

ESTUARY ASSESSMENT FRAMEWORK FOR NON-PRISTINE ESTUARIES

Estuary 834 (BUNGA LAGOON)

Estuary ID 834

Name BUNGA LAGOON

Location

Latitude / Longitude -36.5 150.1 **Datum** GDA94

Condition Assessment This estuary is in largely unmodified condition

Initial Classification In the first stage of this condition assessment this estuary was classified as being largely unmodified.

Basis of Initial Classification This was based on the changes to the land use: rural residential.

Processed-Based Classification



The way Bunga Lagoon functions is primarily a result of wave energy. It is a wave-dominated estuary. This means that the estuary would have high sediment trapping efficiency; naturally low turbidity, salt wedge/partially mixed circulation and there is high risk of sedimentation.

Issues:

General Comments / Notes:

Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
STATE COMPONENT (OVERALL)	2	C	
ECOSYSTEM INTEGRITY INDEX		D	
Eutrophication			
Chlorophyll a (µg/L) [median(80th)] HEAD			

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Chlorophyll a ($\mu\text{g/L}$) [median(80th)] MIDDLE

Chlorophyll a ($\mu\text{g/L}$) [median(80th)] MOUTH

Chlorophyll a ($\mu\text{g/L}$) [median(80th)] AVERAGE

Harmful algal blooms

Turbidity [median(80th)]

Turbidity (NTU or secchi depth) HEAD

Turbidity (NTU or secchi depth) MIDDLE

Turbidity (NTU or secchi depth) MOUTH

Turbidity (NTU or secchi depth) AVERAGE

Shellfish closures

Fish/bird kills

Pathogens

Faecal coliforms (no/100mL) [median(80th)] HEAD

Faecal coliforms (no/100mL) [median(80th)] MIDDLE

Faecal coliforms (no/100mL) [median(80th)] MOUTH

Faecal coliforms (no/100mL) [median(80th)] AVERAGE

Critical habitat loss

Anoxic and hypoxic events

Invasive species

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HABITAT CONDITION INDEX	Bunga Lagoon was mapped in 2000 and the following facies areas were calculated: Central Basin 0.1 sq.km; Fluvial-bayhead delta 0.1 sq.km; Total facies area 0.4 sq.km. The following habitat deviations from expected were identified -2; no mangrove/no saltmarsh or saltflats.		D	2
Seagrass species present				
Seagrass coverage	Estuary area: 0.09km ² , seagrass area: 0km ² (0.0%)			1
Mangrove species present				
Mangrove coverage	Estuary area: 0.09km ² , mangrove area: 0km ² (0.0%)			1
Saltmarsh coverage	Estuary area: 0.09km ² , saltmarsh area: 0.02km ² (19%)			1
Wetland coverage				

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
FISH CONDITION INDEX			D	
Diversity				
Abundance				
Health				
Recruitment				

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
WATER QUALITY INDEX			D	
Nutrients [median(80th)]				
Dissolved oxygen [median(20th)]				

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Dissolved oxygen [surface] (%sat or mg/L) HEAD
 Dissolved oxygen [surface] (%sat or mg/L) MIDDLE
 Dissolved oxygen [surface] (%sat or mg/L) MOUTH
 Dissolved oxygen [surface] (%sat or mg/L) AVERAGE
 Dissolved oxygen [bottom] (%sat or mg/L) HEAD
 Dissolved oxygen [bottom] (%sat or mg/L) MIDDLE
 Dissolved oxygen [bottom] (%sat or mg/L) MOUTH
 Dissolved oxygen [bottom] (%sat or mg/L) AVERAGE
 pH
 Heavy metals
 Are heavy metals a problem in this estuary (Y/N)?
 Other toxicants (including pesticides)
 Salinity
 Temperature
 Depth

Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
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SEDIMENT QUALITY INDEX		D	
Sediment toxicants			
Sediment load TN			
Sediment load TP			
Invertebrate diversity			
Invertebrate abundance			

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PRESSURE COMPONENT (OVERALL)			D	
UTILISATION INDEX	1995 BRS data: Crop/pasture & Plantations comprise 14.8638 % of the catchment. Native woody vegetation comprises 78.3977 % of the catchment.		D	4
Recreation Pressure				
Aesthetic & Amenity				
Yachting & Boating				
Shellfish				
Swimming				
Recreational Fishing				
Infrastructure Pressure				
Sewage Treatment Plants				
Urbanisation and urban runoff	Catchment area: 12km ² , urban area: 0km ² (0.0%)			1
Dredging				
Commercial Pressure	No commercial activities in this estuary			3
Industry				
Aquaculture				
Reclamation / Declamation				
Commercial fishing				
Tourism				
Agriculture	Rural area 1.32km ² (11.4% of catchment area)			1
Habitat clearing				

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Ports & Port Works

Shipping Activity

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
SUSCEPTIBILITY INDEX			D	
Flow-modifying structures				
Catchment loads				
Flows and flushing	Entrance intermittently open; untrained			3
Acid sulphate soils	ASS surveyed; not identified as a problem			1

RESPONSE COMPONENT (OVERALL)

Institutional Arrangements

Management Actions

Community Initiatives

Details of References

Key Contacts

1. NSW state data, 2. AGSO, 3. DLWC website, 4. Derived from BRS landcover data