



Palmerston Lakes

Water Quality Report Card

Q2 2023

AT A GLANCE

- ✓ Harvesting *Salvinia* has improved the water quality of lakes
- ✓ Water quality has generally improved in most lakes.
- ✗ Nutrient levels are high.
- ✗ Elevated turbidity and micro-algae growth evident in some lakes

Water quality surveys were undertaken across all 18 Palmerston Lakes 20 June 2023. Monitoring is undertaken quarterly as per the Lakes Management Plan.

Harvesting of *Salvinia* has improved water quality in all lakes.

Water quality at Durack Lakes 3, 4, 5, 6, 7a, 7b, 8, 9, 10a, 10b, Durack Heights Lake, Marlow Lagoon and Sanctuary Lakes A, B & C has remained good.

Lakes 1a, 1b and 3 recorded low oxygen, and relatively high turbidity (1b and 3), possibly due to recent harvesting activity and disturbed sediments.

All lakes have elevated nutrient levels (total nitrogen and total phosphorus).



LAKE CONDITION RATING

GOOD



Lake is well oxygenated, has low turbidity, low nutrients and low *Salvinia* coverage

FAIR



Lake is moderately to well oxygenated but shows some evidence of low water quality, such as high nutrients, turbidity and *Salvinia* coverage

POOR



Lake is moderately to poorly oxygenated with other signs of poor water quality, such as high nutrients, high turbidity, algae and *Salvinia* coverage

VERY POOR



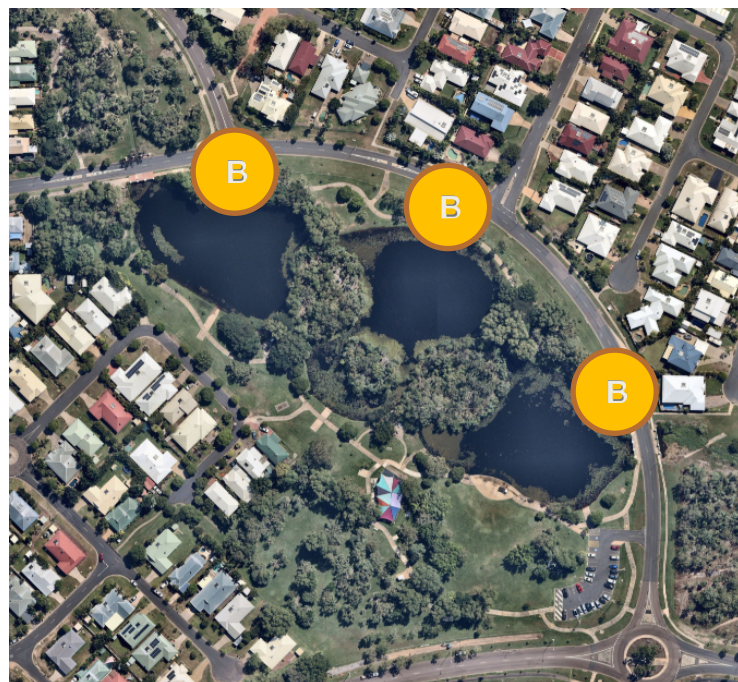
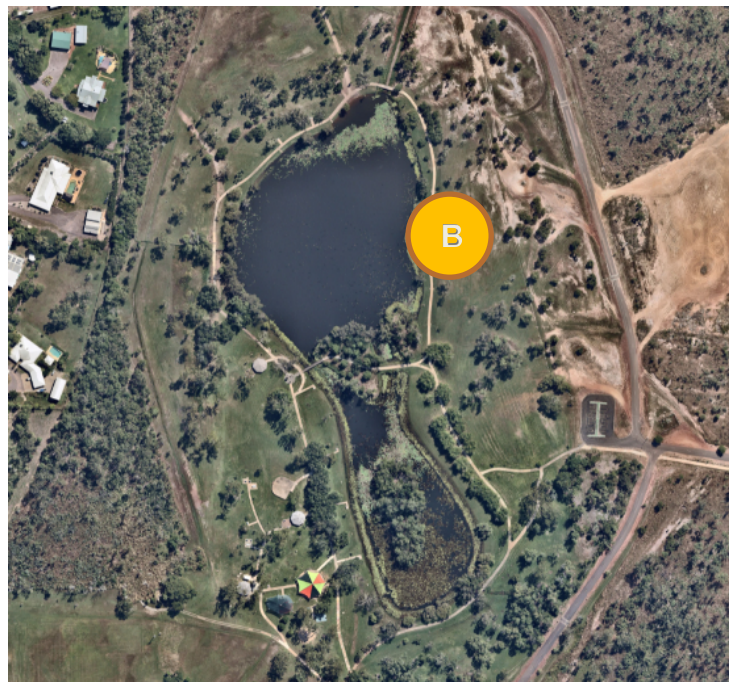
Lake is poorly oxygenated, has high nutrients, high turbidity, algae and *Salvinia* growth



Palmerston Lakes

Water Quality Report Card

Q1 2023



How does this report card work?

Each of the 18 lakes are surveyed and assessed based on factors such as dissolved oxygen and turbidity, nutrient concentrations (nitrogen, phosphorus), amount of *Salvinia* surface coverage, and other notable findings relevant to lake condition.

Each lake is given a condition rating based on the characteristics of the lake during the survey. The criteria for this rating is derived from the features of a healthy lake outlined in the *Townsville Constructed Lakes Design Guideline* (DesignFlow and RPS 2010).

A healthy lake is typically dominated by macrophytes (i.e. emergent and submerged rooted water plants); as opposed to floating water plants (e.g. lilies, algae, the declared weed *Salvinia molesta*), microscopic algae (phytoplankton), and cyanobacteria. Macrophyte-dominated lakes help maintain low turbidity via uptake of nutrients and prevention of re-suspension of sediments.

Note that lake characteristics will change seasonally as water plants cycle through periods of growth and die-back. The rating given to each lake will differ between quarterly surveys and consistently poor or very poor ratings will require management action.

