MACKAY WHITSUNDAY REGION

Pioneer catchment water quality targets

Catchment profile

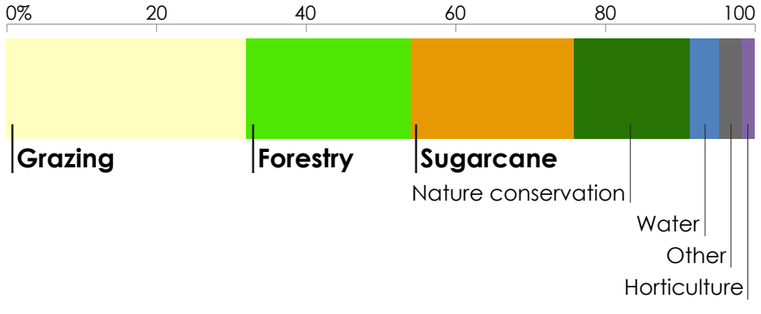
Under the Reef 2050 Water Quality Improvement Plan, water quality targets have been set for each catchment that drains to the Great Barrier Reef. These targets (given over the page) consider land use and pollutant loads from each catchment.

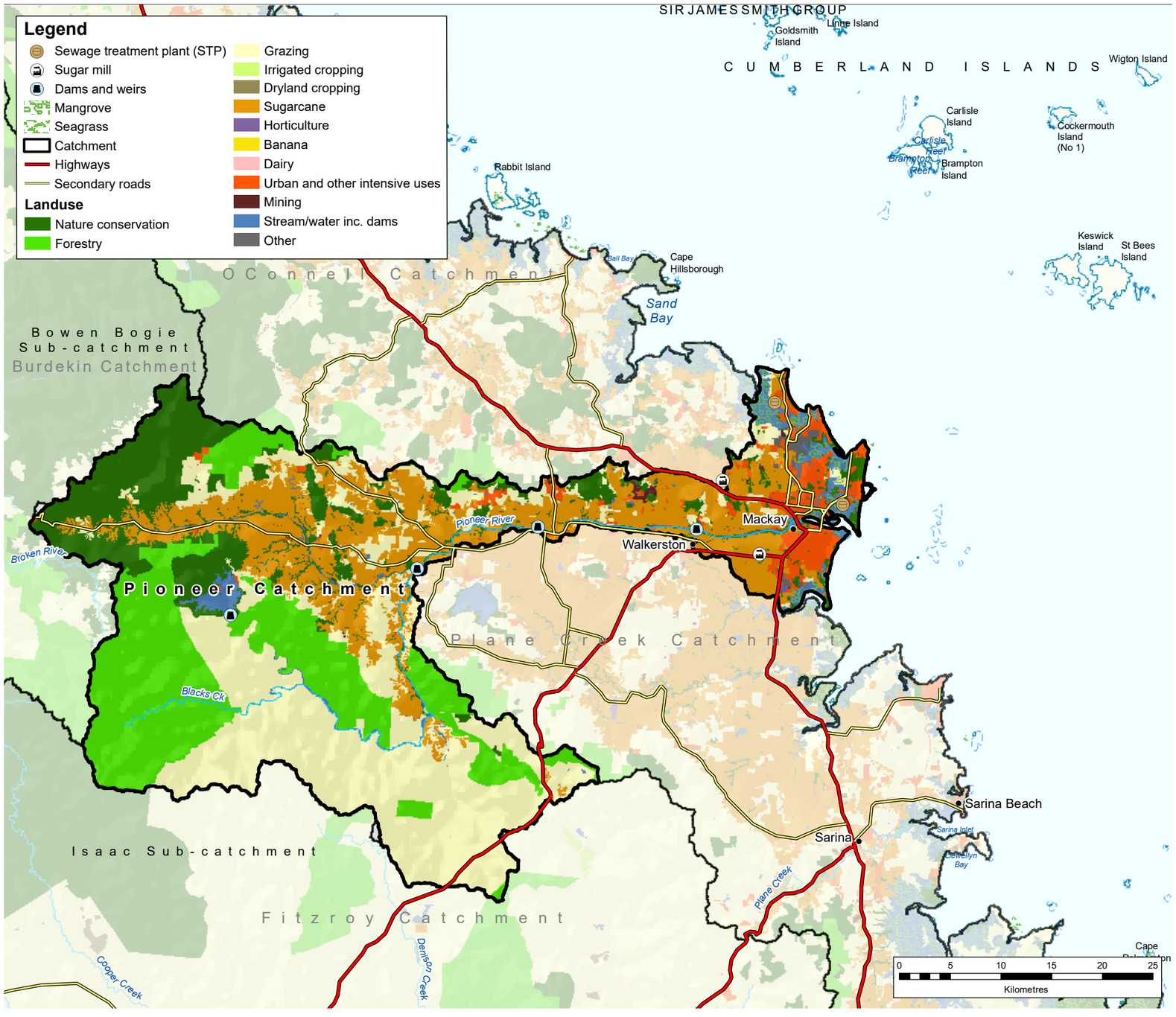
The Pioneer catchment covers 1572 km^2 (17% of the Mackay Whitsunday region). Rainfall averages 1578 mm a year, which results in river discharges to the coast of about 1012 GL each year.

The Pioneer catchment is the smallest in the Mackay Whitsunday region. The bulk of the catchment lies inland with just one main channel, the Pioneer River, draining to the coast to Sandringham Bay. The westerly upper reaches of the Pioneer River are divided into two sub-catchments, Upper Cattle Creek and Blacks Creek. The eastern section of the catchment area is the city of Mackay with the main channel of the Pioneer River running through the city. Grazing land occupies the majority of the catchment area, primarily found in the upper, inland section. Forestry and conservation are also major land uses in the upper reaches of the catchment. In the lower reaches, sugarcane dominates the land use, along with urban and other intensive uses at the mouth of the river.

Land uses in the Pioneer catchment

The main land uses are grazing (32%), forestry (22%), and sugarcane (22%).





2025 water quality targets and priorities

End-of-catchment anthropogenic load reductions required from 2013 baseline				Pesticides
Dissolved inorganic nitrogen (DIN)	Fine sediment	Particulate phosphorus (PP)	Particulate nitrogen (PN)	
70% 140 tonnes	**20%** 35 kilotonnes	**20%** 23 tonnes	**20%** 61 tonnes	To protect at least **99%** of aquatic species at the end of catchment

The 2025 targets aim to reduce the amounts of fine sediments, nutrients (nitrogen and phosphorus) and pesticides flowing to the reef. Each target for sediment and nutrients is expressed as: (a) the percentage load reduction required compared with the 2013 estimated load of each pollutant from the catchment; and (b) the load reductions required in tonnes. Progress made since 2013 will count towards these targets. Previously reported progress between 2009 and 2013 has already been accounted for when setting the targets. The pesticide target aims to ensure that concentrations of pesticides at the end of each catchment are low enough that 99% of aquatic species are protected. The targets are ecologically relevant for the Great Barrier Reef, and are necessary to ensure that broadscale land uses have no detrimental effect on the reef's health and resilience.

A high percentage reduction target may not necessarily mean it is the highest priority. The priorities (ranked by colour) reflect the relative risk assessment priorities for water quality improvement, based on an independent report, the 2017 Scientific Consensus Statement. The priorities reflect scientific assessment of the likely risks of pollutants damaging coastal and marine ecosystems.

Water quality relative priority

- Very high
- High
- Moderate
- Low
- Minimal
- Not assessed

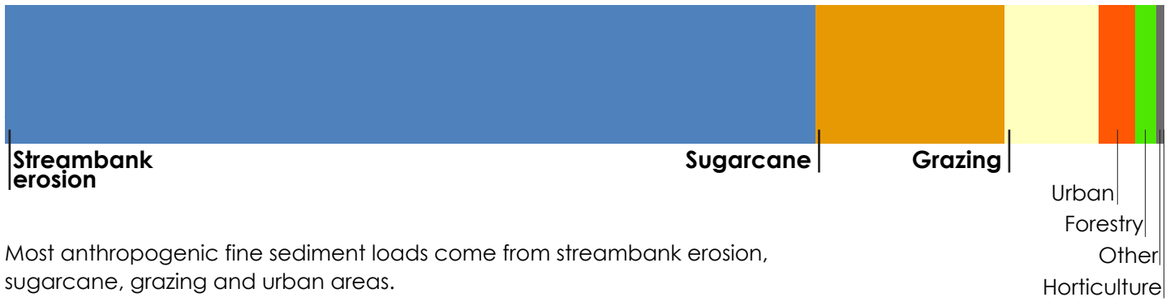
Modelled water quality pollutant loads

Of the Mackay Whitsunday catchments, the Pioneer contributes the second largest loads of anthropogenic dissolved inorganic nitrogen, which comes mostly from sugarcane. The Pioneer contributes the second largest loads of fine sediment in the region. Most sediments come from streambank erosion.

Dissolved inorganic nitrogen

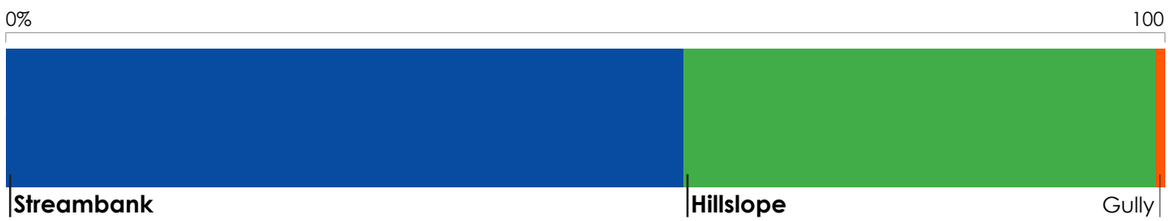
Most anthropogenic dissolved inorganic nitrogen (DIN) loads come from sugarcane, urban and sewage treatment plants.

Fine sediment



Most anthropogenic fine sediment loads come from streambank erosion, sugarcane, grazing and urban areas.

Types of sediment erosion



Most sediment erosion comes from streambanks and hillslopes in the Pioneer catchment.