

**ESTUARY ASSESSMENT FRAMEWORK FOR NON-PRISTINE ESTUARIES**

**Estuary 408 (ALLIGATOR CREEK)**

**Estuary ID** 408

**Name** ALLIGATOR CREEK

**Location**

**Latitude / Longitude** 0 0 **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 land use: agriculture.

**Processed-Based Classification**



The way Alligator Creek function is primarily a result of river energy. It is a tide-dominated delta. This means that the estuary would have low sediment trapping efficiency; naturally high turbidity, well mixed circulation and there is a low risk of habitat loss due to sedimentation.

**Issues:**

**General Comments / Notes:**

<u>Notes, Data and Supporting Qualitative Text</u>	<b>Rating (1-4)</b>	<b>Data Confidence</b>	<b>References</b>
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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	<b>Notes, Data and Supporting Qualitative Text</b>	<b>Rating (1-4)</b>	<b>Data Confidence</b>	<b>References</b>	
<b>HABITAT CONDITION INDEX</b>	Alligator Creek was mapped in 2000 and the following facies areas were calculated: Flood and ebb tidal delta 2.3 sq.km; Intertidal flats 0.4 sq.km; Mangroves 4.9 sq.km; Saltmarsh/Saltflats 5.0 sq.km; Total facies area 12.6 sq.km. The following habitat deviations from expected were identified -1; no tidal sand banks.		D	2	
Seagrass species present					
Seagrass coverage					
Mangrove species present					
Mangrove coverage		0.39			2
Saltmarsh coverage		0.399			2
Wetland coverage					

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

	<b>Notes, Data and Supporting Qualitative Text</b>	<b>Rating (1-4)</b>	<b>Data Confidence</b>	<b>References</b>
<b>WATER QUALITY INDEX</b>			D	
Nutrients [median(80th)]				

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Dissolved oxygen [median(20th)]  
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**

**SEDIMENT QUALITY INDEX**

Sediment toxicants  
Sediment load TN  
Sediment load TP  
Invertebrate diversity  
Invertebrate abundance

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	<b>Notes, Data and Supporting Qualitative Text</b>	<b>Rating (1-4)</b>	<b>Data Confidence</b>	<b>References</b>
PRESSURE COMPONENT (OVERALL)			D	
UTILISATION INDEX	1995 BRS data: Crop/pasture & Plantations comprise 12.8728 % of the catchment. Native woody vegetation comprises 65.4939 % of the catchment.		D	5
Recreation Pressure				
Aesthetic & Amenity				
Yachting & Boating				
Shellfish				
Swimming				
Recreational Fishing	Medium pressure - adjacent fisherman's retreat			3
Infrastructure Pressure				
Sewage Treatment Plants				
Urbanisation and urban runoff	Rural residential adjacent			3
Dredging				
Commercial Pressure				
Industry	Industrial meat works (historical)			3
Aquaculture				
Reclamation / Declamation				
Commercial fishing	Gill net fishery; A maximum of <5 boats fished Alligator Creek + Crocodile Creek in 1999. Commercial fishing effort (days fished) by method comprised line (0), net (41), pot (11), trawl (0), not stated (2).			3
Tourism				

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Agriculture	Horticulture and agriculture	3
Habitat clearing		
Ports & Port Works	Absent - used to be a port	3
Shipping Activity		

Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
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**SUSCEPTIBILITY INDEX**

D

- Flow-modifying structures
- Catchment loads
- Flows and flushing
- Acid sulphate soils

**RESPONSE COMPONENT (OVERALL)**

Institutional Arrangements	Upper part of catchment Cape Bowling Green Bay National Park
Management Actions	
Community Initiatives	
Details of References	1. QLD state data, 2. AGSO, 3. Expert opinion through state workshop, 4. Derived from BRS landcover data
Key Contacts	