

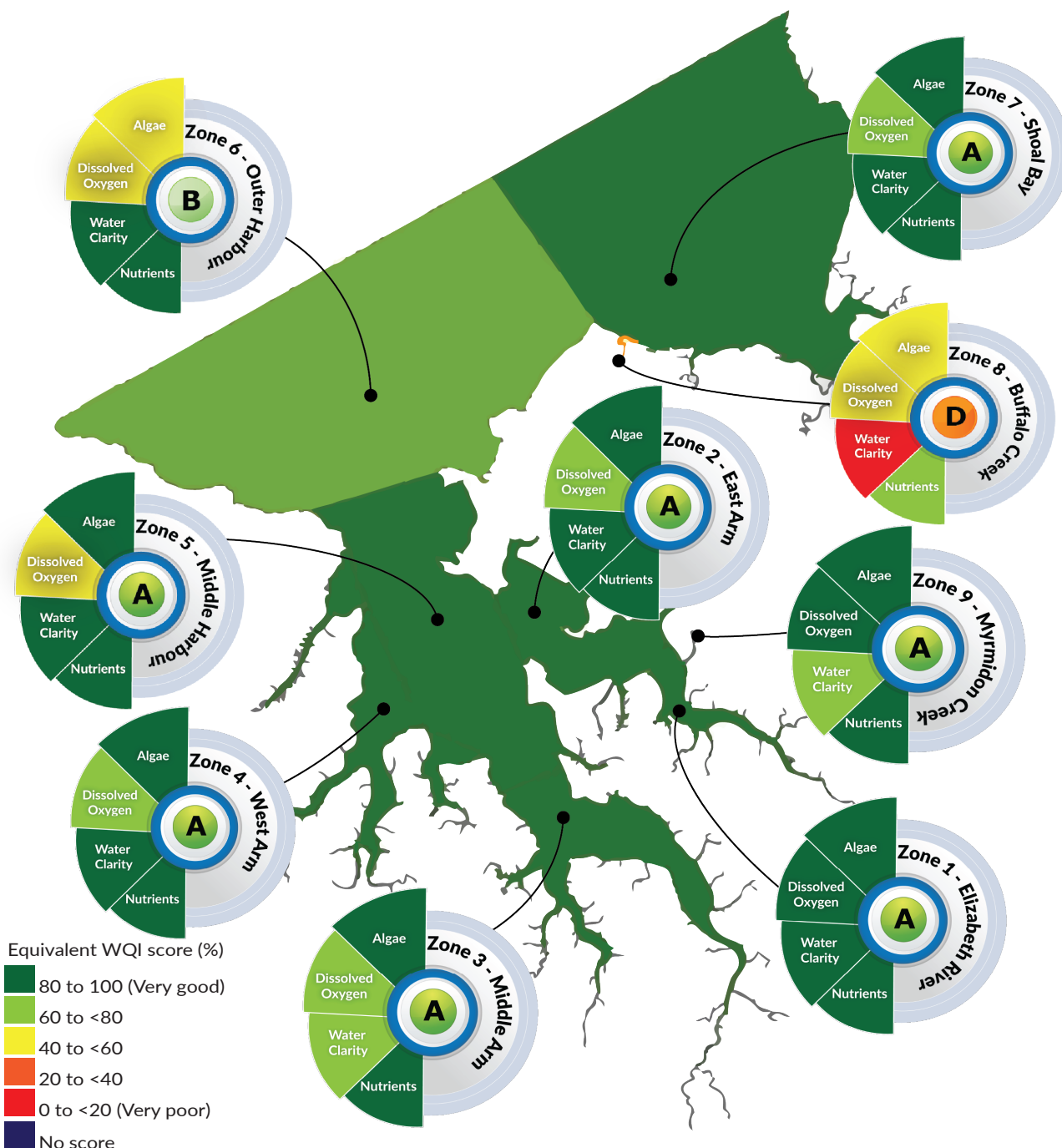
Darwin Harbour Water Quality *At a Glance*

2025



A water quality snap shot for 2025

Water quality in Darwin Harbour remains consistent with previous years with a large proportion of reporting zones continuing to have very good to good water quality. The condition of impacted systems such as Buffalo Creek continues to be poor with low water clarity, high algal biomass and low dissolved oxygen influencing scores. Myrmidon Creek, a system that has often indicated some impact of point source inputs, has shown good improvement since the last reporting period. Overall Darwin Harbour scored a 'A-' grade for 2025.



What do the scores mean?

The Water Quality Index (WQI) is a single number which can be calculated easily and used to provide an overall description of water quality. A score between 0 and 1 is calculated and can be expressed as a percentage. The WQI is calculated for each indicator (e.g. Nutrients) and respective sub indicators (Ammonia, Filterable Reactive Phosphorus and Oxides of Nitrogen) for sites and zones to inform the overall score.

Improvements in key reporting zones

Annually the water quality of the harbour is assessed against the guidelines of the Darwin Harbour Water Quality Objectives. Nine zones represent different physical environments in the harbour, which feature diverse marine life and habitats such as seagrass beds, coral reefs and mangroves. Water quality data is collected by the Flora and Fauna Division of the Department of Lands, Planning and Environment (DLPE) and was supplemented by monitoring data from Power and Water Corporation in 2025. Stakeholders work together in the region and continue to look for ways to integrate data and information to report on the health of Darwin Harbour.

Each reporting zone in the harbour was assessed in 2025 and assigned a grade against four key water quality health indicators. These are algae, water clarity, dissolved oxygen and nutrients. The grades reflect no major long-term change for reporting zones since 2012. For the reporting year of 2025 the zone of Myrmidon Creek indicated improved water quality grades. The outer harbour zone received a B grade with lower scores for algae and dissolved oxygen which was largely associated with localised discharge from the Ludmilla Wastewater Treatment Plant. Often minor departures from water quality guidelines are associated with natural variation rather than any human induced change. Wind driven turbidity in particular influences water quality during the dry season and frequently explains lower scores for water clarity.

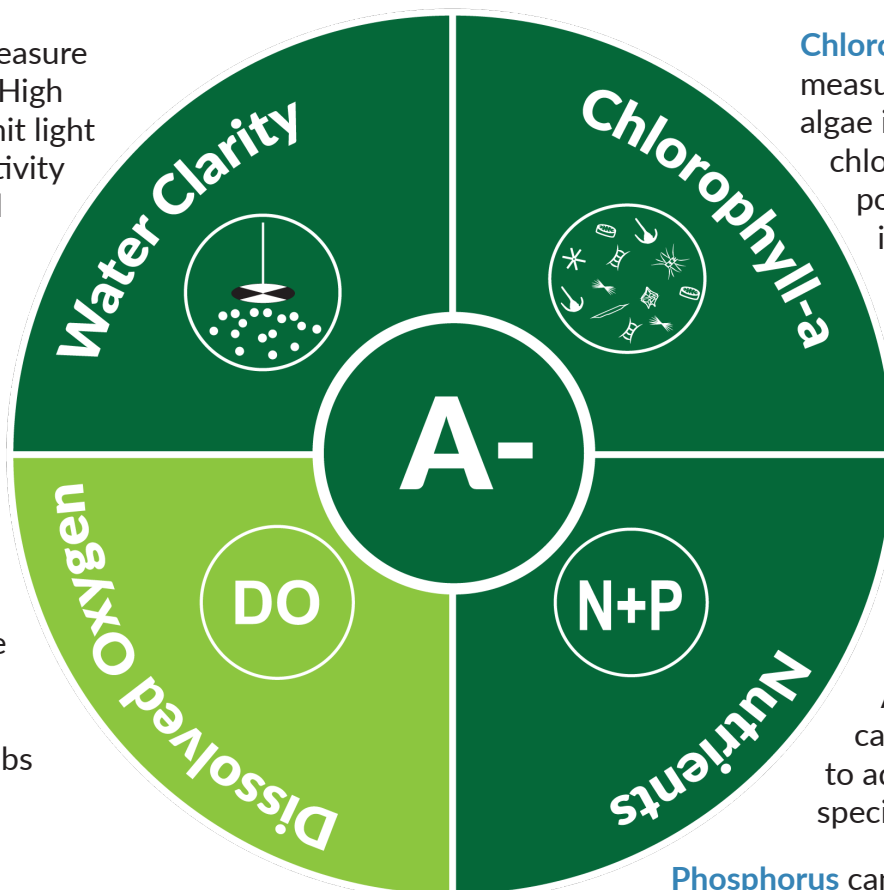
Turbidity is a measure of water clarity. High turbidity can limit light and the productivity of waters. Wind and macrotides influence the resuspension and movement of sediments.

Dissolved oxygen (DO) is essential for the survival of aquatic species such as fish, crabs and molluscs.

Chlorophyll-a is a measure of the amount of algae in the water. High chlorophyll indicates poor water quality and is usually associated with bloom events.

Nitrogen is often a limiting factor in plant growth, but an excess can cause algal blooms. Ammonia (NH₃) can become toxic to aquatic biota under specific conditions.

Phosphorus can limit plant growth if there is not enough in the system, or it can cause algal blooms when in excess.



Reporting zone trends

Zone	1	2	3	4	5	6	7	8	9
	Elizabeth Estuary	East Arm	Middle Arm	West Arm	Middle Harbour	Outer Harbour	Shoal Bay	Buffalo Creek	Myrmidon Creek
2025 Grade	A	A	A	A	A	B	A	D	A
Change since 2024	→	→	↗	→	→	→	↗	→	↗
Long term trend*	→	→	→	→	→	→	→	→	→

*Long-term trend since 2012 reporting year

Symbols indicate change since last reporting period and long-term grade trend.



Increase



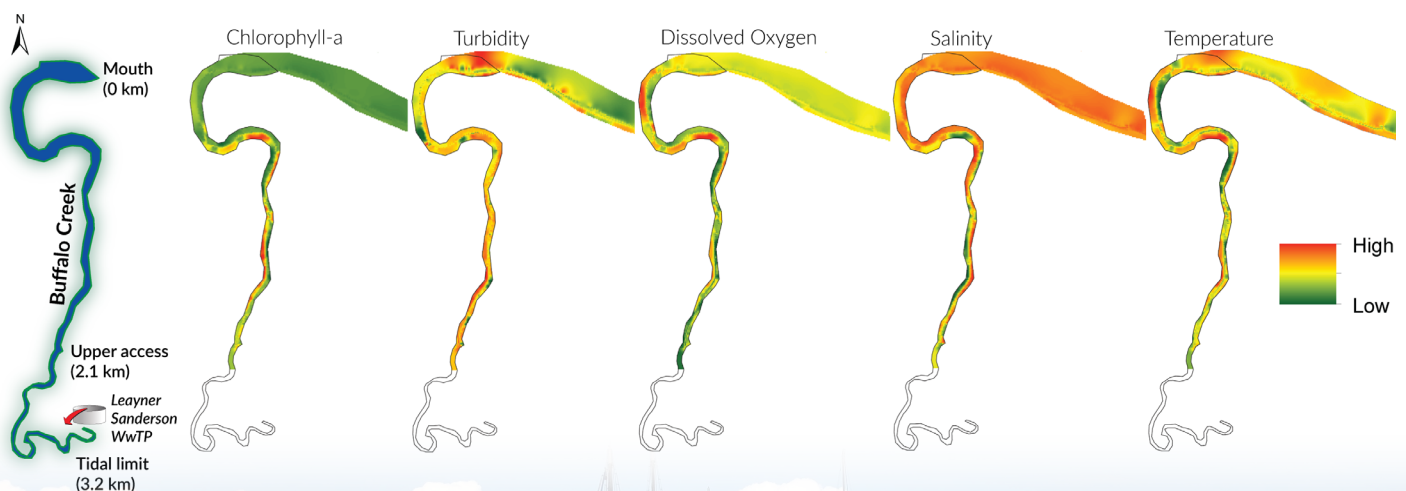
Decrease



No change

Shifting sands of Buffalo Creek

The Darwin Harbour Water Quality Monitoring Program monitors the health of tidal creeks in Darwin Harbour. Buffalo Creek, in the Shoal Bay region has continued to indicate poor water quality. A licenced wastewater discharge in the upper reach of this system combined with poor flushing continue to constrain improvements to water quality. The creek mouth is often subject to changes in flow with successive wet seasons which modify sand bars at its entrance. Sand accretion and erosion often change the entry to Buffalo Creek. Mapped water quality parameters below show areas of high algal biomass (chlorophyll-a), turbidity and dissolved oxygen in pockets of the creek. These conditions often change with tide on a daily basis and with season.



The full summary of data collected in 2025 can be found at:
<https://environment.nt.gov.au/water/darwin-harbour/darwin-harbour-region-report-cards>