



Palmerston Lakes Water Quality Report Card Q4 2023

AT A GLANCE

- ✓ Harvesting *Salvinia* has maintained the water quality of lakes recently harvested
- ✓ Dissolved oxygen levels were good in all lakes
- ✗ No lakes showed improvements from the last quarters rating
- ✗ High nutrient load present in some lakes which may lead to algae growth

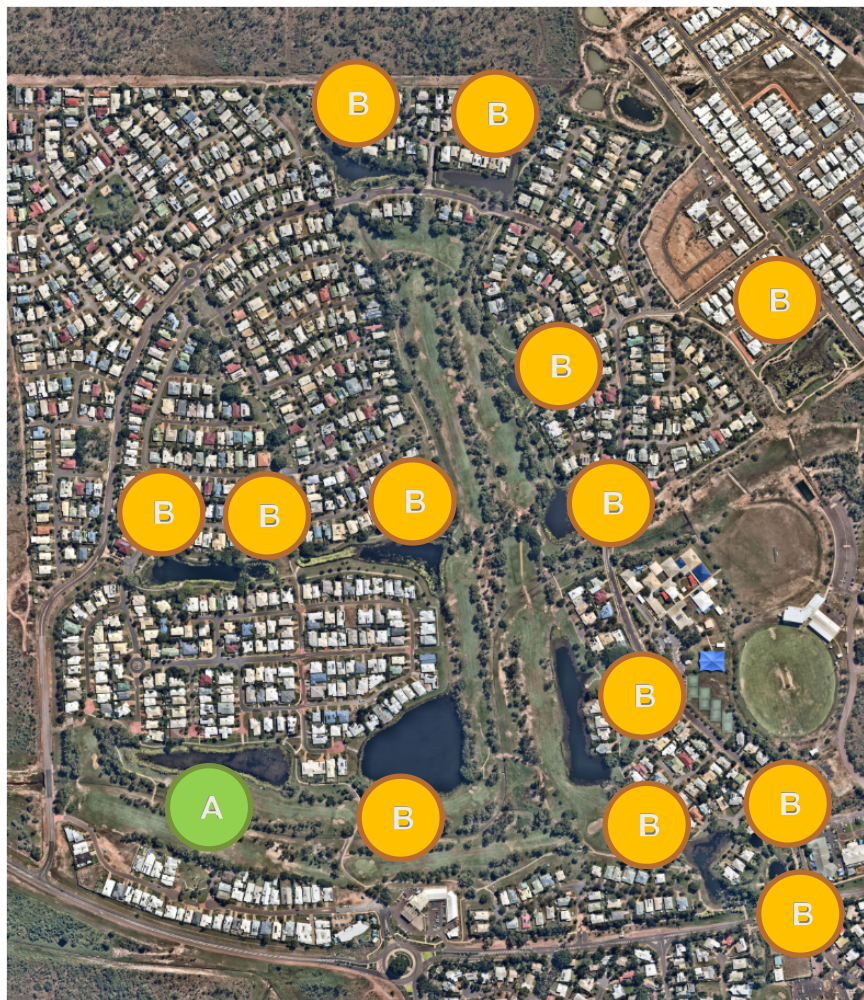
Water quality surveys were undertaken across 18 Palmerston Lakes on 14 December 2023. Monitoring is undertaken quarterly as per the Lakes Management Plan.

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

Water quality at Durack Lake 9 & Sanctuary Lake C have met the criteria to be listed as good.

High nutrient loads were recorded in Lakes 1B, 3, 5, 6, 7B, 7C, 8, 9A, 10B and Durack Heights lake.

Physical parameters at all sites were within acceptable limits.



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

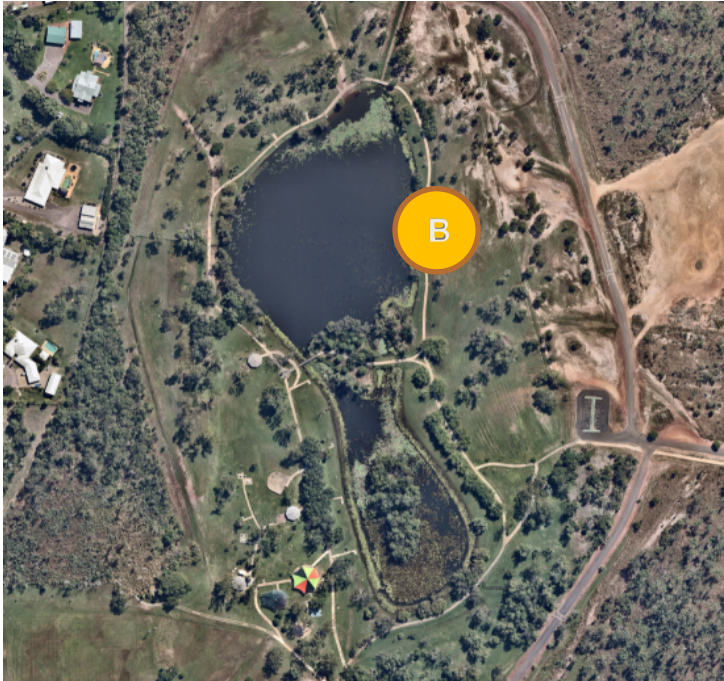


VERY POOR

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



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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.

