Blackmore River and Estuary

Summary

Water quality at the upper estuary monitoring sites is in very good condition. Water quality at the freshwater monitoring sites is in good condition. The water-bug community at six out of seven biological monitoring sites is equivalent to reference condition.

Nature of system

- Long residence time and poor flushing in the upper estuary
- Light limitation during the wet season
- Minor freshwater flows are maintained by Darwin River Dam during the dry season
- Minor freshwater flows are maintained by natural groundwater sources from Berry Creek during the dry season
- Phytoplankton biodiversity typically greater in dry season

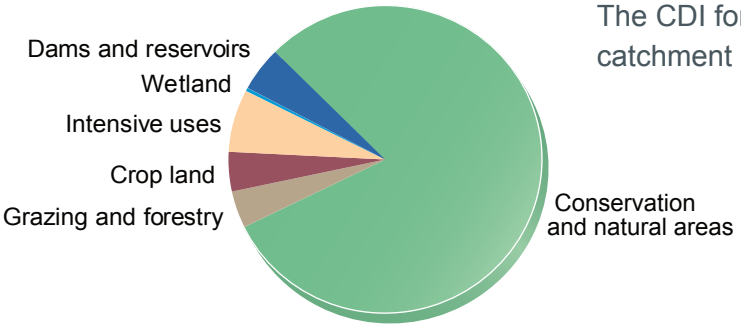
Sources of pollution

- Several licensed aquaculture operations are located in the catchment and discharge into the Blackmore estuary
- High sediment and nutrient loads during the wet season from diffuse sources

Darwin River Dam was constructed in 1972 and is designed to supply 200,000 people. Photo: John Drewry

Blackmore River catchment showing rivers and monitoring sites

Land use in the catchment



Catchment disturbance index

The CDI for the Blackmore River catchment is 0.91.

Water quality issues in the catchment

Cabomba is a declared weed in the NT but is present in Darwin River. The Northern Territory Government has an eradication program in place.

Darwin River Dam is the main drinking water supply for Darwin and surrounding area. Darwin people use up to three times more water per capita than in other Australian capital cities.

Horticulture is an important industry but can be a source of pollutants such as nutrients and pesticides to waterways.

Aerial view of an aquaculture operation in the Blackmore River catchment. Barramundi (*Lates calcarifer*), is a common aquaculture fish in the region. Photo: Jeremy Freeman

Blackmore River catchment ambient freshwater quality

Indicator and units	Water quality objective	Current condition	Number of samples	Compliance
Electrical conductivity (µS/cm)	<200	69	9	✓
Turbidity (NTU)	<20	5.4	10	✓
pH	6.0–7.5	6.2–6.7	10	✓
Dissolved oxygen (%)	50–100	48–66	9	✗
Total suspended solids (mg/L)	<5	NA	NA	
Chlorophyll a (µg/L)	<2	2	10	✓
NOx (µg N/L)	<8	6	10	✓
Ammonia (µg N/L)	NA	21	10	
Total nitrogen (µg N/L)	<230	235	10	✗
Total phosphorus (µg P/L)	<10	15	10	✗
Filterable reactive phosphorus (µg P/L)	<5	4	10	✓

Period sampled for current condition is 2009. NA Not available

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Biological health using the AUSRIVAS score

Site	2003	2009	Change
DW31	X	A	Change
DW36	B	A	Change
DW37	A	A	No change
DW46	A	A	No change
DW47	A	B	Change
DW73		A	
DW75		A	

Blackmore estuary marine ambient water quality

Indicator and units	Water quality objective	Current condition	Number of samples	Compliance
Electrical conductivity (µS/cm)	NA	52700	59	
Turbidity (NTU)	NA	7	59	
pH	6–8.5	7.5–7.9	59	✓
Dissolved oxygen (%)	80–100	52–69	40	*
Total suspended solids (mg/L)	<10	19	59	*
Chlorophyll a (µg/L)	<4	2.5	59	✓
NOx (µg N/L)	<20	3	58	✓
Ammonia (µg N/L)	<20	9	55	✓
Total nitrogen (µg N/L)	<300	310	59	✗
Total phosphorus (µg P/L)	<30	15	59	✓
Filterable reactive phosphorus (µg P/L)	<10	8	58	✓

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

Other monitoring

Cabomba

Cabomba caroliniana (cabomba) is a submerged aquatic plant native to South America. Cabomba is declared as a Class A weed (to be eradicated) and Class C weed (not to be introduced to the NT). Typical impacts of cabomba include significant reductions in biodiversity and a reduction in water quality. Cabomba was reported at Darwin River in 2004 within an 11 km stretch of the river. The Northern Territory Government has an eradication program in place.

The eradication program has reduced and contained the cabomba population to less than 1% of the level found in 2004. The program has prevented the re-establishment of infestations, production of flowers and seeds at all sites and also further spread and establishment. A monitoring program monitors water quality and macroinvertebrates. No off-target impacts within the project area or at downstream monitoring sites have been detected.

In the eradication program, herbicide is mixed with diatomaceous earth and applied directly onto submerged plants to minimise herbicide use and risk of off-target impacts.