Darwin-Palmerston and Estuary

Summary

Water quality at the Darwin-Palmerston upper estuary monitoring sites is in excellent condition. Water quality at the Myrmidon Creek estuary monitoring site is in poor condition. Many water quality indicators at the Myrmidon Creek estuary monitoring site do not comply with water quality objectives. The water-bug community at the biological monitoring sites is assessed as equivalent to reference at one site and significantly impaired at the second site.

Nature of system

- Long residence time and poor flushing in the tidal creeks
- Light limitation during the wet season
- A large proportion of the catchment has been urbanised

Sources of pollution

- Several sewage treatment plants with wastewater discharge from Darwin at Bleesers Creek and Palmerston at Myrmidon Creek
- High sediment, nutrient, industrial and other human-related pollutant loads during the wet season

Mitchell Creek is the natural drainage system for the Palmerston escarpment, and residential suburbs in the east of the City of Palmerston.

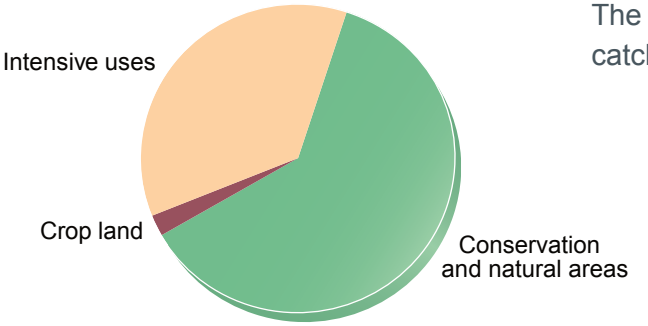
It is the only creek system in Palmerston with residential development, such as the proposed suburb of Johnston.

The Northern Territory Government has monitored water quality and water-bugs in Mitchell Creek since 2001.

Photo: Gisela Lamche

Darwin-Palmerston area catchment showing rivers and monitoring sites

Land use in the catchment



Catchment disturbance index

The CDI for the Darwin-Palmerston catchment is 0.74.

Water quality issues in the catchment

'Water sensitive urban design' (WSUD) features that are being planned in Johnston and Bellamack will help improve stormwater quality draining from new urban areas to Mitchell Creek.

Increased population and housing can contribute to increased pollutant loads to waterways.

Darwin City Council has installed raingardens to treat road runoff from Mitchell St. Water flows into the street raingarden and slowly filters through the soil. Photo: Equatica.

Darwin-Palmerston catchment ambient freshwater water quality

Indicator and units	Water quality objective	Current condition	Number of samples	Compliance
Electrical conductivity (µS/cm)	<200	83	5	✓
Turbidity (NTU)	<20	8.1	5	✓
pH	6.0–7.5	6.3–7.0	5	✓
Dissolved oxygen (%)	50–100	58–78	5	✓
Total suspended solids (mg/L)	<5	NA	NA	
Chlorophyll a (µg/L)	<2	<1	4	✓
NOx (µg N/L)	<8	2	4	✓
Ammonia (µg N/L)	NA	8	4	
Total nitrogen (µg N/L)	<230	125	4	✓
Total phosphorus (µg P/L)	<10	8	4	✓
Filterable reactive phosphorus (µg P/L)	<5	2	4	✓

Period sampled for current condition is 2009. NA Not available

Biological health using the AUSRIVAS score

Site	2003	2009	Change
DW23	B	A	Change
DW41	B	B	No change

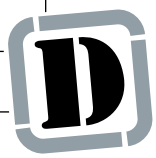
Darwin-Palmerston area marine ambient water quality

Indicator and units	Water quality objective	Current condition	Number of samples	Compliance
Electrical conductivity (µS/cm)	NA	52500	30	
Turbidity (NTU)	NA	6.2	30	
pH	6–8.5	7.7–8.0	30	✓
Dissolved oxygen (%)	80–100	58–71	30	*
Total suspended solids (mg/L)	<10	24	30	*
Chlorophyll a (µg/L)	<4	2	30	✓
NOx (µg N/L)	<20	2	30	✓
Ammonia (µg N/L)	<20	8	30	✓
Total nitrogen (µg N/L)	<300	245	30	✓
Total phosphorus (µg P/L)	<30	13	30	✓
Filterable reactive phosphorus (µg P/L)	<10	3	30	✓

Period sampled for current condition is Sep 2008 to Dec 2009. NA Not available. * WQO currently under revision

Myrmidon Creek marine ambient water quality

Indicator and units	Water quality objective	Current condition	Number of samples	Compliance
Electrical conductivity (µS/cm)	NA	53100	6	
Turbidity (NTU)	NA	5.4	6	
pH	6–8.5	7.8–7.9	6	✓
Dissolved oxygen (%)	80–100	58–71	6	*
Total suspended solids (mg/L)	<10	14	6	*
Chlorophyll a (µg/L)	<4	4.3	6	✗
NOx (µg N/L)	<20	11	6	✓
Ammonia (µg N/L)	<20	21	6	✗
Total nitrogen (µg N/L)	<300	350	6	✗
Total phosphorus (µg P/L)	<30	25	6	✓
Filterable reactive phosphorus (µg P/L)	<10	19	6	✗



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Indo-Pacific humpback dolphins (*Sousa chinensis*) are residents of Darwin Harbour and estuaries – important areas for foraging, calving and raising young. Indo-Pacific humpback dolphins can be identified by their distinctive triangular dorsal fin, and long slender nose. The dorsal fin usually has distinctive pink to white pigmentation. This dolphin surfaces with a characteristic roll. The dolphin is vulnerable to habitat degradation, boat strikes, pollution and increased shipping traffic. The Coastal Dolphin Research Project is undertaking research on this species in Darwin Harbour. Further information on identifying dolphins in Darwin Harbour and the Northern Territory, and the project can be found at http://www.nt.gov.au/nreta/wildlife/programs/dolphin/index.html Photo: Catherine Orme