Palmerston Lakes Water Quality Report Card Q4 2022

AT A GLANCE

✓ Harvesting *Salvinia* has improved the water quality of lakes recently harvested

✓ Water quality has generally improved in most lakes

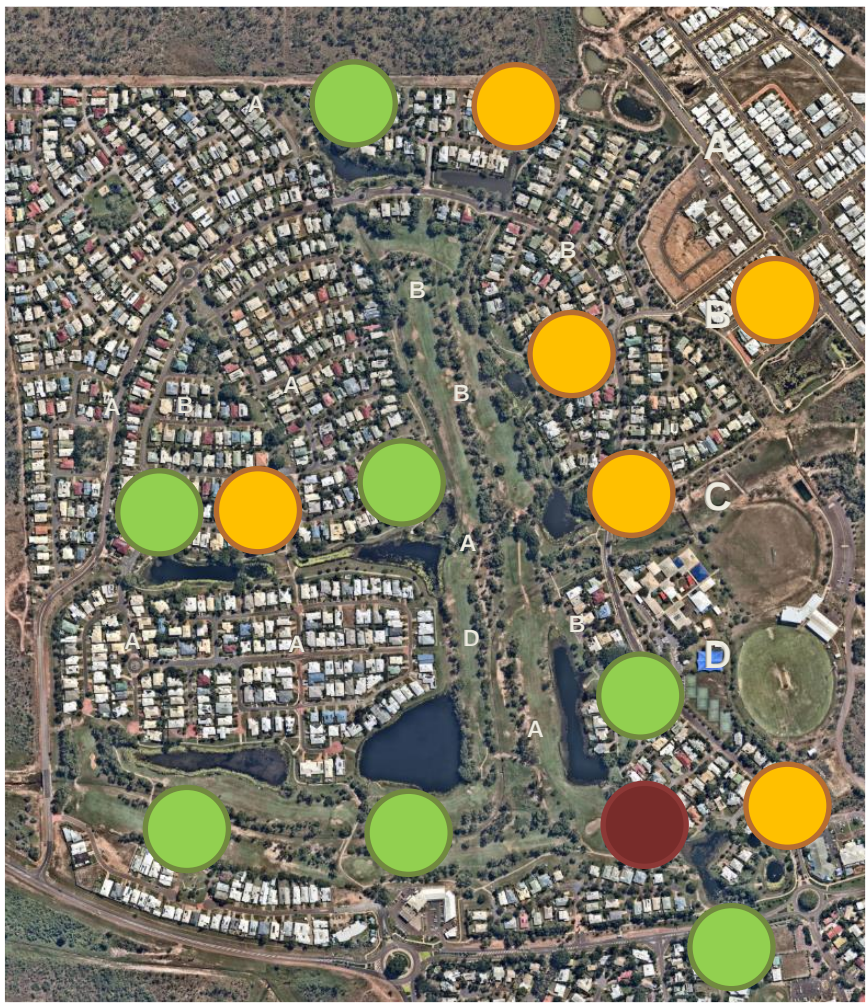
✗ rapid growth of *Salvinia* has been seen in lakes with high nutrient concentrations

Water quality surveys were undertaken across all 18 Palmerston Lakes 14 December 2022. Monitoring is undertaken quarterly as per the Lakes Management Plan.

Harvesting of *Salvinia* has improved water quality in Durack Lakes 1b, 3, 5, 7a, 7b, 10a, 10b and Sanctuary Lake B.

Water quality at Durack Lakes 1a, 4, 6, 8, 9, Marlows Lagoon, Durack Heights Lake and Sanctuary Lakes A & C has remained good.

Durack Lake 7C has recorded low oxygen, and/or relatively high nutrient concentrations and rapid *Salvinia* growth. Harvesting of *Salvinia* in the coming months is expected to improve water quality in this lake.



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 Q4 2022

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.

.