

ESTUARY ASSESSMENT FRAMEWORK FOR NON-PRISTINE ESTUARIES

Estuary 920 (ANGLESEA RIVER)

Estuary ID 920

Name ANGLESEA RIVER

Location

Latitude / Longitude -38.413 144.191 **Datum** GDA94

Condition Assessment This estuary is in modified condition

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

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

Processed-Based Classification



The way Anglesea 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)	3	A	
ECOSYSTEM INTEGRITY INDEX		D	
Eutrophication			
Chlorophyll a (µg/L) [median(80th)] HEAD			

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Chlorophyll a (µg/L) [median(80th)] MIDDLE			
Chlorophyll a (µg/L) [median(80th)] MOUTH			
Chlorophyll a (µg/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	Secchi depth 1.54m [underestimate - many '>x' values]		1
Shellfish closures			
Fish/bird kills	0.3 wks/year - species affected <i>Anguilla australis</i> , <i>Aldrichetta forsteri</i> ; no bird kills	2	1
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				
	Anglesea River was mapped in 2001 and the following facies areas were calculated: Intertidal flats 0.2 sq.km; Total facies area 0.2 sq.km. The following habitat deviations from expected were identified -3; No fluvial-bayhead delta, mangrove, saltmarsh or saltflats.		D	2
Seagrass species present	Zostera muelleri, Ruppia megacarpa			1
Seagrass coverage	Estuary area 0.16 km ² ; seagrass area 0.016 km ²			1
Mangrove species present				
Mangrove coverage	0			2
Saltmarsh coverage				2
Wetland coverage	Estuary area 0.16 km ² ; macrophyte area 0.08 km ²			1
FISH CONDITION INDEX				
			D	
Diversity	Fish species present: Yellow Eyed Mullet, Tupong, Silver Trevally, Short-finned Eel, Mulloway, Australian Salmon, Common Galaxias, Brown Trout, Black Bream, Bridled Goby, Sea Mullet			1
Abundance				
Health				
Recruitment				
WATER QUALITY INDEX				
			D	

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Nutrients [median(80th)]					
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	6.83 (6.80) mg/L; 86.5 (68.5) % saturation	3	A	1	
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	Upstream [EM32162-SP2] 4.2 +/- 1.2, Coal Mine Road [EM32162-SP6] 5.9 +/- 1.1, Downstream [opposite 82 Bingley Pde] 6.5 +/- 1.0; Ashpond effluent [EM32162-SP1] 7.5 +/- 1.6		A	1	
Heavy metals					
Are heavy metals a problem in this estuary (Y/N)?					
Other toxicants (including pesticides)					
Salinity					
Temperature	Surface salinity: median 8.6 (20th percentile 5.3, 80th percentile 24.6)		A	1	
Depth	Range 9.8 (Winter min) to 26.7 (Summer max)		A	1	
Ammonia (µg/L) AVERAGE	Total N 0.275 (0.296) [mg/L]		A	1	
Heavy metals list	Studied				1
Oxidised nitrogen (µg/L) AVERAGE	0.0575 (0.058) [mg/L]		A	1	
Phosphate (µg/L) AVERAGE	Total P 0.0095 (0.014) [mg/L]		A	1	

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SEDIMENT QUALITY INDEX			D	
Sediment toxicants				
Sediment load TN				
Sediment load TP				
Invertebrate diversity				
Invertebrate abundance				

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
PRESSURE COMPONENT (OVERALL)		3	A	
UTILISATION INDEX	Current clearing. 1995 BRS data: Crop/pasture & Plantations comprise 1.67438 % of the catchment. Native woody vegetation comprises 76.3698 % of the catchment.		D	3
Recreation Pressure				
Aesthetic & Amenity	Present			1
Yachting & Boating	No yacht marinas			1
Shellfish	Present			1
Swimming	Present			1
Recreational Fishing	Present - shore based line fishing; 1 boat ramp			1
Infrastructure Pressure				
Sewage Treatment Plants	None			1
Urbanisation and urban runoff	Present - Anglesea township			1
Dredging	Present - mouth opening			1

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Commercial Pressure		
Industry	Anglesea power station. - thermal pollution	1
Aquaculture	Absent	1
Reclamation / Declamation	Area infill 0.03; Canal estates 0.02 [note - units of m2, presumably should be km2?]	1
Commercial fishing	Absent	1
Tourism	Present	1
Agriculture	Absent	1
Habitat clearing		
Ports & Port Works	Absent	1
Shipping Activity	Absent	1

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
SUSCEPTIBILITY INDEX	Freshwater inflow 4.9 ML/day		D	1
Flow-modifying structures	5 flow-modifying structures: groynes near mouth, buried wall across mouth, infilled tidal flats with seawalls			1
Catchment loads				
Flows and flushing				
Acid sulphate soils				

RESPONSE COMPONENT (OVERALL)		
Institutional Arrangements	No habitat-protected areas	
Management Actions	Coastal recreation zone	
Community Initiatives		

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Details of References

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

Key Contacts