



WATER QUALITY IMPROVEMENT PLAN 2014 - 2021

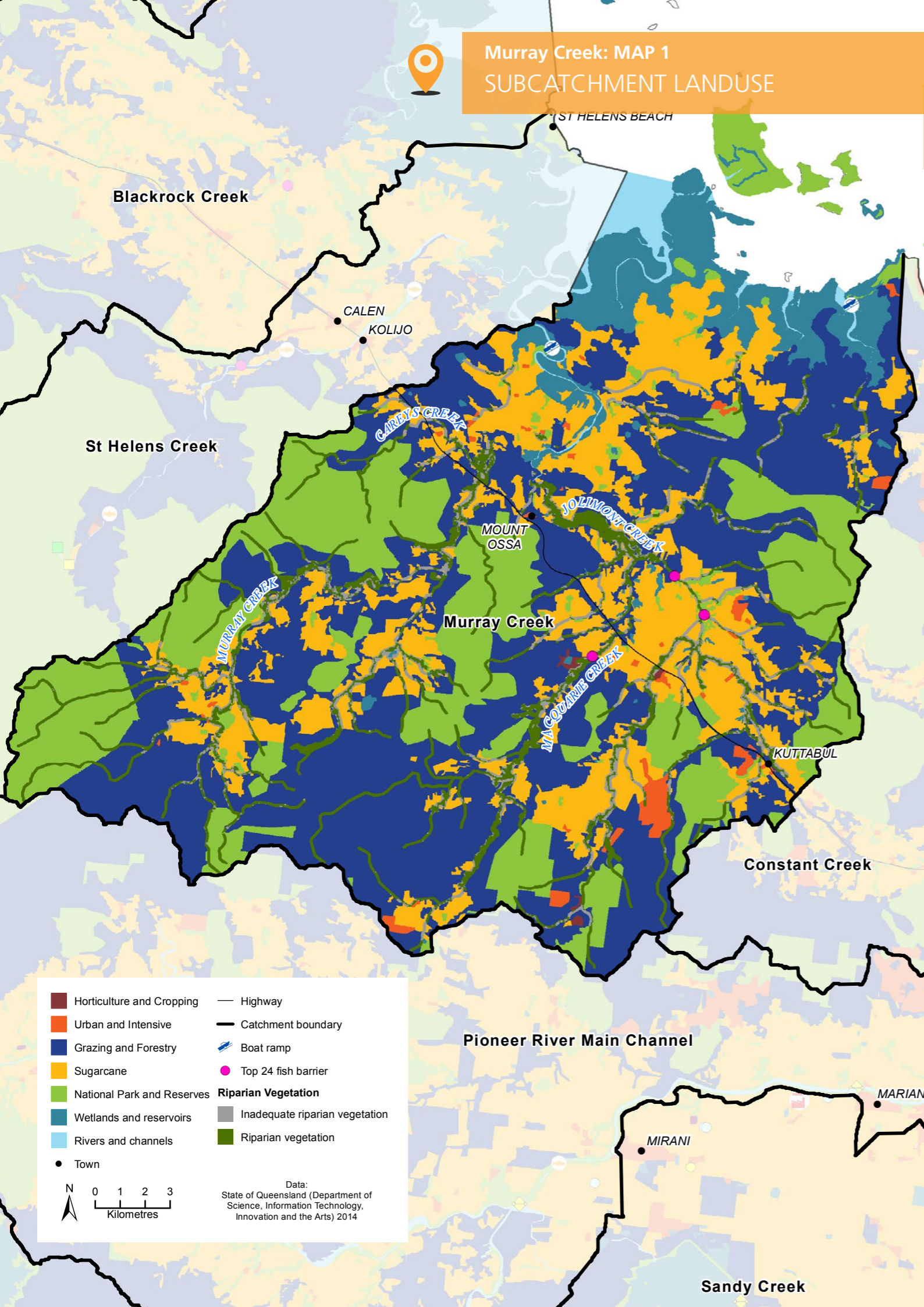
CATCHMENT MANAGEMENT AREA REPORT

15 Murray Creek



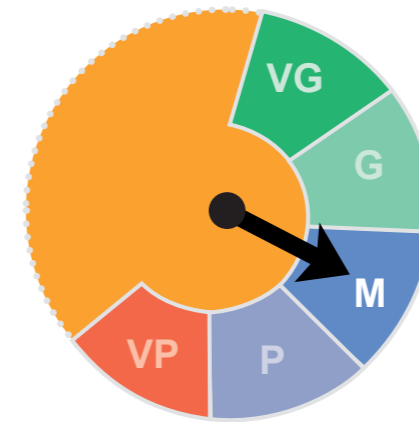


Murray Creek: MAP 1
SUBCATCHMENT LANDUSE



Murray Creek Ecosystem Health Rating

Very Good Good Moderate Poor Very Poor

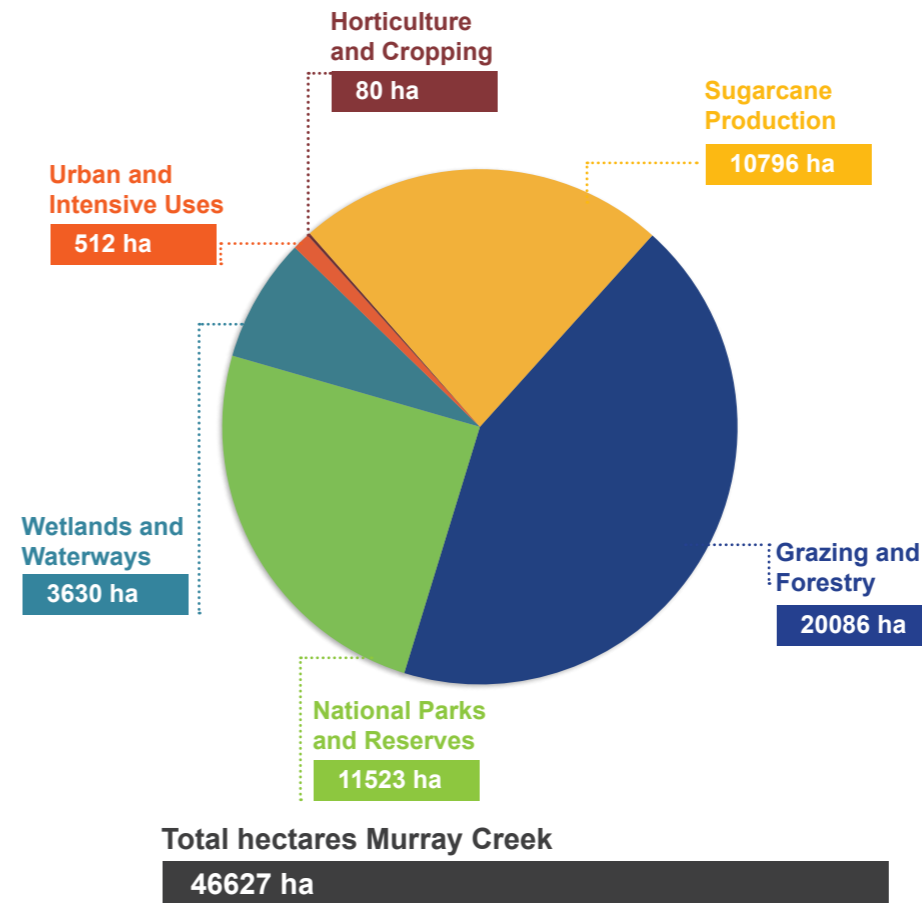


FRESHWATER
Ecosystem Health

M

The Murray Creek freshwater ecosystem received an overall score of **Moderate**.

Total Area by Landuse



Murray Creek flows from headwaters in the Clarke Range east through the coastal plain, entering the Great Barrier Reef lagoon at St Helens Bay and the Newry Island region Dugong Protection Area. The Murray Creek estuary and receiving marine waters support intertidal flats and seagrass beds. Upper areas of the catchment have good quality forest areas, while lowland areas have been developed extensively with almost 50% of the catchment supporting grazing production and 25% utilised for cane production. The remaining land use is National Park and wetland with some scattered peri-urban settlements.

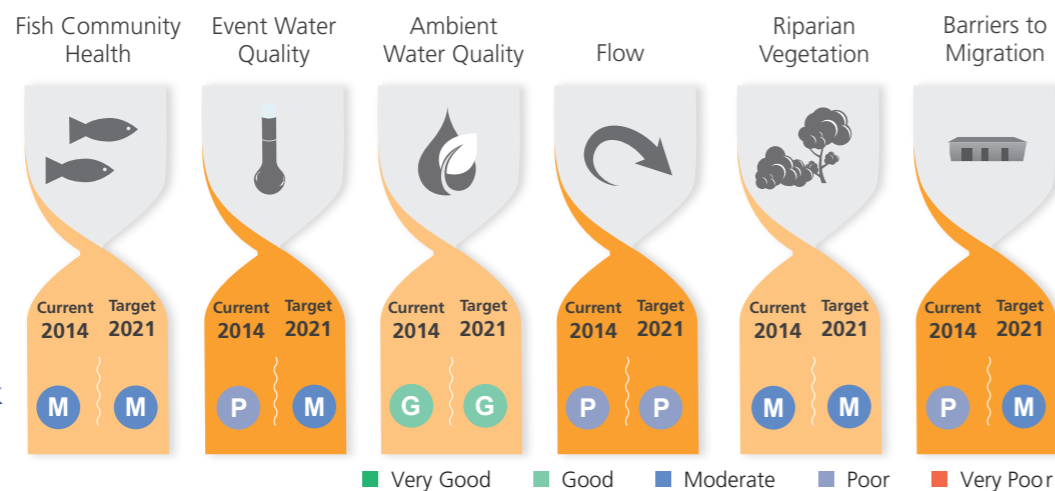
Grazing and sugar cane management practices that reduce nitrogen, phosphorus and pesticide loads are the highest priority for continued improvement of water quality, with marine risk exposure from pesticide and nutrient loads rated as high in the near shore environments to Murray Creek estuary.

All system repair actions that improve fish habitat and species diversity and abundance are critical to improve the ecological health rating for the Murray Creek catchment area. Riparian vegetation restoration and connectivity is also a high priority to support fish communities as well as stabilise stream bed and banks for improved water quality and to reduce the marine risk exposure.

Horticulture and Cropping	Highway
Urban and Intensive	Catchment boundary
Grazing and Forestry	Boat ramp
Sugarcane	Top 24 fish barrier
National Park and Reserves	Riparian Vegetation
Wetlands and reservoirs	Inadequate riparian vegetation
Rivers and channels	Riparian vegetation
Town	

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



[Murray Creek

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
MURRAY CREEK SUBCATCHMENT					
Dissolved Inorganic Nitrogen µg/L	561	484	300	HIGH	CIU
Particulate Nitrogen µg/L	201	201	201	LOW	CIUG
Filterable Reactive Phosphorus µg/L	44	38	30	HIGH	CIU
Particulate Phosphorus µg/L	47	47	47	LOW	CIUG
Total Suspended Sediment mg/L	65	65	67	LOW	CIUG
Ametryn µg/L	0.06	0.05	0.02	HIGH	CIU
Atrazine µg/L	0.28	0.25	0.25	HIGH	CIU
Diuron µg/L	0.86	0.75	0.30	HIGH	CIU
Hexazinone µg/L	0.33	0.30	0.20	HIGH	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
Murray Creek				
Barriers (number)	27	2	H	\$80,000
Riparian Vegetation Management (hectares)	3023 ha	45 ha	H	\$566,756
Bank and bed stabilisation (kilometres)	n/a	20	H	\$2,008,000
In-stream Habitat Works (number)	n/a	5	H	\$100,000
				Total Cost = \$2,754,756

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	
MURRAY CREEK SUBCATCHMENT										
Cane & Horticulture	Soil	10%	9%	42%	39%	5%	10%	40%	45%	0
	Nutrient	15%	29%	43%	13%	5%	15%	65%	15%	667
	Herbicide	20%	28%	49%	11%	15%	25%	45%	15%	335
Grazing	Soil	25%	38%	32%	5%	25%	35%	35%	5%	0

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	
MURRAY CREEK SUBCATCHMENT										
Diffuse Source Water Quality - DEVELOPMENT PLANNING AND CONSTRUCTION PHASE		20%	80%	0%	0%	0%	50%	40%	10%	365
Diffuse Source Water Quality - POST-CONSTRUCTION/ OPERATIONAL PHASE		15%	85%	0%	0%	0%	50%	40%	10%	365

D Dated practices C Conventional practices B Best practices A Aspirational