

ESTUARY ASSESSMENT FRAMEWORK FOR NON-PRISTINE ESTUARIES

Estuary 360 (ANNAN RIVER)

Estuary ID 360

Name ANNAN RIVER

Location

Latitude / Longitude -15.53 145.271 **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 catchment hydrology: weir.

Processed-Based Classification



The way Annan River function is primarily a result of river energy. It is a wave-dominated delta. This means that the estuary would have low sediment trapping efficiency; naturally low turbidity, salt wedge/ partially mixed circulation and there is a low risk of habitat loss due to 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	1.0 (1.9)		A	1

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Harmful algal blooms				
Turbidity [median(80th)]				
Turbidity (NTU or secchi depth) HEAD	Secchi depth 1.1 (0.9) m		A	1
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				

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
HABITAT CONDITION INDEX	Annan River was mapped in 2000 and the following facies areas were calculated: Flood and ebb tidal delta 1.7 sq.km; Intertidal flats 0.1 sq.km; Mangroves 4.5 sq.km; Saltmarsh/Saltflats 1.8 sq.km; Tidal sand banks 0.8 sq.km; Total facies area 9.4 sq.km.		D	2

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Seagrass species present	The following habitat deviations from expected were identified - 1 / +1; no fluvial-bayhead delta/contains tidal sand banks. Recorded - Present in the estuary but distribution and abundance are unknown. Collected by surveyors and anecdotal evidence from fishermen)			1
Seagrass coverage				
Mangrove species present				
Mangrove coverage	0.482		A	2
Saltmarsh coverage	0.196		A	2
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)]				
Dissolved oxygen [surface] (%sat or mg/L) HEAD	86 (67)		A	1
Dissolved oxygen [surface] (%sat or mg/L) MIDDLE				
Dissolved oxygen [surface] (%sat or mg/L) MOUTH				

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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)?

Salinity

Temperature

Depth

Ammonia (µg/L) HEAD	8 (14)	A	1
Oxidised nitrogen (µg/L) HEAD	4 (9)	A	1
Phosphate (µg/L) HEAD	3 (4)	A	1

Notes, Data and Supporting Qualitative Text

Rating (1-4) Data Confidence References

SEDIMENT QUALITY INDEX

D

Sediment toxicants

Sediment load TN

Sediment load TP

Invertebrate diversity

Invertebrate abundance

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PRESSURE COMPONENT (OVERALL)				
UTILISATION INDEX	1995 BRS data: Crop/pasture & Plantations comprise 2.42279 % of the catchment. Native woody vegetation comprises 97.0023 % of the catchment.		D	3
Recreation Pressure				
Aesthetic & Amenity				
Yachting & Boating				
Shellfish				
Swimming				
Recreational Fishing				
Infrastructure Pressure				
Sewage Treatment Plants				
Urbanisation and urban runoff				
Dredging				
Commercial Pressure				
Industry				
Aquaculture	Present: Growout (black tiger prawn); Pearl Oysters (pearl oysters: black lip, gem, gold lip)			1
Reclamation / Declamation				
Commercial fishing	A maximum of <5 boats fished Annan River in 1999. Commercial fishing effort (days fished) by method comprised line (0), net (6), pot (2), trawl (0), not stated (1).			1
Tourism				

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Agriculture
 Habitat clearing
 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
 Acid sulphate soils

RESPONSE COMPONENT (OVERALL)

Institutional Arrangements
 Management Actions
 Community Initiatives
 Details of References
 Key Contacts

1. QLD state data, 2. AGSO, 3. Derived from BRS landcover data