-</b>   | <b>21</b>  | <b>218</b> | <b>209</b> |
| <b>Fitzroy</b>      | Boyne                                        | 1.7                               | 5.4           | 7.1          | -        | 0.9          | -        | 0.0              | 0.2        | 3.6        | 0.0          | 0.0                | 0.3        | 1.5        | -          | 0.5        | 0.0        | 1.0        | 4.6        | 1.5        |
|                     | Calliope                                     | 9.0                               | 30            | 39           | -        | 2.8          | -        | 0.0              | 1.9        | 27         | 0.1          | 0.1                | 1.0        | 3.8        | -          | 2.2        | 0.0        | 15         | 20         | 3.8        |
|                     | <i>Management Units in the Fitzroy basin</i> |                                   |               |              |          |              |          |                  |            |            |              |                    |            |            |            |            |            |            |            |            |
|                     | Fitzroy basin total                          | 240                               | 1,270         | 1,510        | -        | 22           | -        | 32               | 36         | 713        | 0.7          | 3.2                | 7.8        | 689        | 0.0        | 5.8        | 3.9        | 691        | 134        | 689        |
|                     | Theresa                                      | 8.6                               | 42            | 51           | -        | 0.1          | -        | 6.2              | 0.9        | 16         | 0.0          | 0.1                | 0.1        | 27         | -          | 0.1        | 0.0        | 17         | 7.3        | 27         |
|                     | Nogoa                                        | 13                                | 35            | 49           | -        | 0.9          | -        | 1.8              | 0.1        | 14         | 0.0          | 0.2                | 0.2        | 31         | -          | 0.0        | 0.1        | 13         | 4.9        | 31         |
|                     | Dawson                                       | 71                                | 463           | 534          | -        | 8.2          | -        | 13               | 25         | 292        | 0.0          | 0.7                | 1.2        | 194        | -          | 0.7        | 1.0        | 302        | 39         | 194        |
|                     | Mackenzie                                    | 51                                | 173           | 224          | -        | 0.8          | -        | 0.7              | 2.0        | 65         | -            | 1.4                | 2.9        | 151        | -          | 0.2        | 0.7        | 65         | 7.9        | 151        |
|                     | Lower Fitzroy                                | 38                                | 182           | 219          | -        | 6.9          | -        | 2.4              | 3.5        | 103        | 0.6          | 0.6                | 0.9        | 97         | -          | 4.3        | 0.5        | 78         | 45         | 97         |
|                     | Isaac                                        | 36                                | 221           | 257          | -        | 2.8          | -        | 2.2              | 1.9        | 174        | -            | 0.1                | 2.1        | 74         | 0.0        | 0.3        | 1.4        | 165        | 19         | 74         |
|                     | Comet                                        | 22                                | 154           | 176          | -        | 2.2          | -        | 6.4              | 2.4        | 49         | -            | 0.1                | 0.5        | 115        | -          | 0.2        | 0.3        | 51         | 11         | 115        |
|                     | Water Park                                   | 23                                | 7.6           | 31           | -        | 18           | -        | 0.2              | 4.1        | 3.4        | 0.3          | -                  | 0.3        | 0.2        | -          | 3.9        | 0.0        | 0.8        | 30         | 0.2        |
|                     | Shoalwater                                   | 11                                | 18            | 29           | -        | 15           | -        | -                | 0.1        | 8.2        | -            | -                  | 0.1        | 5.4        | -          | 0.0        | 0.1        | 11         | 13         | 5.4        |
|                     | Styx                                         | 7.6                               | 38            | 45           | -        | 8.1          | -        | 0.1              | 0.8        | 29         | 0.0          | -                  | 0.2        | 6.8        | 0.2        | 0.1        | 0.3        | 25         | 14         | 6.8        |
|                     | <b>Total</b>                                 | <b>293</b>                        | <b>1,368</b>  | <b>1,660</b> | <b>-</b> | <b>67</b>    | <b>-</b> | <b>33</b>        | <b>43</b>  | <b>784</b> | <b>1.0</b>   | <b>3.4</b>         | <b>9.8</b> | <b>707</b> | <b>0.2</b> | <b>13</b>  | <b>4.4</b> | <b>743</b> | <b>215</b> | <b>707</b> |
| <b>Burnett Mary</b> | Baffle                                       | 3.2                               | 21            | 24           | -        | 2.9          | -        | 0.0              | 0.2        | 11         | 0.8          | 0.0                | 0.6        | 0.9        | 0.2        | 7.8        | -          | 4.2        | 19         | 0.9        |
|                     | Kolan                                        | 4.1                               | 14            | 18           | -        | 0.4          | -        | 0.0              | 0.3        | 4.9        | 2.3          | 0.0                | 0.2        | 6.3        | 1.5        | 2.3        | -          | 2.1        | 9.8        | 6.3        |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM | Mgmt. Unit   | Pre-development and anthropogenic |               |            | Land use |              |            |                  |            |            |              |                    |            |            |            |           |          | Process   |            |            |
|-----|--------------|-----------------------------------|---------------|------------|----------|--------------|------------|------------------|------------|------------|--------------|--------------------|------------|------------|------------|-----------|----------|-----------|------------|------------|
|     |              | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy      | Dryland Cropping | Forestry   | Grazing    | Horticulture | Irrigated Cropping | Other      | Streambank | Sugarcane  | Urban     | Water    | Gully     | Hillslope  | Streambank |
|     | Burnett      | 49                                | 117           | 166        | -        | 1.4          | 0.0        | 0.6              | 3.0        | 55         | 2.6          | 0.2                | 0.7        | 96         | 2.9        | 3.7       | -        | 37        | 33         | 96         |
|     | Burrum       | 2.3                               | 13            | 16         | -        | 0.8          | -          | 0.0              | 0.7        | 2.3        | 2.6          | 0.0                | 0.6        | 1.6        | 2.1        | 4.7       | -        | 0.6       | 13         | 1.6        |
|     | Mary         | 75                                | 188           | 263        | -        | 1.5          | 0.4        | 0.0              | 1.5        | 30         | 4.1          | 0.1                | 2.3        | 188        | 2.8        | 32        | -        | 6.7       | 68         | 188        |
|     | <b>Total</b> | <b>134</b>                        | <b>353</b>    | <b>486</b> | <b>-</b> | <b>6.9</b>   | <b>0.4</b> | <b>0.6</b>       | <b>5.6</b> | <b>103</b> | <b>12</b>    | <b>0.3</b>         | <b>4.4</b> | <b>293</b> | <b>9.7</b> | <b>50</b> | <b>-</b> | <b>51</b> | <b>143</b> | <b>293</b> |

Table 14. Modelled annual average end-of-catchment particulate nitrogen loads (tonnes). Source: Catchment model Version 2.0, DETSI (2024c).

| NRM       | Mgmt. Unit   | Pre-development and anthropogenic |               |            | Land use |              |       |                  |          |         |              |                    |       |     |           |       |       | Process |           |            |
|-----------|--------------|-----------------------------------|---------------|------------|----------|--------------|-------|------------------|----------|---------|--------------|--------------------|-------|-----|-----------|-------|-------|---------|-----------|------------|
|           |              | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy | Dryland Cropping | Forestry | Grazing | Horticulture | Irrigated Cropping | Other | STP | Sugarcane | Urban | Water | Gully   | Hillslope | Streambank |
| Cape York | Jacky Jacky  | 66                                | 7.5           | 74         | -        | 61           | -     | -                | -        | 13      | -            | -                  | 0.0   | 0.0 | -         | 0.0   | -     | 0.0     | 62        | 0.0        |
|           | Olive Pascoe | 202                               | 19            | 221        | -        | 185          | -     | -                | -        | 35      | -            | -                  | 0.0   | 1.4 | -         | -     | -     | 0.4     | 194       | 1.4        |
|           | Lockhart     | 59                                | 2.4           | 62         | -        | 57           | -     | -                | -        | 2.6     | -            | -                  | 0.0   | 1.8 | -         | 0.0   | -     | 0.5     | 51        | 1.8        |
|           | Stewart      | 59                                | 3.8           | 73         | -        | 67           | -     | -                | -        | 3.0     | -            | -                  | 0.0   | 2.6 | -         | 0.0   | -     | 0.9     | 65        | 2.6        |
|           | Normanby     | 117                               | 57            | 174        | -        | 85           | -     | 0.0              | 0.0      | 85      | 0.0          | 0.0                | 0.0   | 4.1 | -         | 0.0   | -     | 36      | 124       | 4.1        |
|           | Jeannie      | 140                               | 31            | 172        | -        | 135          | -     | 0.0              | 1.1      | 34      | 0.0          | -                  | 0.0   | 1.5 | -         | 0.0   | -     | 3.5     | 158       | 1.5        |

| NRM         | Mgmt. Unit                             | Pre-development and anthropogenic |               |              | Land use   |              |           |                  |            |              |              |                    |            |            |            |            |          | Process   |              |            |
|-------------|----------------------------------------|-----------------------------------|---------------|--------------|------------|--------------|-----------|------------------|------------|--------------|--------------|--------------------|------------|------------|------------|------------|----------|-----------|--------------|------------|
|             |                                        | Pre-development                   | Anthropogenic | Total load   | Bananas    | Conservation | Dairy     | Dryland Cropping | Forestry   | Grazing      | Horticulture | Irrigated Cropping | Other      | STP        | Sugarcane  | Urban      | Water    | Gully     | Hillslope    | Streambank |
|             | Endeavour                              | 217                               | 40            | 257          | -          | 202          | -         | 0.0              | 2.9        | 47           | 0.0          | 0.0                | 0.0        | 5.4        | -          | 0.3        | -        | 1.1       | 236          | 5.4        |
|             | <b>Total</b>                           | <b>870</b>                        | <b>161</b>    | <b>1,032</b> | <b>-</b>   | <b>791</b>   | <b>-</b>  | <b>0.1</b>       | <b>4.0</b> | <b>219</b>   | <b>0.0</b>   | <b>0.0</b>         | <b>0.1</b> | <b>17</b>  | <b>-</b>   | <b>0.3</b> | <b>-</b> | <b>42</b> | <b>890</b>   | <b>17</b>  |
| Wet Tropics | Daintree                               | 256                               | 75            | 331          | 0.0        | 176          | -         | 0.1              | -          | 88           | 0.4          | 1.8                | 0.8        | 31         | 27         | 7.0        | -        | 0.0       | 180          | 31         |
|             | Mossman                                | 77                                | 21            | 98           | 0.0        | 51           | -         | 0.0              | 0.1        | 15           | 0.1          | 0.1                | 2.0        | 3.2        | 22         | 4.7        | -        | 0.0       | 61           | 3.2        |
|             | Barron                                 | 314                               | 246           | 560          | 7.7        | 110          | 0.5       | 0.2              | 23         | 162          | 3.1          | 6.1                | 3.7        | 214        | 21         | 9.3        | -        | 5.2       | 275          | 214        |
|             | Mulgrave-Russell                       | 374                               | 105           | 479          | 12         | 192          | 0.4       | 1.8              | 1.2        | 88           | 1.7          | 0.7                | 5.5        | 57         | 104        | 15         | -        | 0.1       | 192          | 57         |
|             | Johnstone                              | 923                               | 892           | 1,816        | 60         | 422          | 52        | 5.2              | 2.0        | 778          | 4.4          | 3.1                | 4.8        | 206        | 260        | 19         | -        | 0.7       | 1,132        | 206        |
|             | Tully                                  | 368                               | 124           | 491          | 33         | 166          | -         | 1.0              | 5.0        | 94           | 1.3          | 0.6                | 2.1        | 86         | 96         | 7.0        | -        | 0.1       | 173          | 86         |
|             | Murray                                 | 167                               | 72            | 240          | 2.0        | 76           | -         | 0.5              | 13         | 32           | 0.7          | 0.1                | 0.9        | 27         | 85         | 2.1        | -        | 0.1       | 113          | 27         |
|             | Management units in the Herbert basin  |                                   |               |              |            |              |           |                  |            |              |              |                    |            |            |            |            |          |           |              |            |
|             | Herbert basin total                    | 735                               | 521           | 1,256        | -          | 275          | 1.2       | 1.0              | 57         | 491          | 0.2          | 1.9                | 1.2        | 213        | 210        | 4.4        | -        | 30        | 728          | 213        |
|             | Lower Herbert                          | 392                               | 276           | 668          | -          | 177          | -         | -                | 20         | 172          | 0.1          | 0.1                | 0.9        | 85         | 210        | 2.6        | -        | 0.7       | 402          | 85         |
|             | Upper Herbert                          | 343                               | 245           | 588          | -          | 98           | 1.2       | 1.0              | 37         | 319          | 0.1          | 1.8                | 0.2        | 128        | 0.3        | 1.8        | -        | 29        | 326          | 128        |
|             | <b>Total</b>                           | <b>3,215</b>                      | <b>2,057</b>  | <b>5,271</b> | <b>114</b> | <b>1,468</b> | <b>54</b> | <b>9.8</b>       | <b>101</b> | <b>1,747</b> | <b>12</b>    | <b>14</b>          | <b>21</b>  | <b>837</b> | <b>826</b> | <b>68</b>  | <b>-</b> | <b>36</b> | <b>2,854</b> | <b>837</b> |
| Burdekin    | Black                                  | 57                                | 23            | 80           | -          | 45           | -         | 0.0              | 8.0        | 21           | 0.5          | 0.5                | 1.7        | 0.5        | 0.9        | 1.8        | -        | 7.5       | 72           | 0.5        |
|             | Ross                                   | 58                                | 38            | 96           | -          | 50           | -         | 0.3              | 1.0        | 29           | 0.3          | 0.4                | 10         | 0.8        | -          | 5.0        | -        | 5.6       | 90           | 0.8        |
|             | Haughton                               | 70                                | 184           | 253          | -          | 58           | -         | 0.1              | 0.4        | 104          | 0.4          | 1.8                | 1.6        | 8.8        | 78         | 0.8        | -        | 74        | 171          | 8.8        |
|             | Management units in the Burdekin basin |                                   |               |              |            |              |           |                  |            |              |              |                    |            |            |            |            |          |           |              |            |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM                  | Mgmt. Unit                            | Pre-development and anthropogenic |               |              | Land use |              |          |                  |           |              |              |                    |           |            |            |            |          | Process      |              |            |
|----------------------|---------------------------------------|-----------------------------------|---------------|--------------|----------|--------------|----------|------------------|-----------|--------------|--------------|--------------------|-----------|------------|------------|------------|----------|--------------|--------------|------------|
|                      |                                       | Pre-development                   | Anthropogenic | Total load   | Bananas  | Conservation | Dairy    | Dryland Cropping | Forestry  | Grazing      | Horticulture | Irrigated Cropping | Other     | STP        | Sugarcane  | Urban      | Water    | Gully        | Hillslope    | Streambank |
|                      | Burdekin basin total                  | 776                               | 3,479         | 4,255        | -        | 385          | -        | 12               | 30        | 3,532        | 0.3          | 3.5                | 18        | 213        | 60         | 1.2        | -        | 2,702        | 1,340        | 213        |
|                      | East Burdekin                         | 59                                | 467           | 526          | -        | 5.6          | -        | -                | -         | 487          | 0.2          | 0.8                | 0.1       | 28         | 4.8        | 0.0        | -        | 407          | 91           | 28         |
|                      | Burdekin Delta                        | 8.6                               | 125           | 133          | -        | 3.3          | -        | -                | 0.0       | 12           | 0.2          | 2.1                | 1.2       | 58         | 56         | 0.7        | -        | 3.6          | 72           | 58         |
|                      | Upper Burdekin                        | 384                               | 662           | 1,046        | -        | 337          | -        | 0.0              | 13        | 659          | 0.0          | 0.3                | 2.5       | 34         | -          | 0.2        | -        | 530          | 482          | 34         |
|                      | Belyando                              | 7.4                               | 46            | 54           | -        | 1.2          | -        | 2.0              | 0.2       | 38           | -            | 0.0                | 0.0       | 12         | -          | 0.0        | -        | 21           | 20           | 12         |
|                      | Cape Campaspe                         | 6.5                               | 41            | 47           | -        | 1.6          | -        | -                | -         | 44           | -            | 0.1                | 0.1       | 1.7        | -          | 0.0        | -        | 21           | 25           | 1.7        |
|                      | Suttor                                | 7.5                               | 64            | 72           | -        | 0.1          | -        | 9.5              | 0.0       | 58           | -            | 0.2                | 0.2       | 3.9        | -          | 0.0        | -        | 34           | 34           | 3.9        |
|                      | Bowen Bogie                           | 304                               | 2,073         | 2,377        | -        | 36           | -        | 0.1              | 17        | 2,235        | 0.0          | 0.0                | 14        | 76         | -          | 0.2        | -        | 1,686        | 616          | 76         |
|                      | Don                                   | 89                                | 356           | 445          | -        | 48           | -        | 0.2              | 0.0       | 370          | 1.7          | 2.9                | 7.2       | 13         | 0.3        | 0.6        | -        | 270          | 162          | 13         |
|                      | <b>Total</b>                          | <b>1,050</b>                      | <b>4,079</b>  | <b>5,129</b> | <b>-</b> | <b>585</b>   | <b>-</b> | <b>12</b>        | <b>40</b> | <b>4,056</b> | <b>3.2</b>   | <b>9.0</b>         | <b>39</b> | <b>237</b> | <b>139</b> | <b>9.3</b> | <b>-</b> | <b>3,059</b> | <b>1,833</b> | <b>237</b> |
| Mackay<br>Whitsunday | Proserpine                            | 107                               | 90            | 198          | -        | 79           | -        | 0.0              | 3.8       | 67           | 0.1          | 0.0                | -         | 18         | 29         | -          | -        | 9.1          | 165          | 18         |
|                      | O'Connell                             | 72                                | 250           | 322          | -        | 23           | -        | -                | 3.3       | 100          | 0.0          | 0.0                | -         | 116        | 79         | -          | -        | 11           | 184          | 116        |
|                      | Pioneer                               | 54                                | 207           | 261          | -        | 19           | -        | 0.0              | 8.5       | 52           | 0.0          | -                  | -         | 46         | 136        | -          | -        | 1.1          | 203          | 46         |
|                      | Plane                                 | 86                                | 322           | 408          | -        | 19           | -        | 0.0              | 13        | 166          | 0.1          | 0.1                | -         | 14         | 196        | -          | -        | 3.9          | 372          | 14         |
|                      | <b>Total</b>                          | <b>319</b>                        | <b>869</b>    | <b>1,188</b> | <b>-</b> | <b>140</b>   | <b>-</b> | <b>0.0</b>       | <b>28</b> | <b>384</b>   | <b>0.2</b>   | <b>0.2</b>         | <b>-</b>  | <b>194</b> | <b>441</b> | <b>-</b>   | <b>-</b> | <b>25</b>    | <b>924</b>   | <b>194</b> |
| Fitzroy              | Boyne                                 | 9.8                               | 16            | 26           | -        | 5.1          | -        | 0.1              | 1.4       | 18           | 0.0          | 0.0                | 0.2       | 1.3        | -          | 0.2        | 0.0      | 1.3          | 23           | 1.3        |
|                      | Calliope                              | 56                                | 97            | 153          | -        | 20           | -        | 0.2              | 11        | 114          | 0.0          | 0.6                | 0.5       | 5.8        | -          | 0.9        | 0.0      | 21           | 126          | 5.8        |
|                      | Management units in the Fitzroy basin |                                   |               |              |          |              |          |                  |           |              |              |                    |           |            |            |            |          |              |              |            |
|                      | Fitzroy basin total                   | 1,003                             | 1,906         | 2,909        | -        | 128          | -        | 159              | 132       | 1,657        | 0.4          | 17                 | 6.4       | 787        | 19         | 2.6        | 6.0      | 1,054        | 1,074        | 787        |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM          | Mgmt. Unit |               | Pre-development and anthropogenic |               |            | Land use |              |       |                  |          |         |              |                    |       |     |           |       |       | Process |           |            |
|--------------|------------|---------------|-----------------------------------|---------------|------------|----------|--------------|-------|------------------|----------|---------|--------------|--------------------|-------|-----|-----------|-------|-------|---------|-----------|------------|
|              |            |               | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy | Dryland Cropping | Forestry | Grazing | Horticulture | Irrigated Cropping | Other | STP | Sugarcane | Urban | Water | Gully   | Hillslope | Streambank |
|              |            | Theresa       | 28                                | 79            | 107        | -        | 0.6          | -     | 29               | 2.1      | 30      | 0.0          | 0.4                | 0.1   | 45  | -         | 0.0   | 0.1   | 23      | 39        | 45         |
|              |            | Nogoa         | 28                                | 61            | 89         | -        | 3.4          | -     | 8.8              | 1.0      | 37      | 0.0          | 0.9                | 0.1   | 38  | -         | 0.0   | 0.1   | 18      | 33        | 38         |
|              |            | Dawson        | 371                               | 650           | 1,022      | -        | 33           | -     | 61               | 77       | 630     | 0.0          | 3.3                | 1.1   | 215 | -         | 0.4   | 1.5   | 467     | 340       | 215        |
|              |            | Mackenzie     | 109                               | 198           | 307        | -        | 5.2          | -     | 3.7              | 5.6      | 129     | -            | 7.4                | 2.2   | 154 | -         | 0.1   | 1.1   | 95      | 59        | 154        |
|              |            | Lower Fitzroy | 189                               | 370           | 559        | -        | 55           | -     | 15               | 23       | 320     | 0.3          | 4.0                | 0.8   | 139 | -         | 1.8   | 0.6   | 123     | 297       | 139        |
|              |            | Isaac         | 205                               | 360           | 565        | -        | 18           | -     | 12               | 18       | 415     | -            | 0.7                | 1.8   | 81  | 19        | 0.2   | 2.1   | 258     | 229       | 81         |
|              |            | Comet         | 73                                | 188           | 261        | -        | 12           | -     | 30               | 6.2      | 97      | -            | 0.5                | 0.4   | 115 | -         | 0.1   | 0.5   | 70      | 76        | 115        |
|              |            | Water Park    | 176                               | 14            | 190        | -        | 129          | -     | 1.1              | 45       | 14      | 0.1          | -                  | 0.1   | 0.2 | -         | 0.9   | 0.0   | 1.1     | 189       | 0.2        |
|              |            | Shoalwater    | 57                                | 26            | 83         | -        | 53           | -     | -                | 0.8      | 25      | -            | -                  | 0.0   | 3.8 | -         | 0.0   | 0.1   | 16      | 64        | 3.8        |
|              |            | Styx          | 54                                | 116           | 169        | -        | 27           | -     | 0.3              | 5.5      | 104     | 0.0          | -                  | 0.1   | 6.3 | 26        | 0.0   | 0.3   | 37      | 126       | 6.3        |
|              |            | Total         | 1,355                             | 2,175         | 3,530      | -        | 363          | -     | 161              | 195      | 1,931   | 0.5          | 18                 | 7.3   | 804 | 45        | 4.7   | 6.4   | 1,130   | 1,602     | 804        |
| Burnett Mary |            | Baffle        | 8.1                               | 40            | 48         | -        | 12           | -     | 0.0              | 0.8      | 26      | 0.7          | 0.0                | 0.4   | 1.2 | 1.1       | 6.1   | -     | 0.1     | 39        | 1.2        |
|              |            | Kolan         | 8.9                               | 27            | 36         | -        | 1.6          | -     | 0.0              | 2.0      | 16      | 2.2          | 0.0                | 0.1   | 6.1 | 6.0       | 1.8   | -     | 0.1     | 24        | 6.1        |
|              |            | Burnett       | 67                                | 289           | 356        | -        | 15           | 0.2   | 0.2              | 14       | 220     | 2.8          | 0.0                | 0.6   | 71  | 29        | 3.8   | -     | 26      | 251       | 71         |
|              |            | Burrum        | 5.4                               | 27            | 33         | -        | 3.4          | -     | 0.0              | 2.9      | 8.8     | 1.8          | 0.0                | 0.2   | 3.1 | 11        | 1.6   | -     | 0.5     | 25        | 3.1        |
|              |            | Mary          | 114                               | 443           | 557        | -        | 11           | 3.7   | 0.0              | 13       | 226     | 4.2          | 0.0                | 2.0   | 244 | 21        | 32    | -     | 6.0     | 282       | 244        |
|              |            | Total         | 2034                              | 827           | 1,030      | -        | 43           | 3.8   | 0.2              | 33       | 497     | 12           | 0.1                | 3.3   | 326 | 67        | 45    | -     | 32      | 621       | 326        |

Table 15. Modelled annual average end-of-catchment particulate phosphorus loads (tonnes). Source: Catchment model Version 2.0, DETSI (2024c).

| NRM         | Mgmt. Unit                                   | Pre-development and anthropogenic |               |            | Land use   |              |            |                  |            |           |              |                    |            |            |            |            |            | Process   |            |            |
|-------------|----------------------------------------------|-----------------------------------|---------------|------------|------------|--------------|------------|------------------|------------|-----------|--------------|--------------------|------------|------------|------------|------------|------------|-----------|------------|------------|
|             |                                              | Pre-development                   | Anthropogenic | Total load | Bananas    | Conservation | Dairy      | Dryland Cropping | Forestry   | Grazing   | Horticulture | Irrigated Cropping | Other      | STP        | Sugarcane  | Urban      | Water      | Gully     | Hillslope  | Streambank |
| Cape York   | Jacky Jacky                                  | 24                                | 1.0           | 25         | 0.0        | 23           | 0.0        | 0.0              | 0.0        | 2.2       | 0.0          | 0.0                | 0.0        | 0.1        | 0.0        | 0.0        | 0.0        | 0.0       | 19         | 0.1        |
|             | Olive Pascoe                                 | 47                                | 3.7           | 51         | 0.0        | 43           | 0.0        | 0.0              | 0.0        | 7.2       | 0.0          | 0.0                | 0.0        | 0.5        | 0.0        | 0.0        | 0.0        | 0.1       | 40         | 0.5        |
|             | Lockhart                                     | 20                                | 0.7           | 21         | 0.0        | 20           | 0.0        | 0.0              | 0.0        | 0.6       | 0.0          | 0.0                | 0.0        | 0.9        | 0.0        | 0.0        | 0.0        | 0.2       | 15         | 0.9        |
|             | Stewart                                      | 20                                | 1.1           | 21         | 0.0        | 19           | 0.0        | 0.0              | 0.0        | 0.6       | 0.0          | 0.0                | 0.0        | 1.2        | 0.0        | 0.0        | 0.0        | 0.6       | 16         | 1.2        |
|             | Normanby                                     | 40                                | 15            | 54         | 0.3        | 24           | 0.0        | 0.0              | 0.0        | 28        | 0.0          | 0.0                | 0.0        | 2.7        | 0.0        | 0.0        | 0.0        | 26        | 22         | 2.7        |
|             | Jeannie                                      | 62                                | 8.3           | 70         | 0.0        | 61           | 0.0        | 0.0              | 0.3        | 8.2       | 0.0          | 0.0                | 0.0        | 0.9        | 0.0        | 0.0        | 0.0        | 2.1       | 63         | 0.9        |
|             | Endeavour                                    | 69                                | 11.3          | 81         | 0.2        | 64           | 0.0        | 0.0              | 1.4        | 12        | 0.0          | 0.0                | 0.0        | 2.7        | 0.0        | 0.2        | 0.0        | 0.6       | 71         | 2.7        |
|             | <b>Total</b>                                 | <b>282</b>                        | <b>41</b>     | <b>322</b> | <b>0.4</b> | <b>253</b>   | <b>0.0</b> | <b>0.0</b>       | <b>1.7</b> | <b>58</b> | <b>0.0</b>   | <b>0.0</b>         | <b>0.1</b> | <b>8.9</b> | <b>0.0</b> | <b>0.2</b> | <b>0.0</b> | <b>30</b> | <b>246</b> | <b>8.9</b> |
| Wet Tropics | Daintree                                     | 56                                | 31            | 87         | 0.0        | 45           | 0.0        | 0.0              | 0.0        | 6.6       | 0.1          | 0.3                | 0.1        | 21         | 12         | 0.6        | 0.0        | 0.0       | 33         | 21         |
|             | Mossman                                      | 12                                | 8.1           | 21         | 0.1        | 8.2          | 0.0        | 0.0              | 0.0        | 0.8       | 0.0          | 0.0                | 0.2        | 2.7        | 8.1        | 0.4        | 0.0        | 0.0       | 9.6        | 2.7        |
|             | Barron                                       | 69                                | 70            | 139        | 0.2        | 4.0          | 0.0        | 0.0              | 0.9        | 5.8       | 0.5          | 0.7                | 0.3        | 124        | 2.1        | 0.8        | 0.0        | 1.5       | 6.4        | 124        |
|             | Mulgrave-Russell                             | 91                                | 68            | 159        | 2.5        | 61           | 0.1        | 1.1              | 0.6        | 1         | 0.5          | 0.3                | 0.5        | 31         | 42         | 1.4        | 0.0        | 0.1       | 73         | 31         |
|             | Johnstone                                    | 194                               | 413           | 608        | 5.8        | 102          | 23         | 1.3              | 1.0        | 206       | 1.2          | 1.3                | 0.5        | 193        | 70         | 2.1        | 0.0        | 1.4       | 342        | 193        |
|             | Tully                                        | 81                                | 48            | 129        | 3.6        | 46           | 0.0        | 0.2              | 0.7        | 9.3       | 0.3          | 0.2                | 0.2        | 48         | 20         | 0.7        | 0.0        | 0.1       | 31         | 48         |
|             | Murray                                       | 33                                | 24            | 56         | 0.7        | 18           | 0.0        | 0.1              | 1.5        | 2.0       | 0.2          | 0.0                | 0.1        | 8.4        | 25         | 0.2        | 0.0        | 0.0       | 26         | 8.4        |
|             | <i>Management Units in the Herbert basin</i> |                                   |               |            |            |              |            |                  |            |           |              |                    |            |            |            |            |            |           |            |            |
|             | Herbert basin total                          | 97                                | 149           | 246        | 0.0        | 19           | 0.1        | 0.2              | 3.0        | 27        | 0.0          | 0.4                | 0.1        | 171        | 23         | 0.4        | 0.0        | 16        | 22         | 171        |

| NRM      | Mgmt. Unit                             |                | Pre-development and anthropogenic |               |            | Land use |              |       |                  |          |         |              |                    |       |     |           |       |       | Process |           |            |
|----------|----------------------------------------|----------------|-----------------------------------|---------------|------------|----------|--------------|-------|------------------|----------|---------|--------------|--------------------|-------|-----|-----------|-------|-------|---------|-----------|------------|
|          |                                        |                | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy | Dryland Cropping | Forestry | Grazing | Horticulture | Irrigated Cropping | Other | STP | Sugarcane | Urban | Water | Gully   | Hillslope | Streambank |
|          |                                        | Lower Herbert  | 56                                | 109           | 165        | 0.0      | 10           | 0.0   | 0.0              | 1.5      | 5.8     | 0.0          | 0.0                | 0.1   | 124 | 23        | 0.2   | 0.0   | 0.3     | 11        | 124        |
|          |                                        | Upper Herbert  | 42                                | 40            | 81         | 0.0      | 8.9          | 0.1   | 0.2              | 1.5      | 23      | 0.0          | 0.3                | 0.0   | 47  | 0.0       | 0.2   | 0.0   | 15      | 11        | 47         |
|          | Total                                  |                | 634                               | 811           | 1,445      | 13       | 304          | 24    | 2.9              | 7.8      | 277     | 2.8          | 3.2                | 2.0   | 599 | 202       | 6.7   | 0.0   | 19      | 542       | 599        |
| Burdekin | Black                                  |                | 9.8                               | 8.4           | 18         | 0.0      | 7.4          | 0.0   | 0.2              | 1.3      | 6.6     | 0.2          | 1.0                | 0.4   | 0.5 | 0.2       | 0.6   | 0.0   | 3.8     | 13        | 0.5        |
|          | Ross                                   |                | 11                                | 14            | 25         | 0.0      | 7.8          | 0.0   | 0.2              | 0.2      | 11      | 0.2          | 0.5                | 1.8   | 0.4 | 0.0       | 2.1   | 0.0   | 3.3     | 20        | 0.4        |
|          | Haughton                               |                | 25                                | 78            | 103        | 0.0      | 16           | 0.0   | 0.3              | 0.2      | 27      | 0.4          | 4.4                | 0.5   | 6.7 | 47        | 0.6   | 0.0   | 15      | 77        | 6.7        |
|          | Management Units in the Burdekin basin |                |                                   |               |            |          |              |       |                  |          |         |              |                    |       |     |           |       |       |         |           |            |
|          | Burdekin basin total                   |                | 440                               | 1,648         | 2,088      | 0.0      | 131          | 0.0   | 5.2              | 17       | 1,650   | 0.5          | 6.1                | 11    | 220 | 47        | 1.0   | 0.0   | 1,193   | 665       | 220        |
|          |                                        | East Burdekin  | 29                                | 221           | 251        | 0.0      | 5.0          | 0.0   | 0.0              | 0.0      | 205     | 0.3          | 1.3                | 0.0   | 34  | 5.4       | 0.0   | 0.0   | 172     | 43        | 34         |
|          |                                        | Burdekin Delta | 5.2                               | 101           | 106        | 0.0      | 1.0          | 0.0   | 0.0              | 0.0      | 3.2     | 0.2          | 2.4                | 0.6   | 57  | 41        | 0.6   | 0.0   | 0.8     | 46        | 57         |
|          |                                        | Upper Burdekin | 190                               | 444           | 634        | 0.0      | 104          | 0.0   | 0.1              | 4.6      | 477     | 0.0          | 1.4                | 1.9   | 44  | 0.0       | 0.2   | 0.0   | 365     | 223       | 44         |
|          |                                        | Belyando       | 3.3                               | 19            | 22         | 0.0      | 0.5          | 0.0   | 0.8              | 0.1      | 15      | 0.0          | 0.0                | 0.0   | 5.4 | 0.0       | 0.0   | 0.0   | 9.0     | 7.0       | 5.4        |
|          |                                        | Cape Campaspe  | 6.4                               | 25            | 32         | 0.0      | 0.7          | 0.0   | 0.0              | 0.0      | 28      | 0.0          | 0.8                | 0.1   | 2.4 | 0.0       | 0.0   | 0.0   | 16      | 12        | 2.4        |
|          |                                        | Suttor         | 3.4                               | 27            | 30         | 0.0      | 0.1          | 0.0   | 4.2              | 0.0      | 23      | 0.0          | 0.1                | 0.1   | 2.9 | 0.0       | 0.0   | 0.0   | 13      | 10        | 2.9        |
|          |                                        | Bowen Bogie    | 202                               | 812           | 1,014      | 0.0      | 20           | 0.0   | 0.2              | 12       | 898     | 0.0          | 0.1                | 8.7   | 74  | 0.0       | 0.1   | 0.0   | 617     | 323       | 74         |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM                  | Mgmt. Unit                            |               | Pre-development and anthropogenic |               |            | Land use |              |       |                  |          |         |              |                    |       |     |           |       |       | Process |           |            |
|----------------------|---------------------------------------|---------------|-----------------------------------|---------------|------------|----------|--------------|-------|------------------|----------|---------|--------------|--------------------|-------|-----|-----------|-------|-------|---------|-----------|------------|
|                      |                                       |               | Pre-development                   | Anthropogenic | Total load | Bananas  | Conservation | Dairy | Dryland Cropping | Forestry | Grazing | Horticulture | Irrigated Cropping | Other | STP | Sugarcane | Urban | Water | Gully   | Hillslope | Streambank |
|                      | Don                                   |               | 46                                | 81            | 127        | 0.0      | 27           | 0.0   | 0.2              | 0.0      | 80      | 2.4          | 4.2                | 5.4   | 8.2 | 0.2       | 0.5   | 0.0   | 48      | 67        | 8.2        |
|                      | Total                                 |               | 532                               | 1,829         | 2,361      | 0.0      | 189          | 0.0   | 6.1              | 19       | 1,774   | 3.6          | 16                 | 20    | 235 | 94        | 4.7   | 0.0   | 1,262   | 841       | 235        |
| Mackay<br>Whitsunday | Proserpine                            |               | 44                                | 42            | 86         | 0.0      | 33           | 0.0   | 0.0              | 1.7      | 23      | 0.1          | 0.0                | 0.0   | 21  | 7.4       | 0.0   | 0.0   | 4.4     | 60        | 21         |
|                      | O'Connell                             |               | 21                                | 86            | 107        | 0.0      | 6.9          | 0.0   | 0.0              | 1.4      | 26      | 0.0          | 0.0                | 0.0   | 49  | 24        | 0.0   | 0.0   | 3.5     | 52        | 49         |
|                      | Pioneer                               |               | 22                                | 42            | 64         | 0.0      | 8.7          | 0.0   | 0.0              | 3.3      | 14      | 0.0          | 0.0                | 0.0   | 28  | 10        | 0.0   | 0.0   | 0.4     | 33        | 28         |
|                      | Plane                                 |               | 25                                | 77            | 102        | 0.0      | 6.8          | 0.0   | 0.0              | 4.0      | 51      | 0.0          | 0.1                | 0.0   | 7.8 | 33        | 0.0   | 0.0   | 1.8     | 88        | 7.8        |
|                      | Total                                 |               | 113                               | 246           | 359        | 0.0      | 56           | 0.0   | 0.0              | 10       | 114     | 0.1          | 0.1                | 0.0   | 105 | 75        | 0.0   | 0.0   | 10      | 232       | 105        |
| Fitzroy              | Boyne                                 |               | 3.4                               | 5.3           | 8.8        | 0.0      | 1.9          | 0.0   | 0.1              | 0.4      | 5.6     | 0.0          | 0.0                | 0.0   | 0.6 | 0.0       | 0.1   | 0.0   | 0.7     | 7.3       | 0.6        |
|                      | Calliope                              |               | 20                                | 38            | 58         | 0.0      | 6.0          | 0.0   | 0.1              | 3.4      | 45      | 0.0          | 1.1                | 0.2   | 1.8 | 0.0       | 0.3   | 0.0   | 12      | 43        | 1.8        |
|                      | Management Units in the Fitzroy basin |               |                                   |               |            |          |              |       |                  |          |         |              |                    |       |     |           |       |       |         |           |            |
|                      | Fitzroy basin total                   |               | 562                               | 1,091         | 1,653      | 0.0      | 53           | 0.0   | 48               | 56       | 920     | 0.1          | 10                 | 4.1   | 547 | 12        | 1.3   | 5.1   | 622     | 430       | 547        |
|                      |                                       | Theresa       | 13                                | 28            | 41         | 0.0      | 0.3          | 0.0   | 5.8              | 0.7      | 15      | 0.0          | 0.1                | 0.0   | 18  | 0.0       | 0.0   | 0.0   | 11      | 5.1       | 18         |
|                      |                                       | Nogoa         | 16                                | 30            | 46         | 0.0      | 2.5          | 0.0   | 1.7              | 0.3      | 20      | 0.0          | 0.4                | 0.1   | 22  | 0.0       | 0.0   | 0.1   | 11      | 12        | 22         |
|                      |                                       | Dawson        | 197                               | 381           | 578        | 0.0      | 13           | 0.0   | 23               | 36       | 329     | 0.0          | 3.3                | 0.7   | 172 | 0.0       | 0.3   | 1.1   | 245     | 135       | 172        |
|                      |                                       | Mackenzie     | 69                                | 124           | 193        | 0.0      | 2.0          | 0.0   | 0.9              | 2.4      | 67      | 0.0          | 2.3                | 1.5   | 117 | 0.0       | 0.0   | 1.4   | 55      | 19        | 117        |
|                      |                                       | Lower Fitzroy | 93                                | 220           | 313        | 0.0      | 19           | 0.0   | 6.9              | 8.0      | 198     | 0.1          | 3.6                | 0.4   | 76  | 0.0       | 0.9   | 0.5   | 70      | 156       | 76         |
|                      |                                       | Isaac         | 114                               | 180           | 294        | 0.0      | 8.1          | 0.0   | 2.5              | 5.0      | 212     | 0.0          | 0.5                | 1.2   | 53  | 12        | 0.1   | 1.4   | 166     | 74        | 53         |
|                      |                                       | Comet         | 59                                | 129           | 189        | 0.0      | 8.2          | 0.0   | 6.9              | 3.4      | 80      | 0.0          | 0.2                | 0.3   | 90  | 0.0       | 0.0   | 0.6   | 64      | 29        | 90         |

Appendix 3: Modelled annual average end-of-catchment pollutant loads

| NRM          | Mgmt. Unit   | Pre-development and anthropogenic |               |              | Land use   |              |            |                  |           |              |              |                    |            |            |           |            |            | Process    |            |            |
|--------------|--------------|-----------------------------------|---------------|--------------|------------|--------------|------------|------------------|-----------|--------------|--------------|--------------------|------------|------------|-----------|------------|------------|------------|------------|------------|
|              |              | Pre-development                   | Anthropogenic | Total load   | Bananas    | Conservation | Dairy      | Dryland Cropping | Forestry  | Grazing      | Horticulture | Irrigated Cropping | Other      | STP        | Sugarcane | Urban      | Water      | Gully      | Hillslope  | Streambank |
|              | Water Park   | 44                                | 4.4           | 49           | 0.0        | 38           | 0.0        | 0.2              | 5.5       | 4.6          | 0.0          | 0.0                | 0.0        | 0.1        | 0.0       | 0.3        | 0.0        | 0.5        | 48         | 0.1        |
|              | Shoalwater   | 17                                | 7.8           | 25           | 0.0        | 16           | 0.0        | 0.0              | 0.2       | 6.4          | 0.0          | 0.0                | 0.0        | 1.7        | 0.0       | 0.0        | 0.1        | 5.8        | 17         | 1.7        |
|              | Styx         | 16                                | 41            | 56           | 0.0        | 7.9          | 0.0        | 0.6              | 1.5       | 28           | 0.0          | 0.0                | 0.0        | 4.6        | 14        | 0.0        | 0.2        | 11         | 40         | 4.6        |
|              | <b>Total</b> | <b>662</b>                        | <b>1,188</b>  | <b>1,849</b> | <b>0.0</b> | <b>123</b>   | <b>0.0</b> | <b>59</b>        | <b>67</b> | <b>1,010</b> | <b>0.2</b>   | <b>12</b>          | <b>4.4</b> | <b>556</b> | <b>26</b> | <b>2.0</b> | <b>5.4</b> | <b>653</b> | <b>586</b> | <b>556</b> |
| Burnett Mary | Baffle       | 2.5                               | 13            | 16           | 0.0        | 3.8          | 0.0        | 0.0              | 0.2       | 8.7          | 0.2          | 0.0                | 0.1        | 0.4        | 0.2       | 1.9        | 0.0        | 0.1        | 13         | 0.4        |
|              | Kolan        | 3.2                               | 14            | 17           | 0.0        | 1.0          | 0.0        | 0.0              | 0.9       | 8.5          | 0.8          | 0.0                | 0.0        | 2.9        | 2.1       | 0.6        | 0.0        | 0.1        | 12         | 2.9        |
|              | Burnett      | 44                                | 159           | 172          | 0.0        | 5.7          | 0.0        | 0.1              | 6.1       | 92           | 0.8          | 0.0                | 0.2        | 63         | 3.4       | 1.1        | 0.0        | 22         | 85         | 63         |
|              | Burrum       | 1.7                               | 8.5           | 10           | 0.0        | 1.4          | 0.0        | 0.0              | 0.9       | 3.3          | 0.7          | 0.0                | 0.1        | 0.5        | 2.8       | 0.4        | 0.0        | 0.6        | 7.8        | 0.5        |
|              | Mary         | 49                                | 168           | 217          | 0.0        | 3.6          | 2.0        | 0.0              | 3.4       | 81           | 1.1          | 0.0                | 0.7        | 110        | 4.1       | 10         | 0.0        | 3.6        | 95         | 110        |
|              | <b>Total</b> | <b>100</b>                        | <b>332</b>    | <b>431</b>   | <b>0.0</b> | <b>15</b>    | <b>2.1</b> | <b>0.1</b>       | <b>12</b> | <b>194</b>   | <b>3.6</b>   | <b>0.0</b>         | <b>1.0</b> | <b>177</b> | <b>13</b> | <b>14</b>  | <b>0.0</b> | <b>26</b>  | <b>213</b> | <b>177</b> |

## Appendix 4: Additional pesticide data

Table 16. Summary statistics for each basin of the combined land uses associated with higher-pesticide risk (sugarcane, bananas, horticulture, dryland & irrigated cropping). Data are ordered based on the area of the combined land uses.

| Basin            | Combined area of land uses with higher pesticide risk (ha) | Proportion of total basin area | Mix of land use with higher pesticide risk                                                   |
|------------------|------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------|
| Fitzroy          | 653,551                                                    | 4.59%                          | Dominated by dryland cropping (84%), with some irrigated cropping (15%)                      |
| Burdekin         | 185,129                                                    | 1.42%                          | Dominated by dryland cropping (71%), with some sugarcane (23%)                               |
| Burnett          | 121,843                                                    | 3.66%                          | Mix of dryland cropping (49%), irrigated cropping (27%), horticulture (12%), sugarcane (12%) |
| Herbert          | 82,081                                                     | 8.33%                          | Dominated by sugarcane (93%), with some irrigated cropping (5%)                              |
| Plane            | 66,094                                                     | 25.95%                         | Dominated by sugarcane (98%)                                                                 |
| Haughton         | 65,078                                                     | 16.95%                         | Dominated by sugarcane (94%)                                                                 |
| Pioneer          | 32,085                                                     | 19.28%                         | Dominated by sugarcane (99%)                                                                 |
| Johnstone        | 31,794                                                     | 13.72%                         | Dominated by sugarcane (77%), with some bananas (16%)                                        |
| O'Connell        | 30,783                                                     | 13.35%                         | Dominated by sugarcane (99%)                                                                 |
| Mulgrave-Russell | 25,278                                                     | 12.80%                         | Dominated by sugarcane (92%), with some bananas (4%)                                         |
| Proserpine       | 25,576                                                     | 10.18%                         | Dominated by sugarcane (96%)                                                                 |
| Barron           | 24,923                                                     | 11.39%                         | Mix of sugarcane (34%), irrigated cropping (29%), horticulture (26%), bananas (10%)          |
| Tully            | 24,656                                                     | 14.78%                         | Dominated by sugarcane (82%), with some bananas (16%)                                        |
| Murray           | 19,805                                                     | 17.60%                         | Dominated by sugarcane (95%), with some bananas (2%)                                         |
| Kolan            | 17,479                                                     | 6.05%                          | Mix of sugarcane (52%), horticulture (44%)                                                   |
| Burrum           | 34,845                                                     | 10.42%                         | Mix of sugarcane (58%), horticulture (39%)                                                   |
| Don              | 13,834                                                     | 3.99%                          | Dominated by horticulture (82%), with some irrigated cropping (13%)                          |
| Mary             | 25,202                                                     | 2.68%                          | Mix of sugarcane (56%), horticulture (27%), irrigated cropping (12%)                         |
| Mossman          | 4,522                                                      | 9.48%                          | Dominated by sugarcane (98%)                                                                 |
| Normanby         | 4,326                                                      | 0.18%                          | Mix of dryland cropping (62%), bananas (18%), irrigated cropping (14%)                       |
| Daintree         | 4,032                                                      | 1.92%                          | Dominated by sugarcane (94%)                                                                 |

| Basin        | Combined area of land uses with higher pesticide risk (ha) | Proportion of total basin area | Mix of land use with higher pesticide risk                                  |
|--------------|------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------|
| Baffle       | 3,939                                                      | 0.96%                          | Mix of horticulture (52%), sugarcane (36%), irrigated cropping (12%)        |
| Styx         | 2,520                                                      | 0.84%                          | Dominated by sugarcane (92%)                                                |
| Black        | 2,003                                                      | 1.93%                          | Mix of sugarcane (51%), horticulture (42%)                                  |
| Ross         | 1,147                                                      | 0.70%                          | Dominated by horticulture (80%), with some irrigated cropping (16%)         |
| Boyne        | 897                                                        | 0.36%                          | Mix of dryland cropping (54%), irrigated cropping (39%)                     |
| Waterpark    | 588                                                        | 0.32%                          | Mix of horticulture (89%), dryland cropping (11%)                           |
| Calliope     | 410                                                        | 0.19%                          | Mix of horticulture (43%), irrigated cropping (38%), dryland cropping (17%) |
| Endeavour    | 418                                                        | 0.19%                          | Mix of dryland cropping (64%), horticulture (23%), bananas (13%)            |
| Jeannie      | 96                                                         | 0.03%                          | Mix of dryland cropping (50%), horticulture (44%)                           |
| Jacky Jacky  | 0                                                          | 0.00%                          | No high-risk land uses                                                      |
| Lockhart     | 0                                                          | 0.00%                          | No high-risk land uses                                                      |
| Olive-Pascoe | 0                                                          | 0.00%                          | No high-risk land uses                                                      |
| Shoalwater   | 0                                                          | 0.00%                          | No high-risk land uses                                                      |
| Stewart      | 0                                                          | 0.00%                          | No high-risk land uses                                                      |

Table 17. Percent of species affected (wet season average of 22 pesticides based on Pesticide Risk Metric estimates) for GBR catchments monitored from 2015–2023, the average % species affected from each wet season, the pesticide risk category of the annual wet season average and the equivalent Management Response exposure category.

| Catchment                           | 2015-2016 | 2016-2017* | 2017-2018* | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | Annual wet season average (% Species Affected) | Pesticide risk category |
|-------------------------------------|-----------|------------|------------|-----------|-----------|-----------|-----------|-----------|------------------------------------------------|-------------------------|
| Cape York                           |           |            |            |           |           |           |           |           |                                                |                         |
| Normanby River at Kalpowar Crossing |           |            |            |           |           |           | 0         |           | 0                                              | Very Low                |
| Wet Tropics                         |           |            |            |           |           |           |           |           |                                                |                         |
| Daintree River at Lower Daintree    |           |            | 0.5        | 0.8       | 0.1       | 0.3       | 0.4       | 0.7       | 0.47                                           | Very Low                |
| Mossman River at Bonnie Doon        |           |            | 3.2        | 5.2       |           |           | 4.3       | 4.2       | 4.23                                           | Low                     |
| Barron River at Rinks Close Jetty   |           |            | 0.6        | 0.5       |           |           |           |           | 0.55                                           | Very Low                |

| Catchment                                         | 2015-2016 | 2016-2017* | 2017-2018* | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | Annual wet season average (% Species Affected) | Pesticide risk category |
|---------------------------------------------------|-----------|------------|------------|-----------|-----------|-----------|-----------|-----------|------------------------------------------------|-------------------------|
| Mulgrave River at Deeral                          | 2         | 4.3        | 6          | 3.3       | 1.5       | 2.1       | 1.7       | 1.6       | 2.81                                           | Low                     |
| Russell River at East Russell                     | 2.7       | 4.5        | 6.7        | 2.1       | 2.9       | 2.1       | 3.3       | 2.3       | 3.33                                           | Low                     |
| Johnstone River at Coquette Point                 | 3.2       | 3.4        | 4.9        | 2.3       | 1.9       | 2.2       | 3.3       | 1.7       | 2.86                                           | Low                     |
| Tully River at Euramo                             | 4.9       | 7.4        | 6.6        | 4.5       | 3.1       | 4.9       | 4.7       | 8.9       | 5.63                                           | Moderate                |
| Murray River at Bilyana                           |           |            |            | 17.8      | 16.7      | 19        | 10.4      | 18.4      | 16.46                                          | High                    |
| Herbert River at John Row Bridge                  | 2.5       | 5.3        | 3.9        | 3.5       | 3.5       | 4.8       | 3.4       | 6         | 4.11                                           | Low                     |
| Burdekin                                          |           |            |            |           |           |           |           |           |                                                | Very Low                |
| Black River at Bruce Highway                      |           |            | 0.3        | 0         | 0.6       | 0.4       | 0.5       | 1         | 0.47                                           | Very Low                |
| Ross River at Aplins Weir Headwater               |           |            | 0.7        | 0.1       | 0.6       | 0.3       | 0.6       | 0.9       | 0.53                                           | Very Low                |
| Burdekin River at Home Hill Inkerman Bridge       | 0.3       | 1.5        | 0.6        | 0.5       | 1         | 0.4       | 4.2       | 2         | 1.31                                           | Low                     |
| Houghton River at Giru Weir Tailwater             |           |            | 2.5        | 3.8       | 5.3       | 2.8       | 9         | 4.1       | 4.58                                           | Low                     |
| East Barratta Creek at Jerona Road                |           |            | 9.5        | 10.9      | 12.4      | 10.8      | 16.2      | 15.4      | 12.53                                          | High                    |
| Don River at Bowen                                |           |            | 3.4        | 1.7       | 0.9       | 0.8       | ND**      | 3.5       | 2.06                                           | Low                     |
| Mackay Whitsunday                                 |           |            |            |           |           |           |           |           |                                                | Very Low                |
| Proserpine River at Glen Isla                     |           | 27         | 29.4       | 34.1      | 29.2      | 26.4      | 34.5      | 28        | 29.8                                           | Very High               |
| O'Connell River at Caravan Park                   | 7.7       | 12.4       | 7.9        | 8.1       | 7.7       | 12.9      | 10.1      | 11.8      | 9.83                                           | Moderate                |
| Pioneer River at Dumbleton Pump Station Headwater | 18.1      | 17         | 24.9       | 15.4      | 21.5      | 23.1      | 14.5      | 16.6      | 18.89                                          | High                    |
| Sandy Creek at Homebush                           | 40.3      | 38.9       | 42.3       | 36.5      | 33.4      | 42.1      | 36.1      | 35.1      | 38.09                                          | Very High               |
| Plane Creek at Sucrogen Weir                      |           |            | 6.9        | 4.1       | 5.8       | 4.7       | 7.2       | 6.6       | 5.88                                           | Moderate                |
| Fitzroy                                           |           |            |            |           |           |           |           |           |                                                | Very Low                |
| Styx River at Ogmoo                               |           |            | 0          | 0.1       |           |           |           |           | 0.05                                           | Very Low                |
| Waterpark Creek at Corbett's Landing              |           |            | 0          | 0         |           |           |           |           | 0                                              | Very Low                |
| Fitzroy River at Fitzroy River Water              | 1.7       | 2          | 2.4        | 2.1       | 3.1       | 2         | 3.9       | 8.3       | 3.19                                           | Low                     |
| Calliope River at Old Bruce Highway               |           |            | 0.1        | 0         |           |           | 0.2       |           | 0.1                                            | Very Low                |
| Boyne River at Boyne Island                       |           |            | 0          | 0.1       |           |           |           |           | 0.05                                           | Very Low                |

Appendix 4: Additional pesticide data

| Catchment                            | 2015-2016 | 2016-2017* | 2017-2018* | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 | Annual wet season average (% Species Affected) | Pesticide risk category |
|--------------------------------------|-----------|------------|------------|-----------|-----------|-----------|-----------|-----------|------------------------------------------------|-------------------------|
| Burnett Mary                         |           |            |            |           |           |           |           |           |                                                | Very Low                |
| Baffle Creek at Newton Road          |           |            | 0.1        | 0.2       |           |           |           |           | 0.15                                           | Very Low                |
| Kolan River at Barrage               |           |            |            |           | 4.1       | 0.3       | 7.5       | 4.2       | 4.03                                           | Low                     |
| Burnett River at Quay Street Bridge  |           |            | 3.1        | 1.3       | 1.9       | 1         | 4.3       | 3         | 2.43                                           | Low                     |
| Elliott River at Riverview Boat Ramp |           |            | 4.7        | 0.3       |           |           |           |           | 2.5                                            | Low                     |
| Gregory River at Jarretts Road       |           |            | 7.5        | 3.2       | 2.9       | 0         | 4.5       | 3.1       | 3.5                                            | Low                     |
| Burrum River at Buxton Boat Ramp     |           |            | 0.3        | 0.1       |           |           |           |           | 0.2                                            | Very Low                |
| Mary River at Churchill Street       |           |            | 3.3        | 5.9       | 2.5       | 2.4       | 3.5       | 3.8       | 3.57                                           | Low                     |

\*Comparable years with the hydrodynamic marine modelling of diuron.

\*\*The pesticide risk for the Don River in 2022 indicated a High risk level, however this was considered unrepresentative due to dry conditions throughout the wet season that reduced water sampling opportunities and there were insufficient water samples representing both event (high flow) and ambient (low flow) conditions. Therefore, the risk estimates for the 2021-2022 wet season were not included.

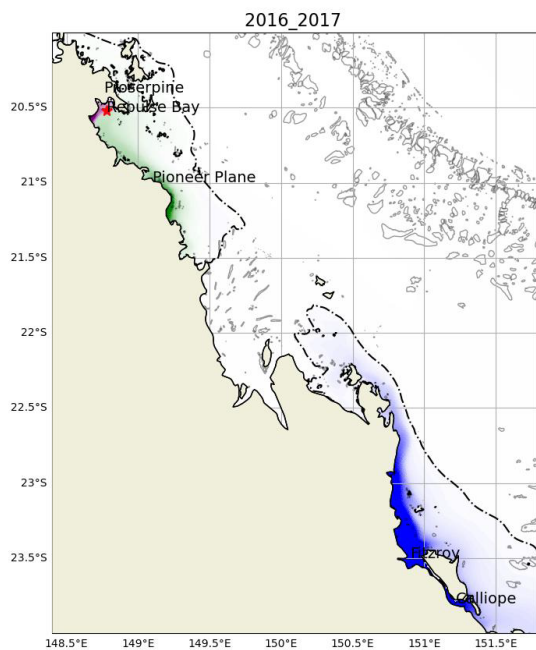


Figure 1. Simulated river plume extent for the Fitzroy and Mackay Whitsunday regions during the 2016-2017 wet season.

#### % River water in sea water

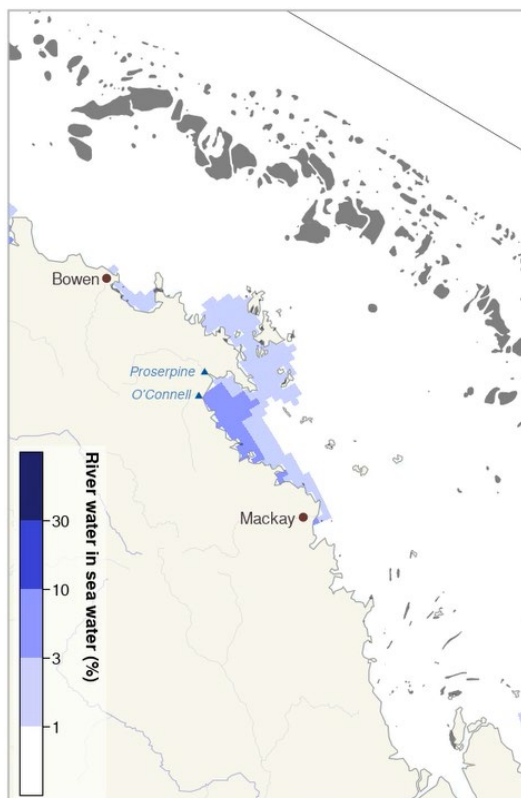
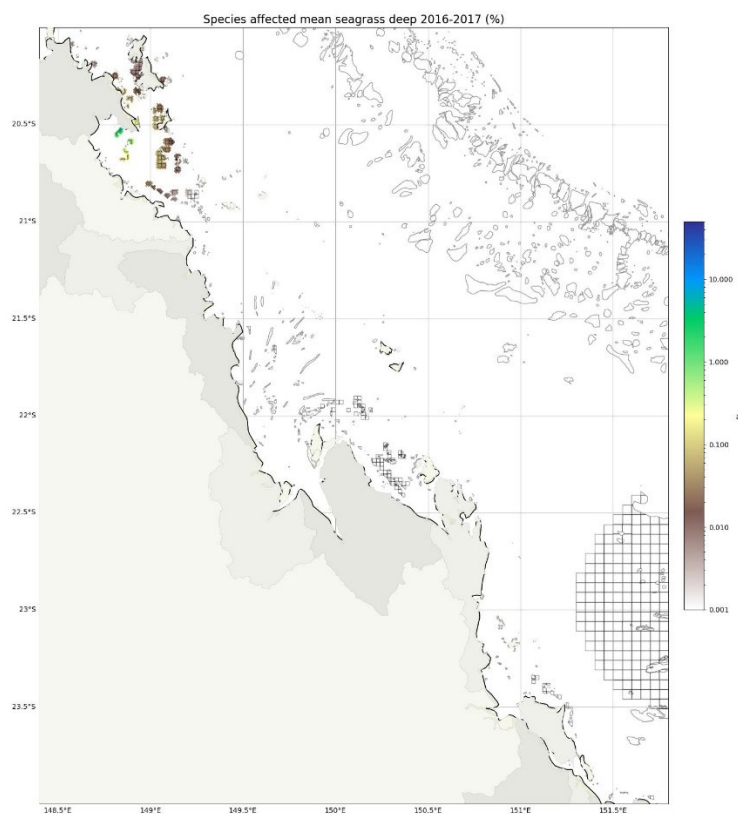


Figure 2. eReefs simulated flood plume extent (blue shading) from Pioneer, Proserpine and O'Connell rivers. The simulation demonstrates that flood plumes extend from the Pioneer River up to Repulse Bay on some occasions. These plumes can mix with floodplumes from O'Connell and Proserpine rivers and extend to the Whitsunday Islands.



*Figure 3. Deep Seagrass exposure to diuron (% species affected wet season average) based on hydrodynamic marine modelling during the 2016–2017 wet season for the Mackay Whitsunday and Fitzroy regions. Coloured shading indicates deep seagrass habitat exposed to diuron.*

Table 18. Maximum detected time integrated pesticide concentrations at fixed inshore marine passive sampling sites from 2016–2017 (top) and 2017–2018 (bottom). Colour coding reflects lowest (green) to highest (red) values for each pesticide between the monitored.

|                       |                  | Maximum concentration PSII Herbicides and metabolites (ng/L)<br>(*included in PSII-HEq Index) |           |              |              |          |         |              |             |            |            |           |           |              | PSII-<br>Heq<br>Max<br>(ng/<br>L) | Maximum concentration other pesticides (ng/L) |             |      |        |           |      |           |            |          |              |                    |              |              |               |               |             |
|-----------------------|------------------|-----------------------------------------------------------------------------------------------|-----------|--------------|--------------|----------|---------|--------------|-------------|------------|------------|-----------|-----------|--------------|-----------------------------------|-----------------------------------------------|-------------|------|--------|-----------|------|-----------|------------|----------|--------------|--------------------|--------------|--------------|---------------|---------------|-------------|
|                       |                  | Ametryn*                                                                                      | Atrazine* | DE Atrazine* | DI Atrazine* | Bromacil | Diuron* | Fluometuron* | Hexazinone* | Metribuzin | Prometryn* | Propazine | Simazine* | Tebuthiuron* |                                   | Terbutryn                                     | Metolachlor | 24 D | 2,4 DB | Haloxypof | MCPA | Fluazifop | Fluroxypyr | Imazapic | Imidacloprid | Metsulfuron-Methyl | Tebuconazole | Chlorpyrifos | Pendimethalin | Propiconazole | Trifluralin |
| Wet Tropics           | Low Isles        | 0.02                                                                                          | 1.1       | 0.03         | n.d.         | n.d.     | 3.2     | n.d.         | 0.66        | n.d.       | n.d.       | n.d.      | 0.04      | 0.05         | n.d.                              | 3.5                                           | 0.19        | 0.04 | n.d.   | n.d.      | n.d. | n.d.      | n.d.       | 0.08     | n.d.         | n.d.               |              |              |               |               |             |
|                       | High Island      | n.d.                                                                                          | 1.3       | 0.19         | n.d.         | 0.01     | 10      | n.d.         | 2.9         | 0.02       | 0.30       | n.d.      | 0.05      | 0.04         | n.d.                              | 11                                            | 0.18        | 0.51 | n.d.   | 0.03      | 0.09 | n.d.      | n.d.       | n.d.     | 1.0          | n.d.               | 0.03         |              |               |               |             |
|                       | Normanby Island  | No data for 2016-17                                                                           |           |              |              |          |         |              |             |            |            |           |           |              |                                   |                                               |             |      |        |           |      |           |            |          |              |                    |              |              |               |               |             |
|                       | Dunk Island      | n.d.                                                                                          | 1.2       | 0.07         | n.d.         | n.d.     | 6.6     | n.d.         | 1.9         | 0.03       | n.d.       | n.d.      | 0.05      | 0.07         | n.d.                              | 7.4                                           | 0.21        | 0.30 | n.d.   | 0.01      | n.d. | n.d.      | 0.02       | n.d.     | 1.4          | n.d.               | n.d.         |              |               |               |             |
|                       | Lucinda          | 0.02                                                                                          | 1.6       | n.d.         | n.d.         | 0.00     | 5.8     | n.d.         | 1.9         | n.d.       | n.d.       | 0.01      | n.d.      | 0.18         | n.d.                              | 6.8                                           | 0.16        | 0.52 | n.d.   | 0.01      | 0.04 | n.d.      | n.d.       | n.d.     | 0.32         | n.d.               | n.d.         |              |               |               |             |
| Burdekin              | Barratta Creek   | 1.9                                                                                           | 41        | 6.6          | 1.1          | 0.19     | 17      | n.d.         | 1.6         | 1.2        | n.d.       | 0.27      | 0.48      | 0.20         | n.d.                              | 25                                            | 4.4         | 1.4  | n.d.   | 0.04      | 0.06 | 0.01      | n.d.       | n.d.     | n.d.         | n.d.               | n.d.         | 0.15         | 0.11          | 0.21          | n.d.        |
| Mackay<br>Whitsundays | Repulse Bay*     | n.d.                                                                                          | 1.7       | n.d.         | n.d.         | n.d.     | 3.8     | n.d.         | 1.8         | n.d.       | n.d.       | n.d.      | n.d.      | 0.03         | n.d.                              | 4.8                                           | 0.14        | 0.29 | n.d.   | n.d.      | n.d. | n.d.      | n.d.       | 0.23     | n.d.         | n.d.               |              |              |               |               |             |
|                       | Round Top Island | 3.2                                                                                           | 320       | 20           | 4.9          | 0.03     | 580     | n.d.         | 88          | 12         | 0.04       | 1.4       | 1.3       | 0.53         | n.d.                              | 670                                           | 7.7         | 11   | n.d.   | 0.01      | 0.13 | n.d.      | 0.49       | 0.82     | 53           | 0.65               | 0.02         | 0.49         | 0.19          | 0.66          | 0.00        |
|                       | Sandy Creek      | n.d.                                                                                          | 18        | 1.7          | 0.39         | 0.04     | 70      | n.d.         | 20          | 0.50       | n.d.       | 0.07      | 0.15      | 0.41         | n.d.                              | 77                                            | 0.38        | 2.2  | n.d.   | n.d.      | 0.46 | n.d.      | n.d.       | n.d.     | 3.3          | 0.30               | n.d.         | 0.01         | 0.03          | 1.2           | n.d.        |
|                       | Sarina Inlet     | 0.28                                                                                          | 75        | 4.5          | 1.1          | n.d.     | 120     | n.d.         | 40          | 0.88       | n.d.       | 0.22      | 0.60      | 1.6          | n.d.                              | 150                                           | 7.8         | 7.0  | n.d.   | n.d.      | 0.78 | n.d.      | 0.40       | 0.43     | 4.5          | 0.16               | n.d.         | 0.03         | 0.02          | 0.1           | 0.00        |
| Fitroy                | N. Keppel Island | n.d.                                                                                          | 0.35      | n.d.         | 0.05         | n.d.     | 0.38    | n.d.         | 0.08        | n.d.       | n.d.       | n.d.      | 1.9       | 2.3          | n.d.                              | 0.77                                          | 0.19        | 0.15 | n.d.   | 0.03      | n.d. | n.d.      | n.d.       | n.d.     | n.d.         | n.d.               |              |              |               |               |             |

n.d. = maximum pesticide concentration below limit of detection

\* Data from only one wet season sampling period available



|                       |                       | Concentration PSII herbicides (ng/L)<br>(* included in ms-PAF method) |           |         |             |              |           |              |             |            |            |           |               |            | % Species<br>Affected | Concentration other herbicides/ pesticides (ng/L) |             |             |      |        |           |      |           |            |          |              |                        |              |
|-----------------------|-----------------------|-----------------------------------------------------------------------|-----------|---------|-------------|--------------|-----------|--------------|-------------|------------|------------|-----------|---------------|------------|-----------------------|---------------------------------------------------|-------------|-------------|------|--------|-----------|------|-----------|------------|----------|--------------|------------------------|--------------|
| Region                | Passive sampling site | Ametryn*                                                              | Atrazine* | Diuron* | Hexazinone* | Tebuthiuron* | Bromacil* | Fluometuron* | Metribuzin* | Prometryn* | Propazine* | Simazine* | Terbutylazine | Terbutryn* |                       | DE Atrazine                                       | DI Atrazine | Metolachlor | 24 D | 2,4 DB | Haloxypol | MCPA | Fluazifop | Fluroxypyr | Imazapic | Imidacloprid | Metsulfuron-<br>Methyl | Tebuconazole |
| Wet Tropics           | Low Isles             | n.d.                                                                  | 1.9       | 6.7     | 1.8         | 0.24         | n.d.      | n.d.         | n.d.        | n.d.       | n.d.       | 0.46      | n.d.          | n.d.       | 3.81                  | 0.43                                              | 0.07        | 0.13        | 0.21 | n.d.   | 0.03      | n.d. | n.d.      | n.d.       | n.d.     | 1.0          | n.d.                   | n.d.         |
|                       | High Island           | n.d.                                                                  | 2.8       | 24      | 6.8         | 0.03         | n.d.      | n.d.         | 0.06        | n.d.       | n.d.       | n.d.      | n.d.          | n.d.       | 7.75                  | 0.11                                              | n.d.        | 0.51        | 1.1  | n.d.   | 0.10      | 0.09 | n.d.      | n.d.       | n.d.     | 2.5          | n.d.                   | n.d.         |
|                       | Normanby Island       | n.d.                                                                  | 1.8       | 6.3     | 1.9         | n.d.         | n.d.      | n.d.         | n.d.        | n.d.       | n.d.       | 0.09      | n.d.          | n.d.       | 3.62                  | 0.14                                              | n.d.        | 0.12        | 0.09 | n.d.   | 0.03      | n.d. | n.d.      | n.d.       | n.d.     | 0.30         | n.d.                   | n.d.         |
|                       | Dunk Island           | n.d.                                                                  | 5.2       | 28      | 7.4         | 0.20         | n.d.      | n.d.         | 0.20        | n.d.       | 0.03       | 3.0       | n.d.          | n.d.       | 8.36                  | 0.35                                              | n.d.        | 0.26        | 1.4  | n.d.   | 0.10      | 0.03 | n.d.      | n.d.       | n.d.     | 2.43         | n.d.                   | n.d.         |
|                       | Lucinda               | n.d.                                                                  | 9.4       | 7.9     | 2.3         | 0.06         | n.d.      | n.d.         | n.d.        | n.d.       | 0.05       | 0.51      | n.d.          | n.d.       | 4.15                  | 0.46                                              | 0.11        | 0.51        | 0.12 | n.d.   | n.d.      | n.d. | n.d.      | n.d.       | n.d.     | 0.22         | n.d.                   | n.d.         |
| Burdekin              | Barratta Creek        | 7.9                                                                   | 309       | 10      | 0.98        | 0.95         | 0.60      | n.d.         | 1.03        | n.d.       | 1.9        | 0.83      | n.d.          | n.d.       | 6.03                  | 16                                                | 1.8         | 28          | 4.6  | n.d.   | 0.60      | 1.8  | n.d.      | n.d.       | n.d.     | 0.38         | 0.50                   | 0.01         |
| Mackay<br>Whitsundays | Repulse Bay           | 0.20                                                                  | 9.6       | 22      | 11          | 2.6          | 0.47      | n.d.         | 0.09        | n.d.       | 0.12       | 0.19      | 0.10          | n.d.       | 9.00                  | 3.7                                               | 1.1         | 1.9         | 2.2  | n.d.   | 0.06      | 0.19 | n.d.      | n.d.       | 0.39     | 8.5          | 0.07                   | n.d.         |
|                       | Round Top Island      | 3.8                                                                   | 405       | 778     | 134         | 1.1          | n.d.      | n.d.         | 42          | n.d.       | 2.3        | 2.1       | 0.68          | n.d.       | 34                    | 32                                                | 6.2         | 16          | 8.1  | n.d.   | n.d.      | 3.9  | n.d.      | n.d.       | 3.9      | 41.95        | 0.72                   | n.d.         |
|                       | Sandy Creek^          | n.d.                                                                  | 3.0       | 10      | 3.8         | 0.55         | n.d.      | n.d.         | n.d.        | n.d.       | 0.04       | 1.9       | n.d.          | n.d.       | 4.50                  | 0.62                                              | 0.16        | 0.50        | 0.22 | n.d.   | n.d.      | n.d. | n.d.      | n.d.       | 0.00     | <0.17        | 0.05                   | n.d.         |
|                       | Sarina Inlet          | 0.46                                                                  | 27        | 60      | 27          | 1.8          | n.d.      | n.d.         | 0.07        | n.d.       | 0.18       | 0.37      | 0.47          | n.d.       | 10.0                  | 0.81                                              | n.d.        | 1.8         | 0.52 | n.d.   | n.d.      | 0.09 | n.d.      | n.d.       | n.d.     | 0.62         | n.d.                   | n.d.         |
| Fitzroy               | North Keppel Island   | n.d.                                                                  | 0.56      | 6.1     | 0.45        | 0.20         | n.d.      | n.d.         | n.d.        | n.d.       | n.d.       | 0.23      | n.d.          | n.d.       | 4.21                  | n.d.                                              | n.d.        | 0.24        | 0.26 | n.d.   | n.d.      | 0.19 | n.d.      | n.d.       | n.d.     | 0.21         | n.d.                   | n.d.         |

n.d. = maximum concentration did not exceed the limit of detection

^Note only 2 successful sampling periods



#### Appendix 4: Additional pesticide data

Table 19. Range (minimum – maximum) of the percent species affected by diuron and the contribution of diuron to the total percent of species affected. Data is shown for all years monitored for each catchment between 2015–2023. Percent species affected is estimated based on the Pesticide Risk Metric (i.e. the wet season average). Total PAF is the percent of species affected of up to 22 pesticides.

| Region and catchment                            | Number of years monitored | Average Percent species affected from diuron (min – max) | Percent contribution of diuron to total PAF (min – max) |
|-------------------------------------------------|---------------------------|----------------------------------------------------------|---------------------------------------------------------|
| <b>Cape York</b>                                | 0                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| Normanby River at Kalpowar Crossing             | 1                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| <b>Wet Tropics</b>                              | 0                         |                                                          | 0.0–0.0%                                                |
| Daintree River                                  | 2                         | 0.01–0.54%                                               | 6.3–35.5%                                               |
| Mossman River                                   | 6                         | 0.28–2.45%                                               | 2.8–77.2%                                               |
| Barron River                                    | 8                         | 0.03–0.21%                                               | 17.3–48.5%                                              |
| Mulgrave River                                  | 8                         | 0.56–2.22%                                               | 24.9–60.9%                                              |
| Russell River                                   | 4                         | 0.95–3.3%                                                | 6.7–64.7%                                               |
| Johnstone River                                 | 8                         | 0.63–1.61%                                               | 32.0–51.6%                                              |
| Tully River                                     | 5                         | 1.51–6.59%                                               | 35.6–70.9%                                              |
| Murray River                                    | 8                         | 5.56–13.04%                                              | 45.1–79.4%                                              |
| Herbert River                                   | 8                         | 0.61–2.91%                                               | 36.3–74.6%                                              |
| <b>Burdekin</b>                                 |                           |                                                          |                                                         |
| Black River at Bruce Highway                    | 6                         | 0.0–0.1%                                                 | 0.0–10.3%                                               |
| Burdekin River at Home Hill Inkerman Bridge     | 8                         | 0.0–0.7%                                                 | 0.0–16.3%                                               |
| Don River at Bowen                              | 6                         | 0.0–0.1%                                                 | 0.0–13.7%                                               |
| East Barratta Creek at Jerona Road              | 6                         | 3.0–7.4%                                                 | 30.1–47.8%                                              |
| Haughton River at Giru Weir Tailwater           | 6                         | 0.3–2.4%                                                 | 11.9–53.7%                                              |
| Haughton River at Powerline                     | 2                         | 1.5–3.2%                                                 | 23.9–49.4%                                              |
| Ross River at Aplins Weir Headwater             | 6                         | 0.0–0.0%                                                 | 0.0–1.4%                                                |
| <b>Mackay Whitsunday</b>                        | 0                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| Proserpine River                                | 8                         | 5.6–12.4%                                                | 10.8–38.5%                                              |
| O'Connell River                                 | 8                         | 0.8–5.0%                                                 | 34.7–56.4%                                              |
| Pioneer River                                   | 6                         | 6.3–14.0%                                                | 2.0–50.5%                                               |
| Sandy Creek                                     | 7                         | 11.7–18.9%                                               | 20.0–35.9%                                              |
| Plane Creek                                     | 8                         | 0.1–2.2%                                                 | 33.3–44.7%                                              |
| <b>Fitzroy</b>                                  | 0                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| Boyne River at Boyne Island                     | 2                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| Calliope River at Old Bruce Highway             | 3                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| Fitzroy River at Fitzroy River Water            | 8                         | 0.0–0.6%                                                 | 0.0–6.6%                                                |
| Styx River at Ogmoo                             | 2                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| Waterpark Creek at Corbett's Landing            | 2                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| <b>Burnett Mary</b>                             | 0                         | 0.0–0.0%                                                 | 0.0–0.0%                                                |
| Baffle Creek at Newton Road                     | 2                         | 0.0–0.0%                                                 | 0.0–21.6%                                               |
| Burnett River at Ben Anderson Barrage Headwater | 2                         | 0.1–0.1%                                                 | 3.9–5.3%                                                |
| Burnett River at Quay Street Bridge             | 6                         | 0.1–0.5%                                                 | 4.3–16.7%                                               |
| Burrum River at Buxton Boat Ramp                | 2                         | 0.0–0.0%                                                 | 0.0–3.4%                                                |

| Region and catchment                 | Number of years monitored | Average Percent species affected from diuron (min – max) | Percent contribution of diuron to total PAF (min – max) |
|--------------------------------------|---------------------------|----------------------------------------------------------|---------------------------------------------------------|
| Elliott River at Riverview Boat Ramp | 2                         | 0.0–1.1%                                                 | 0.0–22.9%                                               |
| Gregory River at Jarretts Road       | 6                         | 0.0–2.4%                                                 | 0.0–56.3%                                               |
| Kolan River at Barrage               | 4                         | 0.0–4.5%                                                 | 0.0–60.3%                                               |
| Kolan River at Booyan Boat Ramp      | 3                         | 0.1–3.5%                                                 | 10.0–61.5%                                              |
| Mary River at Churchill Street       | 6                         | 0.1–1.8%                                                 | 2.9–31.2%                                               |
| Mary River at Home Park              | 2                         | 0.0–0.3%                                                 | 1.1–9.1%                                                |
| Tinana Creek at Barrage Headwater    | 4                         | 0.9–2.4%                                                 | 17.8–28.5%                                              |

## Appendix 5: Wetland condition

### Indicator scores

Table 20. Mean scores (and standard errors in blue text) of wetland condition indicators by management unit (see section 5.2.1 of main report for calculation methods and indicator descriptions). Green shading, mean scores < 2.5; Orange shading, mean scores ≥ 3.5; n = number of wetlands from which mean scores were derived.

| Management unit  | n  | P1           | P20  | P14  | S13  | S14  | S1   | P21  | P2   | P7   | P8   | S3   | S12  | S15  | S9   | S16  | P19  | P16  | P12  | P10  | P3   | P4   | P5   | S7   | S8   |
|------------------|----|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|                  |    | Mean scores: |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Normanby         | 35 | 3.29         | 1.49 | 1.00 | 1.06 | 1.00 | 1.71 | 1.40 | 1.00 | 1.51 | 1.97 | 1.09 | 1.06 | 1.11 | 1.14 | 1.09 | 3.00 | 1.46 | 1.09 | 1.23 | 1.00 | 1.46 | 1.00 | 2.00 | 3.76 |
| Mulgrave-Russell | 3  | 3.67         | 3.67 | 2.67 | 3.33 | 2.00 | 2.00 | 3.33 | 2.00 | 3.67 | 3.67 | 2.00 | 1.00 | 2.33 | 3.00 | 2.67 | 3.00 | 1.67 | 2.33 | 4.67 | 1.33 | 1.67 | 1.67 | 1.00 | 3.00 |
| Johnstone        | 2  | 4.50         | 4.50 | 4.00 | 4.50 | 2.50 | 3.50 | 3.50 | 4.00 | 4.00 | 4.00 | 3.00 | 3.00 | 2.50 | 5.00 | 4.00 | 2.00 | 4.00 | 2.00 | 5.00 | 2.50 | 3.50 | 1.50 | 1.50 | 2.00 |
| Tully            | 12 | 3.50         | 4.17 | 3.17 | 3.92 | 2.58 | 2.33 | 3.75 | 3.17 | 2.67 | 3.17 | 2.08 | 2.00 | 3.42 | 3.50 | 2.50 | 2.17 | 3.33 | 2.50 | 4.25 | 2.50 | 3.00 | 1.17 | 1.58 | 2.33 |
| Murray           | 12 | 3.33         | 4.58 | 3.75 | 4.42 | 3.17 | 3.08 | 3.58 | 3.75 | 3.00 | 4.00 | 2.50 | 2.17 | 3.83 | 4.25 | 2.42 | 2.50 | 3.50 | 2.42 | 4.50 | 2.92 | 3.42 | 1.33 | 1.58 | 2.50 |
| Upper Herbert    | 5  | 4.00         | 2.00 | 1.00 | 1.00 | 1.00 | 2.60 | 2.20 | 1.00 | 3.40 | 3.80 | 3.00 | 2.20 | 1.20 | 2.80 | 1.00 | 3.00 | 3.20 | 1.00 | 3.60 | 1.00 | 3.00 | 1.00 | 1.80 | 4.20 |
| Lower Herbert    | 12 | 3.33         | 4.17 | 2.83 | 4.08 | 2.83 | 3.75 | 3.58 | 3.50 | 3.83 | 3.67 | 3.75 | 1.50 | 2.17 | 2.58 | 1.92 | 2.67 | 2.92 | 1.92 | 3.25 | 2.67 | 3.17 | 1.25 | 1.67 | 3.00 |
| Black            | 1  | 5.00         | 3.00 | 2.00 | 3.00 | 1.00 | 4.00 | 2.00 | 2.00 | 5.00 | 3.00 | 4.00 | 3.00 | 3.00 | 5.00 | 2.00 | 3.00 | 4.00 | 3.00 | 4.00 | 3.00 | 4.00 | 2.00 | 1.00 | 1.00 |
| Ross             | 3  | 4.00         | 4.00 | 2.33 | 3.33 | 1.67 | 2.67 | 2.67 | 3.00 | 4.33 | 4.33 | 2.67 | 2.33 | 3.00 | 4.00 | 2.67 | 2.33 | 2.67 | 1.67 | 2.33 | 1.33 | 1.67 | 1.00 | 1.33 | 3.00 |
| Haughton         | 16 | 3.44         | 4.19 | 3.56 | 4.44 | 2.50 | 3.81 | 2.94 | 3.13 | 4.25 | 4.13 | 3.63 | 2.69 | 4.00 | 3.88 | 2.56 | 3.00 | 4.56 | 1.81 | 3.75 | 3.56 | 4.38 | 1.50 | 1.69 | 2.88 |
| East Burdekin    | 1  | 4.00         | 3.00 | 1.00 | 2.00 | 1.00 | 2.00 | 3.00 | 1.00 | 3.00 | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 3.00 | 3.00 | 1.00 | 4.00 | 1.00 | 3.00 | 1.00 | 2.00 | 3.00 |
| Burdekin Delta   | 6  | 3.83         | 4.33 | 3.17 | 5.00 | 2.00 | 4.00 | 3.67 | 2.67 | 4.67 | 4.00 | 3.83 | 3.67 | 4.33 | 3.67 | 2.50 | 3.33 | 4.17 | 1.50 | 3.67 | 3.17 | 4.17 | 1.17 | 1.83 | 3.00 |
| Upper Burdekin   | 3  | 4.00         | 2.00 | 1.67 | 2.00 | 1.33 | 2.67 | 2.00 | 1.33 | 2.33 | 3.67 | 2.00 | 1.67 | 1.00 | 2.33 | 1.00 | 3.00 | 2.33 | 1.00 | 3.67 | 1.00 | 2.33 | 1.00 | 1.67 | 3.67 |
| Cape Campaspe    | 5  | 4.00         | 2.00 | 1.20 | 1.40 | 1.20 | 2.20 | 2.00 | 1.00 | 3.00 | 3.00 | 1.80 | 1.00 | 1.00 | 1.00 | 1.20 | 2.60 | 3.20 | 1.00 | 3.00 | 1.20 | 3.20 | 1.00 | 2.00 | 4.60 |
| Don River        | 3  | 4.00         | 3.00 | 2.33 | 3.67 | 2.00 | 3.33 | 2.67 | 3.00 | 3.67 | 3.67 | 2.33 | 1.67 | 3.67 | 2.33 | 1.00 | 3.00 | 3.67 | 1.00 | 4.00 | 1.33 | 3.33 | 1.00 | 2.00 | 4.33 |
| Proserpine       | 3  | 4.00         | 3.67 | 2.67 | 4.00 | 2.33 | 3.67 | 3.33 | 3.67 | 4.33 | 4.33 | 4.00 | 1.00 | 2.67 | 1.67 | 2.00 | 1.67 | 4.00 | 1.00 | 3.33 | 1.67 | 3.67 | 1.33 | 1.00 | 1.00 |
| Plane Creek      | 1  | 4.00         | 4.00 | 1.00 | 4.00 | 1.00 | 3.00 | 3.00 | 1.00 | 3.00 | 5.00 | 3.00 | 3.00 | 3.00 | 4.00 | 2.00 | 3.00 | 2.00 | 1.00 | 2.00 | 1.00 | 2.00 | 2.00 | 2.00 | 3.00 |
| Waterpark Creek  | 3  | 4.00         | 3.00 | 2.33 | 2.67 | 2.33 | 2.33 | 3.00 | 2.33 | 3.00 | 4.33 | 2.00 | 1.00 | 1.00 | 3.00 | 2.67 | 2.33 | 1.67 | 3.67 | 4.00 | 1.67 | 1.67 | 1.00 | 1.00 | 1.00 |
| Lower Fitzroy    | 17 | 4.06         | 4.53 | 3.65 | 4.59 | 2.94 | 3.71 | 3.76 | 3.76 | 4.29 | 4.29 | 3.65 | 2.29 | 3.65 | 3.35 | 1.59 | 3.00 | 3.53 | 1.35 | 3.76 | 1.47 | 3.24 | 1.24 | 2.00 | 3.59 |
| Dawson           | 22 | 3.95         | 4.73 | 3.86 | 4.59 | 3.05 | 3.45 | 3.27 | 3.91 | 3.09 | 3.27 | 2.64 | 1.45 | 2.05 | 2.32 | 1.32 | 2.73 | 3.68 | 1.09 | 4.14 | 1.59 | 3.41 | 1.05 | 1.95 | 3.91 |

| Management unit  | n  | P1               | P20  | P14  | S13  | S14  | S1   | P21  | P2   | P7   | P8   | S3   | S12  | S15  | S9   | S16  | P19  | P16  | P12  | P10  | P3   | P4   | P5   | S7   | S8   |
|------------------|----|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Isaac            | 10 | 4.00             | 3.80 | 2.60 | 4.10 | 2.20 | 3.40 | 3.10 | 3.10 | 3.40 | 3.60 | 2.90 | 1.60 | 1.40 | 2.00 | 1.00 | 2.80 | 3.20 | 1.00 | 3.30 | 1.10 | 2.90 | 1.00 | 1.90 | 3.20 |
| Mackenzie        | 4  | 3.75             | 4.50 | 2.75 | 4.50 | 1.75 | 3.25 | 3.00 | 2.00 | 4.00 | 4.00 | 3.00 | 1.50 | 1.50 | 1.25 | 1.00 | 3.00 | 4.25 | 1.00 | 4.00 | 1.50 | 3.25 | 1.00 | 2.00 | 3.50 |
| Nogoa            | 1  | 4.00             | 5.00 | 3.00 | 4.00 | 1.00 | 3.00 | 4.00 | 1.00 | 3.00 | 3.00 | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 | 3.00 | 3.00 | 1.00 | 5.00 | 1.00 | 3.00 | 1.00 | 2.00 | 1.00 |
| Baffle           | 9  | 3.89             | 3.11 | 2.67 | 3.56 | 2.44 | 3.33 | 3.11 | 3.33 | 3.00 | 3.67 | 2.67 | 1.89 | 2.11 | 3.89 | 1.67 | 2.78 | 3.00 | 2.11 | 3.00 | 2.11 | 3.00 | 1.11 | 1.67 | 2.56 |
| Burnett          | 1  | 4.00             | 4.00 | 4.00 | 5.00 | 4.00 | 5.00 | 4.00 | 5.00 | 3.00 | 3.00 | 3.00 | 3.00 | 5.00 | 4.00 | 2.00 | 3.00 | 4.00 | 3.00 | 3.00 | 3.00 | 4.00 | 1.00 | 3.00 | 3.00 |
| Burrum           | 18 | 3.78             | 3.56 | 2.28 | 3.44 | 1.61 | 2.11 | 3.00 | 1.72 | 3.00 | 3.11 | 1.61 | 1.11 | 2.50 | 3.22 | 2.39 | 2.22 | 2.22 | 2.44 | 2.00 | 1.67 | 2.00 | 1.22 | 1.33 | 2.11 |
| Mary             | 9  | 4.00             | 4.11 | 3.22 | 4.44 | 2.67 | 3.44 | 3.56 | 3.44 | 3.67 | 4.11 | 2.89 | 1.22 | 2.44 | 3.56 | 2.89 | 2.11 | 3.33 | 2.00 | 2.89 | 2.44 | 2.89 | 1.22 | 1.44 | 2.11 |
|                  |    | Standard errors: |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Normanby         | 35 | 0.08             | 0.09 | 0.00 | 0.04 | 0.00 | 0.13 | 0.11 | 0.00 | 0.15 | 0.17 | 0.05 | 0.06 | 0.11 | 0.12 | 0.05 | 0.00 | 0.14 | 0.09 | 0.08 | 0.00 | 0.14 | 0.00 | 0.07 | 0.18 |
| Mulgrave-Russell | 3  | 0.33             | 0.33 | 0.33 | 0.33 | 0.00 | 0.00 | 0.33 | 0.00 | 0.67 | 0.67 | 0.58 | 0.00 | 0.88 | 1.00 | 0.33 | 0.00 | 0.33 | 0.67 | 0.33 | 0.33 | 0.33 | 0.33 | 0.00 | 0.00 |
| Johnstone        | 2  | 0.50             | 0.50 | 1.00 | 0.50 | 0.50 | 0.50 | 0.50 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.50 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.50 | 0.50 | 0.50 | 0.50 | 1.00 |
| Tully            | 12 | 0.15             | 0.21 | 0.37 | 0.26 | 0.36 | 0.22 | 0.13 | 0.46 | 0.41 | 0.39 | 0.23 | 0.30 | 0.47 | 0.38 | 0.23 | 0.30 | 0.31 | 0.40 | 0.39 | 0.31 | 0.35 | 0.11 | 0.15 | 0.38 |
| Murray           | 12 | 0.14             | 0.23 | 0.25 | 0.29 | 0.37 | 0.23 | 0.23 | 0.46 | 0.35 | 0.30 | 0.26 | 0.30 | 0.24 | 0.25 | 0.31 | 0.26 | 0.26 | 0.42 | 0.15 | 0.23 | 0.19 | 0.14 | 0.19 | 0.36 |
| Upper Herbert    | 5  | 0.00             | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.20 | 0.00 | 0.40 | 0.49 | 0.32 | 0.49 | 0.20 | 0.58 | 0.00 | 0.00 | 0.20 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.20 | 0.49 |
| Lower Herbert    | 12 | 0.14             | 0.32 | 0.42 | 0.36 | 0.42 | 0.35 | 0.15 | 0.54 | 0.30 | 0.28 | 0.37 | 0.26 | 0.27 | 0.45 | 0.26 | 0.22 | 0.34 | 0.40 | 0.33 | 0.38 | 0.42 | 0.13 | 0.14 | 0.43 |
| Black            | 1  | -                | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Ross             | 3  | 0.00             | 0.00 | 0.88 | 0.33 | 0.33 | 0.33 | 0.33 | 1.00 | 0.67 | 0.67 | 0.33 | 0.67 | 1.00 | 1.00 | 0.67 | 0.67 | 0.67 | 0.67 | 0.88 | 0.33 | 0.33 | 0.00 | 0.33 | 1.15 |
| Haughton         | 16 | 0.13             | 0.19 | 0.29 | 0.16 | 0.30 | 0.16 | 0.19 | 0.43 | 0.25 | 0.26 | 0.26 | 0.22 | 0.24 | 0.35 | 0.30 | 0.18 | 0.13 | 0.32 | 0.11 | 0.27 | 0.15 | 0.22 | 0.12 | 0.34 |
| East Burdekin    | 1  | -                | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Burdekin Delta   | 6  | 0.17             | 0.21 | 0.40 | 0.00 | 0.37 | 0.00 | 0.21 | 0.61 | 0.33 | 0.45 | 0.40 | 0.21 | 0.21 | 0.33 | 0.34 | 0.33 | 0.17 | 0.34 | 0.21 | 0.40 | 0.17 | 0.17 | 0.17 | 0.89 |
| Upper Burdekin   | 3  | 0.00             | 0.00 | 0.33 | 0.58 | 0.33 | 0.33 | 0.00 | 0.33 | 0.67 | 0.67 | 0.58 | 0.67 | 0.00 | 1.33 | 0.00 | 0.00 | 0.67 | 0.00 | 1.33 | 0.00 | 0.67 | 0.00 | 0.33 | 1.33 |
| Cape Campaspe    | 5  | 0.00             | 0.00 | 0.20 | 0.24 | 0.20 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.00 | 0.00 | 0.00 | 0.20 | 0.40 | 0.20 | 0.00 | 0.32 | 0.20 | 0.20 | 0.00 | 0.32 | 0.40 |
| Don River        | 3  | 0.00             | 0.00 | 0.67 | 0.33 | 0.58 | 0.33 | 0.33 | 1.00 | 0.67 | 0.67 | 0.33 | 0.67 | 0.33 | 1.33 | 0.00 | 0.00 | 0.33 | 0.00 | 0.00 | 0.33 | 0.33 | 0.00 | 0.00 | 0.67 |
| Proserpine       | 3  | 0.00             | 0.33 | 0.88 | 1.00 | 0.67 | 0.33 | 0.33 | 1.33 | 0.67 | 0.67 | 0.58 | 0.00 | 0.88 | 0.33 | 0.58 | 0.67 | 0.00 | 0.00 | 0.33 | 0.33 | 0.33 | 0.33 | 0.00 | 0.00 |
| Plane Creek      | 1  | -                | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Waterpark Creek  | 3  | 0.00             | 0.00 | 0.67 | 0.33 | 0.67 | 0.67 | 0.00 | 0.67 | 0.00 | 0.67 | 0.58 | 0.00 | 0.00 | 0.58 | 0.33 | 0.67 | 0.33 | 0.67 | 0.00 | 0.33 | 0.33 | 0.00 | 0.00 | 0.00 |
| Lower Fitzroy    | 17 | 0.06             | 0.15 | 0.24 | 0.15 | 0.29 | 0.11 | 0.11 | 0.38 | 0.24 | 0.24 | 0.24 | 0.24 | 0.33 | 0.34 | 0.19 | 0.00 | 0.19 | 0.19 | 0.14 | 0.15 | 0.18 | 0.11 | 0.15 | 0.41 |

Appendix 5: Wetland condition

| Management unit | n  | P1   | P20  | P14  | S13  | S14  | S1   | P21  | P2   | P7   | P8   | S3   | S12  | S15  | S9   | S16  | P19  | P16  | P12  | P10  | P3   | P4   | P5   | S7   | S8   |
|-----------------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Dawson          | 22 | 0.08 | 0.12 | 0.15 | 0.25 | 0.21 | 0.14 | 0.15 | 0.29 | 0.16 | 0.24 | 0.23 | 0.18 | 0.31 | 0.27 | 0.10 | 0.15 | 0.10 | 0.09 | 0.07 | 0.20 | 0.13 | 0.05 | 0.10 | 0.29 |
| Isaac           | 10 | 0.00 | 0.25 | 0.43 | 0.35 | 0.39 | 0.16 | 0.18 | 0.59 | 0.40 | 0.31 | 0.41 | 0.31 | 0.40 | 0.47 | 0.00 | 0.20 | 0.29 | 0.00 | 0.26 | 0.10 | 0.23 | 0.00 | 0.18 | 0.36 |
| Mackenzie       | 4  | 0.25 | 0.29 | 0.75 | 0.29 | 0.48 | 0.25 | 0.00 | 0.71 | 0.58 | 0.58 | 0.41 | 0.50 | 0.50 | 0.25 | 0.00 | 0.00 | 0.25 | 0.00 | 0.00 | 0.50 | 0.25 | 0.00 | 0.00 | 0.50 |
| Nogoa           | 1  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Baffle          | 9  | 0.26 | 0.20 | 0.29 | 0.24 | 0.24 | 0.33 | 0.11 | 0.47 | 0.58 | 0.33 | 0.29 | 0.35 | 0.26 | 0.42 | 0.17 | 0.40 | 0.33 | 0.45 | 0.29 | 0.26 | 0.33 | 0.11 | 0.24 | 0.44 |
| Burnett         | 1  | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    | -    |
| Burrum          | 18 | 0.10 | 0.20 | 0.25 | 0.25 | 0.23 | 0.20 | 0.14 | 0.31 | 0.28 | 0.11 | 0.23 | 0.11 | 0.35 | 0.21 | 0.23 | 0.24 | 0.27 | 0.30 | 0.24 | 0.21 | 0.27 | 0.13 | 0.11 | 0.24 |
| Mary            | 9  | 0.17 | 0.20 | 0.28 | 0.18 | 0.37 | 0.24 | 0.18 | 0.47 | 0.47 | 0.35 | 0.42 | 0.22 | 0.41 | 0.38 | 0.31 | 0.35 | 0.29 | 0.41 | 0.20 | 0.29 | 0.35 | 0.15 | 0.18 | 0.59 |

## Wetland pest plant species list

The GBR Wetland Condition Monitoring Program lists 254 wetland pest plant species. The species include prohibited and restricted invasive plants declared under the Qld Biosecurity Act 2014, plus naturalised non-native plants that the Queensland Herbarium has assessed as having significant potential to impact Queensland wetlands, or their immediate buffer zones (Johns et al. 2022). Such pest plants may directly or indirectly affect wetland hydrology, habitat complexity, fuel loads and water chemistry, and may outcompete native species and/or colonise bare areas (Tilden et al. 2023).

Table 21. Wetland pest plant species list used by the GBR Wetland Condition Monitoring Program.

| Growth form | Family           | Scientific name                                      | Synonym | Common names                 |
|-------------|------------------|------------------------------------------------------|---------|------------------------------|
| Aquatic     | Amaranthaceae    | <i>Alternanthera philoxeroides</i>                   |         | alligator weed               |
| Aquatic     | Cabombaceae      | <i>Cabomba</i> spp.                                  |         | fanwort, cabomba             |
| Aquatic     | Alismataceae     | <i>Echinodorus cordifolius</i>                       |         | radicans sword               |
| Aquatic     | Hydrocharitaceae | <i>Egeria densa</i>                                  |         | Egeria waterweed             |
| Aquatic     | Pontederiaceae   | <i>Eichhornia azurea</i>                             |         | anchored water hyacinth      |
| Aquatic     | Pontederiaceae   | <i>Eichhornia crassipes</i>                          |         | water hyacinth               |
| Aquatic     | Pontederiaceae   | <i>Heteranthera reniformis</i>                       |         | kidneyleaf mudplantain       |
| Aquatic     | Alismataceae     | <i>Hydrocleys nymphoides</i>                         |         | water poppy                  |
| Aquatic     | Acanthaceae      | <i>Hygrophila costata</i>                            |         | Hygrophila, glush weed       |
| Aquatic     | Hydrocharitaceae | <i>Lagarosiphon major</i>                            |         | Lagarosiphon                 |
| Aquatic     | Alismataceae     | <i>Limnocharis flava</i>                             |         | Limnocharis, yellow burrhead |
| Aquatic     | Mayacaceae       | <i>Mayaca fluviatilis</i>                            |         | stream boggomoss             |
| Aquatic     | Haloragaceae     | <i>Myriophyllum aquaticum</i>                        |         | parrot's feather             |
| Aquatic     | Haloragaceae     | <i>Myriophyllum spicatum</i>                         |         | Eurasian water milfoil       |
| Aquatic     | Nymphaeaceae     | <i>Nymphaea caerulea</i> subsp. <i>zanzibarensis</i> |         | blue lotus                   |
| Aquatic     | Nymphaeaceae     | <i>Nymphaea mexicana</i>                             |         | yellow waterlily             |
| Aquatic     | Araceae          | <i>Pistia stratiotes</i>                             |         | water lettuce                |
| Aquatic     | Pontederiaceae   | <i>Pontederia cordata</i>                            |         | pickerel rush                |
| Aquatic     | Lythraceae       | <i>Rotala rotundifolia</i>                           |         | Rotala                       |
| Aquatic     | Ruppiaceae       | <i>Ruppia maritima</i>                               |         | sea tassel                   |

| Growth form | Family           | Scientific name                | Synonym                                            | Common names                                 |
|-------------|------------------|--------------------------------|----------------------------------------------------|----------------------------------------------|
| Aquatic     | Alismataceae     | <i>Sagittaria platyphylla</i>  | <i>Sagittaria graminea</i> var. <i>platyphylla</i> | sagittaria arrowhead, sagittaria             |
| Aquatic     | Salvinaceae      | <i>Salvinia</i> spp.           |                                                    | salvinia                                     |
| Aquatic     | Hydrocharitaceae | <i>Stratiotes aloides</i>      |                                                    | water soldiers                               |
| Aquatic     | Trapaceae        | <i>Trapa</i> spp.              |                                                    | floating water chestnut                      |
| Herb        | Fabaceae         | <i>Aeschynomene brasiliana</i> |                                                    | Brazilian joint vetch                        |
| Herb        | Asteraceae       | <i>Ageratina adenophora</i>    |                                                    | crofton weed                                 |
| Herb        | Asteraceae       | <i>Ageratina riparia</i>       |                                                    | mistflower                                   |
| Herb        | Asteraceae       | <i>Ageratum houstonianum</i>   |                                                    | blue billygoat weed                          |
| Herb        | Asteraceae       | <i>Ambrosia artemisiifolia</i> |                                                    | annual ragweed                               |
| Herb        | Iridaceae        | <i>Aristea ecklonii</i>        |                                                    | blue stars                                   |
| Herb        | Asparagaceae     | <i>Asparagus aethiopicus</i>   |                                                    | asparagus ground fern, basket asparagus fern |
| Herb        | Plantaginaceae   | <i>Bacopa caroliniana</i>      |                                                    | Bacopa                                       |
| Herb        | Asteraceae       | <i>Bartlettina sordida</i>     |                                                    | blue mist plant                              |
| Herb        | Amaranthaceae    | <i>Bassia scoparia</i>         | <i>Kochia scoparia</i>                             | kochia, fanwort                              |
| Herb        | Acanthaceae      | <i>Brillantaisia lamium</i>    |                                                    | Brillantaisia                                |
| Herb        | Plantaginaceae   | <i>Callitriche stagnalis</i>   |                                                    | common starwort                              |
| Herb        | Cannaceae        | <i>Canna indica</i>            |                                                    | Canna lily                                   |
| Herb        | Asteraceae       | <i>Carthamus lanatus</i>       |                                                    | saffron thistle                              |
| Herb        | Apocynaceae      | <i>Catharanthus roseus</i>     |                                                    | pink periwinkle                              |
| Herb        | Fabaceae         | <i>Centrosema molle</i>        | <i>Centrosema pubescens</i>                        | centro                                       |
| Herb        | Araceae          | <i>Colocasia esculenta</i>     |                                                    | taro                                         |
| Herb        | Fabaceae         | <i>Desmodium uncinatum</i>     |                                                    | silverleaf Desmodium                         |
| Herb        | Asteraceae       | <i>Elephantopus mollis</i>     |                                                    | tobacco weed                                 |
| Herb        | Amaranthaceae    | <i>Froelichia floridana</i>    |                                                    | cotton tails                                 |
| Herb        | Amaranthaceae    | <i>Froelichia gracilis</i>     |                                                    | cotton tails                                 |
| Herb        | Colchicaceae     | <i>Gloriosa superba</i>        |                                                    | glory lily                                   |

| Growth form | Family         | Scientific name                                               | Synonym                      | Common names                       |
|-------------|----------------|---------------------------------------------------------------|------------------------------|------------------------------------|
| Herb        | Asteraceae     | <i>Gymnocoronis spilanthoides</i>                             |                              | Senegal tea                        |
| Herb        | Zingiberaceae  | <i>Hedychium coronarium</i>                                   |                              | white ginger, wild ginger          |
| Herb        | Zingiberaceae  | <i>Hedychium flavescens</i>                                   | <i>Hedychium flavescens</i>  | yellow ginger, wild ginger         |
| Herb        | Zingiberaceae  | <i>Hedychium gardnerianum</i>                                 |                              | ginger lily, kahili ginger         |
| Herb        | Asteraceae     | <i>Helenium amarum</i>                                        |                              | bitterweed                         |
| Herb        | Acanthaceae    | <i>Hemigraphis</i> spp. (except native species)               |                              | n/a                                |
| Herb        | Asteraceae     | <i>Heterotheca grandiflora</i>                                |                              | telegraph weed                     |
| Herb        | Hypericaceae   | <i>Hypericum perforatum</i>                                   |                              | St John's wort                     |
| Herb        | Acanthaceae    | <i>Hypoestes phyllostachya</i>                                |                              | polka-dot plant                    |
| Herb        | Lamiaceae      | <i>Hyptis capitata</i>                                        |                              | knobweed                           |
| Herb        | Lamiaceae      | <i>Hyptis suaveolens</i>                                      |                              | horehound                          |
| Herb        | Balsaminaceae  | <i>Impatiens walleriana</i>                                   |                              | balsam                             |
| Herb        | Convolvulaceae | <i>Ipomoea aquatica</i> (except north of Tropic of Capricorn) |                              | water spinach, swamp morning-glory |
| Herb        | Verbenaceae    | <i>Lantana montevidensis</i>                                  |                              | creeping lantana                   |
| Herb        | Fabaceae       | <i>Neptunia oleracea</i>                                      |                              | water mimosa                       |
| Herb        | Fabaceae       | <i>Neptunia plena</i>                                         |                              | water mimosa                       |
| Herb        | Asteraceae     | <i>Parthenium hysterophorus</i>                               |                              | parthenium weed                    |
| Herb        | Verbenaceae    | <i>Phyla canescens</i>                                        |                              | Condamine couch, lippia            |
| Herb        | Asteraceae     | <i>Praxelis clematidea</i>                                    |                              | Praxelis                           |
| Herb        | Phytolaccaceae | <i>Rivina humilis</i>                                         |                              | baby pepper                        |
| Herb        | Brassicaceae   | <i>Rorippa nasturtium-aquaticum</i>                           | <i>Nasturtium officinale</i> | watercress                         |
| Herb        | Acanthaceae    | <i>Ruellia blechum</i>                                        | <i>Blechum pyramidatum</i>   | green shrimp plant                 |
| Herb        | Acanthaceae    | <i>Ruellia simplex</i>                                        | <i>Ruellia malacosperma</i>  | Ruellia                            |
| Herb        | Lamiaceae      | <i>Salvia coccinea</i>                                        |                              | red salvia                         |
| Herb        | Asteraceae     | <i>Senecio madagascariensis</i>                               |                              | fireweed                           |
| Herb        | Solanaceae     | <i>Solanum elaeagnifolium</i>                                 |                              | silver-leaf nightshade             |

| Growth form | Family           | Scientific name                                  | Synonym                       | Common names                                  |
|-------------|------------------|--------------------------------------------------|-------------------------------|-----------------------------------------------|
| Herb        | Asteraceae       | <i>Sphagneticola trilobata</i>                   | <i>Wedelia trilobata</i>      | Singapore daisy                               |
| Herb        | Verbenaceae      | <i>Stachytarpheta</i> spp.                       |                               | snakeweed, porter weeds                       |
| Herb        | Acanthaceae      | <i>Stephanophysum longifolium</i>                | <i>Ruellia graecizans</i>     | Red Christmas pride                           |
| Herb        | Asteraceae       | <i>Stevia ovata</i>                              |                               | candyleaf                                     |
| Herb        | Linderniaceae    | <i>Striga</i> spp. (except native species)       |                               | witchweed                                     |
| Herb        | Acanthaceae      | <i>Strobilanthes dyerianus</i>                   |                               | Persian shield                                |
| Herb        | Asteraceae       | <i>Tagetes minuta</i>                            |                               | stinking roger                                |
| Herb        | Acanthaceae      | <i>Thunbergia annua</i>                          |                               | annual thunbergia                             |
| Herb        | Commelinaceae    | <i>Tradescantia fluminensis</i>                  | <i>Tradescantia albiflora</i> | wandering jew                                 |
| Herb        | Commelinaceae    | <i>Tradescantia zebrina</i>                      |                               | zebrina                                       |
| Herb        | Asteraceae       | <i>Xanthium spinosum</i>                         |                               | Bathurst burr                                 |
| Herb        | Asteraceae       | <i>Xanthium strumarium</i>                       | <i>Xanthium occidentale</i>   | Noogoora burr                                 |
| Vine        | Polygonaceae     | <i>Acetosa sagittata</i>                         |                               | rambling dock                                 |
| Vine        | Basellaceae      | <i>Anredera cordifolia</i>                       |                               | madeira vine                                  |
| Vine        | Apocynaceae      | <i>Araujia sericifera</i>                        |                               | moth vine                                     |
| Vine        | Convolvulaceae   | <i>Argyreia nervosa</i>                          |                               | elephant ear vine                             |
| Vine        | Aristolochiaceae | <i>Aristolochia</i> spp. (except native species) |                               | Dutchman's pipe                               |
| Vine        | Asparagaceae     | <i>Asparagus africanus</i>                       |                               | climbing asparagus fern, ornamental Asparagus |
| Vine        | Asparagaceae     | <i>Asparagus asparagoides</i>                    |                               | bridal creeper                                |
| Vine        | Asparagaceae     | <i>Asparagus declinatus</i>                      |                               | bridal veil                                   |
| Vine        | Asparagaceae     | <i>Asparagus plumosus</i>                        |                               | asparagus fern, feathered asparagus fern      |
| Vine        | Asparagaceae     | <i>Asparagus scandens</i>                        |                               | asparagus fern                                |
| Vine        | Fabaceae         | <i>Calopogonium mucunoides</i>                   |                               | calopo                                        |
| Vine        | Sapindaceae      | <i>Cardiospermum grandiflorum</i>                |                               | balloon vine                                  |
| Vine        | Fabaceae         | <i>Clitoria laurifolia</i>                       |                               | laurel leaf pigeon wings                      |

| Growth form | Family         | Scientific name                                                  | Synonym                                    | Common names                        |
|-------------|----------------|------------------------------------------------------------------|--------------------------------------------|-------------------------------------|
| Vine        | Cucurbitaceae  | <i>Coccinia grandis</i>                                          |                                            | ivy gourd                           |
| Vine        | Apocynaceae    | <i>Cryptostegia grandiflora</i>                                  |                                            | rubber vine                         |
| Vine        | Apocynaceae    | <i>Cryptostegia madagascariensis</i>                             |                                            | ornamental rubber vine, rubber vine |
| Vine        | Bignoniaceae   | <i>Dolichandra unguis-cati</i>                                   | <i>Macfadyena unguis-cati</i>              | cat's claw creeper                  |
| Vine        | Malpighiaceae  | <i>Hiptage benghalensis</i>                                      |                                            | hiptage                             |
| Vine        | Convolvulaceae | <i>Ipomoea cairica</i> (except north of the Tropic of Capricorn) |                                            | mile-a-minute                       |
| Vine        | Convolvulaceae | <i>Ipomoea indica</i>                                            |                                            | blue morning glory                  |
| Vine        | Caprifoliaceae | <i>Lonicera japonica</i>                                         |                                            | Japanese honeysuckle                |
| Vine        | Fabaceae       | <i>Macroptilium atropurpureum</i>                                |                                            | siratro                             |
| Vine        | Asteraceae     | <i>Mikania micrantha</i>                                         |                                            | mikania vine                        |
| Vine        | Asteraceae     | <i>Mikania</i> spp.                                              |                                            | mikania                             |
| Vine        | Fabaceae       | <i>Neonotonia wightii</i>                                        |                                            | glycine                             |
| Vine        | Passifloraceae | <i>Passiflora foetida</i>                                        |                                            | stinking passion flower             |
| Vine        | Passifloraceae | <i>Passiflora suberosa</i>                                       |                                            | cork passionflower                  |
| Vine        | Passifloraceae | <i>Passiflora subpeltata</i>                                     |                                            | white passion flower                |
| Vine        | Fabaceae       | <i>Pueraria lobata</i>                                           | <i>Pueraria montana</i> var. <i>lobata</i> | kudzu                               |
| Vine        | Fabaceae       | <i>Pueraria phaseoloides</i>                                     |                                            | puero                               |
| Vine        | Bignoniaceae   | <i>Pyrostegia venusta</i>                                        |                                            | flame vine                          |
| Vine        | Asteraceae     | <i>Senecio tamoides</i>                                          |                                            | canary creeper                      |
| Vine        | Solanaceae     | <i>Solanum seaforthianum</i>                                     |                                            | Brazilian nightshade                |
| Vine        | Araceae        | <i>Syngonium podophyllum</i>                                     |                                            | arrowhead vine                      |
| Vine        | Acanthaceae    | <i>Thunbergia alata</i>                                          |                                            | black eyed susan                    |
| Vine        | Acanthaceae    | <i>Thunbergia fragrans</i>                                       |                                            | white thunbergia                    |
| Vine        | Acanthaceae    | <i>Thunbergia grandiflora</i>                                    | <i>Thunbergia laurifolia</i>               | blue thunbergia, Thunbergia         |
| Vine        | Convolvulaceae | <i>Turbina corymbosa</i>                                         |                                            | Turbina                             |
| Tree        | Fabaceae       | <i>Acaciella</i> spp. (except native species)                    |                                            | acacia                              |

| Growth form | Family          | Scientific name                                     | Synonym                       | Common names                       |
|-------------|-----------------|-----------------------------------------------------|-------------------------------|------------------------------------|
| Tree        | Simaroubaceae   | <i>Ailanthus altissima</i>                          |                               | tree of heaven                     |
| Shrub       | Apocynaceae     | <i>Allamanda cathartica</i>                         |                               | yellow Allamanda                   |
| Tree        | Annonaceae      | <i>Annona glabra</i>                                |                               | pond apple                         |
| Tree        | Meliaceae       | <i>Azadirachta indica</i>                           |                               | neem tree                          |
| Shrub       | Asteraceae      | <i>Baccharis halimifolia</i>                        |                               | groundsel bush                     |
| Tree        | Moraceae        | <i>Broussonetia papyrifera</i>                      |                               | paper mulberry                     |
| Tree        | Fabaceae        | <i>Caesalpinia decapetala</i>                       |                               | thorny poinciana, mysore thorn     |
| Shrub/Tree  | Apocynaceae     | <i>Calotropis procera</i>                           |                               | calotrope                          |
| Tree        | Apocynaceae     | <i>Cascabela thevetia</i>                           | <i>Thevetia peruviana</i>     | yellow oleander, Captain Cook tree |
| Tree        | Moraceae        | <i>Cecropia spp.</i>                                |                               | Mexican bean tree                  |
| Tree        | Cannabaceae     | <i>Celtis sinensis</i>                              |                               | Chinese celtis                     |
| Shrub       | Solanaceae      | <i>Cestrum parqui</i>                               |                               | green Cestrum                      |
| Shrub       | Asteraceae      | <i>Chromolaena spp.</i>                             |                               | Siam weed                          |
| Shrub/Tree  | Asteraceae      | <i>Chrysanthemoides monilifera ssp. monilifera</i>  |                               | boneseed                           |
| Shrub/Tree  | Asteraceae      | <i>Chrysanthemoides monilifera subsp. rotundata</i> |                               | bitou bush                         |
| Tree        | Lauraceae       | <i>Cinnamomum camphora</i>                          |                               | camphor laurel                     |
| Shrub       | Melastomataceae | <i>Clidemia hirta</i>                               |                               | Koster's curse                     |
| Shrub       | Rubiaceae       | <i>Coffea arabica</i>                               |                               | coffee                             |
| Shrub       | Acanthaceae     | <i>Cytisus scoparius</i>                            | <i>Sarothamnus scoparius</i>  | Sanchezia                          |
| Shrub       | Fabaceae        | <i>Cytisus scoparius</i>                            |                               | scotch broom, common broom         |
| Shrub       | Verbenaceae     | <i>Duranta erecta</i>                               |                               | Duranta                            |
| Tree        | Rosaceae        | <i>Eriobotrya japonica</i>                          |                               | loquat                             |
| Tree        | Fabaceae        | <i>Erythrina crista-galli</i>                       |                               | cockspur coral tree                |
| Shrub/Tree  | Myrtaceae       | <i>Eugenia uniflora</i>                             |                               | Brazilian cherry                   |
| Shrub       | Fabaceae        | <i>Genista linifolia</i>                            |                               | flax leaf Broom                    |
| Shrub       | Fabaceae        | <i>Genista monspessulana</i>                        | <i>Cytisus monspessulanus</i> | montpellier broom, french broom    |

| Growth form | Family          | Scientific name                                   | Synonym              | Common names                                |
|-------------|-----------------|---------------------------------------------------|----------------------|---------------------------------------------|
| Tree        | Fabaceae        | <i>Gleditsia</i> spp.                             |                      | honey locust                                |
| Tree        | Lamiaceae       | <i>Gmelina elliptica</i>                          |                      | badhara bush                                |
| Tree        | Hypericaceae    | <i>Harungana madagascariensis</i>                 |                      | Harungana                                   |
| Shrub       | Euphorbiaceae   | <i>Jatropha curcas</i>                            |                      | physic nut                                  |
| Shrub       | Euphorbiaceae   | <i>Jatropha gossypifolia</i>                      |                      | bellyache bush , cotton-leaf physic nut     |
| Tree        | Sapindaceae     | <i>Koelreuteria elegans</i>                       |                      | Chinese rain tree                           |
| Tree        | Fabaceae        | <i>Laburnum anagyroides</i>                       |                      | golden chain tree                           |
| Shrub       | Verbenaceae     | <i>Lantana camara</i>                             |                      | Lantana                                     |
| Tree        | Fabaceae        | <i>Leucaena leucocephala</i>                      |                      | Leucaena                                    |
| Tree        | Oleaceae        | <i>Ligustrum lucidum</i>                          |                      | tree privet , broad-leaf privet             |
| Shrub       | Oleaceae        | <i>Ligustrum sinense</i>                          |                      | Chinese privet , small-leaf privet          |
| Shrub       | Onagraceae      | <i>Ludwigia longifolia</i>                        |                      | longleaf willow primrose, Peruvian primrose |
| Shrub       | Onagraceae      | <i>Ludwigia peruviana</i>                         |                      | Peruvian primrose                           |
| Shrub       | Solanaceae      | <i>Lycium ferocissimum</i>                        |                      | African boxthorn                            |
| Shrub/Tree  | Fabaceae        | <i>Mariosousa</i> spp.                            |                      | acacia                                      |
| Shrub/Tree  | Melastomataceae | <i>Miconia</i> spp.                               |                      | miconia                                     |
| Shrub       | Fabaceae        | <i>Mimosa diplotricha</i> var. <i>diplotricha</i> | <i>Mimosa invisa</i> | giant sensitive plant                       |
| Shrub       | Fabaceae        | <i>Mimosa pigra</i>                               |                      | giant sensitive tree                        |
| Shrub       | Myricaceae      | <i>Morella faya</i>                               | <i>Myrica faya</i>   | candleberry myrtle                          |
| Tree        | Moraceae        | <i>Morus alba</i>                                 |                      | white mulberry                              |
| Shrub       | Ochnaceae       | <i>Ochna serrulata</i>                            |                      | Ochna                                       |
| Tree        | Fabaceae        | <i>Parkinsonia aculeata</i>                       |                      | parkinsonia                                 |
| Shrub       | Phytolaccaceae  | <i>Phytolacca octandra</i>                        |                      | inkweed                                     |
| Tree        | Pinaceae        | <i>Pinus caribaea</i>                             |                      | Caribbean pine                              |
| Tree        | Pinaceae        | <i>Pinus elliottii</i>                            |                      | slash pine                                  |

| Growth form | Family        | Scientific name                                                               | Synonym                      | Common names             |
|-------------|---------------|-------------------------------------------------------------------------------|------------------------------|--------------------------|
| Tree        | Piperaceae    | <i>Piper aduncum</i>                                                          |                              | spiked pepper, piper     |
| Tree        | Fabaceae      | <i>Pithecellobium dulce</i>                                                   |                              | Madras thorn             |
| Shrub/Tree  | Fabaceae      | <i>Prosopis</i> spp. and hybrids                                              |                              | mesquite, mesquite       |
| Tree        | Rosaceae      | <i>Prunus munsoniana</i>                                                      |                              | wild goose plum          |
| Shrub       | Rosaceae      | <i>Pyracantha</i> spp.                                                        |                              | firethorn                |
| Shrub       | Myrtaceae     | <i>Rhodomyrtus tomentosa</i>                                                  |                              | Ceylon hill cherry       |
| Shrub       | Euphorbiaceae | <i>Ricinus communis</i>                                                       |                              | castor oil plant         |
| Shrub       | Rosaceae      | <i>Rubus anglocandicans</i>                                                   |                              | blackberry               |
| Shrub       | Rosaceae      | <i>Rubus fruticosus</i> complex                                               | <i>Rubus fruticosus</i> agg. | blackberry               |
| Tree        | Salicaceae    | <i>Salix</i> spp. (except <i>S. x calodendron</i> and <i>S. reichardtii</i> ) |                              | willow                   |
| Tree        | Fabaceae      | <i>Samanea saman</i>                                                          |                              | rain tree                |
| Tree        | Araliaceae    | <i>Schefflera actinophylla</i> (except north of Tropic of Capricorn)          |                              | umbrella tree            |
| Tree        | Anacardiaceae | <i>Schinus terebinthifolius</i>                                               |                              | broad-leaf pepper tree   |
| Shrub/Tree  | Fabaceae      | <i>Senegalia</i> spp. (except native species)                                 |                              | acacia                   |
| Shrub       | Fabaceae      | <i>Senna hirsuta</i>                                                          |                              | hairy senna, sicklepod   |
| Shrub       | Fabaceae      | <i>Senna obtusifolia</i>                                                      |                              | sicklepod                |
| Shrub       | Fabaceae      | <i>Senna pendula</i> var. <i>glabrata</i>                                     |                              | Easter cassia            |
| Shrub/Tree  | Fabaceae      | <i>Senna septemtrionalis</i>                                                  | <i>Senna floribunda</i>      | arsenic bush             |
| Shrub       | Fabaceae      | <i>Senna tora</i>                                                             |                              | foetid cassia, sicklepod |
| Shrub/Tree  | Fabaceae      | <i>Sesbania punicea</i>                                                       |                              | red sesbania             |
| Shrub       | Solanaceae    | <i>Solanum chrysotrichum</i>                                                  | <i>Solanum hispidum</i>      | giant devil's fig        |
| Shrub       | Solanaceae    | <i>Solanum erianthum</i>                                                      |                              | tobacco bush             |
| Tree        | Solanaceae    | <i>Solanum mauritanium</i>                                                    |                              | wild tobacco tree        |
| Shrub       | Solanaceae    | <i>Solanum torvum</i>                                                         |                              | devil's fig              |
| Shrub       | Solanaceae    | <i>Solanum viarum</i>                                                         |                              | tropical soda apple      |
| Tree        | Bignoniaceae  | <i>Spathodea campanulata</i>                                                  |                              | African tulip tree       |
| Tree        | Arecaceae     | <i>Syagrus romanzoffiana</i>                                                  |                              | queen palm               |

Appendix 5: Wetland condition

| Growth form | Family       | Scientific name                                      | Synonym                                                   | Common names              |
|-------------|--------------|------------------------------------------------------|-----------------------------------------------------------|---------------------------|
| Tree        | Myrtaceae    | <i>Syzygium jambos</i>                               |                                                           | Malabar plum              |
| Tree        | Tamaricaceae | <i>Tamarix aphylla</i>                               |                                                           | athel pine                |
| Shrub       | Bignoniaceae | <i>Tecoma capensis</i>                               |                                                           | cape honeysuckle          |
| Shrub       | Bignoniaceae | <i>Tecoma stans</i>                                  |                                                           | yellow bells              |
| Tree        | Fabaceae     | <i>Tipuana tipu</i>                                  |                                                           | tipuana                   |
| Shrub       | Asteraceae   | <i>Tithonia diversifolia</i>                         |                                                           | Mexican sunflower         |
| Shrub       | Malvaceae    | <i>Triumfetta rhomboidea</i>                         |                                                           | Chinese burr              |
| Shrub       | Fabaceae     | <i>Ulex europaeus</i>                                |                                                           | gorse                     |
| Shrub       | Fabaceae     | <i>Vachellia nilotica</i>                            |                                                           | prickly acacia            |
| Shrub       | Fabaceae     | <i>Vachellia</i> spp. (except native species)        |                                                           | Mimosa, karoo thorn       |
| Shrub/Tree  | Rhamnaceae   | <i>Ziziphus mauritiana</i>                           |                                                           | chinee apple              |
| Shrub/Tree  | Rhamnaceae   | <i>Ziziphus spina-christi</i>                        |                                                           | Christ's thorn            |
| Cactus      | Cactaceae    | <i>Austrocylindropuntia cylindrica</i>               |                                                           | cane cactus               |
| Cactus      | Cactaceae    | <i>Austrocylindropuntia subulata</i>                 |                                                           | Eve's pin cactus          |
| Succulent   | Crassulaceae | <i>Bryophyllum delagoense</i>                        | <i>Bryophyllum tubiflorum</i>                             | mother of millions        |
| Succulent   | Crassulaceae | <i>Bryophyllum pinnatum</i>                          |                                                           | resurrection plant        |
| Succulent   | Crassulaceae | <i>Bryophyllum x houghtonii</i>                      | <i>Bryophyllum daigremontianum</i> x <i>B. delagoense</i> | mother of millions hybrid |
| Cactus      | Cactaceae    | <i>Cylindropuntia</i> spp.                           |                                                           | cholla cactus             |
| Cactus      | Cactaceae    | <i>Harrisia</i> spp.                                 | <i>Eriocereus</i> spp.                                    | Harrisia cactus           |
| Cactus      | Cactaceae    | <i>Opuntia</i> spp. (except <i>O. ficus-indica</i> ) |                                                           | prickly pear              |
| Grass       | Poaceae      | <i>Andropogon gayanus</i>                            |                                                           | gamba grass               |
| Grass       | Poaceae      | <i>Andropogon virginicus</i>                         |                                                           | whisky grass              |
| Grass       | Poaceae      | <i>Arundo donax</i>                                  |                                                           | giant reed                |
| Grass       | Poaceae      | <i>Cenchrus clandestinus</i>                         | <i>Pennisetum clandestinum</i>                            | kikuyu grass              |
| Grass       | Poaceae      | <i>Cenchrus pedicellatus</i>                         |                                                           | hairy fountain grass      |
| Grass       | Poaceae      | <i>Cenchrus polystachios</i>                         |                                                           | perennial mission grass   |

| Growth form | Family       | Scientific name                             | Synonym                     | Common names                 |
|-------------|--------------|---------------------------------------------|-----------------------------|------------------------------|
| Grass       | Poaceae      | <i>Cenchrus purpureus</i>                   | <i>Pennisetum purpureum</i> | elephant grass               |
| Grass       | Poaceae      | <i>Cenchrus setaceum</i>                    | <i>Pennisetum setaceum</i>  | African fountain grass       |
| Grass       | Poaceae      | <i>Cortaderia selloana</i>                  |                             | pampas grass                 |
| Sedge/Rush  | Cyperaceae   | <i>Cyperus involucratus</i>                 |                             | African sedge                |
| Sedge/Rush  | Cyperaceae   | <i>Cyperus prolifer</i>                     |                             | n/a                          |
| Grass       | Poaceae      | <i>Echinochloa polystachya</i>              |                             | Aleman grass                 |
| Horsetail   | Equisetaceae | <i>Equisetum</i> spp.                       |                             | horsetails                   |
| Grass       | Poaceae      | <i>Eragrostis curvula</i>                   |                             | African lovegrass            |
| Grass       | Poaceae      | <i>Hymenachne amplexicaulis</i> and hybrids |                             | Hymenachne, olive hymenachne |
| Sedge/Rush  | Juncaceae    | <i>Juncus articulatus</i>                   |                             | jointed rush                 |
| Grass       | Poaceae      | <i>Megathyrsus maximus</i>                  | <i>Panicum maximum</i>      | green panic, guinea grass    |
| Grass       | Poaceae      | <i>Melinis minutiflora</i>                  |                             | molasses grass               |
| Grass       | Poaceae      | <i>Nassella neesiana</i>                    |                             | Chilean needle grass         |
| Grass       | Poaceae      | <i>Nassella tenuissima</i>                  |                             | Mexican feather grass        |
| Grass       | Poaceae      | <i>Nassella trichotoma</i>                  |                             | serrated tussock             |
| Grass       | Poaceae      | <i>Phalaris aquatica</i>                    |                             | canary grass                 |
| Grass       | Poaceae      | <i>Phyllostachys aurea</i>                  |                             | fishpole bamboo              |
| Grass       | Poaceae      | <i>Saccharum spontaneum</i>                 |                             | wild sugarcane               |
| Grass       | Poaceae      | <i>Setaria palmifolia</i>                   |                             | palm leaf setaria            |
| Grass       | Poaceae      | <i>Setaria sphacelata</i>                   |                             | South African pigeon grass   |
| Grass       | Poaceae      | <i>Sporobolus africanus</i>                 |                             | Parramatta grass             |
| Grass       | Poaceae      | <i>Sporobolus fertilis</i>                  |                             | giant Parramatta grass       |
| Grass       | Poaceae      | <i>Sporobolus jacquemontii</i>              |                             | American rat's tail grass    |
| Grass       | Poaceae      | <i>Sporobolus natalensis</i>                |                             | giant rat's tail grass       |
| Grass       | Poaceae      | <i>Sporobolus pyramidalis</i>               |                             | giant rat's tail grass       |
| Grass       | Poaceae      | <i>Themeda quadrivalvis</i>                 |                             | grader grass                 |
| Grass       | Poaceae      | <i>Urochloa mutica</i>                      | <i>Brachiaria mutica</i>    | para grass                   |

Appendix 5: Wetland condition

## Appendix 6: Marine pollutant exposure – nutrients and sediments

### Marine exposure calculations

Table 22. Calculations of the total areas in each final DIN Exposure category within each River Footprint and the areas of coral reefs. The DIN Exposure Metric is calculated for each River Footprint by summing the area of coral reefs in the weighted categories and normalising the value to the maximum result to provide a relative index between the River Footprints, that is, the River Footprint with the highest area is assigned a value of 1.0, and all other areas are expressed as a value between 0.0 and 1.0, relative to the maximum. The scores are ranked among the River Footprints, from the highest (1) to lowest score. The final DIN Exposure Metric is ranked based percentile categories of the normalised score as Minimal (0), Low (>0 to 0.01), Moderate (>0.01 to 0.2), or High (>0.2 to 1.0). Results are presented for coral reefs only within the GBRWHA, and those within the total assessment area (i.e. including Hervey Bay). Anth. = Anthropogenic; Norm. = Normalised; Exc. = excluding.

| Basin            | Anth. DIN load (t/yr) (green shading shows <50t/yr) | Assessment of ecosystems within the GBRWHA only |                   |                    |                   |                     | Assessment of ecosystems within the entire assessment area |                   |                    |                   |                     |
|------------------|-----------------------------------------------------|-------------------------------------------------|-------------------|--------------------|-------------------|---------------------|------------------------------------------------------------|-------------------|--------------------|-------------------|---------------------|
|                  |                                                     | Weighted coral sum                              | Coral exc. <50t/y | Norm. exc. <50t/yr | Rank exc. <50t/yr | DIN Exposure Metric | Weighted coral sum                                         | Coral exc. <50t/y | Norm. exc. <50t/yr | Rank exc. <50t/yr | DIN Exposure Metric |
| Jacky Jacky      | 0.8                                                 | 0                                               |                   | 0.000              | 19                | Minimal             | 0                                                          |                   | 0.000              | 19                | Minimal             |
| Olive Pascoe     | 2.6                                                 | 0                                               |                   | 0.000              | 19                | Minimal             | 0                                                          |                   | 0.000              | 19                | Minimal             |
| Lockhart         | 0.2                                                 | 8                                               |                   | 0.000              | 19                | Minimal             | 8                                                          |                   | 0.000              | 19                | Minimal             |
| Stewart          | 0.2                                                 | 1571                                            |                   | 0.000              | 19                | Minimal             | 1571                                                       |                   | 0.000              | 19                | Minimal             |
| Normanby         | 0.3                                                 | 533                                             |                   | 0.000              | 19                | Minimal             | 533                                                        |                   | 0.000              | 19                | Minimal             |
| Jeannie          | 0.9                                                 | 62                                              |                   | 0.000              | 19                | Minimal             | 62                                                         |                   | 0.000              | 19                | Minimal             |
| Endeavour        | 2.0                                                 | 37                                              |                   | 0.000              | 19                | Minimal             | 37                                                         |                   | 0.000              | 19                | Minimal             |
| Daintree         | 51                                                  | 779                                             | 779               | 0.138              | 7                 | Moderate            | 779                                                        | 779               | 0.138              | 7                 | Moderate            |
| Mossman          | 88                                                  | 1081                                            | 1081              | 0.191              | 6                 | Moderate            | 1081                                                       | 1081              | 0.191              | 6                 | Moderate            |
| Barron           | 82                                                  | 130                                             | 130               | 0.023              | 14                | Moderate            | 130                                                        | 130               | 0.023              | 14                | Moderate            |
| Mulgrave Russell | 525                                                 | 231                                             | 231               | 0.041              | 13                | Moderate            | 231                                                        | 231               | 0.041              | 13                | Moderate            |
| Johnstone        | 906                                                 | 1105                                            | 1105              | 0.195              | 5                 | Moderate            | 1105                                                       | 1105              | 0.195              | 5                 | Moderate            |

| Basin      | Anth. DIN load (t/yr) (green shading shows <50t/yr) | Assessment of ecosystems within the GBRWHA only |                   |                   |                   |                     | Assessment of ecosystems within the entire assessment area |                   |                    |                   |                     |
|------------|-----------------------------------------------------|-------------------------------------------------|-------------------|-------------------|-------------------|---------------------|------------------------------------------------------------|-------------------|--------------------|-------------------|---------------------|
|            |                                                     | Weighted coral sum                              | Coral exc. <50t/y | Norm. exc <50t/yr | Rank exc. <50t/yr | DIN Exposure Metric | Weighted coral sum                                         | Coral exc. <50t/y | Norm. exc. <50t/yr | Rank exc. <50t/yr | DIN Exposure Metric |
| Tully      | 600                                                 | 2331                                            | 2331              | 0.412             | 2                 | High                | 2331                                                       | 2331              | 0.412              | 2                 | High                |
| Murray     | 347                                                 | 607                                             | 607               | 0.107             | 8                 | Moderate            | 607                                                        | 607               | 0.107              | 9                 | Moderate            |
| Herbert    | 1436                                                | 1600                                            | 1600              | 0.283             | 3                 | High                | 1600                                                       | 1600              | 0.283              | 3                 | High                |
| Black      | 20                                                  | 0                                               |                   | 0.000             | 19                | Minimal             | 0                                                          |                   | 0.000              | 19                | Minimal             |
| Ross       | 57                                                  | 129                                             | 129               | 0.023             | 15                | Moderate            | 129                                                        | 129               | 0.023              | 15                | Moderate            |
| Haughton   | 326                                                 | 4                                               | 4                 | 0.001             | 18                | Low*                | 4                                                          | 4                 | 0.001              | 18                | Low                 |
| Burdekin   | 390                                                 | 5659                                            | 5659              | 1.000             | 1                 | High                | 5659                                                       | 5659              | 1.000              | 1                 | High                |
| Don        | 29                                                  | 0                                               |                   | 0.000             | 19                | Minimal             | 0                                                          |                   | 0.000              | 19                | Minimal             |
| Proserpine | 100                                                 | 128                                             | 128               | 0.023             | 16                | Moderate            | 128                                                        | 128               | 0.023              | 16                | Moderate            |
| O'Connell  | 80                                                  | 538                                             | 538               | 0.095             | 11                | Moderate            | 538                                                        | 538               | 0.095              | 12                | Moderate            |
| Pioneer    | 177                                                 | 588                                             | 588               | 0.104             | 9                 | Moderate            | 588                                                        | 588               | 0.104              | 10                | Moderate            |
| Plane      | 133                                                 | 580                                             | 580               | 0.102             | 10                | Moderate            | 580                                                        | 580               | 0.102              | 11                | Moderate            |
| Styx       | 14                                                  | 40                                              |                   | 0.000             | 19                | Minimal             | 40                                                         |                   | 0.000              | 19                | Minimal             |
| Shoalwater | 0.0                                                 | 135                                             |                   | 0.000             | 19                | Minimal             | 135                                                        |                   | 0.000              | 19                | Minimal             |
| Waterpark  | 0.0                                                 | 94                                              |                   | 0.000             | 19                | Minimal             | 94                                                         |                   | 0.000              | 19                | Minimal             |
| Fitzroy    | 49                                                  | 9355                                            |                   | 0.000             | 19                | Minimal             | 9355                                                       |                   | 0.000              | 19                | Minimal             |
| Calliope   | 2.6                                                 | 57                                              |                   | 0.000             | 19                | Minimal             | 57                                                         |                   | 0.000              | 19                | Minimal             |
| Boyne      | 0.2                                                 | 159                                             |                   | 0.000             | 19                | Minimal             | 159                                                        |                   | 0.000              | 19                | Minimal             |
| Baffle     | 15.9                                                | 41                                              |                   | 0.000             | 19                | Minimal             | 41                                                         |                   | 0.000              | 19                | Minimal             |
| Kolan      | 54                                                  | 6                                               | 6                 | 0.001             | 17                | Low                 | 6                                                          | 6                 | 0.001              | 17                | Low                 |
| Burnett    | 149                                                 | 1258                                            | 1258              | 0.222             | 4                 | High                | 1304                                                       | 1304              | 0.230              | 4                 | High                |
| Burrum     | 31                                                  | 6                                               |                   | 0.000             | 19                | Minimal             | 191                                                        |                   | 0.000              | 19                | Minimal             |

| Basin | Anth. DIN load (t/yr) (green shading shows <50t/yr) | Assessment of ecosystems within the GBRWHA only |                   |                    |                   |                     | Assessment of ecosystems within the entire assessment area |                   |                    |                   |                     |
|-------|-----------------------------------------------------|-------------------------------------------------|-------------------|--------------------|-------------------|---------------------|------------------------------------------------------------|-------------------|--------------------|-------------------|---------------------|
|       |                                                     | Weighted coral sum                              | Coral exc. <50t/y | Norm. exc. <50t/yr | Rank exc. <50t/yr | DIN Exposure Metric | Weighted coral sum                                         | Coral exc. <50t/y | Norm. exc. <50t/yr | Rank exc. <50t/yr | DIN Exposure Metric |
| Mary  | 372                                                 | 261                                             | 261               | 0.046              | 12                | Moderate            | 769                                                        | 769               | 0.136              | 8                 | Moderate            |
| Max   |                                                     | 9355                                            | 5659              |                    |                   |                     | 9355                                                       | 5659              | 0.000              |                   |                     |

\*The Houghton basin exposure category is allocated as High to account for interactions with the Burdekin basin.

Table 23. Calculations of the total areas in each final TSS Exposure category within each River Footprint and the areas of coral reefs and surveyed seagrass. The TSS Exposure Metric is calculated for each River Footprint by summing the area of coral reefs in the weighted categories and normalising the value to the maximum result to provide a relative index between the River Footprints, that is, the River Footprint with the highest area is assigned a value of 1.0, and all other areas are expressed as a value between 0.0 and 1.0, relative to the maximum. The scores are ranked among the River Footprints, from the highest (1) to lowest score. The final TSS exposure categories are ranked to align with TSS as Minimal (0Low (>0 to 0.01), Moderate (>0.01 to 0.2), or High (>0.2 to 1.0). Results are presented for coral reefs and seagrass within the GBRWHA, and those within the total assessment area (i.e. including Hervey Bay). Anth. = Anthropogenic; Norm. = Normalised; Exc. = excluding. \*The anthropogenic loads for the Normanby and Endeavour basins are considered to be an underestimate, and these basins were included in the assessment.

| Basin        | Anth. TSS load (kt/yr) (green shading shows <50kt/yr) | Assessment of ecosystems within the GBRWHA only |                                         |                     |                    |                    | Assessment of ecosystems within the entire assessment area |                                         |                     |                    |                    |
|--------------|-------------------------------------------------------|-------------------------------------------------|-----------------------------------------|---------------------|--------------------|--------------------|------------------------------------------------------------|-----------------------------------------|---------------------|--------------------|--------------------|
|              |                                                       | Weighted coral + surveyed seagrass sum          | Coral + surveyed seagrass exc. <50kt/yr | Norm. exc. <50kt/yr | Rank exc. <50kt/yr | TSS Exposure Index | Weighted Coral + surveyed seagrass sum                     | Coral + surveyed seagrass exc. <50kt/yr | Norm. exc. <50kt/yr | Rank exc. <50kt/yr | TSS Exposure Index |
| Jacky Jacky  | 0.6                                                   | 1                                               |                                         | 0.000               | 17                 | Minimal            | 1                                                          |                                         | 0.000               | 17                 | Minimal            |
| Olive Pascoe | 3.8                                                   | 198                                             |                                         | 0.000               | 17                 | Minimal            | 198                                                        |                                         | 0.000               | 17                 | Minimal            |
| Lockhart     | 1.8                                                   | 24                                              |                                         | 0.000               | 17                 | Minimal            | 24                                                         |                                         | 0.000               | 17                 | Minimal            |
| Stewart      | 2.5                                                   | 12,411                                          |                                         | 0.000               | 17                 | Minimal            | 12,411                                                     |                                         | 0.000               | 17                 | Minimal            |
| Normanby     | 34*                                                   | 13,272                                          | 13,272                                  | 0.512               | 3                  | High               | 13,272                                                     | 13,272                                  | 0.256               | 4                  | High               |
| Jeannie      | 9.3                                                   | 0                                               |                                         | 0.000               | 17                 | Minimal            | -                                                          |                                         | 0.000               | 17                 | Minimal            |
| Endeavour    | 15*                                                   | 240                                             | 240                                     | 0.009               | 14                 | Low                | 240                                                        | 240                                     | 0.005               | 14                 | Low                |
| Daintree     | 21                                                    | 462                                             |                                         | 0.000               | 17                 | Minimal            | 462                                                        |                                         | 0.000               | 17                 | Minimal            |

| Basin            | Anth. TSS load (kt/yr) (green shading shows <50kt/yr) | Assessment of ecosystems within the GBRWHA only |                                         |                     |                    |                    | Assessment of ecosystems within the entire assessment area |                                         |                     |                    |                    |
|------------------|-------------------------------------------------------|-------------------------------------------------|-----------------------------------------|---------------------|--------------------|--------------------|------------------------------------------------------------|-----------------------------------------|---------------------|--------------------|--------------------|
|                  |                                                       | Weighted coral + surveyed seagrass sum          | Coral + surveyed seagrass exc. <50kt/yr | Norm. exc. <50kt/yr | Rank exc. <50kt/yr | TSS Exposure Index | Weighted Coral + surveyed seagrass sum                     | Coral + surveyed seagrass exc. <50kt/yr | Norm. exc. <50kt/yr | Rank exc. <50kt/yr | TSS Exposure Index |
| Mossman          | 5.6                                                   | 626                                             |                                         | 0.000               | 17                 | Minimal            | 626                                                        |                                         | 0.000               | 17                 | Minimal            |
| Barron           | 91                                                    | 751                                             | 751                                     | 0.029               | 8                  | Moderate           | 751                                                        | 751                                     | 0.015               | 9                  | Moderate           |
| Mulgrave Russell | 50                                                    | 148                                             | 148                                     | 0.006               | 16                 | Low                | 148                                                        | 148                                     | 0.003               | 16                 | Low                |
| Johnstone        | 220                                                   | 692                                             | 692                                     | 0.027               | 9                  | Moderate           | 692                                                        | 692                                     | 0.013               | 10                 | Moderate           |
| Tully            | 60                                                    | 4,270                                           | 4,270                                   | 0.165               | 5                  | Moderate           | 4,270                                                      | 4,270                                   | 0.083               | 6                  | Moderate           |
| Murray           | 22                                                    | 4,829                                           |                                         | 0.000               | 17                 | Minimal            | 4,829                                                      |                                         | 0.000               | 17                 | Minimal            |
| Herbert          | 207                                                   | 5,966                                           | 5,966                                   | 0.230               | 4                  | High               | 5,966                                                      | 5,966                                   | 0.115               | 5                  | High               |
| Black            | 13                                                    | 210                                             |                                         | 0.000               | 17                 | Minimal            | 210                                                        |                                         | 0.000               | 17                 | Minimal            |
| Ross             | 16                                                    | 8,145                                           |                                         | 0.000               | 17                 | Minimal            | 8,145                                                      |                                         | 0.000               | 17                 | Minimal            |
| Haughton         | 114                                                   | 311                                             | 311                                     | 0.012               | 13                 | Moderate           | 311                                                        | 311                                     | 0.006               | 13                 | Low                |
| Burdekin         | 2969                                                  | 25,902                                          | 25,902                                  | 1.000               | 1                  | High               | 25,902                                                     | 25,902                                  | 0.501               | 2                  | High               |
| Don              | 251                                                   | 609                                             | 609                                     | 0.024               | 10                 | Moderate           | 609                                                        | 609                                     | 0.012               | 11                 | Moderate           |
| Proserpine       | 41                                                    | 615                                             |                                         | 0.000               | 17                 | Minimal            | 615                                                        |                                         | 0.000               | 17                 | Minimal            |
| O'Connell        | 156                                                   | 1,056                                           | 1,056                                   | 0.041               | 7                  | Moderate           | 1,056                                                      | 1,056                                   | 0.020               | 8                  | Moderate           |
| Pioneer          | 61                                                    | 551                                             | 551                                     | 0.021               | 11                 | Moderate           | 551                                                        | 551                                     | 0.011               | 12                 | Moderate           |
| Plane            | 67                                                    | 157                                             | 157                                     | 0.006               | 15                 | Low                | 157                                                        | 157                                     | 0.003               | 15                 | Low                |
| Styx             | 37                                                    | 0                                               |                                         | 0.000               | 17                 | Minimal            | -                                                          |                                         | 0.000               | 17                 | Minimal            |
| Shoalwater       | 18                                                    | 396                                             |                                         | 0.000               | 17                 | Minimal            | 396                                                        |                                         | 0.000               | 17                 | Minimal            |
| Waterpark        | 7.6                                                   | 94                                              |                                         | 0.000               | 17                 | Minimal            | 94                                                         |                                         | 0.000               | 17                 | Minimal            |
| Fitzroy          | 1270                                                  | 14,663                                          | 14,663                                  | 0.566               | 2                  | High               | 14,663                                                     | 14,663                                  | 0.283               | 3                  | High               |
| Calliope         | 30                                                    | 1,420                                           |                                         | 0.000               | 17                 | Minimal            | 1,420                                                      |                                         | 0.000               | 17                 | Minimal            |
| Boyne            | 5                                                     | 1,218                                           |                                         | 0.000               | 17                 | Minimal            | 1,218                                                      |                                         | 0.000               | 17                 | Minimal            |
| Baffle           | 21                                                    | 16                                              |                                         | 0.000               | 17                 | Minimal            | 16                                                         |                                         | 0.000               | 17                 | Minimal            |
| Kolan            | 14                                                    | 9                                               |                                         | 0.000               | 17                 | Minimal            | 9                                                          |                                         | 0.000               | 17                 | Minimal            |
| Burnett          | 117                                                   | 1,072                                           | 1,072                                   | 0.041               | 6                  | Moderate           | 1,360                                                      | 1,360                                   | 0.026               | 7                  | Moderate           |
| Burrum           | 13                                                    | 9                                               |                                         | 0.000               | 17                 | Minimal            | 31,292                                                     |                                         | 0.000               | 17                 | Minimal            |
| Mary             | 188                                                   | 334                                             | 334                                     | 0.013               | 12                 | Moderate*          | 51,751                                                     | 51,751                                  | 1.000               | 1                  | High               |

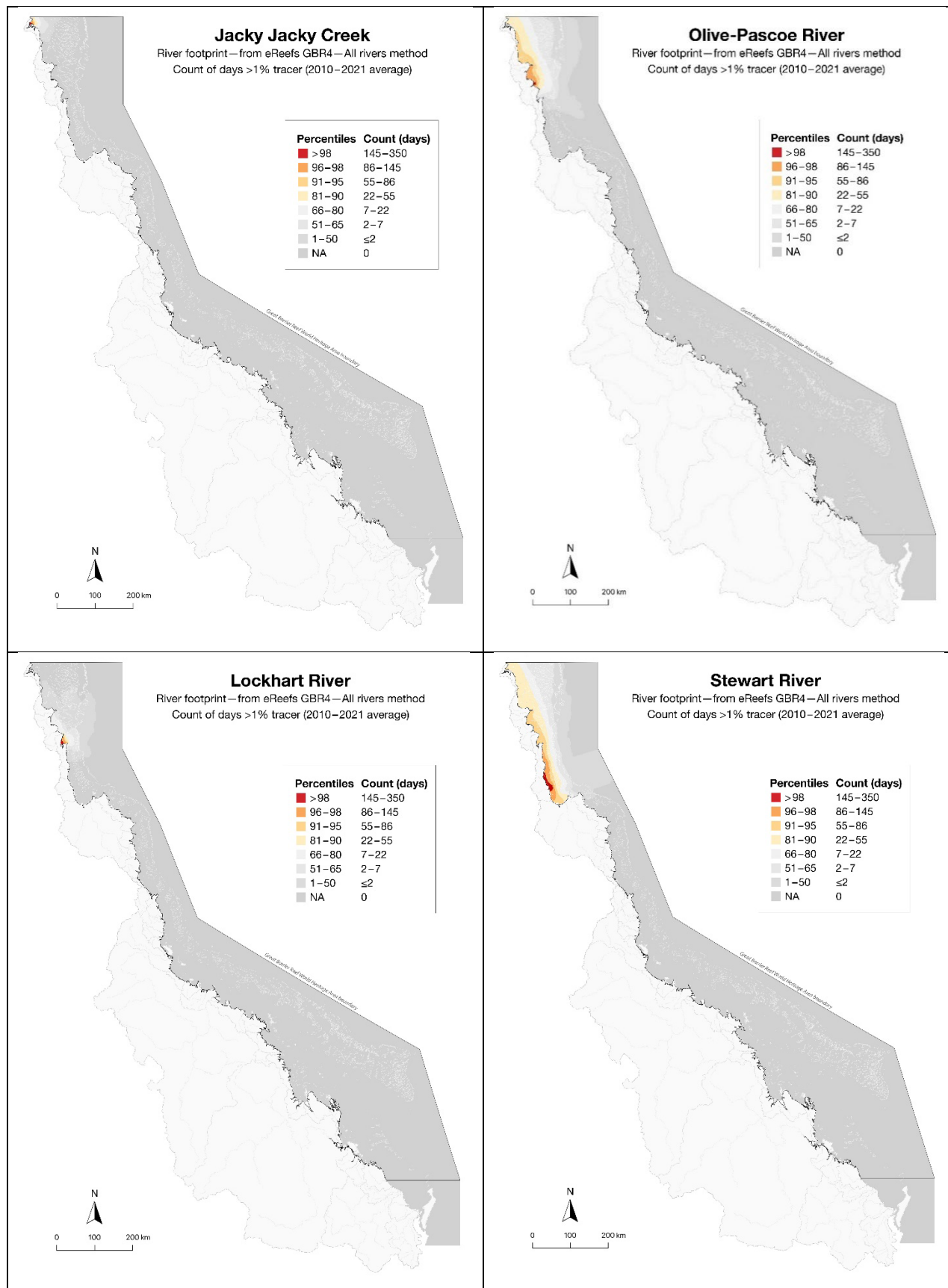
Appendix 6: Marine pollutant exposure – nutrients and sediments

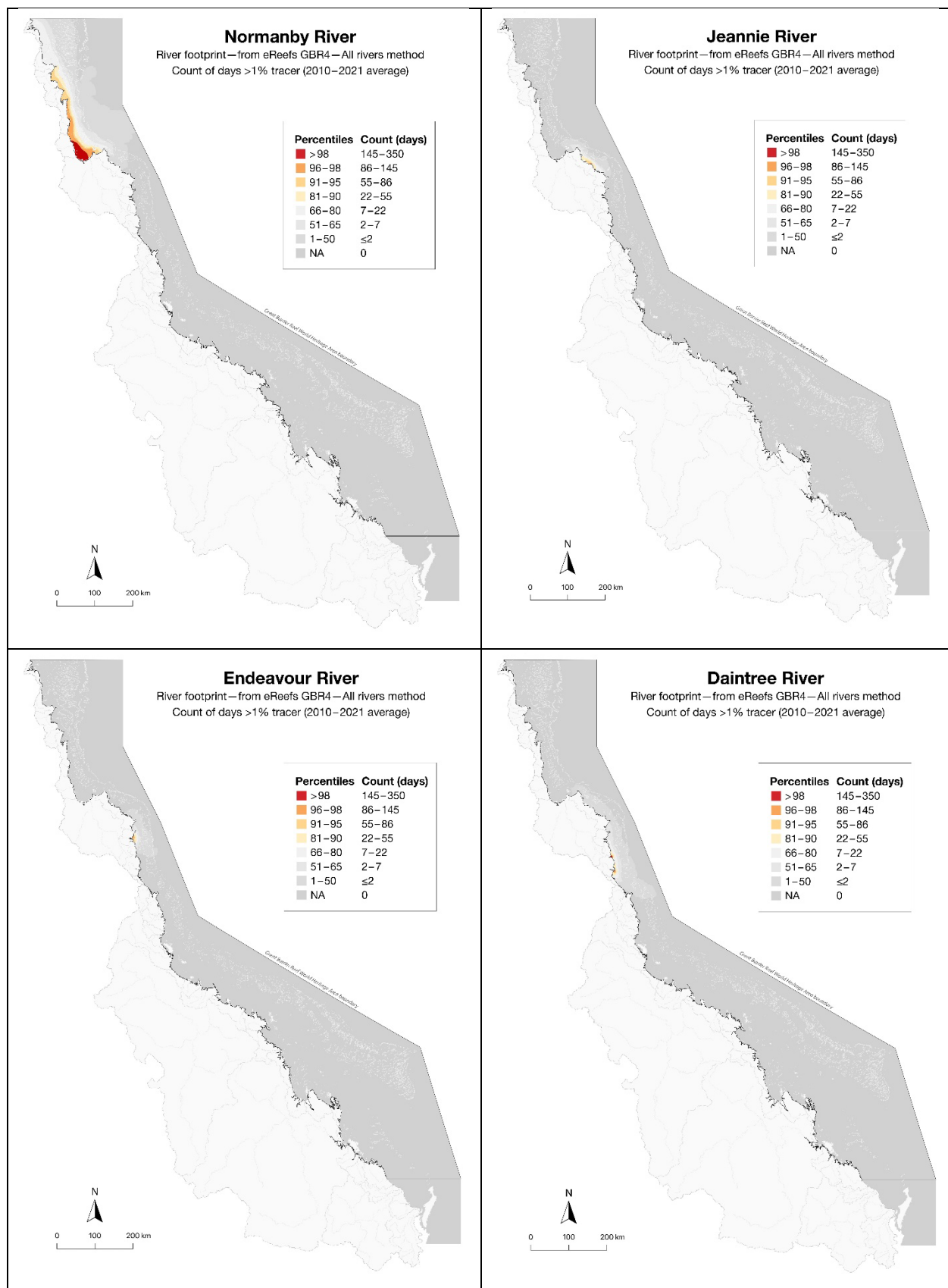
| Basin | Anth. TSS load (kt/yr) (green shading shows <50kt/yr) | Assessment of ecosystems within the GBRWHA only |                                         |                     |                    |                    | Assessment of ecosystems within the entire assessment area |                                         |                     |                    |                    |
|-------|-------------------------------------------------------|-------------------------------------------------|-----------------------------------------|---------------------|--------------------|--------------------|------------------------------------------------------------|-----------------------------------------|---------------------|--------------------|--------------------|
|       |                                                       | Weighted coral + surveyed seagrass sum          | Coral + surveyed seagrass exc. <50kt/yr | Norm. exc. <50kt/yr | Rank exc. <50kt/yr | TSS Exposure Index | Weighted Coral + surveyed seagrass sum                     | Coral + surveyed seagrass exc. <50kt/yr | Norm. exc. <50kt/yr | Rank exc. <50kt/yr | TSS Exposure Index |
| Max   |                                                       | 9355                                            | 25902                                   |                     |                    |                    | 51,751                                                     | 51,751                                  |                     |                    |                    |

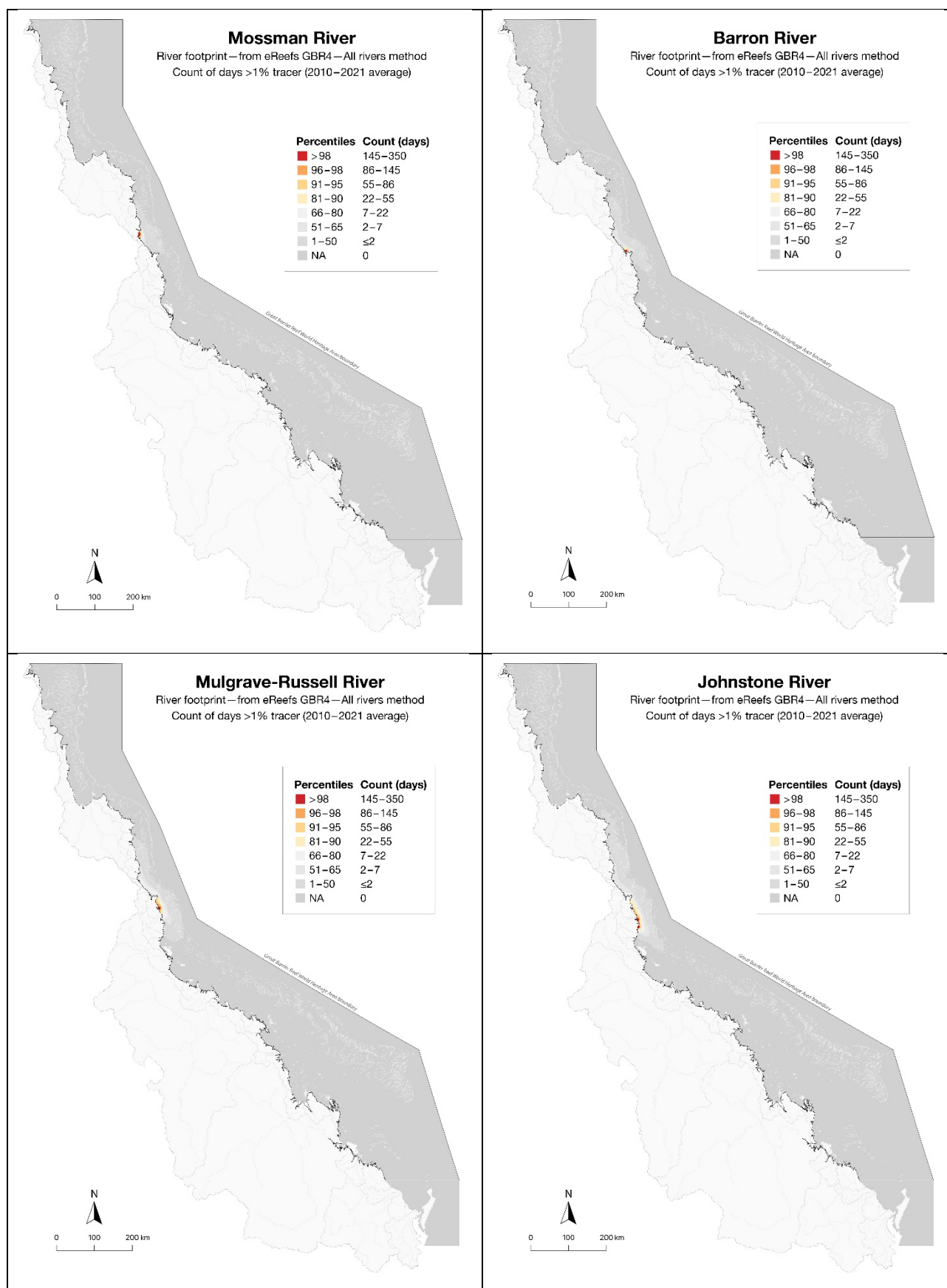
\*The Mary basin exposure category is allocated as High to account for the extensive seagrass beds in the Hervey Bay region that provide critical and connected habitat for dugong populations that are associated with the GBRWHA.

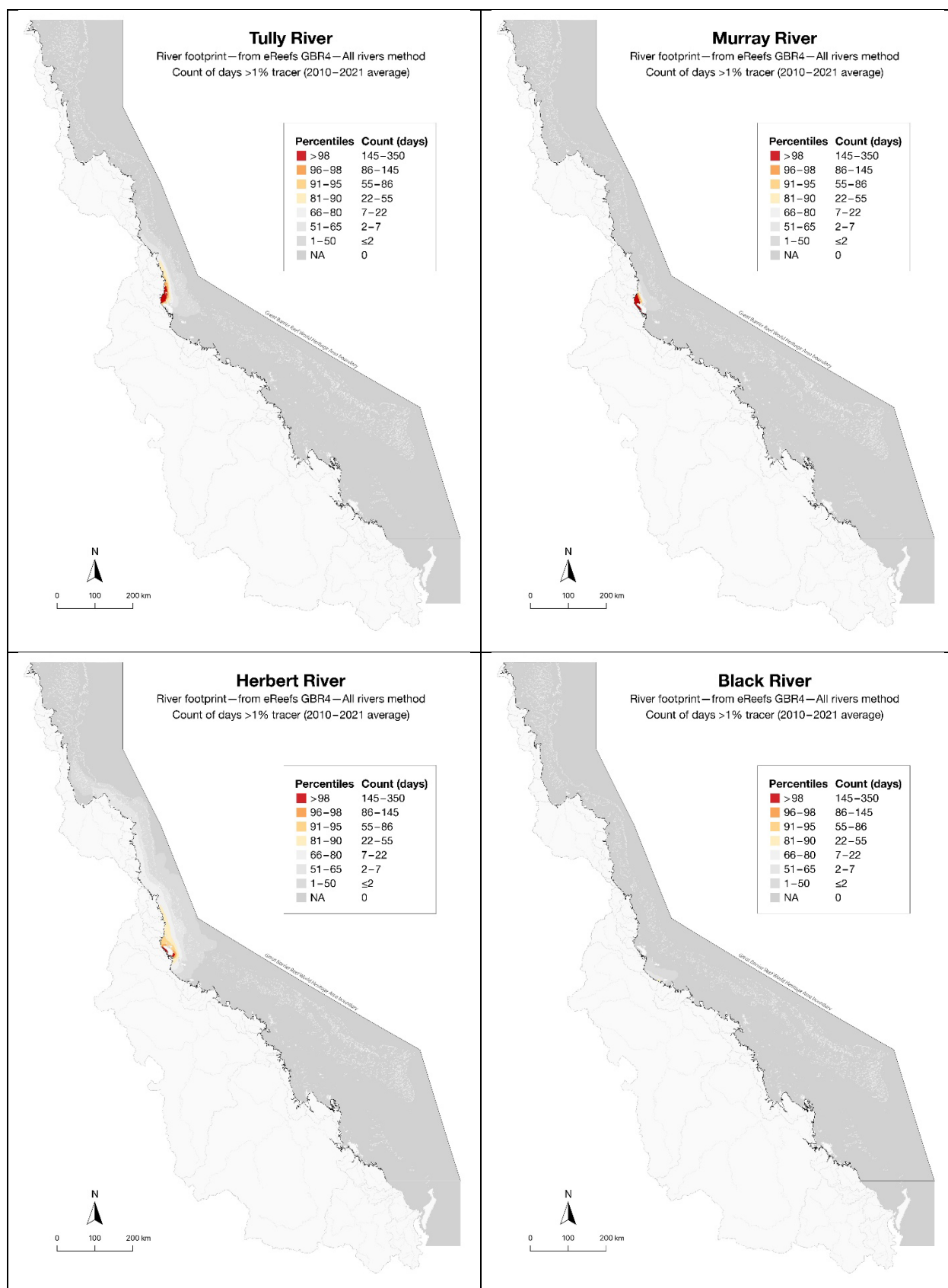
## River footprints

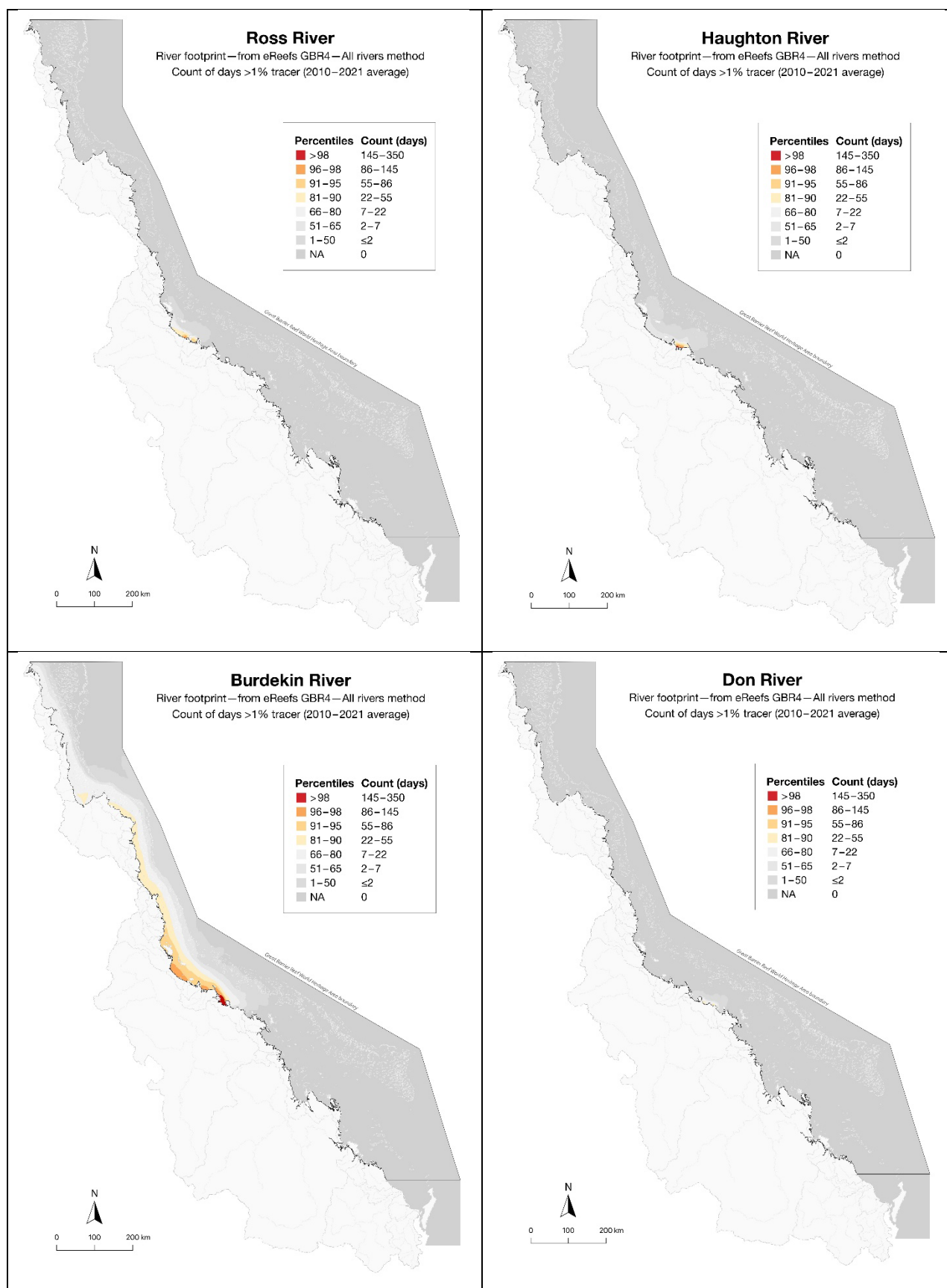
Figure 4. River footprints for the 35 GBR basins, generated using the eReefs GBR4 marine model. Refer to Waterhouse et al. (2025) for method.

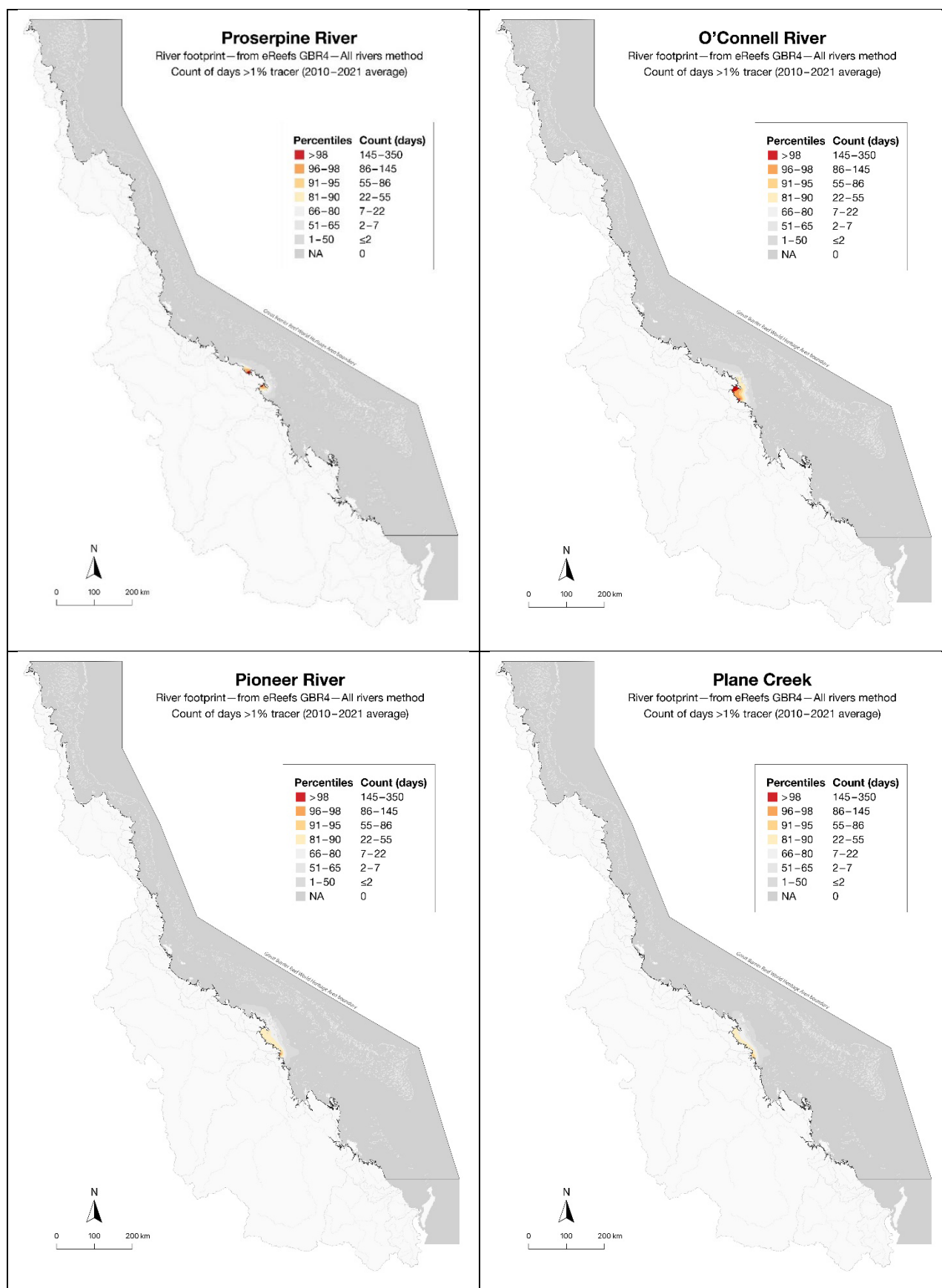


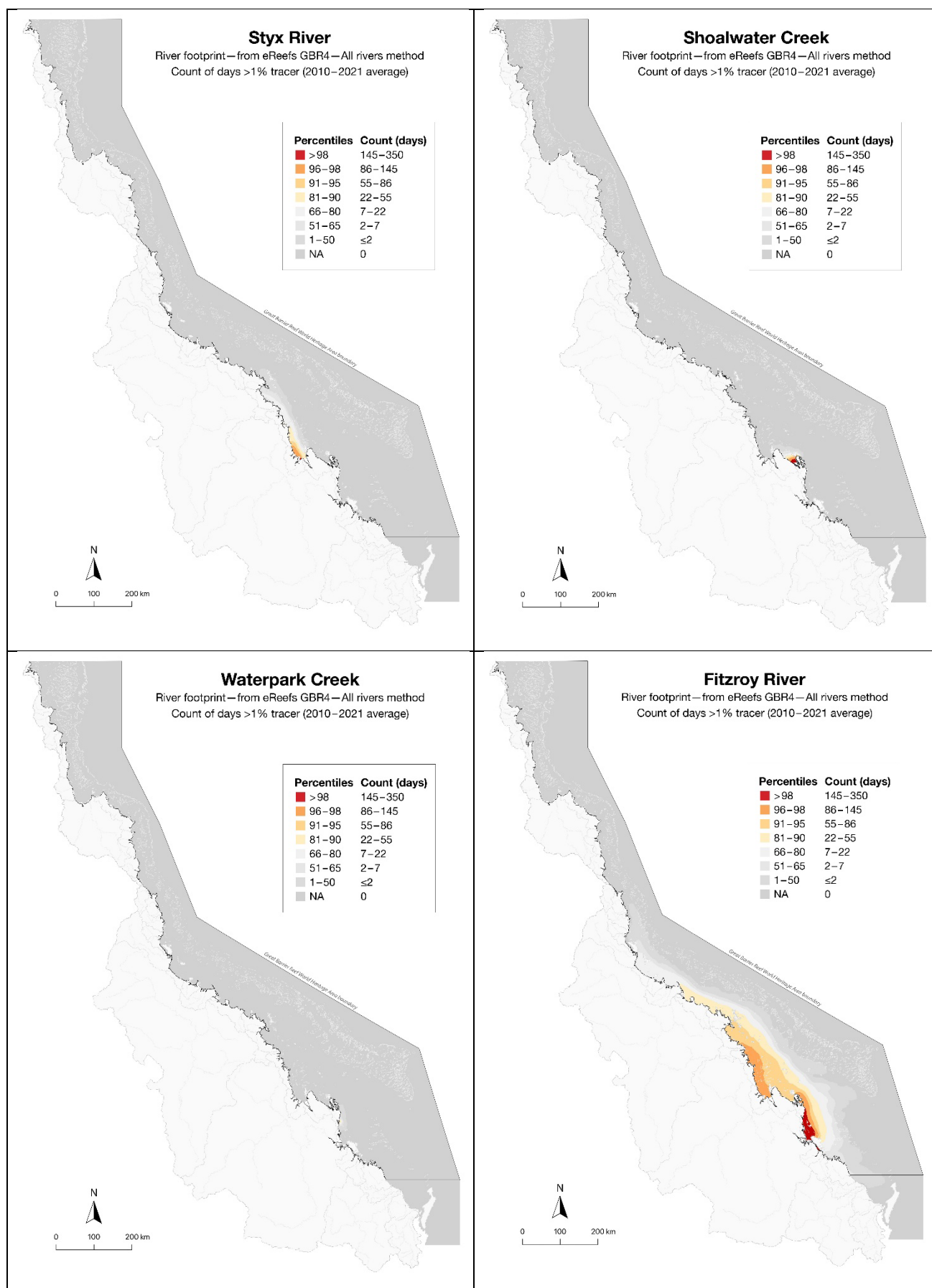


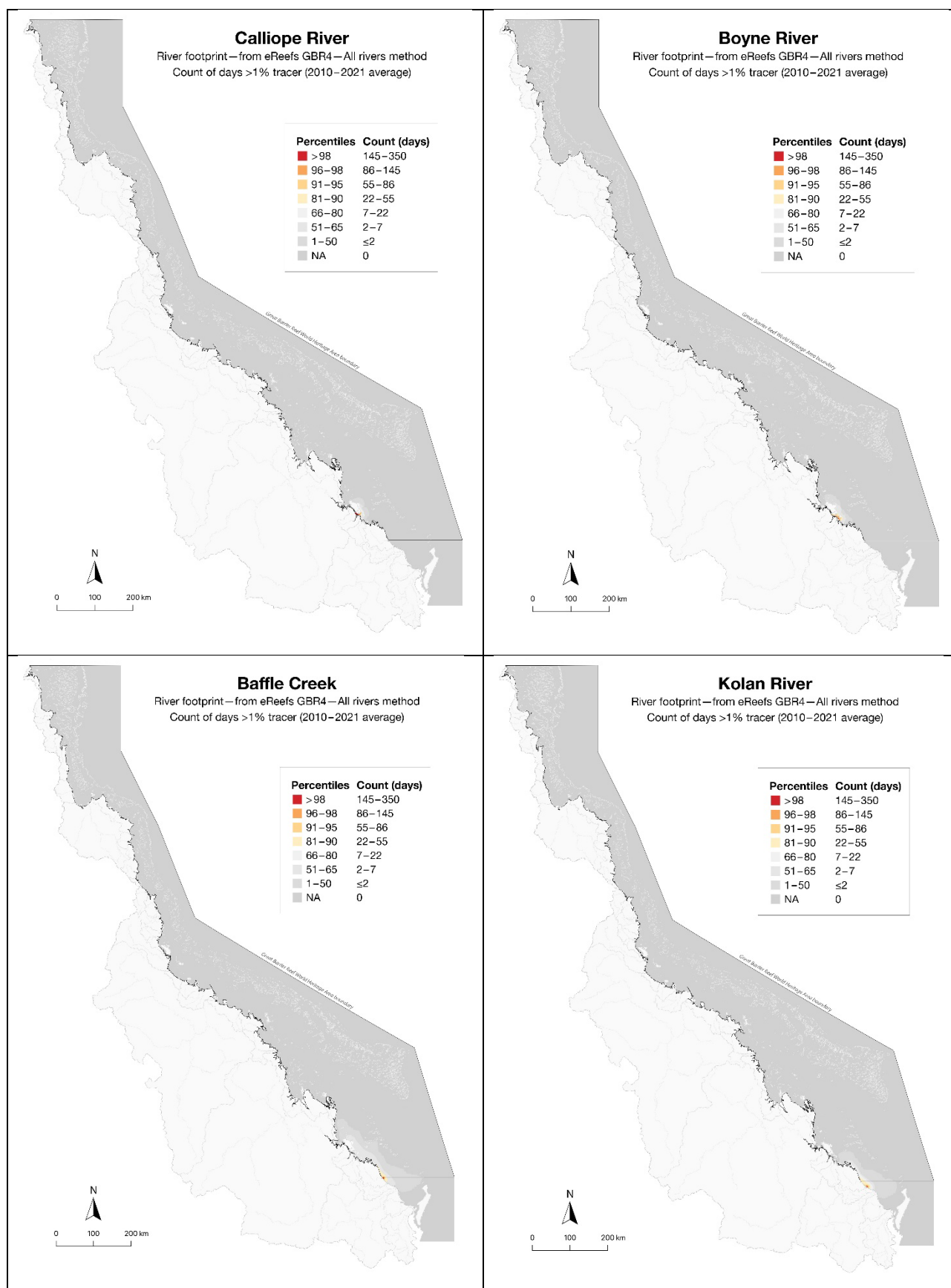


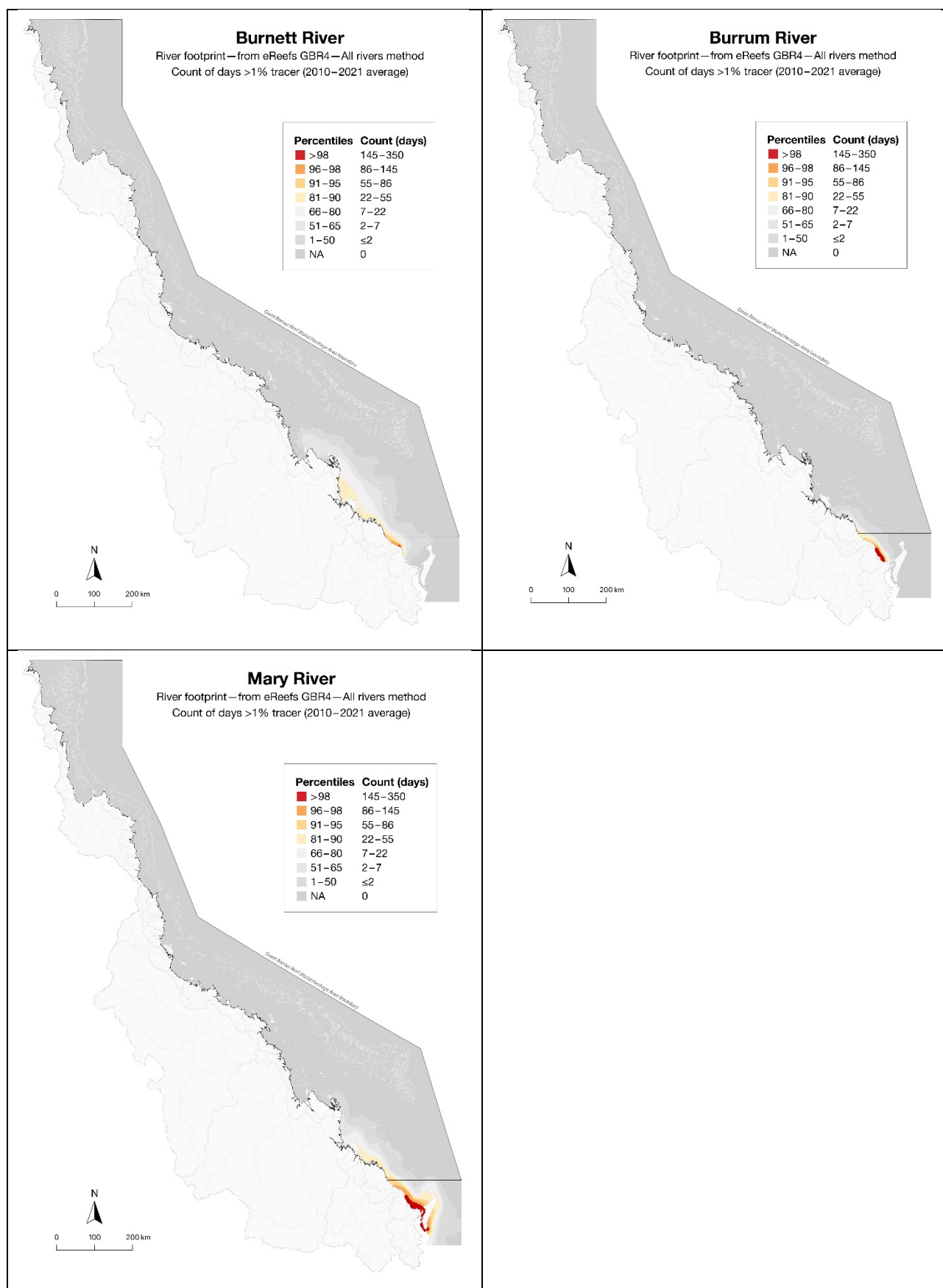








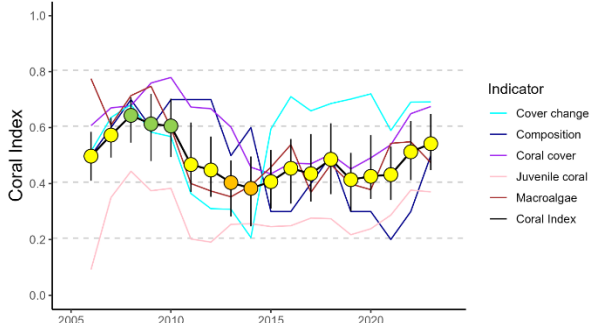




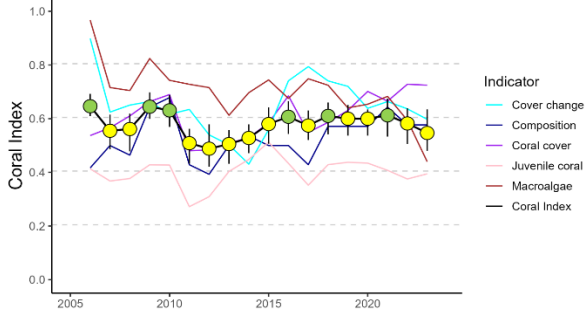
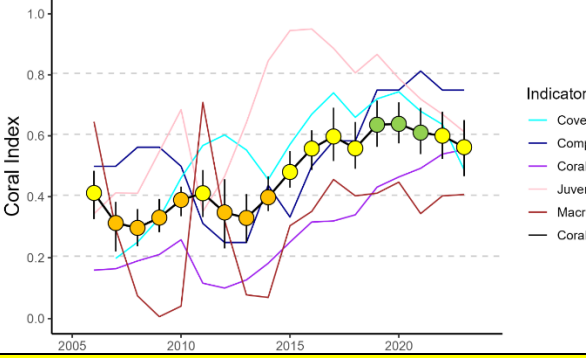
## Appendix 7: Marine condition

### Coral Reefs

Table 24. Reef-level Coral Index and indicator scores 2023. Coral Index and (sub-)regional indicator scores are colour coded by Reef Water Quality Report Card categories: red = very poor, orange = poor, yellow = moderate, light green = good and dark green = very good. Source: Thompson et al., 2024<sup>1</sup>, Table A7.

| (sub-) region              | Longer-term trend<br>Trends in Coral Index and indicator scores for the Fitzroy region. Coral Index scores are coloured by Reef Water Quality Report Card categories: red='very poor', orange = 'poor'. Error in Coral Index scores were derived from bootstrapped distributions of indicator scores at individual reefs. | Reef              | Depth | 2023 results |          |            |              |             |             |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------|--------------|----------|------------|--------------|-------------|-------------|
|                            |                                                                                                                                                                                                                                                                                                                           |                   |       | Coral cover  | Juvenile | Macroalgae | Cover change | Composition | Coral Index |
| Barron–Daintree            |                                                                                                                                                                                                                                          | Low Isles         | 5     | 0.66         | 0.40     | 0.91       | 0.57         | 0.50        | 0.61        |
|                            |                                                                                                                                                                                                                                                                                                                           | Snapper North     | 2     | 0.42         | 0.08     | 0.00       | 0.70         | 0.00        | 0.24        |
|                            |                                                                                                                                                                                                                                                                                                                           |                   | 5     | 0.63         | 0.31     | 0.62       | 0.84         | 0.50        | 0.58        |
|                            |                                                                                                                                                                                                                                                                                                                           | Snapper South     | 2     | 0.76         | 1.00     | 0.84       | 0.81         | 0.50        | 0.78        |
|                            |                                                                                                                                                                                                                                                                                                                           |                   | 5     | 0.90         | 0.05     | 0.00       | 0.53         | 1.00        | 0.50        |
| Moderate                   |                                                                                                                                                                                                                                                                                                                           |                   |       | 0.68         | 0.37     | 0.47       | 0.70         | 0.50        | 0.54        |
| Johnstone Russell–Mulgrave |                                                                                                                                                                                                                                                                                                                           | Fitzroy East      | 2     | 0.60         | 0.38     | 1.00       | 0.49         | 0.50        | 0.59        |
|                            |                                                                                                                                                                                                                                                                                                                           |                   | 5     | 0.76         | 0.62     | 0.87       | 0.61         | 0.00        | 0.57        |
|                            |                                                                                                                                                                                                                                                                                                                           | Fitzroy West      | 2     | 1.00         | 0.85     | 0.00       | 1.00         | 1.00        | 0.77        |
|                            |                                                                                                                                                                                                                                                                                                                           |                   | 5     | 0.92         | 0.74     | 0.66       | 0.89         | 0.50        | 0.74        |
|                            |                                                                                                                                                                                                                                                                                                                           | Fitzroy West LTMP | 5     | 0.63         | 0.51     | 1.00       | 1.00         | 1.00        | 0.83        |
|                            |                                                                                                                                                                                                                                                                                                                           |                   | 2     | 0.94         | 0.25     | 0.62       | 0.46         | 1.00        | 0.65        |

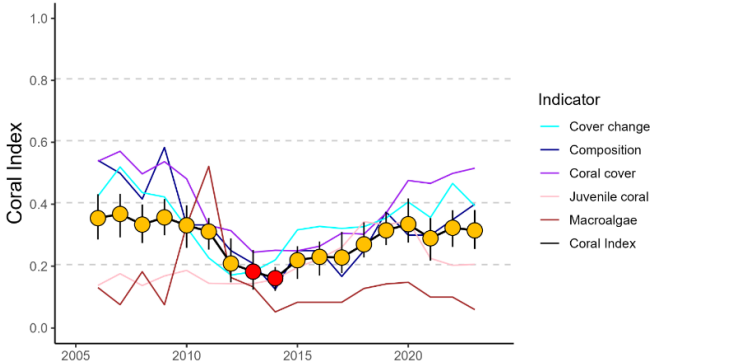
<sup>1</sup> Thompson A, Davidson J, Logan M, Thompson C (2024) *Marine Monitoring Program Annual Report for Inshore Coral Reef Monitoring: 2022–23. Report for the Great Barrier Reef Marine Park Authority*, Great Barrier Reef Marine Park Authority, Townsville.151 pp.

| (sub-) region | <p><b>Longer-term trend</b></p> <p>Trends in Coral Index and indicator scores for the Fitzroy region. Coral Index scores are coloured by Reef Water Quality Report Card categories: red='very poor', orange = 'poor'. Error in Coral Index scores were derived from bootstrapped distributions of indicator scores at individual reefs.</p> | Reef            | Depth | 2023 results |             |             |              |             |             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------|--------------|-------------|-------------|--------------|-------------|-------------|
|               |                                                                                                                                                                                                                                                                                                                                             |                 |       | Coral cover  | Juvenile    | Macroalgae  | Cover change | Composition | Coral Index |
|               |                                                                                                                                                                                                                                                            | Franklands East | 5     | 0.52         | 0.43        | 0.00        | 0.50         | 1.00        | 0.49        |
|               |                                                                                                                                                                                                                                                                                                                                             | Franklands West | 2     | 0.93         | 0.20        | 0.00        | 0.60         | 1.00        | 0.55        |
|               |                                                                                                                                                                                                                                                                                                                                             | High East       | 5     | 0.79         | 0.11        | 0.00        | 0.53         | 0.50        | 0.39        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 2     | 0.67         | 0.16        | 0.00        | 0.12         | 0.50        | 0.29        |
|               |                                                                                                                                                                                                                                                                                                                                             | High West       | 5     | 0.62         | 0.18        | 0.00        | 0.36         | 0.50        | 0.33        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 2     | 0.74         | 0.34        | 0.57        | 0.47         | 0.00        | 0.42        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.29         | 0.36        | 1.00        | 0.74         | 0.00        | 0.48        |
|               |                                                                                                                                                                                                                                                                                                                                             | <b>Moderate</b> |       | <b>0.73</b>  | <b>0.39</b> | <b>0.44</b> | <b>0.60</b>  | <b>0.58</b> | <b>0.55</b> |
| Herbert-Tully |                                                                                                                                                                                                                                                           | Barnards        | 2     | 0.82         | 0.29        | 1.00        | 0.63         | 1.00        | 0.75        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.76         | 0.76        | 1.00        | 0.35         | 1.00        | 0.77        |
|               |                                                                                                                                                                                                                                                                                                                                             | Dunk North      | 2     | 0.70         | 0.55        | 0.00        | 0.57         | 0.50        | 0.47        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.59         | 1.00        | 0.51        | 0.71         | 0.50        | 0.66        |
|               |                                                                                                                                                                                                                                                                                                                                             | Dunk South      | 2     | 0.49         | 0.25        | 0.14        | 0.44         | 1.00        | 0.46        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.51         | 0.56        | 0.01        | 0.40         | 0.50        | 0.40        |
|               |                                                                                                                                                                                                                                                                                                                                             | Bedarra         | 2     | 0.22         | 0.48        | 0.00        | 0.31         | 1.00        | 0.40        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.36         | 1.00        | 0.61        | 0.48         | 0.50        | 0.59        |
|               |                                                                                                                                                                                                                                                                                                                                             | <b>Moderate</b> |       | <b>0.55</b>  | <b>0.61</b> | <b>0.41</b> | <b>0.49</b>  | <b>0.75</b> | <b>0.56</b> |
| Burdekin      |                                                                                                                                                                                                                                                                                                                                             | Palms East      | 2     | 0.63         | 0.20        | 1.00        | 0.25         | 1.00        | 0.62        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.71         | 0.33        | 1.00        | 0.34         | 1.00        | 0.68        |
|               |                                                                                                                                                                                                                                                                                                                                             | Palms West      | 2     | 0.58         | 0.42        | 1.00        | 0.72         | 0.00        | 0.54        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.44         | 0.62        | 1.00        | 0.25         | 0.00        | 0.46        |
|               |                                                                                                                                                                                                                                                                                                                                             | Havannah North  | 5     | 0.29         | 0.62        | 0.00        | 0.5          | 1.00        | 0.48        |
|               |                                                                                                                                                                                                                                                                                                                                             | Havannah        | 2     | 0.45         | 0.26        | 0.00        | 0.49         | 1.00        | 0.44        |
|               |                                                                                                                                                                                                                                                                                                                                             |                 | 5     | 0.60         | 0.34        | 0.00        | 0.39         | 1.00        | 0.47        |
|               |                                                                                                                                                                                                                                                                                                                                             | Pandora         | 2     | 0.19         | 0.16        | 0.00        | 0.27         | 0.50        | 0.22        |

Appendix 7: Marine condition

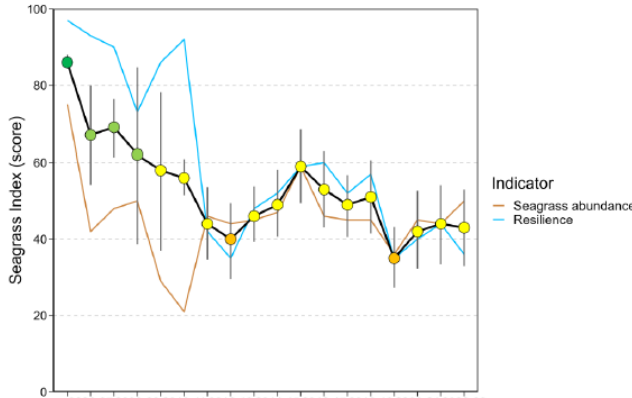
| (sub-) region     | Longer-term trend<br>Trends in Coral Index and indicator scores for the Fitzroy region. Coral Index scores are coloured by Reef Water Quality Report Card categories: red='very poor', orange = 'poor'. Error in Coral Index scores were derived from bootstrapped distributions of indicator scores at individual reefs. | Reef          | Depth | 2023 results |          |            |              |             |             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|--------------|----------|------------|--------------|-------------|-------------|
|                   |                                                                                                                                                                                                                                                                                                                           |               |       | Coral cover  | Juvenile | Macroalgae | Cover change | Composition | Coral Index |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.32         | 0.46     | 0.39       | 0.42         | 1.00        | 0.52        |
|                   |                                                                                                                                                                                                                                                                                                                           | Pandora North | 5     | 0.85         | 0.40     | 0.11       | 0.44         | 0.00        | 0.36        |
|                   |                                                                                                                                                                                                                                                                                                                           | Lady Elliot   | 2     | 0.41         | 0.28     | 0.00       | 0.28         | 1.00        | 0.39        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.65         | 0.81     | 0.35       | 0.69         | 0.00        | 0.50        |
|                   |                                                                                                                                                                                                                                                                                                                           | Magnetic      | 2     | 0.38         | 0.17     | 0.00       | 0.30         | 0.50        | 0.27        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.43         | 0.41     | 0.00       | 1.00         | 0.50        | 0.47        |
|                   |                                                                                                                                                                                                                                                                                                                           | Moderate      |       |              |          | 0.50       | 0.39         | 0.35        | 0.45        |
| Mackay-Whitsunday |                                                                                                                                                                                                                                                                                                                           | Hayman        | 5     | 0.27         | 1.00     | 0.84       | 0.79         | 0.00        | 0.58        |
|                   |                                                                                                                                                                                                                                                                                                                           | Border        | 5     | 0.53         | 0.57     | 1.00       | 0.18         | 0.00        | 0.46        |
|                   |                                                                                                                                                                                                                                                                                                                           | Hook          | 2     | 0.21         | 0.44     | 0.59       | 0.34         | 0.00        | 0.32        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.36         | 0.29     | 0.44       | 0.38         | 1.00        | 0.49        |
|                   |                                                                                                                                                                                                                                                                                                                           | Double Cone   | 2     | 0.03         | 0.21     | 0.00       | 0.13         | 0.00        | 0.08        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.23         | 0.19     | 0.00       | 0.28         | 0.00        | 0.14        |
|                   |                                                                                                                                                                                                                                                                                                                           | Daydream      | 2     | 0.02         | 0.69     | 0.00       | 0.43         | 0.00        | 0.23        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.09         | 1.00     | 0.91       | 0.46         | 0.00        | 0.49        |
|                   |                                                                                                                                                                                                                                                                                                                           | Dent          | 2     | 0.38         | 0.33     | 0.00       | 0.12         | 0.00        | 0.17        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.42         | 0.30     | 0.00       | 0.25         | 0.00        | 0.19        |
|                   |                                                                                                                                                                                                                                                                                                                           | Shute Harbour | 2     | 0.81         | 0.51     | 0.50       | 0.41         | 1.00        | 0.65        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.43         | 0.59     | 0.95       | 0.47         | 1.00        | 0.69        |
|                   |                                                                                                                                                                                                                                                                                                                           | Pine          | 2     | 0.12         | 0.30     | 0.00       | 0.17         | 0.00        | 0.12        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.22         | 0.34     | 0.00       | 0.40         | 0.00        | 0.19        |
|                   |                                                                                                                                                                                                                                                                                                                           | Seaforth      | 2     | 0.24         | 0.32     | 0.00       | 0.15         | 0.50        | 0.24        |
|                   |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.20         | 0.39     | 0.00       | 0.25         | 0.00        | 0.17        |
| Poor              |                                                                                                                                                                                                                                                                                                                           |               |       | 0.28         | 0.47     | 0.33       | 0.33         | 0.22        | 0.32        |

Appendix 7: Marine condition

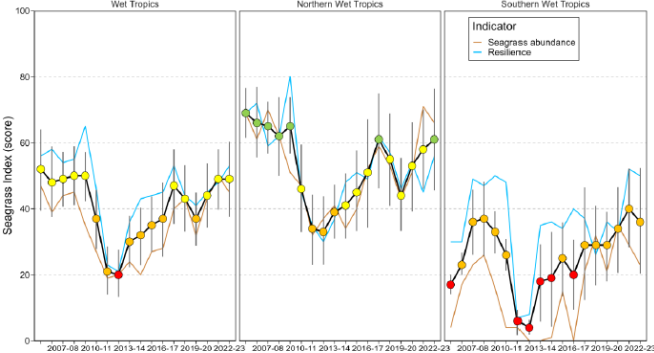
| (sub-) region | Longer-term trend<br>Trends in Coral Index and indicator scores for the Fitzroy region. Coral Index scores are coloured by Reef Water Quality Report Card categories: red='very poor', orange = 'poor'. Error in Coral Index scores were derived from bootstrapped distributions of indicator scores at individual reefs. | Reef          | Depth | 2023 results |          |            |              |             |             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|--------------|----------|------------|--------------|-------------|-------------|
|               |                                                                                                                                                                                                                                                                                                                           |               |       | Coral cover  | Juvenile | Macroalgae | Cover change | Composition | Coral Index |
| Fitzroy       |                                                                                                                                                                                                                                         | Barren        | 2     | 0.88         | 0.59     | 0.60       | 0.54         | 0.50        | 0.62        |
|               |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.95         | 0.09     | 0.00       | 0.64         | 0.50        | 0.44        |
|               |                                                                                                                                                                                                                                                                                                                           | North Keppel  | 2     | 0.65         | 0.06     | 0.00       | 0.25         | 1.00        | 0.39        |
|               |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.40         | 0.09     | 0.00       | 0.28         | 0.50        | 0.26        |
|               |                                                                                                                                                                                                                                                                                                                           | Middle        | 2     | 0.27         | 0.17     | 0.00       | 0.18         | 0.00        | 0.12        |
|               |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.28         | 0.22     | 0.00       | 0.17         | 0.00        | 0.14        |
|               |                                                                                                                                                                                                                                                                                                                           | Keppels South | 2     | 0.75         | 0.21     | 0.00       | 0.41         | 0.00        | 0.27        |
|               |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.50         | 0.20     | 0.00       | 0.30         | 0.50        | 0.30        |
|               |                                                                                                                                                                                                                                                                                                                           | Pelican       | 2     | 0.10         | 0.12     | 0.00       | 0.65         | 0.00        | 0.18        |
|               |                                                                                                                                                                                                                                                                                                                           |               | 5     | 0.38         | 0.31     | 0.00       | 0.52         | 1.00        | 0.44        |
| Poor          |                                                                                                                                                                                                                                                                                                                           |               |       | 0.52         | 0.21     | 0.06       | 0.40         | 0.40        | 0.32        |

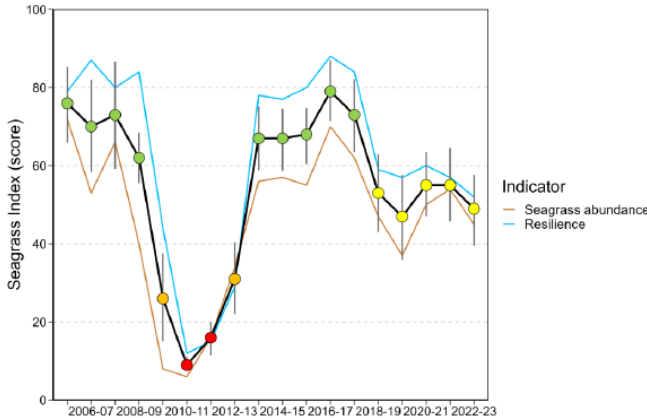
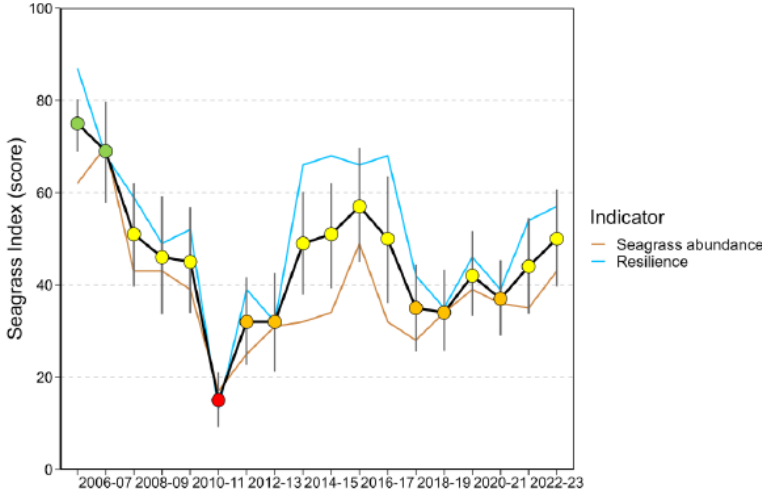
## Seagrass meadows

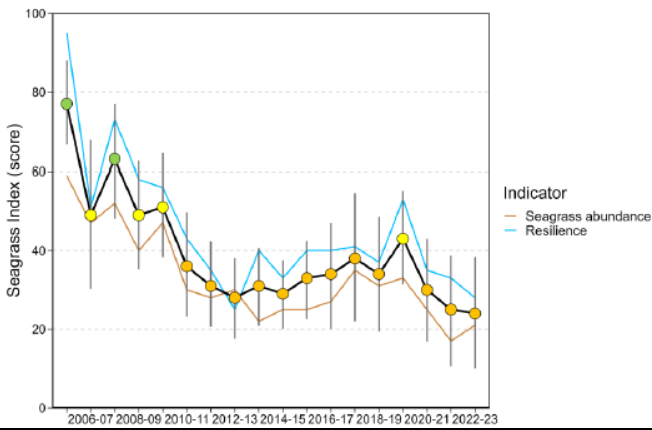
Table 25. Seagrass Index and indicator scores 2022-2023. Seagrass Index and (sub-)regional indicator scores are colour coded by Reef Water Quality Report Card categories: red = very poor, orange = poor, yellow = moderate, light green = good and dark green = very good. Source: McKenzie et al., 2024<sup>2</sup>.

| (sub)-Region         | Longer-term trend<br>Temporal trend in the Seagrass Index ( $\pm$ SE) with contributing indicator scores (averages across habitats and sites). Values are indexed scores scaled from 0–100 and graded: <span style="color: green;">●</span> = very good (81–100), <span style="color: yellow;">●</span> = good (61–80), <span style="color: orange;">●</span> = moderate (41–60), <span style="color: red;">●</span> = poor (21–40), <span style="color: red;">●</span> = very poor (0–20). NB: Scores are unitless. | 2022-23 results    |                |      |           |            |       |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------|------|-----------|------------|-------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Habitat            | Location       | Site | Abundance | Resilience | Index |
| Cape York            |                                                                                                                                                                                                                                                                                                                                                                                                                                    | Coastal intertidal | Bathurst Bay   | BY1  | 100       | 65         | 64    |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | BY2  | 100       | 36         |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Shelburne Bay  | SR1  | 75        | 30         |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | SR2  | 100       | 7          |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Coastal Subtidal   | Bathurst Bay   | BY4  | 25        |            | 63    |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Lloyd Bay      | LR1  | 25        |            |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Margaret Bay   | MA1  | 100       |            |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | MA2  | 100       |            |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Reef intertidal    | Piper Reef     | FR1  | 25        | 15         | 28    |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | FR2  | 25        | 15         |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    | Stanley Island | ST1  | 0         | 70         |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | ST2  | 25        | 50         |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Reef Subtidal      | Flinders Group | FG1  | 0         |            | 0     |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | FG2  | 0         |            |       |
| Moderate             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | 50   | 36        | 43         |       |
| Northern Wet Tropics |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | coastal intertidal | Yule Point     | YP1  | 100       | 73         | 88    |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | YP2  | 100       | 78         |       |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | reef intertidal    | Green Island   | GI1  | 63        | 30         | 50    |
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                | GI2  | 75        | 100        |       |

<sup>2</sup> McKenzie LJ, Collier CJ, Langlois LA, Brien H and Yoshida RL (2024) *Marine Monitoring Program: Annual Report for Inshore Seagrass Monitoring 2022–23*. Report for the Great Barrier Reef Marine Park Authority, Great Barrier Reef Marine Park Authority, Townsville. 178pp.

| (sub)-Region       | Longer-term trend<br><br>Temporal trend in the Seagrass Index ( $\pm$ SE) with contributing indicator scores (averages across habitats and sites). Values are indexed scores scaled from 0–100 and graded: ● = very good (81–100), ● = good (61–80), ● = moderate (41–60), ● = poor (21–40), ● = very poor (0–20). NB: Scores are unitless. | 2022-23 results |                    |            |           |            |       |    |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------|------------|-----------|------------|-------|----|
|                    |                                                                                                                                                                                                                                                                                                                                             | Habitat         | Location           | Site       | Abundance | Resilience | Index |    |
|                    |                                                                                                                                                                                                                                                           |                 | Low Isles          | LI1        | 25        | 6          |       |    |
| reef subtidal      |                                                                                                                                                                                                                                                                                                                                             | Green Island    | GI3                | 100        | 100       | 51         |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             | Low Isles       | LI2                | 0          | 5         |            |       |    |
| good               |                                                                                                                                                                                                                                                                                                                                             |                 |                    | 66         | 56        | 61         |       |    |
| coastal intertidal |                                                                                                                                                                                                                                                                                                                                             | Mission Beach   | LB1                | 0          | 15        | 8          |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 | LB2                | 0          | 15        |            |       |    |
| coastal subtidal   |                                                                                                                                                                                                                                                                                                                                             | Missionary Bay  | MS1                | 25         |           | 63         |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 | MS2                | 100        |           |            |       |    |
| reef intertidal    |                                                                                                                                                                                                                                                                                                                                             | Dunk Island     | DI1                | 13         | 100       | 53         |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 | DI2                | 13         | 88        |            |       |    |
| reef subtidal      |                                                                                                                                                                                                                                                                                                                                             | Dunk Island     | DI3                | 13         | 30        | 21         |       |    |
| poor               |                                                                                                                                                                                                                                                                                                                                             |                 |                    | 23         | 50        | 36         |       |    |
| coastal intertidal |                                                                                                                                                                                                                                                                                                                                             |                 |                    | 28         | 50        | 39         |       |    |
| coastal subtidal   |                                                                                                                                                                                                                                                                                                                                             |                 |                    | 50         |           | 50         |       |    |
| reef intertidal    |                                                                                                                                                                                                                                                                                                                                             |                 |                    | 38         | 41        | 39         |       |    |
| reef subtidal      |                                                                                                                                                                                                                                                                                                                                             |                 |                    | 17         | 30        | 23         |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 |                    | 45         | 53        | 49         |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             | Moderate        | coastal intertidal | Townsville | BB1       | 13         | 50    | 55 |
| SB1                |                                                                                                                                                                                                                                                                                                                                             |                 |                    |            | 88        | 50         |       |    |
| SB2                |                                                                                                                                                                                                                                                                                                                                             |                 | 25                 |            |           |            |       |    |
| Bowling Green Bay  |                                                                                                                                                                                                                                                                                                                                             |                 | JR1                | 50         | 50        |            |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 | JR2                | 50         | 74        |            |       |    |
| Bowen              |                                                                                                                                                                                                                                                                                                                                             |                 | BW2                | 75         |           |            |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 | BW3                | 75         |           |            |       |    |
| reef intertidal    |                                                                                                                                                                                                                                                                                                                                             |                 | Magnetic Island    | MI1        | 38        | 86         | 35    |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 |                    | MI2        | 13        | 5          |       |    |
|                    |                                                                                                                                                                                                                                                                                                                                             |                 |                    |            |           |            |       |    |

| (sub)-Region      | Longer-term trend<br>Temporal trend in the Seagrass Index ( $\pm$ SE) with contributing indicator scores (averages across habitats and sites). Values are indexed scores scaled from 0–100 and graded: <span style="color: green;">●</span> = very good (81–100), <span style="color: limegreen;">●</span> = good (61–80), <span style="color: yellow;">●</span> = moderate (41–60), <span style="color: orange;">●</span> = poor (21–40), <span style="color: red;">●</span> = very poor (0–20). NB: Scores are unitless. | 2022-23 results    |                 |      |           |            |       |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|------|-----------|------------|-------|
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Habitat            | Location        | Site | Abundance | Resilience | Index |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                          | reef subtidal      | Magnetic Island | MI3  | 25        | 50         | 38    |
| Moderate          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 |      | 45        | 52         | 49    |
| Mackay–Whitsunday |                                                                                                                                                                                                                                                                                                                                                                                                                                         | estuary            | Sarina Inlet    | SI1  | 38        | 71         | 53    |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    | SI2             | 13   | 90        |            |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | coastal intertidal | Pioneer Bay     | PI2  | 25        |            | 77    |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 | PI3  | 100       |            |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    | Repulse Bay     | MP2  | 100       | 92         |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 | MP3  | 100       | 87         |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    | St Helens Bay   | SH1  | 75        |            |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    | Llewellyn Bay   | LL1  | 100       |            |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    | Clairview       | CV1  | 13        |            |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 | CV2  | 13        |            |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | coastal subtidal   | Newry Islands   | NB1  | 25        |            | 63    |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    | NB2             | 100  |           |            |       |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | reef intertidal    | Shoal Bay       | HB1  | 88        |            | 29    |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                 | HB2  | 75        |            |       |
| Hamilton Is.      | HM1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    | 0               | 30   |           |            |       |

| (sub)-Region | Longer-term trend<br>Temporal trend in the Seagrass Index (± SE) with contributing indicator scores (averages across habitats and sites). Values are indexed scores scaled from 0–100 and graded: ● = very good (81–100), ● = good (61–80), ● = moderate (41–60), ● = poor (21–40), ● = very poor (0–20). NB: Scores are unitless. | 2022-23 results      |                 |                      |           |            |       |    |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------|----------------------|-----------|------------|-------|----|
|              |                                                                                                                                                                                                                                                                                                                                    | Habitat              | Location        | Site                 | Abundance | Resilience | Index |    |
|              |                                                                                                                                                                                                                                                                                                                                    | reef subtidal        |                 | HM3                  | 0         | 3          |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      | Lindeman Is     | LN3                  | 50        | 14         |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      | Lindeman Is     | LN1                  | 25        | 70         | 44    |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      | Whitsunday Is   | TO1                  | 25        |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 | TO2                  | 0         |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      | Whitehaven Bch  | WB1                  | 0         |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 | WB3                  | 25        |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      | Cid Harbour     | CH4                  | 25        |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 | CH5                  | 25        |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      | Moderate        |                      |           |            |       | 43 |
| Fitzroy      |                                                                                                                                                                                                                                                 | estuarine intertidal | Gladstone Hbr   | GH1                  | 25        | 71         | 26    |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 | GH2                  | 0         | 10         |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    | coastal intertidal   | Shoalwater Bay  | RC1                  | 0         | 30         | 45    |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 | WH1                  | 100       | 50         |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    | reef intertidal      | Great Keppel Is | GK1                  | 0         | 0          | 1     |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 |                      |           |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 |                      |           |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 |                      |           |            |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    | Poor                 |                 |                      |           | 21         | 28    | 24 |
|              |                                                                                                                                                                                                                                                                                                                                    | Burnett Mary         |                 | estuarine intertidal | Rodds Bay | RD1        | 0     | 70 |
| RD3          | 0                                                                                                                                                                                                                                                                                                                                  |                      |                 |                      |           | 15         |       |    |
| Urangan      | UG1                                                                                                                                                                                                                                                                                                                                |                      |                 |                      | 0         | 0          |       |    |
|              | UG2                                                                                                                                                                                                                                                                                                                                |                      |                 |                      | 0         | 0          |       |    |
|              |                                                                                                                                                                                                                                                                                                                                    |                      |                 | BH1                  | 25        | 15         | 27    |    |

| (sub)-Region | <b>Longer-term trend</b><br>Temporal trend in the Seagrass Index ( $\pm$ SE) with contributing indicator scores (averages across habitats and sites). Values are indexed scores scaled from 0–100 and graded: ● = very good (81–100), ● = good (61–80), ● = moderate (41–60), ● = poor (21–40), ● = very poor (0–20). NB: Scores are unitless. | 2022-23 results    |            |      |           |            |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|------|-----------|------------|
|              |                                                                                                                                                                                                                                                                                                                                                | Habitat            | Location   | Site | Abundance | Resilience |
|              |                                                                                                                                                                                                                                                                                                                                                | coastal intertidal | Burrum Hds | BH3  | 38        | 30         |
| Very poor    |                                                                                                                                                                                                                                                                                                                                                |                    |            |      | 10        | 22         |
|              |                                                                                                                                                                                                                                                                                                                                                |                    |            |      |           | 16         |

## Appendix 8: Management Options

### Sugarcane

Table 26. Sugarcane Nutrient management P2R Water Quality Risk Framework.

| Nutrient management<br>(weighting)                                      | Relative water quality risk                                                                                                                                                                                                                                                                                     |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                       |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                         | Lowest risk (A)                                                                                                                                                                                                                                                                                                 | Moderate – Low risk (B)                                                                                                                                        | Moderate risk (C)                                                                                                                                                                                                                                                                                                                                                                                     | High risk (D)                                                                                                                                         |
|                                                                         | Innovative                                                                                                                                                                                                                                                                                                      | Best practice                                                                                                                                                  | Minimum standard                                                                                                                                                                                                                                                                                                                                                                                      | Superseded                                                                                                                                            |
| <b>Matching nitrogen (N) supply to crop nitrogen requirements (70%)</b> | Six Easy Steps Nutrient Management program is employed, which includes developing a whole farm nutrient management plan. Nutrient management plans include consideration of yield history and trends in order to estimate optimal amounts of nitrogen required for each major soil type and/or management zone. |                                                                                                                                                                | Nitrogen fertiliser rate for each plant crop and its subsequent ratoons are derived from soil tests and the Six Easy Steps method. Rates are based on district yield potential with adjustments made according to the soil N mineralisation index (based on organic carbon percentage). Deductions are made for other significant sources of N including from irrigation water, mill mud and legumes. | N fertiliser rate typically exceeds the Six Easy Steps baseline application rate. Non-compliant with regulated method for calculating optimum N rate. |
| <b>Matching phosphorus (P) supply to crop P requirements (15%)</b>      | P fertiliser requirements are determined through soil testing and consideration of extractable phosphorus and the P buffer index. P is not applied unless testing indicates it is necessary.                                                                                                                    |                                                                                                                                                                | Phosphorus is regularly or routinely applied as part of plant or ratoon cane blends.                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                       |
| <b>Application of mill mud or mud/ash (15%)</b>                         | Do not apply mill mud or ash. OR Mill Mud/ash is deep banded at <50 wet tonnes per hectare.                                                                                                                                                                                                                     | Mill mud is not applied where soil testing indicates P levels are adequate. Mill mud/ash is applied in a band over the crop row at <70 wet tonnes per hectare. | Broadcast application at rates up to 100 wet tonnes per hectare. For fallow applications, mill mud/ash is incorporated soon after application.                                                                                                                                                                                                                                                        | Broadcast application at rates over 100 wet tonnes per hectare.                                                                                       |

Table 27. Revised Review of Land Management Targets Sugarcane Management Practices for nutrients in the **Wet Tropics** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Location                                                       | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption * |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|----------------------------|
| Daintree<br>Mossman<br>Barron<br>Mulgrave-Russell<br>Johnstone | <b>Overarching grouping recommendations</b> <ul style="list-style-type: none"> <li>The use of EEF's at a reduced application rate could be a standalone practice or used in combination with other N rate adjustment practices.</li> <li>Accounting for legume and Mill Mud in optimising N rates can be complementary to the other practices.</li> </ul> Improving drainage and use of soil ameliorants to improve yield can be complementary to the other practices. |                                                              |                                                             |                            |
| Daintree<br>Mossman<br>Barron<br>Mulgrave-Russell<br>Johnstone | <b>Use of 'enhanced efficiency fertiliser' (EEF) products at an economic-equivalent rate to conventional urea.</b> Nitrogen losses to the environment may be reduced through use of EEF products. Experiments indicate these reduced losses can result in sugarcane and sugar yield maintenance with ~80% of conventional urea-based fertiliser-N rates.                                                                                                               | 99                                                           | 1                                                           | 12.9                       |
| Daintree<br>Mossman<br>Barron<br>Mulgrave-Russell<br>Johnstone | <b>Improved drainage management where high constraints occur.</b> Insufficient drainage leading to waterlogging of crop root zones is a significant yield constraint on parts of most farms in most years. Drainage improvements include engineered infrastructure and levelling fields to more efficiently move surface water. Drainage to be addressed at local catchment scale rather than farm scale only.                                                         | 90                                                           | 10                                                          | 96                         |
| Daintree<br>Mossman<br>Barron<br>Mulgrave-Russell<br>Johnstone | <b>Accounting for nitrogen from mill mud when applied at rates less than 100 wet tonnes per hectare*</b><br>There is opportunity for applied fertiliser rates to factor in N & P contributions from mill mud applications. When mill mud is applied at rates below 100t/ha there is no regulated requirement to factor the N and P into nutrient management plans.<br><b>*Approximately 50% of the grower population have access to mill mud</b>                       | 20                                                           | 30                                                          | 31.4                       |
| Daintree<br>Mossman<br>Barron                                  | <b>Accounting for nitrogen from legume crops grown in rotation with sugarcane:</b><br>Legume crops can contribute nitrogen to following sugarcane crops (grown in                                                                                                                                                                                                                                                                                                      | 45                                                           | 5                                                           | 11.3                       |

| Location                                                    | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption * |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|----------------------------|
| Mulgrave-Russell Johnstone                                  | rotation). The Six Easy Steps Toolbox provides guidelines for possible reduction in rates of N fertiliser applied to sugarcane following legume crops.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                              |                                                             |                            |
| Daintree<br>Mossman<br>Barron<br>Mulgrave-Russell Johnstone | <b>Ameliorants to address yield constraints:</b> Amelioration program is designed to increase cane yield through the crop cycle. Increased sugarcane yield with the same nitrogen inputs will increase uptake of applied N fertiliser.                                                                                                                                                                                                                                                                                                                                                                        | 90                                                           | 10                                                          | 80                         |
| Tully<br>Murray<br>Lower Herbert                            | <b>Overarching Grouping Recommendations</b> <ul style="list-style-type: none"> <li>Farm nutrient management planning is a foundational practice than can include and integrate practices related to adjusting N fertiliser application rates, including accounting for N derived from legume rotation crops or mill mud, reducing N rates on late harvested or poor performing ratoons, and using EEF products on late harvested cane.</li> <li>Improved management of Ratoon Stunting Disease and the use of ameliorants to address soil constraints can be complementary to the other practices.</li> </ul> |                                                              |                                                             |                            |
| Tully<br>Murray<br>Lower Herbert                            | <b>Ameliorants to address yield constraints and improve crop uptake of applied nutrients.</b> Amelioration program is designed to increase cane yield through the crop cycle. Increased sugarcane yield with the same nitrogen inputs will increase uptake of applied N fertiliser.                                                                                                                                                                                                                                                                                                                           | 9                                                            | 5                                                           | 58.2                       |
| Tully<br>Murray<br>Lower Herbert                            | <b>Reducing overall N fertiliser rate application through use of enhanced efficiency fertilisers in late harvested cane.</b> Nitrogen losses to the environment may be reduced through use of EEF products. Experiments indicate these reduced losses can result in sugarcane and sugar yield maintenance with ~80% of conventional urea-based fertiliser-N rates. Production risk may be minimised through targeting EEF use in situations with diminished yield potential and/or high N loss risk, such as late harvested cane crops.                                                                       | 85                                                           | 15                                                          | 55.8                       |
| Tully<br>Murray<br>Lower Herbert                            | <b>Adjusting N fertiliser rates in poor performing or late harvested ratoon crops</b> Late harvested crops or crops in poorer condition often have diminished yield potential. The Six Easy Steps Toolbox provides guidance for adjustments to N fertiliser rates in these situations.                                                                                                                                                                                                                                                                                                                        | 90                                                           | 10                                                          | 29.8                       |

| Location                         | Practice Description                                                                                                                                                                                                                                                                                                                                                                   | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption * |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|----------------------------|
| Tully<br>Murray<br>Lower Herbert | <b>Accounting for nitrogen from legumes grown in rotation with sugarcane (progressive growers)</b><br>Legume crops can contribute nitrogen to following sugarcane crops (grown in rotation). The Six Easy Steps Toolbox provides guidelines for possible reduction in rates of N fertiliser applied to sugarcane following legume crops.                                               | 20                                                           | 80                                                          | 93.8                       |
| Tully<br>Murray<br>Lower Herbert | <b>Improved management of Ratoon Stunting Disease to improve yield and nutrient use efficiency.</b> Ratoon stunting disease (RSD) is common and can reduce sugarcane yield by 10-30%, reducing crop uptake of applied nutrients. Management options include planting clean seed, maintaining fallows free of any volunteer cane and good hygiene of planting and harvesting machinery. | 90                                                           | 10                                                          | 26.2                       |
| Tully<br>Murray<br>Lower Herbert | <b>Accounting for nitrogen from legumes grown in rotation with sugarcane.</b><br>Legume crops can contribute nitrogen to following sugarcane crops (grown in rotation). The Six Easy Steps Toolbox provides guidelines for possible reduction in rates of N fertiliser applied to sugarcane following legume crops.                                                                    | 45                                                           | 55                                                          | 63.6                       |
| Tully<br>Murray<br>Lower Herbert | <b>Accounting for nitrogen from mill mud when applied at rates of less than 100 wet tonnes per hectare.</b> When mill mud is applied at rates below 100t/ha there is no regulated requirement to factor the N and P into nutrient management plans. There is opportunity however for applied fertiliser rates to factor in N & P contributions from mill mud applications.             | 50                                                           | 50                                                          | 50.5                       |

Table 28. Review of Land Management Targets Sugarcane Management Practices for nutrients in the **Burdekin** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Location | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Target Population % (landholders who have not already adopted) | Baseline % (Proportion of total population already doing the practice) | 2035 additional adoption * |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------|----------------------------|
| BUR Cane | <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>The two improved irrigation management practices could be standalone practices or used in combination with other practices.</li> <li>Accounting for legume and Mill Mud in optimising N rates can be complementary to the other practices.</li> <li>Improving soil health, disease management, addressing groundwater salinity and use of soil ameliorants to improve yield can be complementary to the other practices.</li> </ul> |                                                                |                                                                        |                            |
| BUR Cane | <b>Reducing water losses through automating furrow irrigation management.</b> Automated irrigation systems integrated with crop modelling and in-field sensors to calculate crop water requirements and start, monitor, terminate and switch irrigation. Enables dynamic control of timing/duration of irrigation events to match crop water demand more closely than is possible with conventional manual operation. Automation of the system, not just some components.                                               | 90                                                             | 10                                                                     | 91.0                       |
| BUR Cane | <b>Improved disease management to increase yield and improve nutrient use efficiency.</b> Ratoon stunting disease (RSD), leaf scald disease, and sugarcane smut are thought to reduce cane yield by 10-20% in the Burdekin, reducing crop uptake of applied nutrients. Management options include planting resistant varieties, planting clean seed, and good hygiene in fallows and of planting and harvesting machinery.                                                                                              | 85                                                             | 15                                                                     | 79.6                       |
| BUR Cane | <b>Improved soil health through adoption of improved farming system.</b> Soil health and crop production are improved through reducing soil compaction (CTF) and tillage, introducing legume break crops grown in the sugarcane fallow, maximising retention of crop residues, and applying ameliorants where necessary.                                                                                                                                                                                                | 98                                                             | 2                                                                      | 36.3                       |
| BUR Cane | Ameliorants to address subsoil constraints                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 80                                                             | 20                                                                     | 32.0                       |
| BUR Cane | <b>Addressing salinity and rising groundwater (dewatering, conjunctive use and subsurface drainage).</b> Waterlogging and increasing salinity in the crop rooting zone are                                                                                                                                                                                                                                                                                                                                              | 10                                                             | 90                                                                     | 98.1                       |

| Location | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Target Population % (landholders who have not already adopted) | Baseline % (Proportion of total population already doing the practice) | 2035 additional adoption * |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------|----------------------------|
|          | impacting yield and crop nutrient use. <i>The most important action is to improve crop water use efficiency through optimising irrigation management.</i> Increasing use of groundwater over surface water is the next highest priority. Conjunctive use involves mixing saline groundwater with good quality surface water on-farm. Combined with subsurface drainage to minimise aquifer recharge                                                                                                                       |                                                                |                                                                        |                            |
| BUR Cane | <b>Reducing water losses through improved irrigation management (manual furrow systems).</b> Water application in excess of crop demand is the main mechanism for DIN losses in irrigated sugarcane, through leaching and surface runoff. Scope for better matching application volumes to soil water deficits under conventional manually operated systems.                                                                                                                                                              | 10                                                             | 10                                                                     | 17.2                       |
| BUR Cane | <b>Accounting for legume rotation crops and mill mud at &lt;100t/ha when determining N fertiliser rates.</b> When mill mud is applied at rates below 100t/ha there is no regulated requirement to factor the N and P into nutrient management plans. There is opportunity however for applied fertiliser rates to factor in N & P contributions from mill mud applications via the Six Easy Steps Toolbox. The Toolbox also provides guidelines for possible N fertiliser rate reduction following legume rotation crops. | 90                                                             | 10                                                                     | 11.8                       |

Table 29. Review of Land Management Targets revised Sugarcane Management Practices for nutrients in the **Mackay Whitsunday** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Location                                          | Practice Description                                                                                                                                                                                                   | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption* |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|---------------------------|
| O'Connell<br>Pioneer<br>Plane Creek<br>Proserpine | <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>The improved irrigation management practice could be a standalone practice or used in combination with other practices.</li> </ul> |                                                              |                                                             |                           |

| Location                                          | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption* |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|---------------------------|
|                                                   | <ul style="list-style-type: none"> <li>The use of EEF's at a reduced application rate could be a standalone practice or used in combination with other N rate adjustment practices.</li> <li>Accounting for legume and Mill Mud in optimising N rates can be complementary to the other practices.</li> </ul> <p>Use of soil ameliorants and addressing drainage and waterlogging to improve yield can be complementary to the other practices.</p> |                                                              |                                                             |                           |
| O'Connell<br>Pioneer<br>Plane Creek<br>Proserpine | <p><b>Effective use of available irrigation water to increase crop yield with similar crop inputs*</b>. Irrigation water allocations often <i>underutilised</i>. Scope for considerable yield improvement if available water is used to maximise early crop growth and increase crop uptake of applied nutrients prior to wet season.</p> <p><b>*60% of growers have irrigation access</b></p>                                                      | 20%                                                          | 7%                                                          | 26%                       |
| O'Connell<br>Pioneer<br>Plane Creek<br>Proserpine | <p><b>Address drainage and waterlogging problems to improve yield and nutrient use efficiency.</b> Crop growth and yield is often impeded by saturation of the soil profile in the root zone which limits root function (and crop nutrient uptake) and results in elevated DIN losses through denitrification and leaching.</p>                                                                                                                     | 90                                                           | 10                                                          | 73                        |
| O'Connell<br>Pioneer<br>Plane Creek<br>Proserpine | <p><b>Address soil constraints to improve yield</b></p>                                                                                                                                                                                                                                                                                                                                                                                             | 25                                                           | 75                                                          | 87                        |
| O'Connell<br>Pioneer<br>Plane Creek<br>Proserpine | <p><b>Accounting for N from legume break crops*</b>: Legume crops can contribute nitrogen to following sugarcane crops (grown in rotation). The Six Easy Steps Toolbox provides guidelines for possible reduction in rates of N fertiliser applied to sugarcane following legume crops.</p> <p><b>*This scenario refers to the 20% of growers that grow legume crops and have scope for improvement in accounting for legume derived N</b></p>      | 20                                                           | 5                                                           | 14                        |
| O'Connell<br>Pioneer<br>Plane Creek<br>Proserpine | <p><b>Accounting for nitrogen from mill mud when applied at rates less than 100 wet tonnes per hectare:</b> When mill mud is applied at rates below 100t/ha there is no regulated requirement to factor the N and P into nutrient management plans. There is opportunity however for applied fertiliser rates to factor in N &amp; P contributions from mill mud applications.</p>                                                                  | 36                                                           | 64                                                          | 78.4                      |

| Location                                          | Practice Description                                                                                                                                                                                                                                                                                                                                        | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption* |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|---------------------------|
| O'Connell<br>Pioneer<br>Plane Creek<br>Proserpine | <b>Reducing overall N application rate by up to 20% through the use of 'enhanced efficiency fertiliser' products:</b> Nitrogen losses to the environment may be reduced through use of EEF products. Experiments indicate these reduced losses can result in sugarcane and sugar yield maintenance with ~80% of conventional urea-based fertiliser-N rates. | 99                                                           | 1                                                           | 38.6                      |

Table 30. Review of Land Management Targets revised Sugarcane Management Practices for **pesticides**. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Location                                                       | Practice Description                                                                                                                                                                                                                                                                                                     | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption * |
|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|----------------------------|
| Daintree<br>Mossman<br>Barron<br>Mulgrave Russell<br>Johnstone | <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>Banded residual herbicide application is a foundational practice</li> </ul>                                                                                                                                                          |                                                              |                                                             |                            |
| Daintree<br>Mossman<br>Barron<br>Mulgrave Russell<br>Johnstone | <b>Banded residual herbicides:</b><br>Applying residual herbicide in a band over the crop row only (30-50% of the area) and applying a knockdown herbicide between the rows can reduce the loss of residual herbicides in runoff by up to 80%.                                                                           | 95%                                                          | 5%                                                          | 6%                         |
| Tully<br>Murray<br>Lower Herbert                               | <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>Optimising application and chemistry selection is a foundational practice.</li> <li>Adopting the Dual Herbicide Sprayer to facilitate banded spraying of residual herbicides can be complementary to the other practices.</li> </ul> |                                                              |                                                             |                            |
| Tully                                                          | <b>Pesticides - Dual Herbicide Sprayer</b>                                                                                                                                                                                                                                                                               | 99%                                                          | 1%                                                          | 3%                         |

| Location                         | Practice Description                                                                                                                                                                                                                                                                                                                                    | Target Population (landholders who have not already adopted) | Baseline (% of total population already doing the practice) | 2035 additional adoption * |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|----------------------------|
| Murray<br>Lower Herbert          | The DHS is a low-cost non-shielded strip sprayer that enables application of residual herbicide in a band over the crop row only (30-50% of the area) and applying a knockdown herbicide between the rows can reduce the loss of residual herbicides in runoff by up to 80%.                                                                            |                                                              |                                                             |                            |
| Tully<br>Murray<br>Lower Herbert | <b>Reduce water quality risk from pesticides through focus on product selection, rate, and timing of application.</b> Aquatic risk of pesticides can be reduced through selecting products of lower toxicity (where possible) and with lower risk of off-farm loss. Timing of application can in some situations change to further reduce aquatic risk. | 90%                                                          | 10%                                                         | 12%                        |
| Burdekin                         | <b>Reducing pesticide risk through optimising application and chemistry selection.</b> Aquatic risk of pesticides can be reduced through selecting products of lower toxicity (where possible) and through optimising application timing, equipment and methods.                                                                                        | 80%                                                          | 20%                                                         | 26%                        |
| Mackay Whitsunday                | <b>Reducing pesticide risk through optimising application and chemistry selection.</b> Aquatic risk of pesticides can be reduced through selecting products of lower toxicity (where possible) and through optimising application equipment and methods.                                                                                                | 80%                                                          | 20%                                                         | 21%                        |
| Burnett Mary                     | <b>Reducing pesticide risk through selection of products with lower aquatic risk.</b> Aquatic risk of pesticides may be reduced through selecting products of lower toxicity and or lower mobility and persistence in the environment.                                                                                                                  | 90%                                                          | 10%                                                         | 12%                        |

## Bananas

Table 31. Bananas P2R Water Quality Risk Framework for Nutrient management in the Wet Tropics region.

| Nutrient management<br>(weighting)                   | Relative water quality risk                                                                                                                                                                                                          |                            |                                                                                                                 |                                                                                                         | Wet Tropics<br>2019 Report<br>card -Barron | Wet Tropics<br>2019 Report<br>card -<br>Mulgrave<br>Russell | Wet Tropics<br>2019 Report<br>card -<br>Johnstone | Wet Tropics<br>2019 Report<br>card - Tully |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------|---------------------------------------------------|--------------------------------------------|
|                                                      | Lowest risk (A)                                                                                                                                                                                                                      | Moderate – Low<br>risk (B) | Moderate risk (C)                                                                                               | High risk (D)                                                                                           |                                            |                                                             |                                                   |                                            |
|                                                      | Innovative                                                                                                                                                                                                                           | Best practice              | Minimum standard                                                                                                | Superseded                                                                                              |                                            |                                                             |                                                   |                                            |
| <b>Matching nutrient supply to crop demand (70%)</b> | Fertiliser program is supported by annual soil testing and <b>routine</b> leaf testing to guide application rates. Revised frequently to ensure targets are achieved.                                                                |                            | N and P fertiliser rates are supported by annual soil AND some leaf testing and adjusted based on test results. | N and P fertiliser rates are based on historical target rates with infrequent soil and/or leaf testing. | 77%                                        | 75%                                                         | 77.2%                                             | 90%                                        |
| <b>Fertiliser application frequency (30%)</b>        | The aim is to apply fortnightly applications of fertiliser during high growth periods such as summer, and potentially reduce this during low growth periods such as winter. Weather conditions may mean this is not always possible. |                            | Monthly fertiliser applications all year around.                                                                | Fertiliser is applied less frequently than monthly.                                                     | 92%                                        | 90.4%                                                       | 92%                                               | 75%                                        |

Table 32. Review of Land Management Targets revised Banana Management Practices for nutrients in the Wet Tropics region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Target population (landholders who have not already adopted) | Baseline population (% of total population already doing the practice) | 2035 additional adoption * |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------|----------------------------|
| <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>Maximising and maintaining high levels of inter-row groundcover is a foundational practice.</li> <li>As well as reducing sediment (and nutrient losses), significant co-benefits exist including increased infiltration; improved soil, invertebrate, and plant health; reduced input costs from improved NUE; greater soil moisture retention and lower dry-season irrigation requirements.</li> <li>The practices that address rutting are complementary and add value to high levels of inter-row groundcover.</li> <li>As well as reducing sediment and nutrient losses, the most significant co-benefits are greatly increased efficiency; reduced labour and maintenance costs; and improved soil health.</li> </ul> |                                                              |                                                                        |                            |
| <b>Develop and implement a comprehensive Nutrient Management Plan.</b> Professionally prepared, annually revised, whole-of-farm Nutrient Management Plan. Includes soil types, areas, plant requirements at different growth stages, seasonal requirements, annual soil and leaf testing, rate targets and records.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 90%                                                          | 10%                                                                    | 28%                        |
| <b>The method of fertiliser application supports targeted, smaller, and more frequent applications of nitrogen fertiliser; and allows applications that are responsive to the weather:</b> Use of more sophisticated spreaders that allow targeted placement and variable rate control. Irrigation/fertigation infrastructure is used to optimise delivery of fertiliser more frequently according to rainfall and seasonal variation                                                                                                                                                                                                                                                                                                                                                                          | 30%                                                          | 70%                                                                    | 28%                        |

## Grazing

Table 33. Grazing P2R Water Quality Risk Framework.

| Hillslope (pasture) management                                                                                                       | Relative water quality risk                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                      | Lowest risk (A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Moderate – Low risk (B)                                                                                                                                                                                                                                                                                                                                                                                                                           | Moderate risk (C)                                                                                                                                                                                                                                                                                                                                                                                | High risk (D)                                                                                                                                                                    |
| <b>Expectations of long term carrying capacities (LTCC) (&gt;10 years) for the whole property are strategic and realistic. (10%)</b> | <p>LTCC estimates are equivalent to or less than district benchmarks. LTCC is developed using:</p> <ul style="list-style-type: none"> <li>land condition monitoring data</li> <li>district benchmarks</li> <li>historical data</li> <li>paddock records.</li> </ul> <p>GLM<sup>ii</sup> and Stocktake equivalent processes are considered and where available and appropriate, remote sensing data is also incorporated. LTCC is reviewed each year and if changes in land condition occur.</p> | <p>LTCC estimates are equivalent to district benchmarks. LTCC is developed using a combination of the following:</p> <ul style="list-style-type: none"> <li>land condition monitoring data</li> <li>district benchmarks</li> <li>historical data</li> <li>paddock records.</li> </ul> <p>GLM and Stocktake equivalent processes are considered. LTCC is not reviewed on an annual basis.</p>                                                      | <p>LTCC estimates are greater than district benchmarks. LTCC is developed using at least one of the following:</p> <ul style="list-style-type: none"> <li>land condition monitoring data</li> <li>district benchmarks</li> <li>historical data</li> <li>paddock records.</li> </ul> <p>LTCC is not reviewed on an annual basis.</p>                                                              | <p>LTCC not estimated or estimates are greater than district benchmarks. LTCC is developed based on personal experience and limited additional data sources. Never reviewed.</p> |
| <b>Expectations of seasonal and/or annual stocking rates (SR), that each paddock will carry, are realistic and tactical. (35%)</b>   | <p>Stocking rates are estimated for all paddocks based on seasonal forage budgeting using Adult Equivalents (AE) or Livestock Units (LSU) standards. <b>Stocking rates do not exceed 10-30% pasture utilisation and/or &gt;2000kg/ha pasture biomass<sup>iii</sup>.</b> Stocking rates are proactively adjusted to meet pasture utilisation and biomass targets and the required level of ground cover.</p>                                                                                     | <p>Stocking rates are estimated for the entire property and sometimes use Adult Equivalents (AE) or Livestock Units (LSU) standards. Annual forage budgeting is sometimes taken into consideration. <b>Stocking rates do not exceed at least 30% pasture utilisation at least 2000kg/ha pasture biomass.</b> Stocking rates are occasionally adjusted to meet pasture utilisation and biomass targets and the required level of ground cover.</p> | <p>Stocking rates are rarely estimated for the entire property and do not use Adult Equivalents (AE) or Livestock Units (LSU) standards. <b>Stocking rates achieve pasture utilisation levels of 30-50% and at 1000-1500kg/ha pasture biomass.</b> Stocking rates are rarely and reactively adjusted to meet pasture utilisation and biomass targets and the required level of ground cover.</p> | <p>Stocking rates are not estimated for the entire property. <b>Stocking rates achieve pasture utilisation levels of &lt;50% and at 1000kg/ha pasture biomass.</b></p>           |

| Hillslope (pasture) management                                                                                                                                                                                                                                                                                                                       | Relative water quality risk                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                            |                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                      | Lowest risk (A)                                                                                                                                                                                                                                                                                                                                                                                                                             | Moderate – Low risk (B)                                                                                                                                                                                                                                                                                                                       | Moderate risk (C)                                                                                                                                                                                                                                                                                                                          | High risk (D)                                                                                                               |
| Groundcover <sup>iv</sup> thresholds are monitored and objectively managed to inform paddock management and used to inform SR and pasture management decisions. (30%)                                                                                                                                                                                | Annual ground cover thresholds are maintained at >75% across the whole property <sup>v</sup> . Forage budgets as per the GLM, Stocktake, grazing charts or equivalent process are undertaken on a seasonal basis in each paddock to monitor ground cover changes and the density of 3P pasture species. Ground cover trends and changes are monitored using FORAGE or VegMachine. Any changes are used to inform stocking rate.             | Annual ground cover thresholds are maintained at 70-60% across the whole property. Forage budgets as per the GLM, Stocktake, grazing charts or equivalent process are undertaken on a seasonal basis across the property to monitor ground cover changes and the density of 3P pasture species. Any changes are used to inform stocking rate. | Annual ground cover thresholds are maintained at <60% across the whole property. Forage budgets as per the GLM, Stocktake, grazing charts or equivalent process are undertaken on an annual basis in most paddocks to monitor ground cover changes and the density of 3P pasture species. Changes are rarely used to inform stocking rate. | Annual ground cover thresholds are maintained at <50% across the whole property. No form of forage budgeting is undertaken. |
| Land condition assessments for all land types are based on:<br>1) Soil condition (amount of ground cover, infiltration rate, level of erosion)<br>2) Pasture condition (density and vigour of 3P grasses, amount of weed species)<br>3) Woodland condition (balance of woody weeds vs. pasture in different land types, amount of thickening). (10%) | Land condition assessments of soil, pasture and woodland condition are undertaken using photo monitoring sites and historical data (or equivalent techniques). This assessment is documented for all land types, undertaken on a seasonal basis and is considered in grazing and livestock management. Where available and appropriate, remote sensing technology is used to monitor long term trends in ground cover (FORAGE, VegMachine). | Land condition assessments of soil, pasture and woodland condition are undertaken and use photo monitoring sites or historical data (or equivalent techniques). This assessment is documented for all land types, is undertaken on an annual basis and is considered in grazing and livestock management.                                     | Land condition assessments of soil, pasture and woodland condition are rarely undertaken. This assessment is not documented for all land types, is rarely undertaken on an annual basis and is sometimes considered in grazing and livestock management.                                                                                   | No assessments of land condition are undertaken.                                                                            |

Table 34. Review of Land Management Targets revised Grazing Management Practices for fine sediments and particulate nutrients in the **Cape York** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>• Matching stocking rate to carrying capacity is a foundational practice in this sensitive, 'high-risk' environment.</li> <li>• A suite of components (complementary practices) are required to successfully achieve this foundational practice. Graziers may be undertaking one or more components to varying success. Few are successfully undertaking the full suite. Support is required for all components of this practice to increase adoption.</li> <li>• Fire management is a critical component of the foundational practice as well as grazing land management generally, across the Cape York region.</li> <li>• Gully management and management of linear features are foundational practices in gully prone landscapes.</li> <li>• Stabilising and protecting frontage country and management of linear features are complimentary practices that will add value to other practices.</li> <li>• As well as improved water quality, all practices can positively influence land condition, biodiversity, productivity, and business efficiency.</li> </ul> |                                                                 |                                                                           |                               |
| <b>Fire Management:</b> Develop annual fire management plan. Develop and maintain fire breaks. Graze or spell to manage fuel load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 40%                                                             | 60%                                                                       | 4%                            |
| <b>Gully Management:</b> Undertake fencing in stable locations. Establish fencing and water. Managing grazing impacts in gully catchments. (Grazing land management practices—not gully remediation).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 75%                                                             | 25%                                                                       | 12%                           |
| <b>Managing Linear Features:</b> Managing impacts from roads, firebreaks, track, fence lines, pipes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 90%                                                             | 10%                                                                       | 23%                           |
| <b>Matching stocking rate to carrying capacity (grazing land management (GLM) in vulnerable areas (no existing fencing).</b> Suite of practices including forage budgeting and use of supplements. Vulnerable areas include poorer land types, poor condition areas, wetlands, and floodplains.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 80%                                                             | 20%                                                                       | 14%                           |

Table 35. Review of Land Management Targets revised Grazing Management Practices for fine sediments and particulate nutrients in the **Wet Tropics** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Catchment Area | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
|                | <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>• Matching stocking rate to carrying capacity is a foundational practice for both the Johnstone and Herbert catchments despite having very different target landholder population characteristics—Johnstone, high rainfall, smaller ‘hobby farms’, newer and landscape management focused; and Herbert, variable rainfall, larger, multi-generational grazing enterprises.</li> <li>• A suite of components (complimentary practices) is required to successfully achieve this foundational practice. Graziers may be undertaking one or more components to varying success. Few are successfully undertaking the full suite. Support is required for all components of this practice to increase adoption.</li> <li>• Wet season spelling is a component of matching stocking rate to carrying capacity.</li> <li>• Stabilising and protecting frontage country and management of linear features are complimentary practices that will add value to other practices.</li> <li>• As well as improved water quality, all practices can positively influence land condition, biodiversity, productivity, and business efficiency.</li> </ul> |                                                                 |                                                                           |                               |
| Wet Tropics    | <b>Management of linear features (creek crossings, roads, property tracks, fence lines).</b> Property planning. Road/track repair or realignment. Installation and maintenance of whoa boys and drains. Culverts or other built crossings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 40%                                                             | 40%                                                                       | 30%                           |
| Upper Herbert  | <b>Wet season spelling.</b> Infrastructure to reduce paddock size including fencing and water points.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 30%                                                             | 70%                                                                       | 2%                            |
| Herbert        | <b>Matching stocking rate to carrying capacity.</b> Pasture assessment at end of wet and middle of dry season. Match stocking rate (SR) to available pasture. Build a safe utilisation level and forecast to the break of season. Knowledge of: how much forage/pasture is available; how                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 40%                                                             | 60%                                                                       | 5%                            |

| Catchment Area | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
|                | to assess and measure pasture; safe utilisation rates for land types; trigger points (Green date (50 mm in 3 days), end of growing season date, mustering events); historical knowledge.                                                                                                                                                                                                                                                                                           |                                                                 |                                                                           |                               |
| Johnstone      | <b>Matching stocking rate to carrying capacity.</b> Pasture assessment at end of wet and middle of dry season. Match stocking rate (SR) to available pasture. Build a safe utilisation level and forecast to the break of season. Knowledge of: how much forage/pasture is available; how to assess and measure pasture; safe utilisation rates for land types; trigger points (Green date (50 mm in 3 days), end of growing season date, mustering events); historical knowledge. | 40%                                                             | 60%                                                                       | 12%                           |
| Johnstone      | <b>Stabilise and protect frontage country (Johnstone).</b> Riparian area fencing. Off-stream water. Stream-bank remediation. Revegetation.                                                                                                                                                                                                                                                                                                                                         | 90%                                                             | 10%                                                                       | 8%                            |

Table 36. Review of Land Management Targets revised Grazing Management Practices for fine sediments and particulate nutrients in the **Burdekin** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>Improving Herd Efficiency is a foundational practice.</li> <li>The practices that address stocking rate management and pasture spelling are directly linked to and enabled by improving herd efficiency. They should not be considered in isolation of the above practice, rather part of a holistic approach to improve adoption.</li> <li>A lack of skilled extension advisors and underperforming (inefficient) breeder herds was identified as key barriers to adoption for all practices in the Burdekin catchment.</li> </ul> |                                                                 |                                                                           |                               |
| <b>Improving herd efficiency to enable land condition improvement.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 75%                                                             | 25%                                                                       | 50%                           |

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <p>1. Keep/ maintain accurate herd inventory for each class of stock. Calculate herd productivity: Pregnancy, calving, weaning &amp; mortality rates; Numbers by class and Adult Equivalent (AE) rating, turnoff weight (kg).</p> <p>2. Baseline herd productivity over several years to identify trends. Take actions on opportunities identified through herd analysis including: Genetic and trait selection for improved productivity; animal health, disease management, supplementation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                 |                                                                           |                               |
| <p><b>Managing stocking rates.</b> Matching stock to available forage (pasture) to manage total grazing pressure, accounting for seasonal conditions, land condition and vulnerable or degraded areas. Required knowledge: Calculate herd Adult Equivalent (AE) numbers to determine grazing pressure, nutritional requirements of stock; Awareness of season conditions and green date; Pasture biomass and quality available at the end of growing season; Pasture residual required to maintain or improve land condition; Property map with paddock sizes, land types, land condition and associated productivity; Whole of property forage budget completed at the end of the growing season; Determine days feed has to last/ days until green date; Determine grazing demand by stock for that period; Identify feed surplus and deficits.</p>                                                                                                | 75%                                                             | 25%                                                                       | 35%                           |
| <p><b>Implement pasture spelling (rest) regime to maintain or improve land condition (extra fencing required).</b> Aim to grow more grass, increase ground cover, land condition, basal levels, encourage recruitment of a variety of pasture species (3P pastures), manage vulnerable or degraded areas (riparian) and improve soil infiltration rates.</p> <p>Required knowledge: Land types and land condition to determine the pasture residual required that is able to maintain or improve land condition; Calculate herd Adult Equivalent (AE) numbers to determine stock forage demand, graze, and rest periods; Forage budget completed to ensure paddocks with stock aren't overgrazed during spell; Awareness of seasonal conditions; Grass growth stages to optimise value of pasture spelling to improve/ maintain land condition; Property map with paddock sizes; Riparian areas and their vulnerability; Current land condition.</p> | 50%                                                             | 50%                                                                       | 3%                            |
| <p><b>Pasture Spelling (NO extra fencing required).</b> Aim to grow more grass, increase ground cover, land condition, basal levels, encourage recruitment of a variety of pasture species (3P pastures), manage vulnerable or degraded areas (riparian) and improve soil infiltration rates. Required knowledge: Land types and land condition to determine the pasture residual</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 50%                                                             | 50%                                                                       | 41%                           |

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| required that is able to maintain or improve land condition; Calculate herd Adult Equivalent (AE) numbers to determine stock forage demand, graze, and rest periods; Forage budget completed to ensure paddocks with stock aren't overgrazed during spell; Awareness of seasonal conditions; Grass growth stages to optimise value of pasture spelling to improve/maintain land condition; Property map with paddock sizes; Riparian areas and their vulnerability; Current land condition |                                                                 |                                                                           |                               |

Table 37. Review of Land Management Targets revised Grazing Management Practices for fine sediments and particulate nutrients in the **Mackay Whitsunday** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>Assessing land condition (twice annually) and recording and monitoring land condition to address decline is a foundational practice.</li> <li>The practices that address stocking rate management, pasture recovery, riparian management and continuous upskilling for management in this catchment are directly linked to land condition. They should not be considered in isolation of the above practice, rather part of a holistic approach to improve adoption.</li> </ul>                            |                                                                 |                                                                           |                               |
| <b>Assessment of land condition twice annually; recording, and monitoring land condition and addressing decline:</b> Capacity of land to respond to rain and produce useful forage. Land is managed to maintain 'B' condition and >2500kg DM/ha of pasture all year. Required knowledge: What is land condition (ABCD framework); Erosion processes; tree and grass balance; pasture condition & biomass; biodiversity; soil condition; ground cover; composition of pasture (3Ps vs weeds); Early identification of declining land condition trends and management options to address decline | 95%                                                             | 5%                                                                        | 34%                           |

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                               | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <b>Commit to continuous improvement of animal and herd management, GLM, and business management within the Mackay Whitsundays environment.</b> Rapid upskilling of management for small/large landholders <b>that want to upskill</b> . Address the lack of extension support for small landholders. Directly link to the ABCD MW Grazing Management framework. Limited one-on-one follow-up and support. Assume implementation of practices following upskilling. | 85%                                                             | 15%                                                                       | 39%                           |
| <b>Management of stock access to riparian areas through infrastructure.</b> Remove grazing pressure during the wet season and grazed during the dry in these areas. These areas are managed independently of the rest of the property. Allow area to rehabilitate and revegetate. Allowing animals to graze these areas in the dry season reduces biomass which in turn, reduces the risk of wildfires in spring/ summer                                           | 55%                                                             | 45%                                                                       | 2%                            |
| <b>Matching stocking rate to available feed, quality and quantity.</b> Knowledge required: Paddock sizes, numbers of stock and how they relate to Adult Equivalent (AE) for feed requirements; Understanding of changing nutritional requirements over time for growth and reproduction; Measurement of pasture biomass (usable) to adjust stock numbers and how long they can be carried for; Assessment of pasture before and after graze.                       | 95%                                                             | 5%                                                                        | 50%                           |
| <b>Planned removal of livestock to allow recovery and reseed of 3Ps.</b> Length or duration of pasture spelling is determined (where possible) based on land condition (B condition), pasture residual, seasonal conditions. Set a minimum length of rest and all stock excluded. Paddocks need to be spelled to allow adequate recovery.                                                                                                                          | 95%                                                             | 5%                                                                        | 49%                           |

Table 38. Review of Land Management Targets revised Grazing Management Practices for fine sediments and particulate nutrients in the **Fitzroy** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Practice Description                         | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|----------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <b>Overarching Grouping Recommendations:</b> |                                                                 |                                                                           |                               |

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <ul style="list-style-type: none"> <li>Adjusting stocking rates to ensure pasture residual is maintained by green date, with additional residual built in (for buffer for drought or late rainfall) is a foundational practice.</li> <li>The remaining six practices directly impact on stocking rate management (enablers) or have the ability to improve the condition and/or productivity of the landscape. The remaining practices must be considered in conjunction with the first practice as part of a holistic improvement approach.</li> </ul>                                                                                                                                                                                                                                                                                         |                                                                 |                                                                           |                               |
| <b>Adjusting stocking rates to ensure pasture residual is maintained by green date, with additional residual built in for buffer for drought or late rainfall.</b> Knowledge of: Land type (productivity)/ pasture types; Understand and, measure land condition, carrying capacity, available pasture biomass and quality at start of dry season; Acknowledge there are multiple tools/ ways to measure and assess feed; Adult equivalent methodology and how that relates to stock numbers/classes/ feed requirements of those stock; Key dates; green dates etc.; Seasonal conditions and understanding how your land types respond to rainfall events.                                                                                                                                                                                      | 50%                                                             | 50%                                                                       | 5%                            |
| <b>Improving herd efficiency to enable land condition improvement.</b> Keep and maintain accurate herd inventory records for each class of stock. Monitor herd productivity trends to identify opportunities and problems. Calculate herd productivity: Pregnancy rates, calving rates, Weaning rates, Mortality rates; Numbers by class and Adult Equivalent (AE) rating; Turnoff weight (kg).<br><br>Review and monitor herd structure. Consider Bull Breeding Soundness Evaluations to test effectiveness of bulls. Prevent preventable mortalities and production losses e.g. botulism, tick fever, 3-day, vibriosis, leptospirosis and pestivirus. Take actions on opportunities identified through herd analysis. Including: genetic and trait selection for improved productivity; animal health and disease management supplementation. | 75%                                                             | 25%                                                                       | 61%                           |
| <b>Landscape hydration.</b> Required knowledge: Relevant legislation; Landscape topography and features; Existing infrastructure; Suitable land and soil types; Installation of infrastructure to manage overland flow; Earth works, including stick rake lines.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 95%                                                             | 5%                                                                        | 64%                           |
| <b>Managing degraded areas.</b> Management options include Contour banks, Weed management, Reduced stocking rates, Fencing off degraded areas, Road and track management, Deep ripping and cutter bars, improving pasture and soil health (diversity), Infrastructure management, Landscape rehydration and Revegetation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 25%                                                             | 75%                                                                       | 2%                            |

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Target population<br>(landholders who have not already adopted) | Baseline population<br>(% of total population already doing the practice) | 2035 additional adoption<br>* |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------|
| <p><b>Implement spelling (rotational or wet season) regime to maintain or improve land condition (no fencing required).</b> Aim to grow more grass, increase ground cover, land condition, encourage recruitment of a variety of pasture species (3P pastures), and improve soil infiltration rates. 25-30% of the property is spelled at a minimum, paddocks are rotated annually. Review paddocks to understand the length of spell required to recover, at a minimum 6-8 weeks.</p> <p>Required knowledge: Grass growth stages to optimise value of pasture spelling to improve or maintain land condition; Forage budget completed to ensure paddocks with stock aren't overgrazed during spell; Calculate herd AE numbers to determine stock forage demand, graze, and rest periods; Awareness of season conditions; Land types and land condition to determine pasture residual required to maintain or improve land condition; Property map &amp; paddock sizes.</p> | 60%                                                             | 40%                                                                       | 46%                           |
| <p><b>Implement spelling (rotational or wet season) regime to maintain or improve land condition (fencing required).</b> Aim to grow more grass, increase ground cover, land condition, encourage recruitment of a variety of pasture species (3P pastures), and improve soil infiltration rates. 25-30% of the property is spelled at a minimum, paddocks are rotated annually. Review paddocks to understand the length of spell required to recover, at a minimum 6-8 weeks.</p> <p>Required knowledge: Grass growth stages to optimise value of pasture spelling to improve or maintain land condition; Forage budget completed to ensure paddocks with stock aren't overgrazed during spell; Calculate herd AE numbers to determine stock forage demand, graze, and rest periods; Awareness of season conditions; Land types and land condition to determine pasture residual required to maintain or improve land condition; Property map &amp; paddock sizes.</p>    | 60%                                                             | 40%                                                                       | 35%                           |
| <p><b>Managing stock access to creeks or vulnerable areas using watering points or fencing to minimise erosion risk. (infrastructure required).</b> Manage stocking rates in streambank paddocks to maintain/ improve land condition to stabilise and filter. Cool burn to control vegetation and reduce fuel load. Manage grazing period to minimising cattle tracks, crossings. Grazed for short periods (crashed grazed). Implement weed management regime.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 30%                                                             | 30%                                                                       | 13%                           |

Table 39. Review of Land Management Targets revised Grazing Management Practices for fine sediments and particulate nutrients in the **Burnett Mary** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Target population (landholders who have not already adopted) | Baseline population (% of total population already doing the practice) | 2035 additional adoption * |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------|----------------------------|
| <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>Matching stocking rate to carrying capacity is considered a foundational practice. The ability to balance the two is the first step in providing opportunities to adopt further practices and allow for landscape recovery.</li> <li>The remaining six practices are reliant on adopting the first practice and have a focus on improving landscape health and condition. The remaining practices must be considered in conjunction with the first practice as part of a holistic improvement approach.</li> </ul>                                                                                                                                                                                                                                                                                                  |                                                              |                                                                        |                            |
| <b>Fire Management (cool burns).</b> Planned and strategic burns to minimise fuel loads, prevent wildfires, encourages native vegetation to recover. Woody weed and wire grass control. Increase biodiversity. Early in the spring and to match the landscape type that is being burnt (could be summer or winter); mosaic burning. Timed for afternoons or evenings so temperature causes the fire to go out.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 95%                                                          | 5%                                                                     | 64%                        |
| <b>Grazing Plan.</b> Describes goals, aim to improve land condition for sustainable productivity and profitability.<br><br>Inventory of NRM: Property maps with all paddocks (inc. size), existing infrastructure. Paddock inventories, and ID which paddocks are in/out of rotation (being rested/ grazed). Benchmarks for long-term carrying capacity; determining grazing management approach to determine rest period and spelling regime. Land types, pasture species, land condition, Forage reports. What issues are you addressing? Record keeping tools (e.g. grazing chart or similar). Location of stock Adult Equivalents (AE), feed budgets, rationing. Rolling rainfall; identify key dates (green date, feed budgets, key decision dates). Climate records; climate resilience; making key decisions to optimise productivity whilst managing the land resource. Preparing the business. | 75%                                                          | 25%                                                                    | 66%                        |
| <b>Landscape hydration.</b> Natural sequence farming. Be aware of legislation etc. Soil heath, biology, productivity, drought resilience, soil infiltration, reduced erosion. Major earth works and installation of infrastructure to manage the flow of water (level contours, leaky weirs, chain ponds, swales, encouraging plant growth.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 95%                                                          | 5%                                                                     | 33%                        |
| <b>Managing stock access to creeks using watering points or fencing to minimise erosion risk.</b><br>Manage stocking rates in streambank paddocks to maintain/ improve land condition to stabilise and filter. Manage grazing period to minimising cattle tracks, crossings. Grazed for short periods                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 18%                                                          | 2%                                                                     | 1%                         |

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Target population<br>(landholders who<br>have not already<br>adopted) | Baseline population<br>(% of total<br>population already<br>doing the practice) | 2035 additional adoption * |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------|
| (crashed grazed). Exclusion from degraded or at risk (D condition) areas until recovery of vegetation or shift land condition. Cool burn to control vegetation and reduce fuel load.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                       |                                                                                 |                            |
| <b>Matching stocking rate to carrying capacity.</b> Required knowledge and records: Climate, Land type, Pasture availability; Land condition, Catering for seasonal variations; Stock classes/ demand (standard animal units LSU, DSE, AE); Feed budget, Key dates (green date, decision making); Type of grazing operation (breeding vs trading); Knowing current stocking rate and how long animals can be grazed – what is the plan moving forward?; Property mapping; Understanding effect of grazing environment/ landscape on types of cattle being grazed, and the impact on pasture and nutrition (phenotype of cattle).                                                                                                                                                                                                                                                                                                                                | 75%                                                                   | 25%                                                                             | 38%                        |
| <b>Pasture resting.</b> A rest period that enables the pasture to recover (regrow), with a focus on desirable species, to grow sufficient pasture for the next graze. Aim to maintain pasture nutrition and growth state. Rotating paddocks multiple times, how many days rest is needed relative to forage availability and stock demand keeping in mind the pasture residual.<br><br>Understand stock numbers, number of mobs, what classes they are relative to intake requirements. Benchmarking indicators, stock days per ha. Knowing the length of rest required to recover pasture (effective rest period). Knowledge of seasonal conditions, land types, erosion risk and productivity of pastures (location of 3Ps and weeds) and soils. Refer to grazing management plan, property map with existing infrastructure and water access (distance to water).                                                                                            | 75%                                                                   | 25%                                                                             | 29%                        |
| <b>Wet season spelling.</b> Wet season spell is only one part of the property rested each year, and the paddock spelled changes every year.<br><br>Implement annual wet season pasture spelling regime at the start of the growing season. 25-30% of the property is spelled at a minimum, paddocks are rotated annually. Review paddocks to understand the length of spell required to recover, at a minimum 6-8 weeks. Ensure that grazing pressure is not increased to account for spelled paddock. Grazing plan and property map with all paddocks (sizes) including existing infrastructure. Grazing chart to help ID which paddocks are in/out of rotation, where Adult Equivalents (AE) are. Understanding of what 3Ps are, how to assess them, ground cover requirements. Understanding of useful rainfall events. Accounting for right temperature for growth, for previous seasonal conditions. Adequate infrastructure to implement spelling regime. | 80%                                                                   | 20%                                                                             | 39%                        |

## Grains

Table 40. Grains P2R Water Quality Risk Framework for sediment.

| Soil management<br>(weighting) | Relative water quality risk                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                            |                                                                                                                                                                                         |                                                                      |                |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------------|
|                                | Lowest risk (A)                                                                                                                                                                                                                                            | Moderate – Low risk (B)                                                                                                                                                                                                                                                    | Moderate risk (C)                                                                                                                                                                       | High risk (D)                                                        | Not applicable |
|                                | Innovative                                                                                                                                                                                                                                                 | Best practice                                                                                                                                                                                                                                                              | Minimum standard                                                                                                                                                                        | Superseded                                                           |                |
| <b>Use of tillage (30%)</b>    | As for best practice AND Strategy to control certain difficult to control weeds may involve occasional zonal or 'patch' tillage. Fertiliser is applied using zero-till machinery.                                                                          | Crops are planted into standing stubble from the previous crop/s. Tillage is only used when required to deal with severe compaction, nutrient stratification, or as part of a strategy to manage certain difficult weeds. Fertiliser is applied using zero-till machinery. | Efforts are made to maintain stubble cover during fallows. Stubble usually needs to be cultivated to allow for planting and/or fertiliser is applied using full disturbance implements. | Tillage is frequently used for weed control and/or managing stubble. |                |
| <b>Crop selection (30%)</b>    | Maintaining >30% stubble cover is high priority when choosing crops. Successive low-stubble crops are avoided. Back to back pulse crops will not occur. Grain crops may be planted into marginal soil moisture for the purpose of increasing ground cover. | Maintaining >30% stubble cover is high priority when choosing crops. Successive low stubble crops are rare. Back to back pulse crops are avoided.                                                                                                                          | Crop rotation based on planting opportunities and gross margin, with little or no consideration of stubble cover. Back to back pulse crops may be grown if commodity prices are high.   |                                                                      |                |
| Soil management<br>(weighting) | Relative water quality risk                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                            |                                                                                                                                                                                         |                                                                      |                |
|                                | Lowest risk (A)                                                                                                                                                                                                                                            | Moderate – Low risk (B)                                                                                                                                                                                                                                                    | Moderate risk (C)                                                                                                                                                                       | High risk (D)                                                        | Not applicable |
|                                | Innovative                                                                                                                                                                                                                                                 | Best practice                                                                                                                                                                                                                                                              | Minimum standard                                                                                                                                                                        | Superseded                                                           |                |
| <b>Wheel traffic (20%)</b>     | A controlled traffic system is in place with all tractors and implements, headers and mobile grain bins operating on the same set of wheel tracks. All machines operate under GPS guidance of at least 4cm pass to pass accuracy.                          | A controlled traffic system is in place with all tractors and implements, headers and mobile grain bins operating on the same set of wheel tracks. Spraying and planting occurs under machine guidance of at least 10cm pass to pass accuracy.                             | All farm equipment except headers and mobile grain bins operates on the same wheel spacing and consistent implement width.                                                              | Farming equipment has different widths and wheel spacing.            |                |

| Soil management<br>(weighting) | Relative water quality risk                                                                                                                                                                                          |                                                                                                                                           |                                                                   |                                                                                |                                            |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------|
|                                | Lowest risk (A)                                                                                                                                                                                                      | Moderate – Low risk (B)                                                                                                                   | Moderate risk (C)                                                 | High risk (D)                                                                  | Not applicable                             |
|                                | Innovative                                                                                                                                                                                                           | Best practice                                                                                                                             | Minimum standard                                                  | Superseded                                                                     |                                            |
| <b>Erosion Control (20%)</b>   | Contour and diversion banks are present and regularly maintained. The placement and design of banks is informed by a skilled third party. Secondary forms of sediment control (such as sediment traps) are in place. | Contour and diversion banks are present and regularly maintained. The placement and design of banks is informed by a skilled third party. | Contour and diversion banks are present and regularly maintained. | Contour and diversion banks not present or not maintained in functional state. | All farmed land has a slope lower than 1%. |

Table 41. Review of Land Management Targets revised Grains Management Practices for sediments in the **Fitzroy** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Catchment Area | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Target population (landholders who have not already adopted) | Baseline population (% of total population already doing the practice) | 2035 additional adoption * (BAU) |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------|
|                | <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>The effective control of weeds through integrated weed management is a foundational practice in reducing tillage.</li> <li>Practices that address zero till capability alone are complementary, as zero till capability is high across the industry, with tillage still occurring in response to weed pressure.</li> <li>Erosion control designed by skilled soil conservation advisors and maintained to an appropriate standard are foundational practices in managing erosion on slopes.</li> </ul> |                                                              |                                                                        |                                  |
| Fitzroy (West) | <b>Full versatility zero-till operation.</b> High quality planting equipment so that cropping can occur without tillage in almost all situations (e.g. high stubble mass situations, parallelogram planter units with spear points) allowing for winter wheat planting. GPS auto steer on implement to allow precision planting offset. Optimal depth control.                                                                                                                                                                                                                             | 80%                                                          | 20%                                                                    | 59%                              |
| Fitzroy (East) | <b>Improved integrated weed management to reduce reliance on tillage (Limited by equipment).</b><br>Effective integrated weed management (IWM) to reduce/eliminate tillage for                                                                                                                                                                                                                                                                                                                                                                                                             | 60%                                                          | 40%                                                                    | 41%                              |

| Catchment Area | Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Target population (landholders who have not already adopted) | Baseline population (% of total population already doing the practice) | 2035 additional adoption * (BAU) |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------|
|                | weed control. A multiple pass strategy that considers: problematic weed types, herbicide resistance, spot spraying technology, strategic tillage, matching future crop selection to control problem weeds on property (goal to minimise bare ground at high-risk erosion periods).                                                                                                                                                                                       |                                                              |                                                                        |                                  |
| Fitzroy (East) | <b>Soil conservation structures/water ways correctly designed (<i>with or without existing contour banks</i>).</b><br>Soil conservation structures size is matched to catchment areas, farming systems, and runoff volumes. Channels, drains, waterways are correctly designed and constructed to managing erosion appropriately.                                                                                                                                        | 35%                                                          | 15%                                                                    | 30%                              |
| Fitzroy (West) | <b>Improved integrated weed management to reduce reliance on tillage (<i>Limited by equipment</i>).</b><br>Effective integrated weed management (IWM) to reduce/eliminate tillage for weed control. A multiple pass strategy that considers: problematic weed types, herbicide resistance, spot spraying technology, strategic tillage, matching future crop selection to control problem weeds on property (goal to minimise bare ground at high-risk erosion periods). | 70%                                                          | 10%                                                                    | 15%                              |
| Fitzroy (West) | <b>Constructing contour banks on land where they are required.</b> The design, layout and construction are appropriate (height, spacing, number etc) to manage the erosion risk of the site (slope gradient/length). Associated structures (channels, waterways etc) are also appropriate.                                                                                                                                                                               | 25%                                                          | 25%                                                                    | 5%                               |
| Fitzroy (West) | <b>Renovation of existing erosion and water control structures (contour banks, channels, waterways).</b> Integrated water management for growers with existing contour banks and other water management structures. Ensuring the design and specifications of structures (height, spacing, number etc) are appropriate for erosion risk of slope gradient and/or length.                                                                                                 | 18%                                                          | 7%                                                                     | 3%                               |
| Fitzroy (West) | <b>Improved integrated weed management to reduce reliance on tillage (<i>Not limited by equipment</i>).</b> Effective integrated weed management (IWM) to reduce/eliminate tillage for weed control. A multiple pass strategy that considers: problematic weed types, herbicide resistance, spot spraying technology, strategic                                                                                                                                          | 20%                                                          | 10%                                                                    | 2%                               |

| Catchment Area | Practice Description                                                                                                                      | Target population (landholders who have not already adopted) | Baseline population (% of total population already doing the practice) | 2035 additional adoption * (BAU) |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------|
|                | tillage, matching future crop selection to control problem weeds on property (goal to minimise bare ground at high-risk erosion periods). |                                                              |                                                                        |                                  |

## Horticulture

Table 42.Horticulture Nutrient Management P2R Water Quality Risk Framework.

| Nutrient management (weighting) | Relative water quality risk                                                                                  |                                                     |                                                                           |                            |                        |                           |                      |                          |                         |                       |
|---------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------|----------------------------|------------------------|---------------------------|----------------------|--------------------------|-------------------------|-----------------------|
|                                 | Lowest risk (A)                                                                                              | Moderate – Low risk (B)                             | Moderate risk (C)                                                         | High risk (D)              | Report Card 2019 Black | Report Card 2019 Haughton | Report Card 2019 Don | Report Card 2019 Burnett | Report Card 2019 Burrum | Report Card 2019 Mary |
|                                 | Innovative                                                                                                   | Best practice                                       | Minimum standard                                                          | Superseded                 |                        |                           |                      |                          |                         |                       |
| <b>Soil testing (10%)</b>       | Frequent soil testing (more than once per year) to fulfil nutrient budgeting requirement across entire farm. | Soil tests completed annually across entire farm.   | Infrequent soil testing conducted (2 years or more between tests).        | No soil testing conducted. | 13.1%                  | 2.9%                      | 4.2%                 | 97.4%                    | 12.8%                   | 3.2%                  |
| <b>Leaf testing (10%)</b>       | Leaf tests conducted at strategic crop stages in line with nutrient budgeting across entire farm.            | Leaf testing completed annually across entire farm. | Infrequent leaf analysis conducted (once every few crops or crop cycles). | No leaf testing conducted. |                        |                           |                      |                          |                         |                       |

|                                               |                                                                                                                                               |                                                                                                                                 |                                                                                      |                                                                   |  |  |  |  |  |  |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|--|--|--|--|--|--|
| <b>Nutrient budgeting and recording (30%)</b> | If available, industry recognised software package (Avoman), at paddock scale, based on soil tests, yield data and other sources of nutrient. | Grower developed spreadsheet, sometimes at individual paddock scale, using soil tests and removal calculators.                  | Nutrient budgeting is paper based at whole farm scale via soil testing.              | No nutrient budgeting or recording conducted.                     |  |  |  |  |  |  |
| <b>Fertiliser application method (40%)</b>    | Various fertiliser application methods used (fertigation, incorporation and / or foliar) with automated fertigation being dominant.           | Various fertiliser application methods used (fertigation, incorporation and / or foliar) in accordance with weather conditions. | Fertiliser is surface applied - mixture of broadcast and banding.                    | Fertiliser is surface applied - broadcasting fertiliser spreader. |  |  |  |  |  |  |
| <b>Calculating fertiliser rates (10%)</b>     | Application rates based on frequent soil and leaf testing using a nutrient budget on a block by block basis.                                  | Application rates based on industry approved nutrient monitoring program.                                                       | Application rates based on limited testing information / supplier recommended rates. | Historical application rates applied across entire farm.          |  |  |  |  |  |  |

Table 43. Review of Land Management Targets revised Horticulture Management Practices the **Burnett Mary** region. \*% that could be achieved in best case scenario above the baseline adoption (i.e. how much extra change the best-case scenario has achieved).

| Practice Description                                                                                                                                                                                                                                                                                                                                                                                                                                           | Target population (landholders who have not already adopted) | Baseline population (% of total population already doing the practice) | 2035 additional adoption * |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------|----------------------------|
| <b>Overarching Grouping Recommendations:</b> <ul style="list-style-type: none"> <li>Adjusting fertiliser rates in response to leaf, sap and soil testing to match nutrient availability to crop requirements is a foundational practice.</li> <li>Fertiliser placement (method or location) is a complementary practice.</li> </ul>                                                                                                                            |                                                              |                                                                        |                            |
| <b>Maintaining interrow ground cover in tree crops.</b> Maintaining high level inter row cover during high-risk periods to minimise fine sediment loss. Incorporates practices to promote ground cover growth (e.g. tree pruning, living cover), and managing harvest and other farm operations to maximise ground cover from the beginning of the wet season through until start of dry season.                                                               | 10%                                                          | 90%                                                                    | 1%                         |
| <b>Maximising inter-row groundcover during tree crop orchard establishment.</b> Ensuring groundcover is established and maintained early during development of orchard. Aspects include planning/construction organised to reduce prolonged ground exposure (e.g. tree availability, contractor availability, bare ground is during lowest risk dry season period etc), inter-row irrigation, grass seeding, and mowing/spraying is managed to promote growth. | 95%                                                          | 4%                                                                     | 17%                        |
| <b>Improved headland and drainage management in annual/perennial bed crops.</b> Headlands are designed to direct water safely into waterways. Headlands and waterways are designed & maintained so that erosive energy is dissipated (correct design), and sediment is dropping out of water (e.g. grassed). May include water being retained to trap sediment prior to leaving farm.                                                                          | 70%                                                          | 30%                                                                    | 4%                         |

## Landscape Remediation

Table 44. Gully and Streambank Toolbox. A technical guide for gully and stream bank erosion control programs in Great Barrier Reef catchments. Erosion control treatments, arranged in order of increasing complexity (unit area cost), for gully erosion (1–7) and for stream bank erosion (8–10). Source: Wilkinson S, Hairsine PB, Bartley R, Brooks A, Pietsch T, Hawdon A, Shepherd R. 2022.

| Erosion control treatment<br>(darker colours denote foundational Activities, which should also support more intensive activities shown in lighter colours) | Relative unit area cost/<br>technical complexity | Conditions when to consider applying the treatment                                                                                                                                                                          | Recommended supporting treatment (those in brackets apply in some cases) | Estimated effectiveness (assuming recommended supporting treatments are undertaken if required) |                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------|
|                                                                                                                                                            |                                                  |                                                                                                                                                                                                                             |                                                                          | Initial maintenance <sup>D</sup>                                                                | Ongoing maintenance <sup>D</sup> |
| 1. Improving grazing management in gully catchments <sup>A</sup>                                                                                           | \$                                               | On properties with land in poor condition, and on which other erosion control activities are also implemented.                                                                                                              | 2                                                                        | 0.1                                                                                             | 0.2                              |
| 2. Fence to control livestock access to gully sites                                                                                                        | \$\$                                             | Essential prerequisite for all activities where livestock are present (may result in additional watering point being required).                                                                                             | 1                                                                        | 0.1                                                                                             | 0.2                              |
| 3. Porous check dams                                                                                                                                       | \$\$\$                                           | To revegetate floors of gullies with small catchment areas <6 ha. Requires gully wall protection in highly dispersive soils. Also used as a supporting activity to maintain floor stability in intensively treated gullies. | 1, 2                                                                     | 0.2                                                                                             | 0.3                              |
| 4. Gully runoff diversion banks and drainage management <sup>B</sup>                                                                                       | \$\$\$                                           | Where overland flow or road runoff is contributing to erosion and diversion can be safely implemented. Contour ripping only under limited conditions.                                                                       | 1, 2, (3)                                                                | 0.4                                                                                             | 0.5                              |
| 5. Gully head rock chutes                                                                                                                                  | \$\$\$\$                                         | At rapidly moving gully headcuts (e.g. >1 m/year over last 10+ years).                                                                                                                                                      | 1, 2, 3, 4                                                               | 0.6<br>0.8 <sup>E</sup>                                                                         | 0.7<br>0.9 <sup>E</sup>          |
| 6. Gully reshaping and revegetation                                                                                                                        | \$\$\$\$                                         | Large rapidly eroding gullies with dispersive/ slaking soils – EAT <sup>C</sup> class 1 & 2.                                                                                                                                | 1, 2, 3, 4, (5)                                                          | 0.6                                                                                             | 0.7                              |

| Erosion control treatment<br>(darker colours denote foundational Activities, which should also support more intensive activities shown in lighter colours) | Relative unit area cost/<br>technical complexity | Conditions when to consider applying the treatment                                                                                                                                         | Recommended supporting treatment (those in brackets apply in some cases) | Estimated effectiveness (assuming recommended supporting treatments are undertaken if required) |                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------|
|                                                                                                                                                            |                                                  |                                                                                                                                                                                            |                                                                          | Initial maintenance <sup>D</sup>                                                                | Ongoing maintenance <sup>D</sup> |
| 7. Gully reshaping and rock capping                                                                                                                        | \$\$\$\$                                         | Large, rapidly eroding alluvial gullies With dispersive/slaking soils –EAT <sup>C</sup> class 1 & 2 EAT <sup>C</sup> class 1 & 2, poor control of livestock access.                        | 1, 2, 3, (4, 5)                                                          | 0.8                                                                                             | 0.9                              |
| 8. Stream bank fencing and weed control                                                                                                                    | \$\$                                             | Essential wherever livestock present (may cause additional watering point to be required). Suitability depends on having local seed sources and effective weed and livestock management.   | 1                                                                        | 0.1                                                                                             | 0.2                              |
| 9. Stream bank revegetation (planting)                                                                                                                     | \$\$\$                                           | Where existing woody vegetation cover is <25% foliage projected cover, weed problem is manageable with active planting, and/or where more immediate reduction of erosion rate is required. | 1, 8, (10)                                                               | 0.2                                                                                             | 0.3                              |
| 10. Engineered stream bank protection and revegetation, or bed protection and revegetation                                                                 | \$\$\$\$                                         | Only if extensive section of bank erosion with rates >1 m/year – requires consultation and approval from technical team.                                                                   | 1, 8, (9)                                                                | 0.6                                                                                             | 0.7                              |

A Apply to the sediment yield of gullies directly affected by this change. Does not add to the effect of any other gully erosion control activities. May have additional effects on reducing hillslope erosion, which can be estimated using the Paddock to Reef Projector tool

B If the drainage work reduces runoff into the gully by a large proportion (>0.5) then the effectiveness can alternatively be 0.2 in addition to the effectiveness of in-channel treatments, subject to technical review

C Emerson aggregate test (EAT)

D Maintenance options for each bundle of treatment are described in the sections referred to in the far right-hand column. The technical information used to set effectiveness values is described in Appendix A

E Apply only if gully is a linear extensional type of gully and length is <50 m and ongoing wall erosion will therefore be negligible relative to hillslope erosion. Only applies to the headward extension component of the erosion directly associated with the chute.

## Wetlands

*Table 45. Suggested foci of suggested management options for wetlands/aggregations within management units that had condition indicators with mean scores < 2.5 (see Section 5.2 of main report for condition assessment methods and mean score results in Appendix 5: Wetland condition).*

| Suggested management options (with relevant indicator in parentheses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>to safeguard existing native vegetation in historically woody areas of wetlands and within their 200 m (P2), 1 km (P14) and 5 km (P20) buffers</li> <li>to safeguard the structure and composition of the remnant regional ecosystem(s) and avoid introduction, establishment or spread of exotic vegetation in wetlands and their 200 m buffers (S1)</li> <li>to safeguard existing native vegetation (including grassland, woody grassland and other woody species) in 200 m buffer (S14)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p>Plan and implement programs to:</p> <ul style="list-style-type: none"> <li>safeguard existing patches of native vegetation in the broader landscape starting from areas closest to wetlands within monitored aggregations and working outwards (S13).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>safeguard existing floodplain flows and hydrological connectivity of wetlands (P16)</li> <li>safeguard hydrological processes and restore wetland regional ecosystem(s) within the 5 km buffers of wetlands within monitored aggregations (P21)</li> <li>safeguard the natural water regime of wetlands and prevent further modifications, such as from bunding, excavation, drainage and irrigation activities (e.g. pumping), in those wetlands and within 500 m of wetlands (S12)</li> <li>ameliorate impacts from hydrological modifications in their 1 km buffers (S15)</li> <li>to maintain minimal water abstraction from wetlands for human or ungulate use (P19)</li> <li>avoid development of linear infrastructure within 500 m of wetlands and minimise impacts from linear infrastructure in their 1 km buffers (S16).</li> </ul>                                                                                                                   |
| <p>Plan and implement programs within monitored wetland aggregations to:</p> <ul style="list-style-type: none"> <li>safeguard against introduction, establishment and/or spread of plant and animal pest species in wetlands and their 1 km buffers (P1)</li> <li>prevent introduction, establishment or spread of exotic plants in the 200 m buffers of wetlands (S3)</li> <li>prevent introduction, establishment or spread of wetland pest plants (see list in Appendix 5: Wetland condition), within the wetland 200 m buffers and in wetlands within monitored aggregations (P7, P8)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>Plan and implement programs within monitored wetland aggregations to:</p> <ul style="list-style-type: none"> <li>safeguard against introduction of stormwater and /or other point source inflows to natural wetlands within monitored aggregations (P12)</li> <li>safeguard against anthropogenic sedimentation of wetlands, for example through retention of vegetated buffers and prevention and management of soil erosion (P10)</li> <li>safeguard against pesticide inflows into wetlands within monitored aggregations, for example through best management practices targeting pesticides and their residues (P3)</li> <li>safeguard against excessive anthropogenic nutrient inflows into wetlands within monitored aggregations, for example through best management practices targeting dissolved and particulate nitrogen and phosphorus (P4)</li> <li>plan and implement programs to conduct regular maintenance of existing septic systems, and prevent further installations, in the 200 m buffer of wetlands within monitored aggregations (P5)</li> </ul> |
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>reduce and/or prevent ungulate access and human activities that disturb and expose the soil surface in wetlands and their 200 m buffers. Maintain groundcover (S7, S8)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

Table 46. Suggested foci of suggested management options for wetlands/ aggregations within management units that had condition indicators with mean scores  $\geq 3.5$  (see Section 5.2 of main report for condition assessment methods and mean score results in Appendix 5: Wetland condition).

| Suggested management options (with relevant indicator in parentheses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>• avoid clearing/reestablish native vegetation in 200 m buffers of wetlands.</li> <li>• avoid clearing within 200 m buffers of wetlands (S14, P2) and 1 km buffers of wetlands (P14) and 5 km buffers (P20) in historically woody areas</li> <li>• reestablish native vegetation in 200 m buffers of wetland (S14, P2)</li> <li>• reestablish native vegetation corridors within 5 km buffers in historically woody areas (p20)</li> <li>• expand, establish, and connect patches of native vegetation surrounding wetlands starting from areas closest to wetlands and working outwards (S13)</li> <li>• encourage regeneration/establishment of regional ecosystem(s)*</li> <li>• manage exotic vegetation in wetlands and 200 m buffers (S1)</li> </ul> <p>* Historical regional ecosystems, where practicable</p>                                    |
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>• control and reduce spread of plant and animal pest species in wetlands and 1 km buffers within monitored wetland aggregations. Avoid further introductions (P1)</li> <li>• to control and reduce spread of wetland pest plants (see list in Appendix 5: Wetland condition), in wetlands (P7) and 200 m buffers of wetlands (P8). Avoid further introductions (P7, P8,)</li> <li>• manage exotic plants in wetlands and their 200 m buffers (S3)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>• reinstate wetlands and their hydrological processes in 5 km buffers of wetlands within monitored aggregations (P21)</li> <li>• reduce the impact of modifications that affect the natural water regime of wetlands (S12)</li> <li>• to reduce the impact of modifications within 500 m of wetlands that affect the natural water regime (S15) and natural flow of wetlands (S15, S9)</li> <li>• mitigate the hydrological impact of linear infrastructures within 500 m of wetlands, and in their 1 km buffers (S16)</li> <li>• reduce water abstraction from wetlands for human or ungulate use (P19)</li> <li>• improve floodplain flows and hydrological connectivity of wetlands (P16)</li> </ul>                                                                                                                                                  |
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>• remove, or mitigate the impact of, stormwater and/or other point source inflows to wetlands (P12)</li> <li>• reduce anthropogenic sedimentation of wetlands within monitored aggregations, for example through establishment of vegetated buffers and maintaining ground cover (P10)</li> <li>• reduce and prevent pesticide inflows into wetlands within monitored aggregations, for example through best management practices targeting pesticides and their residues (P3)</li> <li>• reduce and prevent anthropogenic nutrient inflows into wetlands within monitored aggregations, for example through best management practices targeting dissolved and particulate nitrogen and phosphorus (P4)</li> <li>• modernise or maintain existing septic systems, and prevent further installations, in wetlands and their 200 m buffers (P5)</li> </ul> |
| <p>Plan and implement programs within monitored aggregations to:</p> <ul style="list-style-type: none"> <li>• reduce ungulate access to, and human activities that disturb and expose the soil surface in, wetlands and their 200 m buffers. Reestablish groundcover (S7).</li> <li>• Control and reduce ungulate access to wetlands within monitored aggregations (S8)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |