



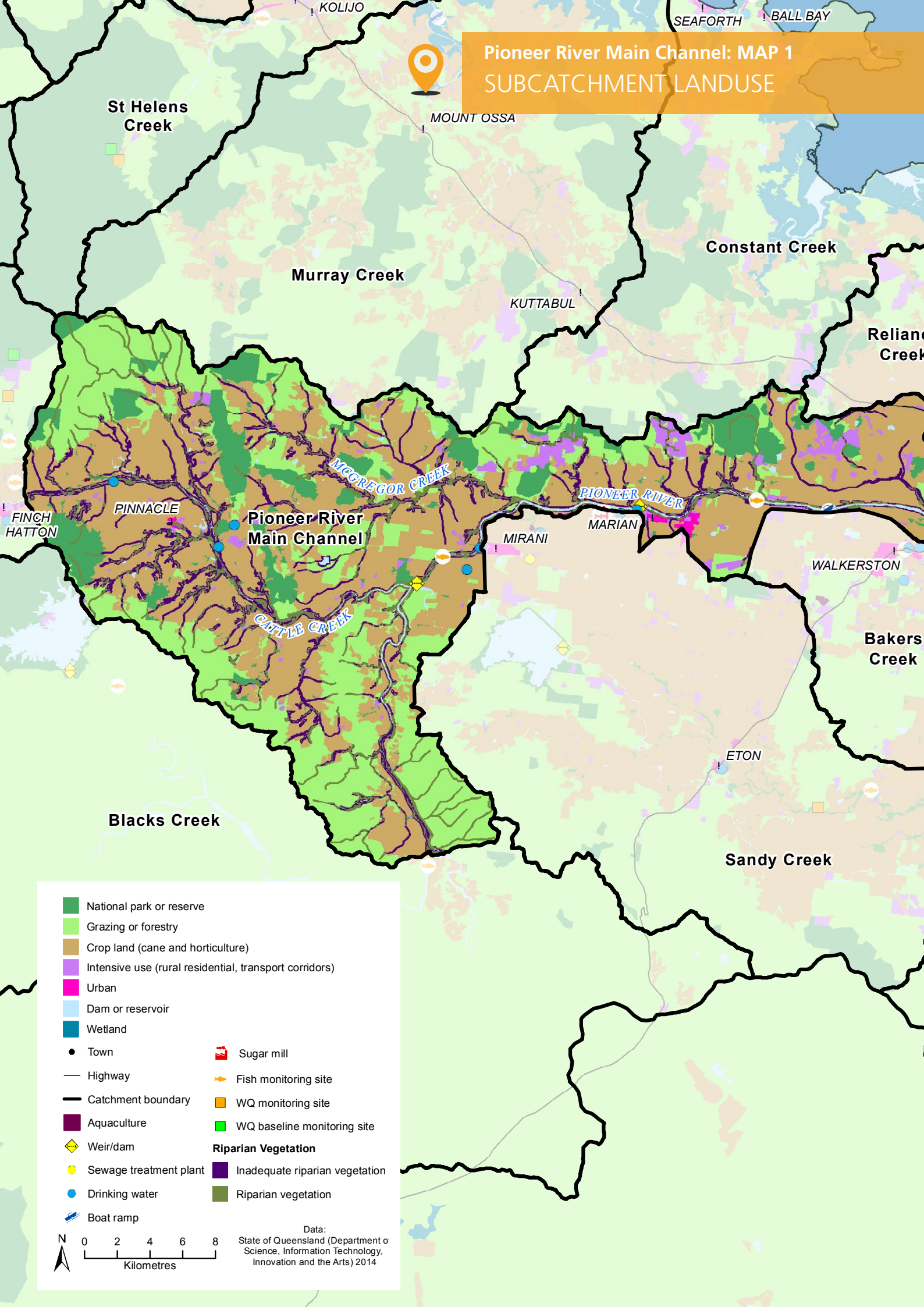
WATER QUALITY IMPROVEMENT PLAN 2014 - 2021

CATCHMENT MANAGEMENT AREA REPORT

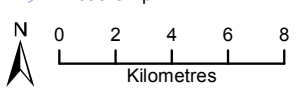
19 Pioneer River Main Channel



Pioneer River Main Channel: MAP 1 SUBCATCHMENT LANDUSE



- National park or reserve
- Grazing or forestry
- Crop land (cane and horticulture)
- Intensive use (rural residential, transport corridors)
- Urban
- Dam or reservoir
- Wetland
- Town
- Sugar mill
- Highway
- Fish monitoring site
- Catchment boundary
- WQ monitoring site
- Aquaculture
- WQ baseline monitoring site
- Weir/dam
- Riparian Vegetation
- Inadequate riparian vegetation
- Riparian vegetation
- Sewage treatment plant
- Drinking water
- Boat ramp



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



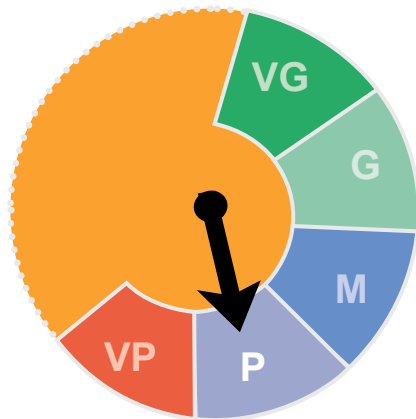
CATCHMENT MANAGEMENT AREA REPORT

19 Pioneer River Main Channel

Pioneer River Main Channel

■ Very Good
 ■ Good
 ■ Moderate
 ■ Poor
 ■ Very Poor

FRESHWATER Ecosystem Health



P

The Pioneer River Main Channel **freshwater ecosystem** received an overall score of **Poor**.

The headwaters of the Pioneer River Main Channel catchment originate in Cridton State Forest and Eungella National Park from where the river flows east, entering the sea at Mackay. While the headwaters are well forested, the lowland areas have been extensively cleared for intensive agriculture with 50% under cane production and 28% under grazing.

Riparian vegetation removal along the main river channel has been extensive in some reaches, while moderate quality riparian zones have been maintained in other areas. The lower Pioneer has been changed from riverine conditions to mainly weir pool environments through the construction of water infrastructure. Point source pollution from several towns and Mackay City affects the river and estuary.

Grazing and cane management practices that reduce particulate phosphorus loads are the highest priority for continued improvement of water quality. Management practices that reduce other nutrients and residual herbicides, particularly diuron, are also a priority.

All system repair actions that enhance fish habitat and passage are critical to improve the poor ecological health rating for Pioneer River. Improving riparian vegetation and connectivity, and bed and bank stability are a high priority in the modified cane production landscape. A significant commitment to manage flows in this regulated system is required to enable fish communities to gain the maximum benefits from the improvement in water quality.

Total Area by Landuse

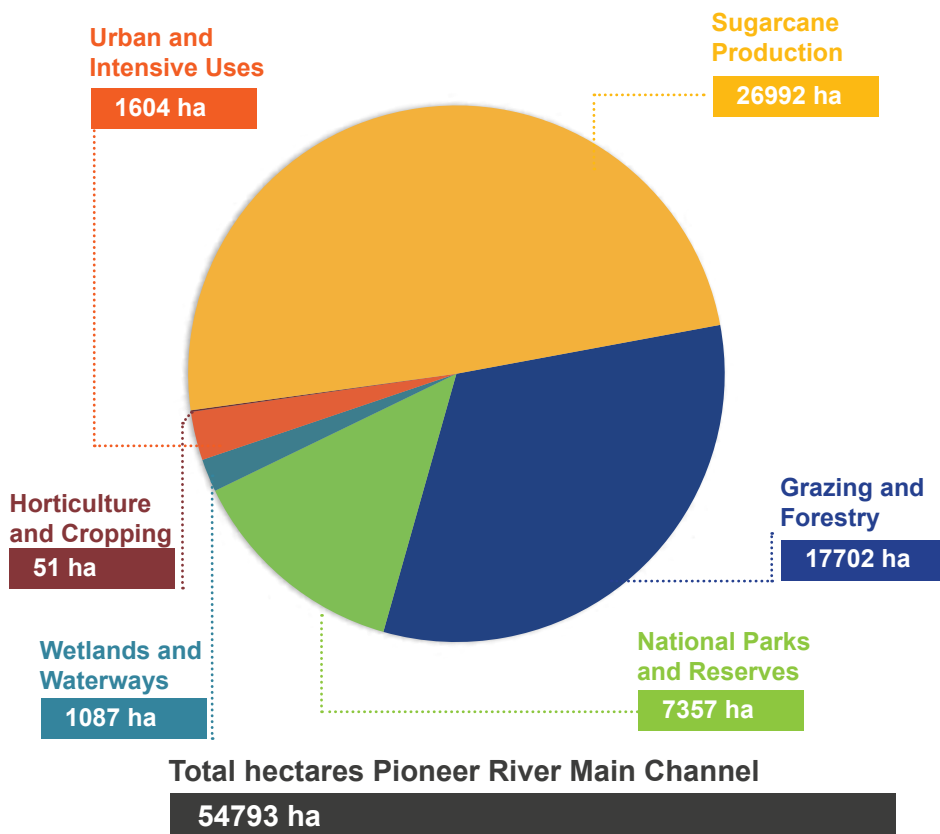


Table 1 [Subcatchment Freshwater Ecosystem Health Indicator Score: Current Condition 2014 and Target 2021

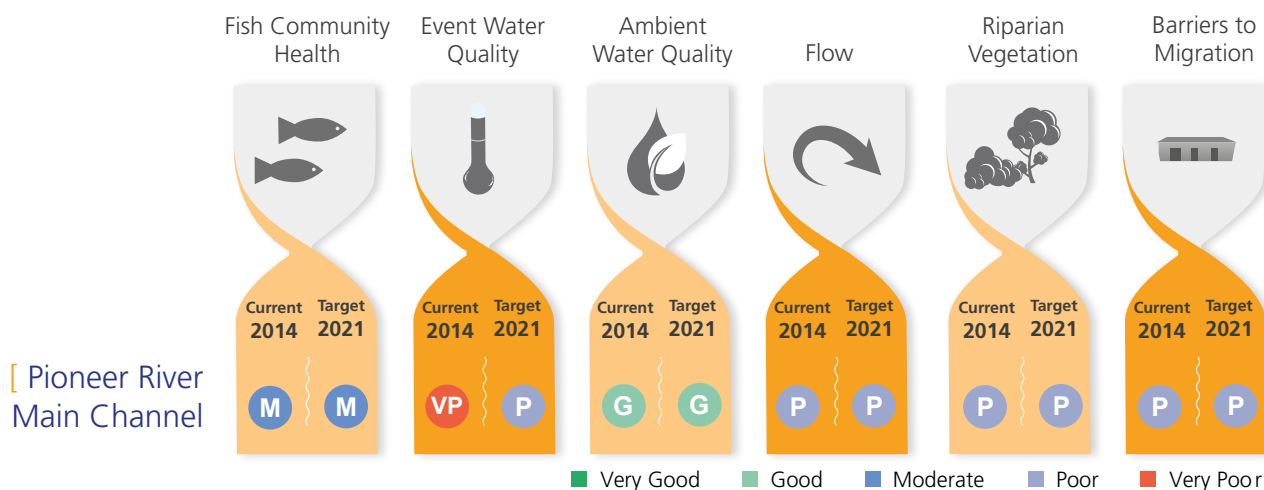


Table 1: OVERVIEW

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
PIONEER RIVER MAIN CHANNEL SUBCATCHMENT					
Dissolved Inorganic Nitrogen µg/L	280	280	280	LOW	CIU
Particulate Nitrogen µg/L	592	479	340	V HIGH	CIUG
Filterable Reactive Phosphorus µg/L	42	40	30	LOW	CIU
Particulate Phosphorus µg/L	265	214	70	V HIGH	CIUG
Total Suspended Sediment mg/L	180	145	145	V HIGH	CIUG
Ametryn µg/L	0.03	0.03	0.02	HIGH	CIU
Atrazine µg/L	0.48	0.43	0.43	HIGH	CIU
Diuron µg/L	0.87	0.75	0.30	HIGH	CIU
Hexazinone µg/L	0.21	0.19	0.19	HIGH	CIU
Tebuthiuron µg/L	<LOD	<LOD	<LOD	LOW	G

C Cane I U 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
Pioneer River Main Channel					
Barriers (number)		5	0	L	\$0
Riparian Vegetation Management (hectares)		3699 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	
PIONEER RIVER MAIN CHANNEL SUBCATCHMENT										
Cane & Horticulture	Soil	17%	28%	38%	16%	5%	10%	65%	20%	2249
	Nutrient	11%	15%	60%	13%	10%	10%	65%	15%	702
	Herbicide	20%	21%	49%	10%	15%	20%	55%	10%	627
Grazing	Soil	25%	28%	42%	5%	10%	15%	70%	5%	843

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	
PIONEER RIVER MAIN CHANNEL SUBCATCHMENT										
Diffuse Source Water Quality - DEVELOPMENT PLANNING AND CONSTRUCTION PHASE		20%	75%	5%	0%	0%	50%	40%	10%	1029
Diffuse Source Water Quality - POST-CONSTRUCTION/ OPERATIONAL PHASE		10%	80%	10%	0%	0%	50%	40%	10%	915

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