

Water Quality Improvement Plan 2014 - 2021

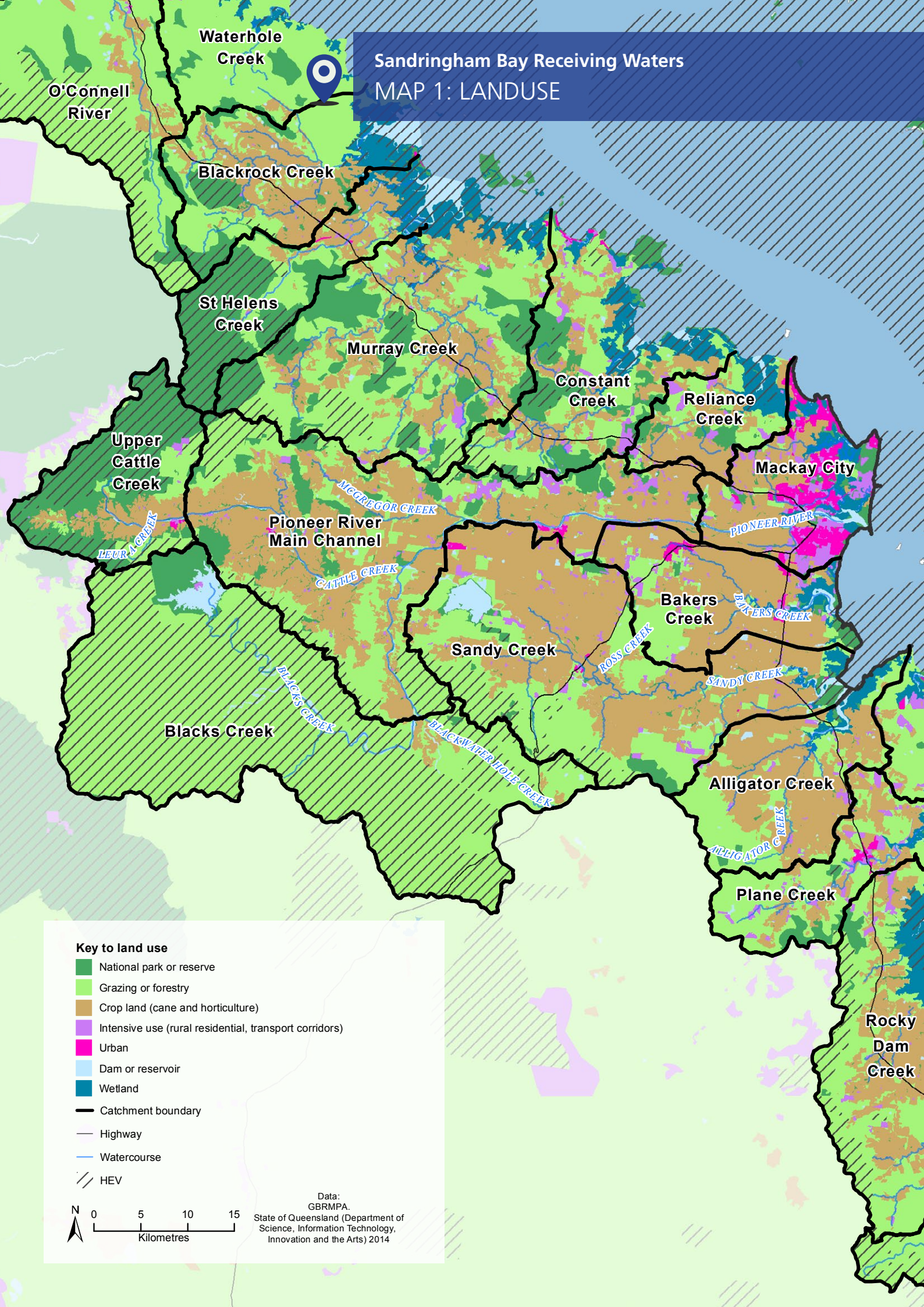
Sandringham Bay 2014



Mackay | Whitsunday | Isaac

Sandringham Bay Receiving Waters

MAP 1: LANDUSE



Sandringham Bay 5

[Sandringham Bay receiving waters stretch from just north of Hay Point up to Shoal Point north of Mackay. The subcatchments that contribute to this receiving water are some of the most highly modified catchments along the Great Barrier Reef coast. Sandy Creek, Pioneer River, Bakers Creek and Alligator Creek all have over 50% of their catchment land area used for intensive agriculture, principally sugarcane production.

Also contributing water to Sandringham Bay are Upper Cattle Creek and Blacks Creek subcatchments which together have 80% of their catchments as National Park or Reserves. These areas make up some of the most important High Ecological Value inland areas in the region and add to the ecological significance of the Clarke Connors Range.

A number of urban centres including Walkerston, Marian, Mirani and the major urban centre for the region, Mackay, are located in the subcatchments draining into Sandringham Bay.

Current Condition Report

Freshwater/ Terrestrial

Sandringham Bay's freshwater ecosystems received an overall score of **Poor**. The freshwater ecosystems are directly impacted by very poor water quality including high levels of nutrients and pesticides. Sandy Creek has the highest concentrations of diuron recorded in any of the waterways entering the Great Barrier Reef Lagoon. Five out of the seven subcatchments received a score of **Very Poor** for event water quality, and four received **Very Poor** for ambient water quality.

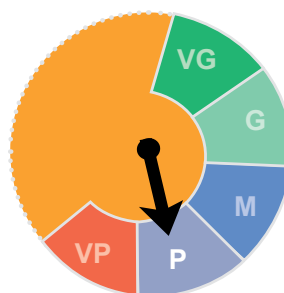
The large amount of disturbance and alteration within most subcatchments has resulted in impacted ecological health. Most subcatchments have **Moderate** fish community health with two receiving a score of **Poor**, four receiving a score of **Moderate** and one in **Good** condition. Flow regimes have been significantly altered due to the implementation of irrigation schemes and associated water extraction, with three subcatchments being scored as **Poor**, two as **Moderate** and one each as **Good** and **Very Good**. Existing riparian vegetation is low, with two subcatchments having a score of **Very Poor**, four of **Poor**, and only one **Good** score. In most subcatchments fish passage has been heavily restricted, with two subcatchments in **Very Poor** condition, three in **Poor**, one in **Moderate** and one in **Very Good** condition.

Marine

Sandringham Bay receiving waters have been given an overall condition score of **Very Poor**. The majority of the receiving waters are mapped as **Very High** risk by the Marine Risk Index. Sandringham Bay has only small amounts of the region's coral and seagrass, but 37% of coral and 80% of seagrass are within a **High** to **Very High** risk range, mostly due to poor water quality entering the Bay from the highly impacted land in the feeder subcatchments.

Ecosystem Health Rating

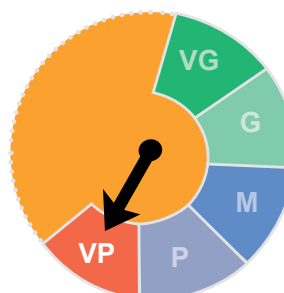
Very Good Good Moderate Poor Very Poor



FRESHWATER

Ecosystem Health

Sandringham Bay **freshwater** ecosystems received an overall score of **Poor**.

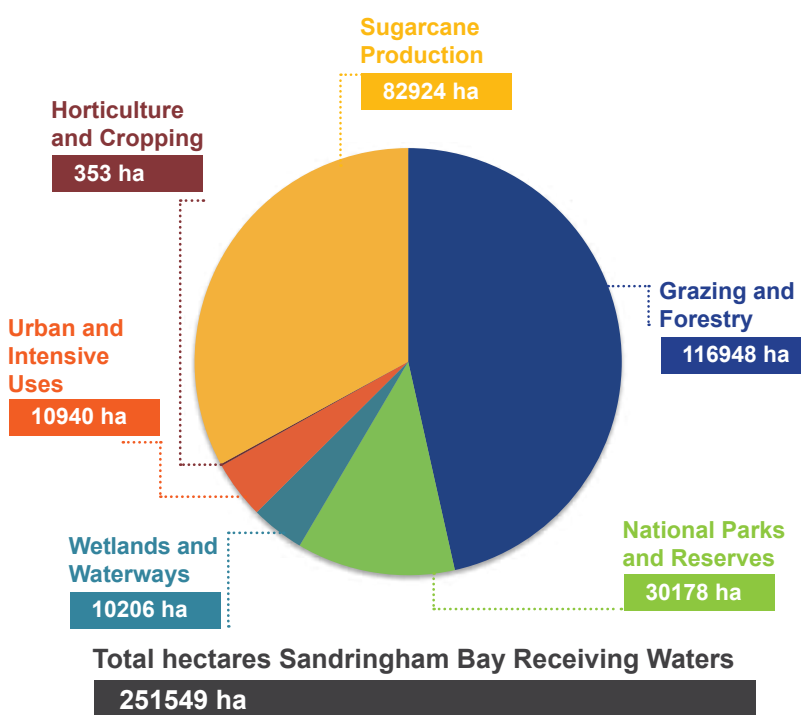


MARINE

Ecosystem Health

Sandringham Bay **marine** ecosystems received an overall score of **Very Poor**.

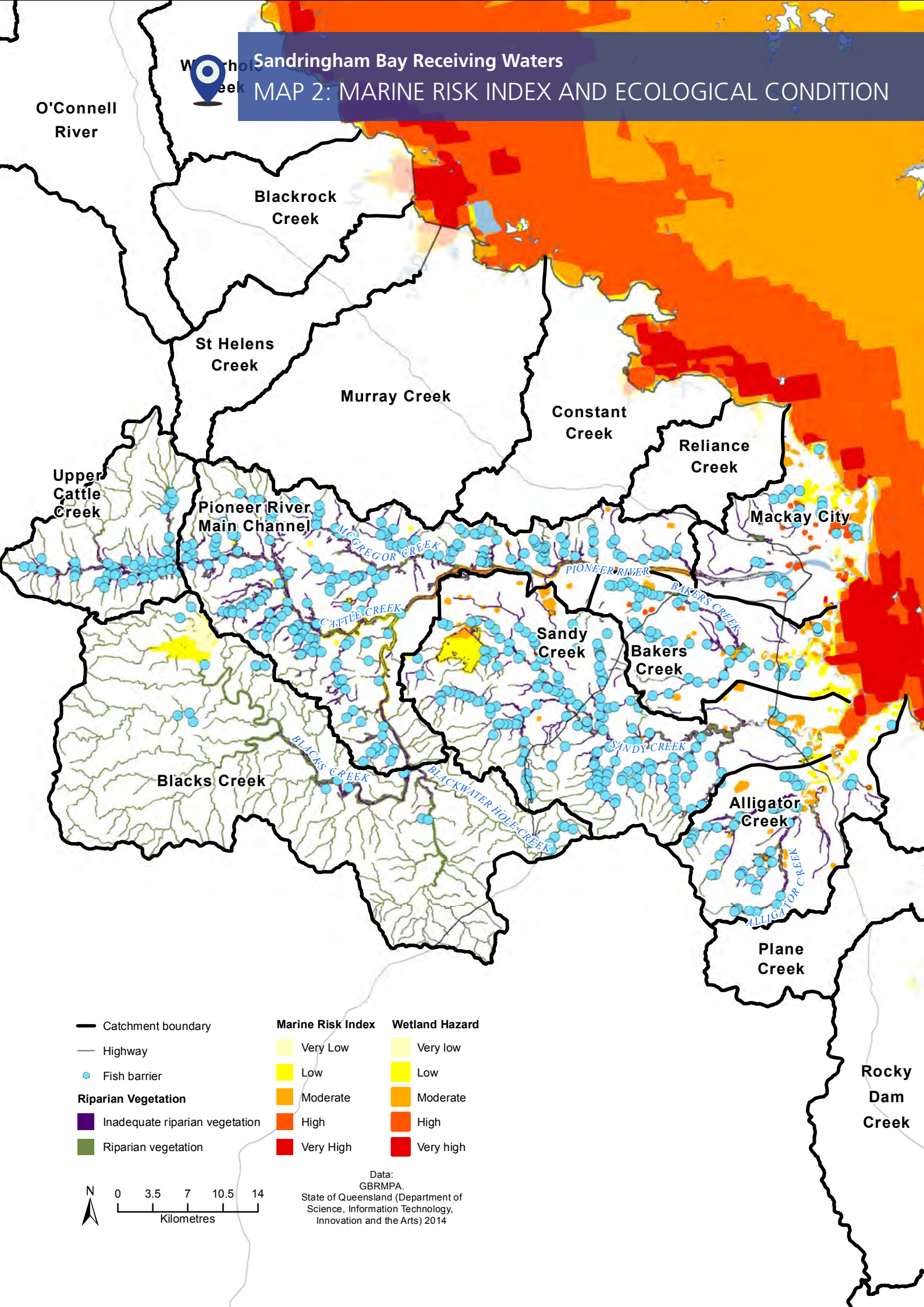
Subcatchments Total Area by Landuse





Sandringham Bay Receiving Waters

MAP 2: MARINE RISK INDEX AND ECOLOGICAL CONDITION



O'Connell
River

Blackrock
Creek

St Helens
Creek

Murray Creek

Constant
Creek

Reliance
Creek

Upper
Cattle
Creek

Pioneer River
Main Channel

Mackay City

Sandy
Creek

Bakers
Creek

Blacks Creek

Alligator
Creek

Plane
Creek

Rocky
Dam
Creek

— Catchment boundary

— Highway

• Fish barrier

Riparian Vegetation

■ Inadequate riparian vegetation

■ Riparian vegetation

Marine Risk Index

■ Very Low

■ Low

■ Moderate

■ High

■ Very High

Wetland Hazard

■ Very low

■ Low

■ Moderate

■ High

■ Very high



0 3.5 7 10.5 14
Kilometres

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

Ecosystem HEALTH]

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

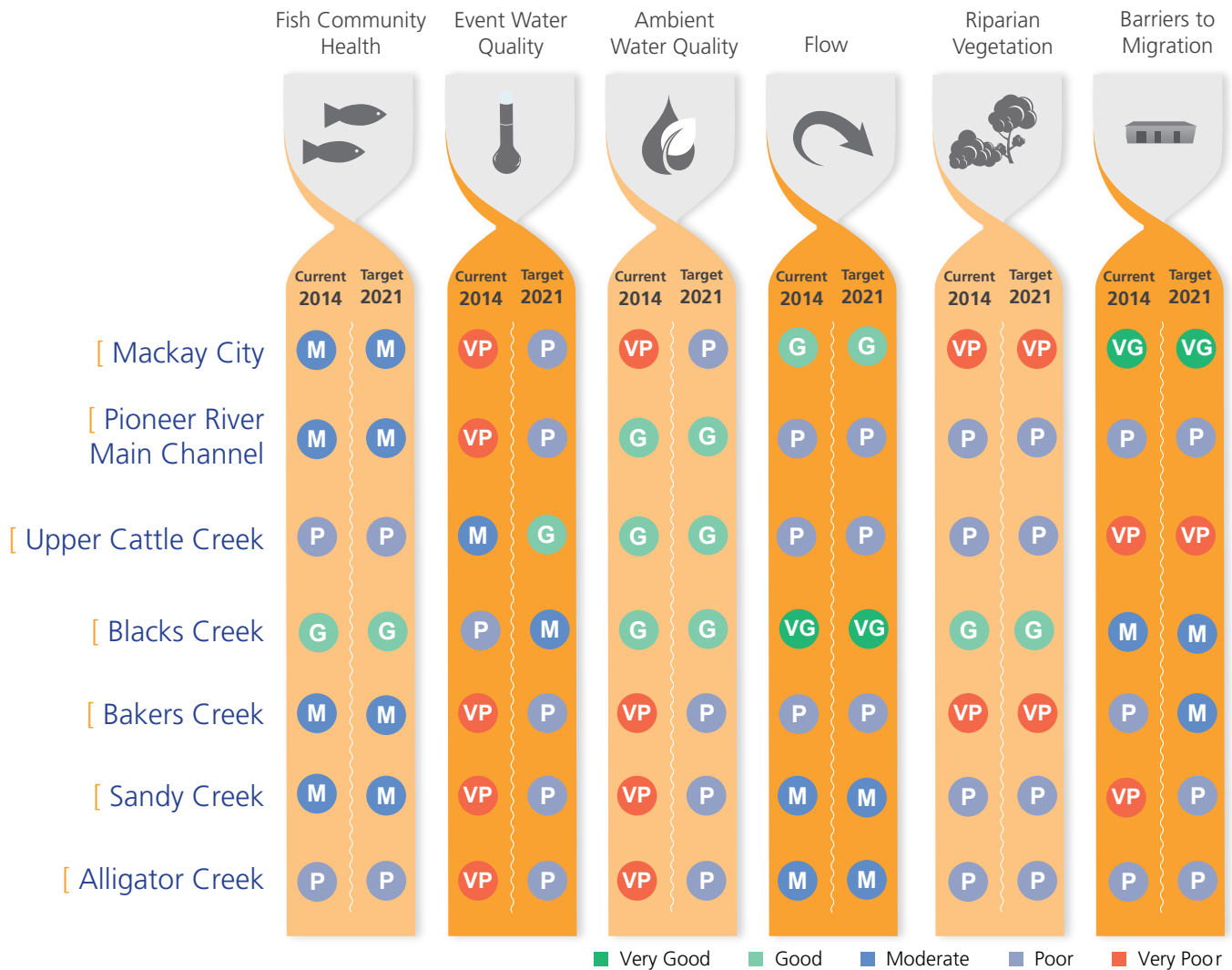
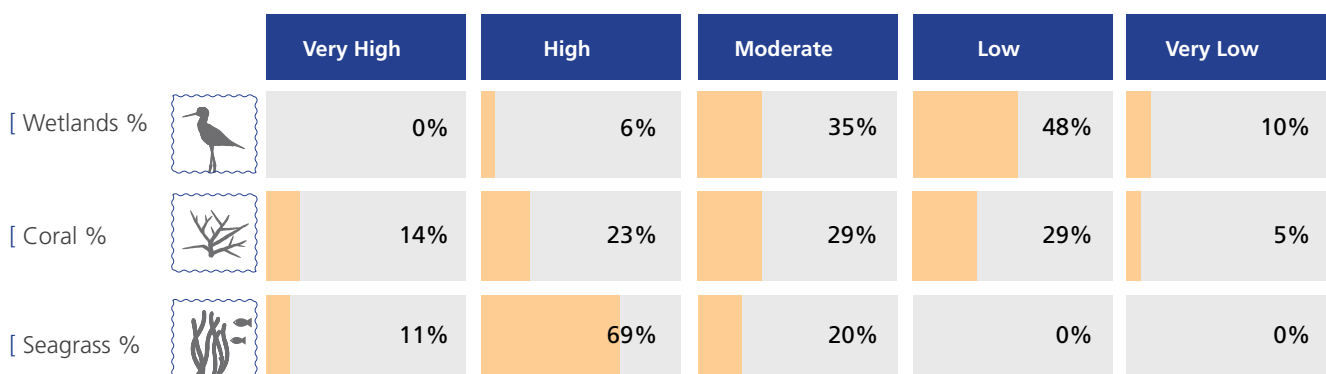


Table 2: OVERVIEW

This table displays the total area (as a percentage) of wetlands, coral, and seagrass that exist within each risk category. The risk categories represent the presence of land-based pollutants of greatest risk, ranging from Very Low Risk to Very High Risk.

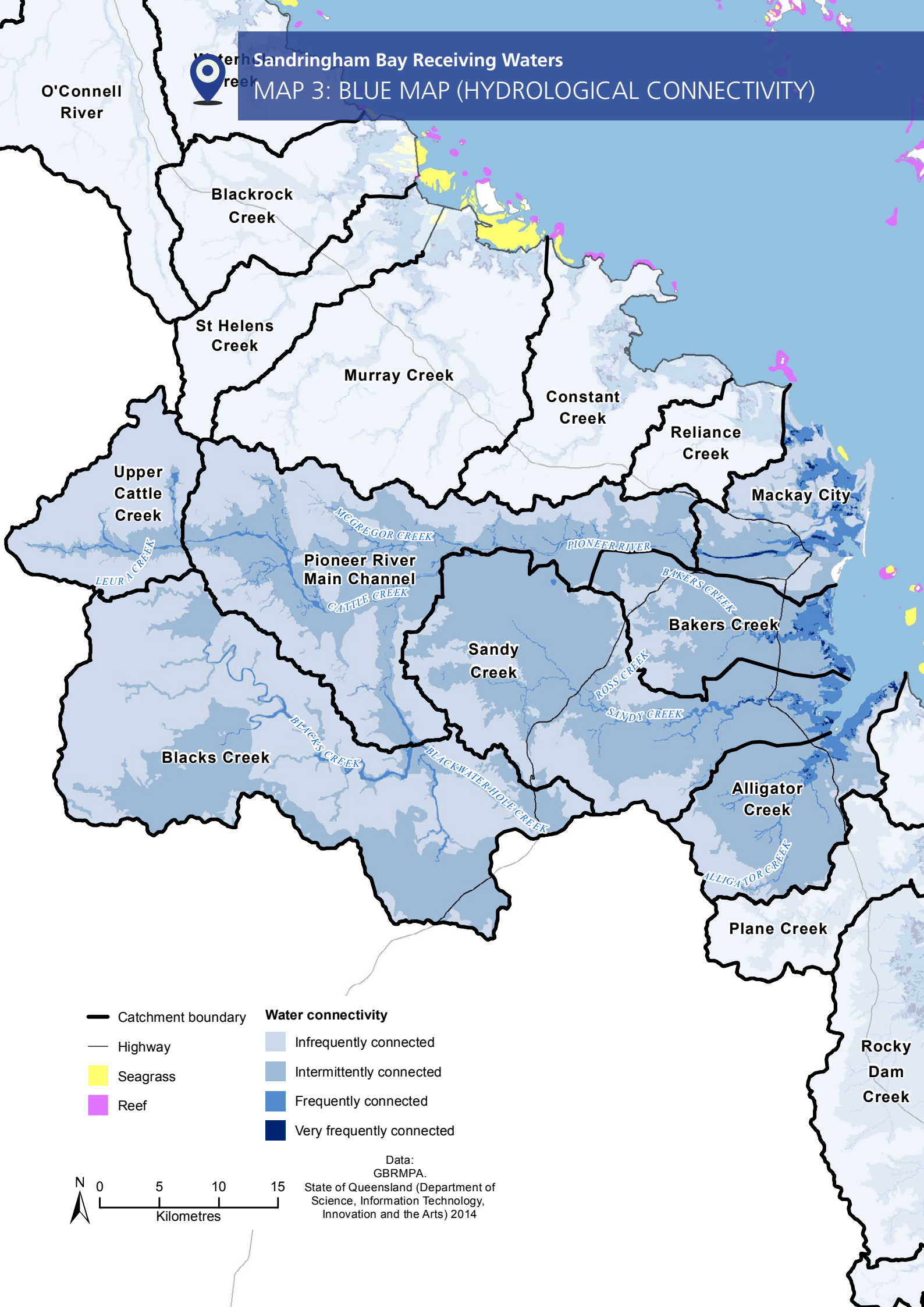
Table 2 [Marine Risk and Wetland Hazard





Sandringham Bay Receiving Waters

MAP 3: BLUE MAP (HYDROLOGICAL CONNECTIVITY)



O'Connell River

Blackrock Creek

St Helens Creek

Murray Creek

Constant Creek

Reliance Creek

Mackay City

Upper Cattle Creek

Pioneer River Main Channel

Sandy Creek

Bakers Creek

Blacks Creek

Alligator Creek

Plane Creek

Rocky Dam Creek

— Catchment boundary

— Highway

Seagrass

Reef

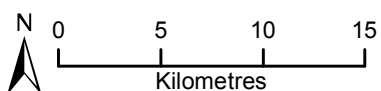
Water connectivity

Infrequently connected

Intermittently connected

Frequently connected

Very frequently connected



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

[Key Area Targets (corresponding with Blue Map)

The hydrological connectivity shown on the Blue Map is used to prioritise activities for best ecosystem outcomes. The below details the target activities for areas of differing levels of connectivity.

Infrequently Connected areas

- Target grazing in forests (27,890 ha)
- Target rainforests (2900 ha)
- Target forestry in forests (19,236 ha) and rainforests (14,203 ha)
- Target grazing (10,190 ha)
- Target irrigated sugar (9952 ha)
- Target intensive uses (4745 ha)

Intermittently Connected areas

- Target grazing forested floodplains (5999 ha)
- Target forests (13,776 ha)
- Target forest forestry (4906 ha)
- Target irrigated sugar (71,603 ha)
- Target grazing (12,457 ha)
- Target intensive uses (4373 ha).

Frequently Connected areas

To improve ecological processes in frequently connected areas:

- Target grazing rainforests (520 ha)
- Target woodlands (604 ha)
- Target ponded pastures (263 ha)
- Target irrigated sugar (815 ha)
- Target grazing (541 ha)

Very Frequently Connected areas

- Target ponded pastures (86 ha)
- Target woodlands grazing (16 ha)
- Target grazing estuaries (22 ha)

MAP DATA SOURCES PROVIDED BY:

STATE OF QUEENSLAND (DEPARTMENT OF SCIENCE, INFORMATION TECHNOLOGY, INNOVATION AND THE ARTS) 2014, GREAT BARRIER PARK MARINE AUTHORITY, MACKAY REGIONAL COUNCIL, ISAAC REGIONAL COUNCIL AND WHITSUNDAY REGIONAL COUNCIL.

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REEF CATCHMENTS (MACKAY WHITSUNDAY ISAAC) LIMITED
PHONE (07) 4968 4200
EMAIL reception@reefcatchments.com
WEB www.reefcatchments.com.au

