

# Palmerston Lakes

## Water Quality Report Card

### AT A GLANCE

- ✓ Harvesting *Salvinia* has improved the water quality of lakes recently harvested
- ✓ Water quality has remained good in some lakes
- ✗ rapid growth of *Salvinia* has been seen in lakes with high nutrient concentrations

Water quality surveys were undertaken across all 18 Palmerston Lakes between 4 and 7 April 2022. Monitoring is undertaken quarterly as per the Lakes Management Plan.

Harvesting of *Salvinia* has improved water quality in Durack Lakes 7b, 7c and most of the Sanctuary Lakes.

Water quality at Durack Lakes 5 and 8 has remained good.

Durack Lakes 1b, 9 and 10, and Durack Heights Lake have recorded relatively high nutrient concentrations and experienced rapid *Salvinia* growth. Water quality in these lakes has deteriorated since the last survey in January 2022.

Harvesting of *Salvinia* in the coming months is expected to significantly improve water quality; particularly in Lakes 1a, 1b, 6 and 9.



### LAKE CONDITION RATING

#### GOOD



Lake is dominated by macrophytes, had low turbidity and is well oxygenated throughout the water column during both day and night

#### FAIR



Lake is dominated by macrophytes but shows some unhealthy features such as areas of floating plants and algae. Water column is well oxygenated during both day and night.

#### POOR



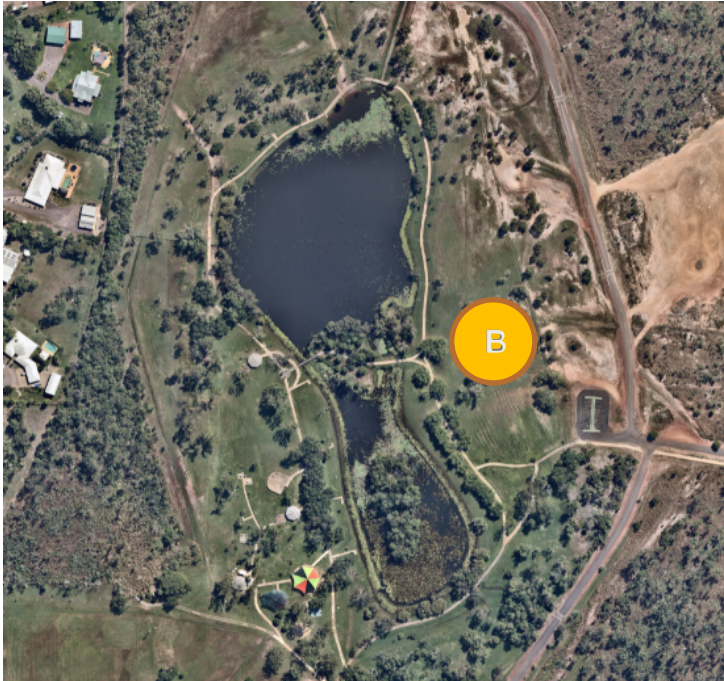
Lake is dominated by macrophytes but plant growth is throughout most of the water column and is stratified and bottom layer is anoxic, and/or there are large areas of floating plants covering the lake, and/or the lake is dominated by phytoplankton and is turbid

#### VERY POOR



Lake is dominated by floating plants and water column is low in oxygen or the lake is dominated by phytoplankton and/or cyanobacteria, is very turbid and oxygen is low throughout the water column

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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 measured throughout the water column, nutrient concentrations (nitrogen, phosphorus), total water depth, description of the type and extent of water plants present, 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.

