WATER QUALITY IMPROVEMENT PLAN 2014 - 2021

CATCHMENT MANAGEMENT AREA REPORT

17 Reliance Creek

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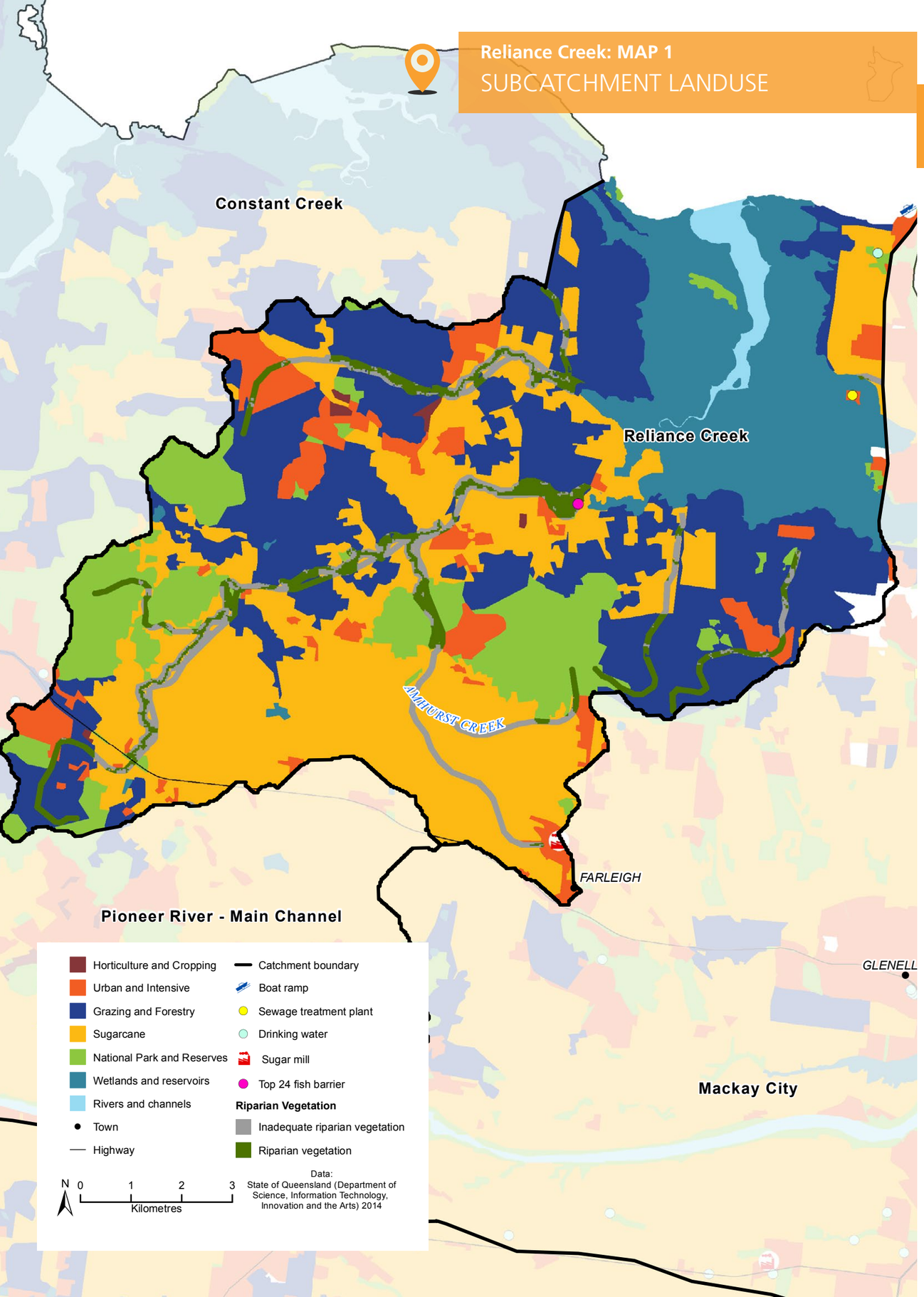
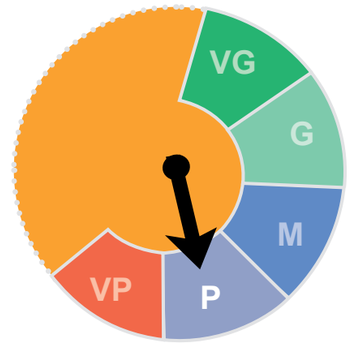
Reliance Creek: MAP 1
SUBCATCHMENT LANDUSE



Reliance Creek Ecosystem Health Rating

Very Good | Good | Moderate | Poor | Very Poor

FRESHWATER
Ecosystem Health



P

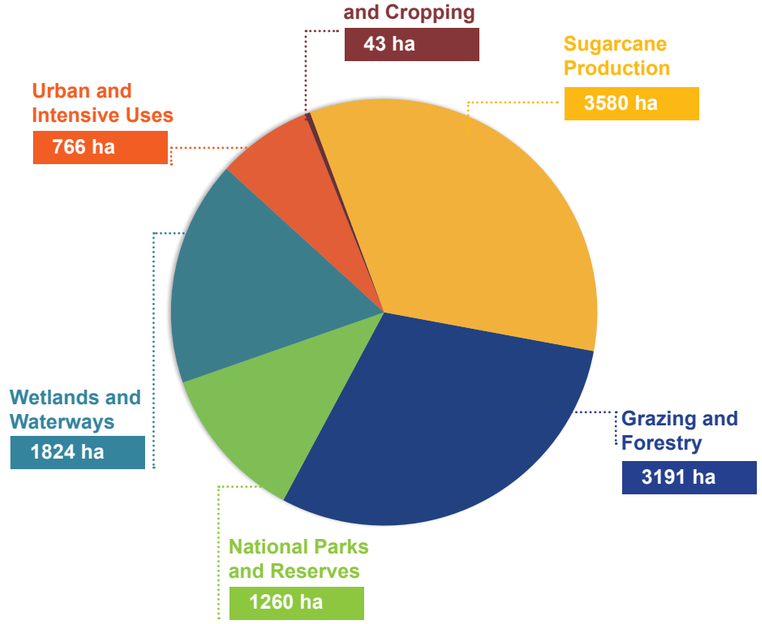
The Reliance Creek **freshwater ecosystem** received an overall score of **Poor.**

The Reliance Creek catchment area is just north of Mackay City sharing a catchment boundary at Shoal Point. Landuse is dominated by intensive cane production on 38% of the catchment and grazing on 32% across the catchment. Reliance Creek wetlands and estuary are protected by Reliance Creek National Park. Historically there have been issues with water quality, fish kills and mangrove die-back.

Grazing and cane management practices that reduce nitrogen and phosphorus loads are the highest priority for continued improvement of water quality. With marine risk exposure from pesticide and nutrient loads rated as high for the near shore environments, management practices that reduce nutrients and residual herbicides are also a priority.

All system repair actions that improve fish habitat and species diversity and abundance are critical to improve the poor ecological health rating for Reliance Creek. Riparian vegetation restoration and connectivity is a high priority to support fish communities and stabilise stream bed and banks for improved water quality. Prioritisation and investment in mangrove protection and enhancement are also important to manage coastal systems and reduce marine risk exposure.

Total Area by Landuse



Total hectares Reliance Creek

10664 ha

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

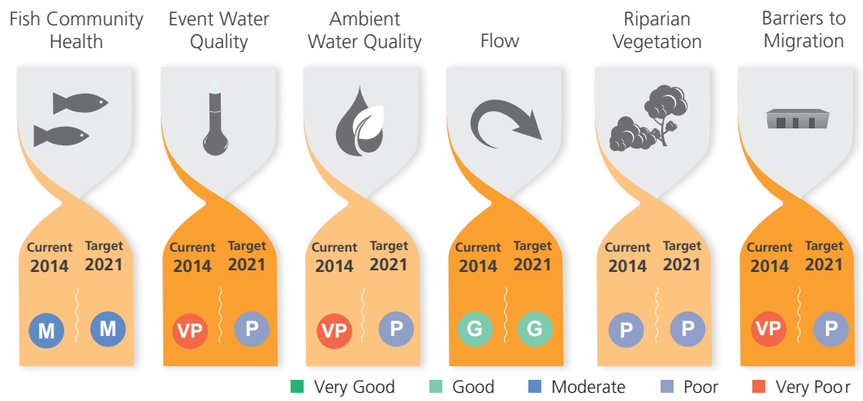


Table 1: OVERVIEW

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
RELIANCE CREEK SUBCATCHMENT					
Dissolved Inorganic Nitrogen µg/L	363	345	300	LOW	CIU
Particulate Nitrogen µg/L	231	230	230	LOW	CIUG
Filterable Reactive Phosphorus µg/L	168	160	30	LOW	CIU
Particulate Phosphorus µg/L	73	59	59	HIGH	CIUG
Total Suspended Sediment mg/L	35	35	35	LOW	CIUG
Ametryn µg/L	0.07	0.05	0.02	V HIGH	CIU
Atrazine µg/L	0.67	0.65	0.61	MEDIUM	CIU
Diuron µg/L	1.52	1.01	0.30	MEDIUM	CIU
Hexazinone µg/L	0.45	0.41	0.20	MEDIUM	CIU
Tebuthiuron µg/L	<LOD	<LOD	<LOD	LOW	G

C Cane **IU** Intensive Uses **G** Grazing

Table 2: OVERVIEW

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
Reliance Creek				
Barriers (number)	3	2	M	$60,000
Riparian Vegetation Management (hectares)	347 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 = $60,000	

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 % D	2014 C	2014 B	2014 A	2021 Adoption % D	2021 C	2021 B	2021 A	Total Cost $ '000s
RELIANCE CREEK SUBCATCHMENT										
Cane & Horticulture	Soil	18%	28%	43%	12%	10%	20%	55%	15%	152
	Nutrient	12%	15%	62%	12%	10%	10%	65%	15%	91
	Herbicide	20%	19%	56%	5%	10%	10%	75%	5%	271
Grazing	Soil	25%	9%	61%	5%	15%	10%	70%	5%	74

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

Table 5 [Urban Practice ABCD Adoption Targets

Land Use		2014 Adoption % D	2014 C	2014 B	2014 A	2021 Adoption % D	2021 C	2021 B	2021 A	Total Cost $ '000s
RELIANCE CREEK SUBCATCHMENT										
Diffuse Source Water Quality From GREENFIELDS Development - PLANNING & CONSTRUCTION PHASE		15%	75%	5%	0%	0%	50%	40%	10%	74
Diffuse Source Water Quality From GREENFIELDS Development - OPERATIONAL PHASE		15%	80%	10%	0%	0%	50%	40%	10%	83
Diffuse Source Water Quality From INFILL Development - PLANNING & CONSTRUCTION PHASE		15%	75%	5%	0%	0%	50%	40%	10%	74
Diffuse Source Water Quality From INFILL Development - OPERATIONAL PHASE		15%	80%	10%	0%	0%	50%	40%	10%	83

D Dated practices **C** Conventional practices **B** Best practices **A** Aspirational