



WATER QUALITY IMPROVEMENT PLAN 2014 - 2021

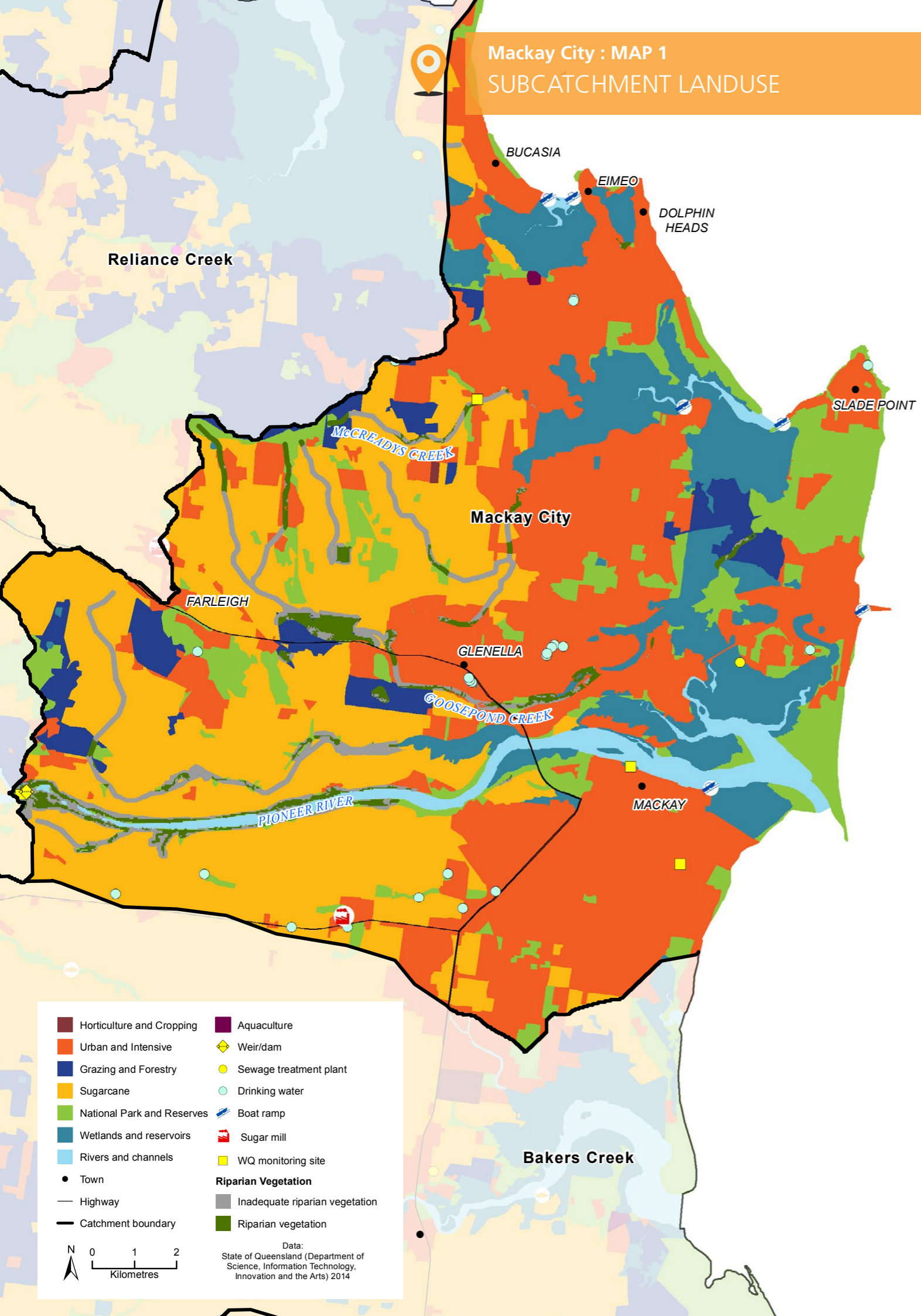
CATCHMENT MANAGEMENT AREA REPORT

18 Mackay City





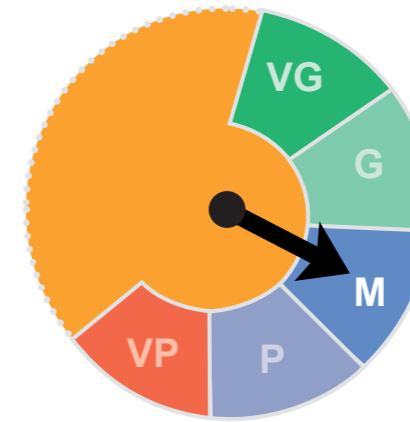
Mackay City : MAP 1
SUBCATCHMENT LANDUSE



Mackay City Ecosystem Health Rating

Very Good Good Moderate Poor Very Poor

FRESHWATER
Ecosystem Health



M

The Mackay City **freshwater ecosystem** received an overall score of **Moderate**.

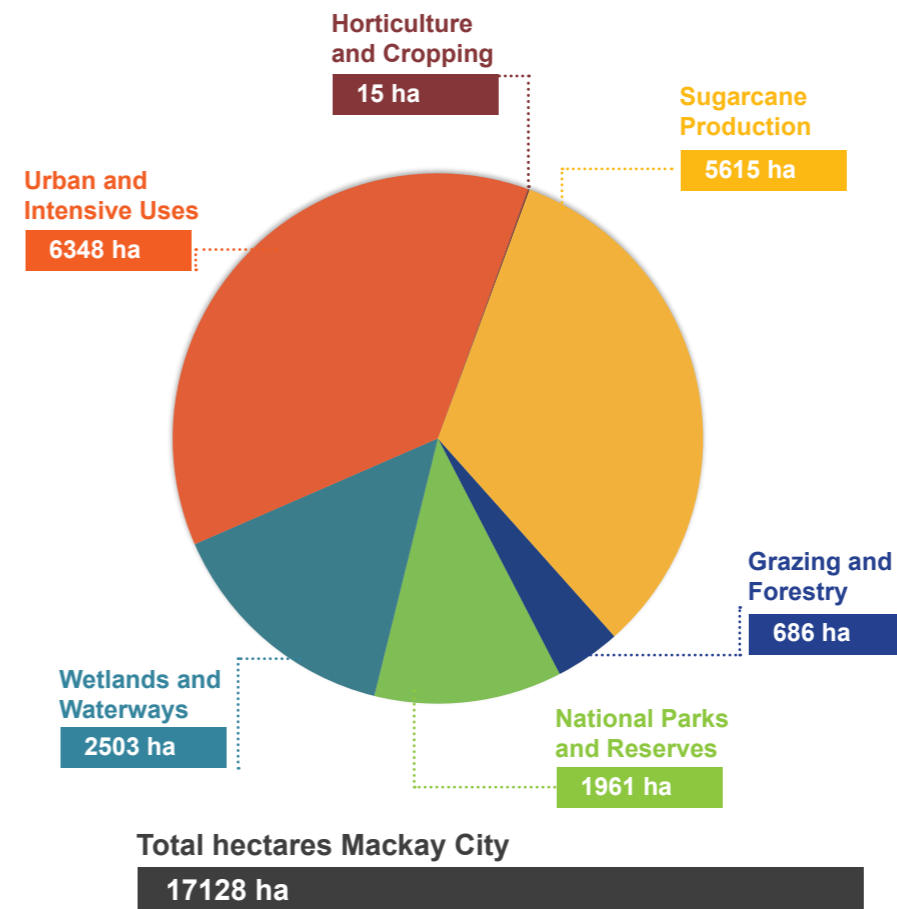
The Mackay City catchment area is subject to pressures and demands of multiple high intensity land uses that include cane production, urban and industrial development, and to a lesser but significant level, grazing. A little under 15% of the catchment is National Park with approximately 10% identified as wetlands.

The estuarine area of the catchment is considered amongst the lowest rated in the region. Between 2007 and 2013, there has been considerable effort to improve agricultural and urban water quality management. As a result, water quality has improved, however efforts will need to continue to meet community values for ecosystem health and water quality health.

Grazing and cane management practices that reduce nitrogen and phosphorus loads are the highest priority for continued water quality improvement in the Mackay City catchment. As marine risk exposure from pesticide and nutrient loads is rated as high in the near shore environments, management practices that reduce other nutrients and residual herbicides, particularly diuron, are also a priority.

All system repair actions that improve fish habitat and species richness are critical to improve the poor ecological health rating for the Mackay City catchment. Investment in estuary and mangrove restoration to improve ecological condition is also crucial to build the resilience of coastal systems.

Total Area by Landuse



Horticulture and Cropping	Aquaculture
Urban and Intensive	Weir/dam
Grazing and Forestry	Sewage treatment plant
Sugarcane	Drinking water
National Park and Reserves	Boat ramp
Wetlands and reservoirs	Sugar mill
Rivers and channels	WQ monitoring site
Town	Riparian Vegetation
Highway	Inadequate riparian vegetation
Catchment boundary	Riparian vegetation

Data: State of Queensland (Department of Science, Information Technology, Innovation and the Arts) 2014

Table 1 Subcatchment Freshwater Ecosystem Health Indicator Score: Current Condition 2014 and Target 2021

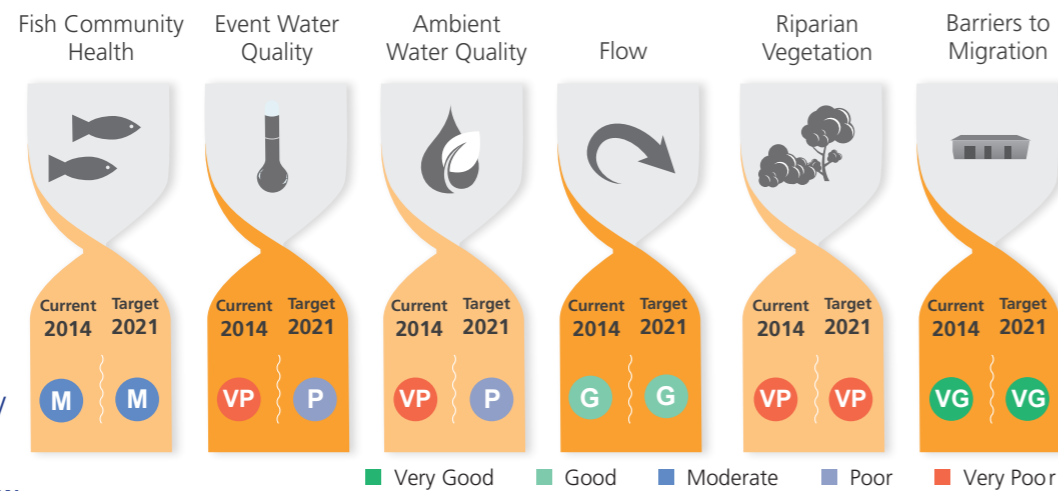


Table 1: OVERVIEW

This index presents the indicators chosen to assess the condition of freshwater ecosystem health. The index uses a combination of monitored data and expert opinion to provide a score for the current condition of fish community health, event water quality, ambient water quality, flow, riparian vegetation, and barriers to migration for each of the region's 33 catchment management areas. The table also presents the target for each indicator to be reached by 2021.

Table 2 Event Freshwater Quality: Current Condition, Targets and Objectives

Key Pollutant	Current Condition	Target 2021	Objective 2050	Action	Pollutant Source
MACKAY CITY SUBCATCHMENT					
Dissolved Inorganic Nitrogen µg/L	511	420	300	HIGH	CIU
Particulate Nitrogen µg/L	183	183	183	LOW	CIUG
Filterable Reactive Phosphorus µg/L	459	377	30	HIGH	CIU
Particulate Phosphorus µg/L	47	47	47	LOW	CIUG
Total Suspended Sediment mg/L	36	36	36	LOW	CIUG
Ametryn µg/L	0.09	0.08	0.02	HIGH	CIU
Atrazine µg/L	0.84	0.75	0.70	HIGH	CIU
Diuron µg/L	1.96	1.25	0.30	HIGH	CIU
Hexazinone µg/L	0.57	0.51	0.20	HIGH	CIU
Tebuthiuron µg/L	<LOD	<LOD	<LOD	LOW	G

Table 2: OVERVIEW

C Cane IU Intensive Uses G Grazing

This table presents the current condition (2014) event freshwater quality values for nutrients, sediment, and herbicides. It also presents water quality targets for 2021 and 2050 water quality objectives that have been calculated based on an achievable level of adoption of improved management practices and the level of effort that will be required ("Action"). For each of the pollutants listed, the table also identifies the main pollutant source.

Table 3 Action Targets: Ecosystem Health Management

L = Low, M = Moderate, H = High

	Condition 2014	Planned Activities to 2021	Effort	\$ Cost
Mackay City				
Barriers (number)	0	0	L	\$0
Riparian Vegetation Management (hectares)	280 ha	0 ha	L	\$0
Bank and bed stabilisation (kilometres)	n/a	0	L	\$0
In-stream Habitat Works (number)	n/a	0	L	\$0
				Total Cost = \$0

Table 3: OVERVIEW

This table presents the on-ground management actions determined to be required to improve ecosystem health, including the removal of barriers to fish migration, establishment of riparian vegetation, bank stabilisation, and in-stream habitat works. The table displays the current condition for each component, as well as the planned activities to be completed by 2021, the level of effort required and associated costs.

Tables 4 and 5: OVERVIEW

The tables below display the current level of management practices for Sugarcane/ Horticulture, Grazing, and Urban within D, C, B and A Management Framework classifications at 2014. The table also presents the level of voluntary adoption of management practices required to meet 2021 objectives and their associated costs.

Table 4 Agriculture ABCD Adoption Targets

Land Use	2014 Adoption %				2021 Adoption %				Total Cost \$ '000s	
	D	C	B	A	D	C	B	A		
MACKAY CITY SUBCATCHMENT										
Cane & Horticulture	Soil	18%	27%	50%	5%	20%	25%	50%	5%	0
	Nutrient	20%	26%	46%	8%	10%	15%	65%	10%	467
	Herbicide	20%	22%	45%	13%	10%	10%	65%	15%	475
Grazing	Soil	25%	26%	44%	5%	25%	25%	45%	5%	3

D Dated practice C Common practice B Best practice A Cutting-edge practice

Table 5 Urban Practice ABCD Adoption Targets

Land Use	2014 Adoption %				2021 Adoption %				Total Cost \$ '000s	
	D	C	B	A	D	C	B	A		
MACKAY CITY SUBCATCHMENT										
Diffuse Source Water Quality - DEVELOPMENT PLANNING AND CONSTRUCTION PHASE	20%	75%	5%	0%	0%	50%	40%	10%	4071	
Diffuse Source Water Quality - POST-CONSTRUCTION/ OPERATIONAL PHASE	10%	80%	10%	0%	0%	50%	40%	10%	3618	

D Dated practices C Conventional practices B Best practices A Aspirational