

ESTUARY ASSESSMENT FRAMEWORK FOR NON-PRISTINE ESTUARIES

Estuary 629 (AIRE RIVER)

Estuary ID 629

Name AIRE RIVER

Location

Latitude / Longitude -38.807 143.461 **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: forestry.

Processed-Based Classification



The way Aire River 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)	3	B	
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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	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References	
HABITAT CONDITION INDEX			D	2	
Seagrass species present	Aire River was mapped in 2001 and the following facies areas were calculated: Central Basin 0.7 sq.km; Fluvial-bayhead delta 0.3 sq.km; Intertidal flats 0.2 sq.km; Saltmarsh/Saltflats 1.2 sq.km; Total facies area 2.4 sq.km. The following habitat deviations from expected were identified -2; No flood and ebb tidal delta, mangrove.				
Seagrass coverage					
Mangrove species present					
Mangrove coverage					2
Saltmarsh coverage		0.51			2
Wetland coverage					

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
FISH CONDITION INDEX			D	
Diversity	Fish species present: Tupong, Estuary Perch, Common Galaxias, Black Bream, Australian Smelt, Brown Trout, Flat-headed Gudgeon, Yellow Eyed Mullet, Short-finned Eel, Tamar River Goby			
Abundance				
Health				
Recruitment				

	Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
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WATER QUALITY INDEX		D		
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	9.92 (9.698) [mg/L]		1	A
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	4.35 (3.414)			
pH				
Heavy metals				
Are heavy metals a problem in this estuary (Y/N)?				
Other toxicants (including pesticides)				
Salinity	Surface salinity 1.235 (median), 0.554 (P20), 1.916 (P80); bottom salinity 15.07 (median), 6.088 (P20), 24.052 (P80)			
Temperature				
Depth				
Oxidised nitrogen (µg/L) AVERAGE	0.340 (0.466) [mg/L]		A	1
Phosphate (µg/L) AVERAGE	0.028 (0.0298) [Total P, mg/L]			
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SEDIMENT QUALITY INDEX			D	

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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)			D	
UTILISATION INDEX	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	High amenity			
Yachting & Boating	small boats and canoes			
Shellfish	Present			
Swimming	popular			
Recreational Fishing	Present			
Infrastructure Pressure				
Sewage Treatment Plants	Absent			
Urbanisation and urban runoff	Absent			
Dredging	present - mouth opening			
Commercial Pressure				
Industry	Absent			
Aquaculture	Absent			

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Reclamation / Declamation	Absent
Commercial fishing	No commercial fishing
Tourism	Present
Agriculture	Present
Habitat clearing	
Ports & Port Works	Absent
Shipping Activity	Absent

Notes, Data and Supporting Qualitative Text	Rating (1-4)	Data Confidence	References
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SUSCEPTIBILITY INDEX		D	
Flow-modifying structures	absent		
Catchment loads			
Flows and flushing			
Acid sulphate soils			

RESPONSE COMPONENT (OVERALL)			
Institutional Arrangements			
Management Actions			
Community Initiatives			
Details of References	1. VIC state data, 2. AGSO, 3. Derived from BRS landcover data		
Key Contacts			