

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8<sup>th</sup> Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9<sup>th</sup> Conference of the Contracting Parties (2005).*

This Ramsar Information Sheet has been converted to meet the 2009 – 2012 format, but the RIS content has not been updated in this conversion. The new format seeks some additional information which could not yet be included. This information will be added when future updates of this Ramsar Information Sheet are completed. Until then, notes on any changes in the ecological character of the Ramsar site may be obtained from the Ecological Character Description (if completed) and other relevant sources.

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**1. Name and address of the compilers of this form:**

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DD MM YY

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Designation date

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Site Reference Number

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**2. Date this sheet was completed/updated:**

RIS update March 2006

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**3. Country:**

Australia

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**4. Name of the Ramsar site:**

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

The Coorong, and Lakes Alexandrina and Albert Wetland, South Australia

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**5. Designation of new Ramsar site or update of existing site:**

Site designated 1 November 1985

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or  
b) Updated information on an existing Ramsar site

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**6. For RIS updates only, changes to the site since its designation or earlier update:**

a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or  
ii) the boundary has been extended ; or  
iii) the boundary has been restricted\*\*

and/or

**If the site area has changed:**

- i) the area has been measured more accurately ; or
- ii) the area has been extended ; or
- iii) the area has been reduced\*\*

\*\* **Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

**b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:**

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**7. Map of site:**

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

**a) A map of the site, with clearly delineated boundaries, is included as:**

- i) a **hard copy** (required for inclusion of site in the Ramsar List): ;
- ii) an **electronic format** (e.g. a JPEG or ArcView image) ;
- iii) a **GIS file providing geo-referenced site boundary vectors and attribute tables** .

**b) Describe briefly the type of boundary delineation applied:**

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

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**8. Geographical coordinates** (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Latitude: (approx.) 35 degrees 18'S to 36 degrees 33'S; Longitude: (approx.) 138 degrees 46'E to 139 degrees 50'E.

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**9. General location:**

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The mouth of the River Murray, South Australia.

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**10. Elevation:** (in metres: average and/or maximum & minimum)

Sea level

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**11. Area:** (in hectares)

140,500 ha. (approx.)

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**12. General overview of the site:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Coorong is a long, shallow brackish to hypersaline lagoon more than 100km in length that is separated from the Southern Ocean by a narrow sand dune peninsula. The Lakes Alexandrina and Albert (the Lower Lakes) form the mouth of the River Murray and are comprised of fresh to brackish/saline waters. Wetlands specifically included are:

- Lake Alexandrina including Tolderol, Mud Islands and Currency Creek Game Reserves, otherwise mainly Crown Lands. 76,000 ha.
- Lake Albert. Mainly Crown Lands. 16,800 ha.
- Coorong – mainly covering Coorong National Park and Game Reserve, otherwise mainly Crown Lands. 47,700 ha.

The site is one of Australia’s icon wetlands supporting critically endangered, endangered, threatened and vulnerable species and ecological communities. It also supports extensive and diverse waterbird, fish and plant assemblages; reliant on its complex mosaic of wetland types.

The area is a popular recreational site, while also supporting a range of commercial activities related to tourism and commercial fishing most notably.

The Ngarrindjeri indigenous people have a long association with the Coorong and Lower Lakes and the site has great cultural significance for them. They retain these close links with the wetland and its biodiversity through these cultural links.

### 13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 8 • 9

### 14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

***Criterion 1: A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.***

The Coorong and Lower Lakes represent a unique wetland system comprising a natural wetland system with associated shoreline marshes at the mouth of the River Murray connected with the Coorong – a long, narrow wetland complex extending from the Murray Mouth to parallel coastal dunes and consisting of saline marshes, samphire, freshwater soaks and open water with a hypersaline area at the southern end. There are 23 different wetland types spread across the marine/coastal, inland waters and human-made categories.

***Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.***

The site partially supports one critically endangered ecological community plus population of a number of internationally or nationally threatened species included in the global ‘red list’ of the World Conservation Union (IUCN) or listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Full details are given in Attachment 1. In summary: Lying partly within the Ramsar-listed area are the ‘Swamps of the Fleurieu Peninsula’; a critically endangered ecological community under the EPBC Act. These swamps are habitat (in part) of the endangered Mount Lofty Ranges Southern Emu-Wren. Notable among the species listed in Attachment 1 are the following species:

**Fauna:** Orange-bellied Parrot, Mount Lofty Ranges Southern Emu Wren, Southern Bell Frog, Yarra Pygmy Perch, Murray Cod and Murray Hardyhead.

**Flora:** 6 wetland-dependent species, including, Silver Daisy-bush, Fat-leaf Wattle and Osborn’s Eyebright.

***Criterion 3: A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.***

In addition to the above-referred to species and ecological community of note, the Coorong and Lakes Alexandrina and Albert Ramsar site also supports a large number of taxa and communities of biodiversity significance. These are detailed in Attachment 2.

The vegetation association of Smooth Cutting Grasses (*Gahnia* spp.) has been provisionally listed as a threatened ecosystem within the agricultural district of South Australia. In addition there are the following of note; 5 waterbird species, 20 fish species and 1 plant species.

***Criterion 4: A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.***

Attachment 3 sets out the details of those species that qualify the site under this criterion. It includes the following:

**Fish:** 20 species in addition to the 20 listed under criterion 3, these including a number of migratory or diadromous species;

**Birds:** 49 species including 25 migratory waterbird birds listed under the Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA and CAMBA respectively) plus many resident species that breed within the site or rely on it for refuge during times of drought.

***Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.***

This site supports well in excess of 20,000 waterbirds, at times reaching populations estimated at between 10 and 20 times greater. The significant species that comprise this large waterbird community include the 49 species listed under criterion 4 and 16 listed under criterion 6. In addition, there are a further 13 species of note as listed in Attachment 4.

***Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.***

There are 16 species that have been regularly recorded in numbers exceeding the 1% level (see Attachment 5). Among these are the following; two grebe species, the Cape Barren Goose, Sharp-tailed and Curlew Sandpipers, three species of plover, the Banded Stilt, Red-necked Avocet and the Fairy Tern.

***Criterion 7: A wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.***

The Coorong and Lower Lakes are considered significant for 49 fish species. Taken collectively they qualify the site under this criterion because of their biodiversity and biodisparity. The transitional environment from fresh to marine waters makes this site a unique habitat for fish species. The full list of these species can be found in Attachment 1, 2 and 3 plus Table 6.

***Criterion 8: A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.***

As indicated above the site is important for 49 marine, freshwater and diadromous fish species. Of these, all but 6 are considered reliant on the ecosystem in the ways specified under this criterion.

*In November 2005 at Ramsar's 9<sup>th</sup> Conference an additional criterion was added as follows:  
Criterion 9: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.*

At this time it is not possible to confirm that the site also qualifies against this additional criterion. It is possible that it does for some of the native fish species found within the site, but there are insufficient population data for these species at present to be able to make such a conclusion.

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**15. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) **biogeographic region:** Murray-Darling Depression and Naracoorte Coastal Plain

b) **biogeographic regionalisation scheme** (include reference citation): Interim Biogeographic Regionalisation of Australia (IBRA) Version 5.1. Department of Environment, Water, Heritage and the Arts, Canberra.

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**16. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The Lakes Alexandrina and Albert form a semi-natural wetland system with associated shoreline marshes at the mouth of the River Murray and are connected with the Coorong - a long, narrow wetland complex extending from the Murray Mouth to parallel coastal dunes and consisting of saline marshes, samphire, freshwater soaks and open water with a hypersaline area at the southern end.

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**17. Physical features of the catchment area:**

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The Coorong and Lower Lakes are located at the downstream end of the Murray-Darling system; Australia's largest river basin. The River Murray terminates at the Southern Ocean in South Australia, where it passes through Lakes Alexandrina and Albert, the Murray estuary, and then to the ocean through Murray Mouth or into the Coorong .

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**18. Hydrological values:**

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The Coorong and Lower Lakes receive local tributary runoff and rainfall plus inflows at the northern end of the system from the River Murray. In addition there are groundwater inputs and inflows into the South Lagoon from the Upper South East drainage scheme via Salt Creek.

The Lower Lakes are separated from the Murray Mouth and Coorong by a system of barrages. They were constructed between 1935 and 1940 to provide fresh water for irrigation, stock and domestic purposes (MDBC 2004d). Recently, fishways were installed on Goolwa and Tauwichee barrages to enable fish passage between the Lower Lakes and the Murray Mouth/Coorong.

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## 19. Wetland Types

### a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar “Classification System for Wetland Type” present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va •  
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

### b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

O, J, W, Tp, G, F, R, 4, E

## 20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

### The Coorong

The Coorong is a 140 km long expanse of water, separated from the Southern Ocean by a narrow coastal dune barrier. It forms part of the extensive wetland system of the Lower Murray, which covers a total area of 660 km<sup>2</sup> (AWE 2003). In addition to local runoff and rainfall, the Coorong receives inflows at its northern extremity from the River Murray, groundwater inputs and inflows into the South Lagoon from the Upper South East drainage scheme via Salt Creek.

The Coorong is the only estuarine area within the River Murray system. It can be divided into three distinct components based on different salinity patterns – the Murray estuary, the Northern Lagoon and the Southern Lagoon.

A key feature of the Coorong is the salinity gradient, which increases with distance from the Mouth. Salinity in the Coorong changes from estuarine in the Murray estuary, influenced by freshwater flows over the barrages, to hypersaline in the Southern Lagoon.

### Murray estuary

The Murray estuary includes the area around the Murray Mouth from the Goolwa barrage to Pelican Point and encapsulates the Goolwa, Coorong and Mundoo channels. The area is naturally estuarine, but salinity levels fluctuate widely due to barrage-regulated flow. The lagoon environment, which includes habitats such as exposed mudflats, *Ruppia megacarpa* beds and shallow waters, provides important foraging grounds for many wader species.

### North Lagoon

The North Lagoon is characterised by similar conditions as the Murray estuary, with barrage releases controlling salinity. The salinity gradient increases southwards along the North Lagoon, which extends from Pelican Point to Parnka Point, where it reduces to a small bottleneck that separates it from the South Lagoon.

### South Lagoon

South of Parnka Point, the South Lagoon extends past Salt Creek where it becomes a series of predominantly hypersaline ephemeral lagoons. The South Lagoon varies from estuarine to

hypersaline. The ‘natural’ salinity of the Coorong is currently under debate, and it is believed that the Coorong is more saline now than prior to river regulation (for example, Geddes and Hall 1990).

Salinities are affected by flow over the barrages and Upper South East Drainage inflows. During times of low freshwater flow, salinity levels in the lagoon become two to three times that of seawater, or higher with no freshwater flows. Water levels, quality and temperature in the South Lagoon are influenced by tidal exchange and River Murray flows into the Northern Lagoon (EconSearch 2004a).

### **Murray Mouth**

The Murray Mouth is a tidal inlet restricted by the accumulation of dune material on the flanking spits of Sir Richard Peninsula and Younghusband Peninsula. It is located in a high-energy environment and is extremely dynamic. The location, size and shape of the Mouth and the adjacent estuary are dictated by a combination of river flows, tidal flows and ocean and coastal processes (Harvey 2002).

Large volumes of sand are continually being moved through the Mouth by daily tides. The capacity of the tides to transport sand is dependent on two main factors – tidal velocity and wind/wave action in the immediate vicinity of the Mouth. Tidal velocity is determined by the tidal range, flow over the barrages and the existing water level in the estuary. Even small river flows counteracting the incoming tide may result in a significant reduction in the consequent sediment load in the Mouth region (Harvey 2002).

### **Lakes Alexandrina and Albert**

Prior to European settlement, the Lower Lakes were predominantly fresh, with river water discharging to the sea and keeping the Murray Mouth clear. Saltwater intrusions into the Lake environment were not common until after 1900 when significant water resource development had occurred in the River Murray system (Sim & Muller 2004). Short-lived intrusions of saltwater would occur during periods of low flow down river resulting in a lower lake level; however it appears that only small areas of the Lakes, around the Mouth and channels, were affected.

The Lower Lakes system would have offered a mosaic of fresh, brackish, saline and hypersaline fringing wetland systems that interconnected across time and space (MDBC 2004c).” (DWLBC, 2005)).

### **Tributary wetlands**

The lower reaches of Finniss River, Tookayerta Creek and Currency Creek lie within the Ramsar site. The terminal reaches of the Finniss River and Tookayerta Creek are structurally diverse and thus support dense and diverse wetland flora, ranging from red gum and reed lined channels to broader swamps with a full complement of wetland floral assemblages below Tuckers Ford on the Finniss River.

### **21. Noteworthy flora:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

“Submerged aquatic vegetation in the Coorong is dependent on the salinity and water regime. Main species found in the Coorong include *Ruppia tuberosa* (Tuberous Tassel), *Ruppia megacarpa* (Large-fruit Tassel), *Lamprothamnium papulosum* (Musk Grass or Stonewort), *Lepilaena* (Long-fruit Water Mat), *Cladophora* and *Zostera* (seagrasses) (Oborne 2003). *Ruppia* is a very important species in the food chain, particularly for waders and waterbirds. *R. megacarpa* is found in the North Lagoon and is a seed bearing perennial plant requiring permanent water cover. *R. tuberosa* is found in the South

Lagoon and is an annual plant which survives by producing seeds and turions through spring and summer, a key food source for waders and water birds (Oborne 2003).

Submerged vegetation in the South Lagoon is characterised by extensive areas of *Ruppia tuberosa*, *Lepilaena* and *Lamprothamnion* (EconSearch 2004a). However, these areas have greatly declined in extent and quality. These submerged plants are a critical component of the habitat as they provide a source of detritus for benthic communities and architecture for juvenile fish, invertebrate and biofilm habitat.

### **Lower Lakes**

Submerged aquatic plant communities were once extensive in the lakes system and included species such as Ribbon Weed (*Vallisneria americana*), Laxmarshflower (*Villarsia reniformis*), Water Ribbons (*Triglochin procerum*), Swamp Lily (*Ottelia ovalifolia*), pondweeds (*Potamogeton* spp) and milfoils (*Myriophyllum* spp).

Sections of the near shore environment around Lake Albert have extensive, highly significant *Phragmites australis* and *Typha domingensis* reed beds which provide excellent sheltered habitat for a range of fish and other vertebrate species, as well as long-term rookery sites for ibis, spoonbill and cormorants (EconSearch 2004a).

Saline wetlands have also fringed the lakes since pre-European times, but now only exist along a limited area of lakeshore. These areas supported saline-adapted plant communities such as samphire shrubland, an important feeding habitat for migratory waders, waterfowl, and water birds (EconSearch 2004a). In good condition, they support diverse faunal assemblages, and several areas of seasonally inundated Swamp Paperbark (*Melaleuca halmaturorum*).

Fresh wetland areas would have received significant fresh water inputs from Eastern Mount Lofty Ranges streams, localised runoff or from infrequent, but extensive, flooding of the River Murray and would have supported a range of submerged and emergent freshwater plant communities.” (DWLBC, 2005)

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### **22. Noteworthy fauna:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

See Attachments 1-6

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### **23. Social and cultural values:**

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The area is valued for its conservation - scenic attributes and is used for outdoor recreational pursuits including: wildlife observation and studies, recreational fishing, boating and hunting. Professional fishing occurs both along the beach and in parts of the wetland complex.

The area, and particularly the Coorong, is noted for its extensive Aboriginal (traditional and archaeological), historic and geological sites. The Ngarrindjeri people continue to have a close association with the area. Note: some of the northern islands within the Coorong lagoon are not part of the Coorong National Park but are reserved for use by Ngarrindjeri people.



“The Ngarrindjeri are culturally and spiritually part of the Lower Murray, Lakes and Coorong region, and the Ngarrindjeri lands are crucial for the survival of the Ngarrindjeri people. The fish, birds and other living things are the Ngartjis (totems) of the Ngarrindjeri people, with which they have a strong spiritual connection and a responsibility to protect. This totemic relationship is deeply embedded in Ngarrindjeri culture and spirituality, and provides a unique perspective on Ramsar values and the maintenance of habitats (NRWG 1998).” (DWLBC, 2005).

**b)** Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box  and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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**24. Land tenure/ownership:**

**a) within the Ramsar site:**

The area is mostly Crown Land (water) and National Park and Game Reserves. Lakes Alexandrina and Albert are surrounded mainly by private property.

**b) in the surrounding area:**

The Coorong is surrounded by National Park and Freehold Land. The Lakes and Tributaries are surrounded by Crown Land and Freehold land.

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**25. Current land (including water) use:**

**a) within the Ramsar site:**

Conservation, recreation: camping, boating, duck hunting (not over entire area; in game reserve only), water storage and extraction, grazing and cropping, and urban/residential development.

**b) in the surroundings/catchment:**

Grazing and light farming in adjacent areas. Most of the edge of Lakes Alexandrina and Albert is used for farming, with tourist development in several areas. Development is otherwise restricted under the State Planning and other Acts and most of the area is in its natural state.

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**26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:**

**a) within the Ramsar site and**

“Studies over time indicate that the environmental health of the Asset has greatly declined. Geddes (2003) found that the biodiversity and productivity of the Coorong was at an historical low point. A comparison with the flora and fauna collected in the 1980s showed that the distribution and abundances of a variety of species was greatly reduced. Populations had decreased in numbers and retreated to small, more favourable areas, especially around the Murray Mouth. Geddes’ survey showed the poorest biodiversity and abundance record for the South Lagoon.

Loss of the natural flow regime has had a huge impact. The natural longitudinal salinity gradient of the lagoons is now absent, reflecting the long period of limited exchange of water with barrage inflows and high evaporation in the South Lagoon. Geddes concludes that persistently high salinities probably represent a historically high salinity regime in the South Lagoon.

A dramatic decline in the number of water birds utilising the Asset has been observed over the last twenty years (AWE 2003). There is also evidence of declines in native fish populations (MDBC 2004c).” (DWLBC, 2005)

**b) in the surrounding area:**

Activities around the site include agriculture and urban developments while up-stream water diversions are having a significant detrimental impact on the site.

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**27. Conservation measures taken:**

**a)** List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The Coorong is reserved as a National Park.

**b)** If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

**c)** Does an officially approved management plan exist; and is it being implemented?:

A management plan is in place/being implemented.

**d)** Describe any other current management practices:

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**28. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

The Coorong is reserved as a National Park. A management plan has been prepared for the Coorong and is implemented.

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**29. Current scientific research and facilities:**

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

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**30. Current communications, education, participation and awareness (CEPA) activities related to or benefiting the site:**

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

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**31. Current recreation and tourism:**

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The wetlands and adjoining areas are used for outdoor recreation and research purposes. It is estimated that the area under the park reserve receives in excess of 200,000 visitor days per year and activities include: boating, fishing, camping, walking and wildlife observation. Access to important wetland sites - particularly waterbird breeding areas - is restricted.

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**32. Jurisdiction:**

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

South Australia

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**33. Management authority:**

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The SA Department for Environment and Heritage is the management authority responsible for the Ramsar site, however there are several other organizations that directly play a major role in the management of the site, these include: the Murray Darling Conservation Basin Commission, SA Department for Water Land and Biodiversity, Primary Industries and Resources SA, Environment Protection Authority, River Murray and South East NRM Boards, SA Water, three local government organisations, Planning SA, and the Australian Government Department of the Environment and Heritage

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**34. Bibliographical references:**

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

EconSearch 2004a, *Social, Economic and Environmental Values and Indicators for the Lower Murray Region*, a report prepared for the Murray-Darling Basin Commission and the Department of Water, Land and Biodiversity Conservation, EconSearch and Australian Water Environments, Adelaide.

Interim Biogeographic Regionalisation of Australia (IBRA) Version 5.1. Department of Environment, Water, Heritage and the Arts, Canberra.

Geddes, M 2003, *Survey to investigate the ecological health of the North and South Lagoons of the Coorong, June/July 2003*, a report prepared for the Department for Environment and Heritage and the Department of Water, Land and Biodiversity Conservation, Adelaide.

Geddes, MC 2003, *Survey to investigate the ecological health of the North and South Lagoons of the Coorong, June/July*, SARDI Aquatic Sciences & University of Adelaide.

Geddes, M & Hall, D 1990, 'The Murray Mouth and Coorong', in N Mackay & D Eastburn (eds), *The Murray*, Murray-Darling Basin Commission, Canberra, pp 200-213.

MDBC 2004c, *The Barrages Release of 2003*, a report prepared by the Murray-Darling Basin Commission, Department of Water, Land and Biodiversity Conservation and the South Australian Water Corporation.

MDBC 2004d, 'Information Base for the Murray Mouth, Coorong and Lower Lakes', in *The Living Murray Foundation Report (draft)*, Murray-Darling Basin Commission, Canberra, ch, 6.

Osborne, J 2003, *Ecological Requirements of the Coorong*, a paper prepared for the Department of Water, Land and Biodiversity Conservation, Adelaide.

Sim, T & Muller, K 2004, *A Fresh history of the Lakes: Wellington to the Murray Mouth, 1880s to 1935*, River Murray Catchment Water Management Board, Strathalbyn.

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Please return to: **Ramsar Convention Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**  
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## Attachment 1:

### Ecological communities and species that qualify against criterion 2

#### Decision rules applied:

1. Wetland-dependent/related ecological communities or species listed under the EPBC Act 1999 as critically endangered, endangered and vulnerable, and/or,
2. Wetland-dependent/related species listed as critically endangered, endangered or vulnerable under the IUCN Red Lists but not rare or other lesser IUCN categories.

Note: communities and species that qualify under this criterion automatically qualify under criterion 3 also. See Table 2.

#### Ecological communities

##### Swamps of the Fleurieu Peninsula

The listing of the swamps of the Fleurieu Peninsula as a critically endangered ecological community under the EPBC Act is notable in this context as this area and the Ramsar site partially overlap. This same area (in part) provides habitat for the Mount Lofty Ranges Southern Emu-Wren for further details.

#### Plant taxa

Common name	Scientific name	Ramsar criteria	Status - National	Status - IUCN	Status - SA
<b>Family Asteraceae</b>					
Silver Daisy-bush	<i>Olearia pannosa ssp. pannosa</i>	2,3	V		V
George's Groundsel	<i>Senecio georgianus var. georgianus</i>	2,3	V		E
<b>Family Mimosaceae</b>					
Yellow Swainson-pea	<i>Swainsona pyrophila</i>	2,3	V		R
<b>Family Orchidaceae</b>					
Sandhill Greenhood	<i>Pterostylis arenicola</i>	2,3	V		V
Metallic Sun-orchid	<i>Thelymitra epipactoides</i>	2,3	E		E
<b>Family Proteaceae</b>					
Scarlet Grevillea	<i>Grevillea treueriana</i>	2,3	V		V

#### Animal taxa

Common name	Scientific name	Ramsar criteria	Status - National	Status - IUCN	Status - SA
<b>Amphibians</b>					
Southern Bell Frog	<i>Litoria raniformis</i>	2,3,4	V	E	V
<b>Fish</b>					
<b>Hardyheads or Silversides – Family Atherinidae</b>					
Murray hardyhead	<i>Craterocephalus fluvialtilis</i>	2,3,4,7,8	V	E	C
Yarra pygmy perch	<i>Nannoperca obscura</i>	2,3,4,7,8	V	V	P,C
Murray cod	<i>Maccullochella peelii</i>	2,3,7,8	V		

	<i>peelii</i>				
<b>Pipefishes &amp; seahorses – Family Syngnathidae</b>					
Big-bellied seahorse	<i>Hippocampus abdominalis</i>	2,3,7		V	
<b>Grunters – Family Terapontidae</b>					
Silver perch	<i>Bidyanus bidyanus</i>	2,3,4,7,8		V	P,C
<b>Birds</b>					
<b>Hérons, Egrets, Bitterns – Family Ardeidae</b>					
Australasian Bittern	<i>Botaurus poiciloptilus</i>	2,3		E	V
<b>Parrots – Family Psittacidae</b>					
Orange-bellied Parrot	<i>Neophema chrysogaster</i>	2,3,4	E	CE	E
<b>Fairy-wrens – Family Maluridae</b>					
Mount Lofty Ranges Southern Emu-wren &	<i>Stipiturus malachurus intermedius</i>	2,3,4	E	E	E

**Key:****Conservation status:**

**National:** E – Endangered, V – Vulnerable under the *EPBC Act 1999*.

**IUCN:** CE = Critically endangered, Endangered, V – Vulnerable in the IUCN Red list

**State:** P – protected under the *Fisheries Act 1982*, C – provisional State conservation concern under the *draft Threatened Species Schedule NPWSA*. (refer:

[http://www.environment.sa.gov.au/biodiversity/latest\\_news.html#review\\_of\\_status](http://www.environment.sa.gov.au/biodiversity/latest_news.html#review_of_status))

JAMBA = Japan-Australia Migratory Bird Agreement, CAMBA = China-Australia Migratory Bird Agreement

**Notes:**

& = This species is found in association with the swamps of the Fleurieu Peninsula, a critically endangered ecological community under the EPBC Act (see above).

Frog data comes from the Wetlands Baseline Survey, 2004. Southern Bell Frogs recorded at Tolderol survey site only.

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**Attachment 2:****Ecological communities and species that qualify against criterion 3****Decision rules applied:**

1. Wetland-dependent/related ecological communities and species that qualify under criterion 2 also automatically qualify under this criterion. These communities and species are not shown below – see Table 1.
2. Wetland-dependent/related plant species that are:
  - (a) listed as vulnerable or endangered (but not rare) under SA legislation, and/or
  - (b) listed as threatened, vulnerable or endangered regionally for the Southern Lofty botanical region (SL) or Murray botanical region (MU) of SA.
3. Native fish species that are listed at the State level as P – protected under the *Fisheries Act 1982* or C – provisional State conservation concern under the *draft Threatened Species Schedule NPWSA*.

**Ecological communities****Vegetation association of *Gahnia* spp.**

"The Department for Environment and Heritage has compiled a provisional list of threatened ecosystems. The vegetation association of *Gahnia filum* is identified as a vulnerable ecosystem within the agricultural district of South Australia. This ecosystem is described as a sedgeland located in drainage lines and depressions, the distribution of intact remnants within the agricultural district is largely contained in a number of small areas within NPWSA Reserves. This is an ecosystem that historically has suffered severe degradation from drainage, increased salinity (can tolerate a certain level) and grazing. There is little regeneration evident across the agricultural districts (DEH 2001). The Coorong and Lower Lakes Habitat Database has been queried to display records of *Gahnia filum* to be included within the Core Habitat Zone. Approximately 471 hectares are identified with distribution along the northern shoreline of the Finniss River and the Western shoreline of Lake Alexandrina (50ha), scattered remnants occur throughout the Lower Lakes. Within the Coorong National Park, good remnants remain south of Parnka Point comprising of approximately 421 hectares." (Seaman, draft report 2005)

#### Plant taxa

Common name	Scientific name	Ramsar criteria	Status - SA	Status regionally
See Table 1 also				
<b>Family Goodeniaceae</b>				
Dune Fanflower	<i>Scaevola calendulacea</i>	3	V	

#### Animal taxa

Common name	Scientific name	Ramsar criteria	Status - National	Status - IUCN	Status - SA
See Table 1 also.					
<b>Fish</b>					
<b>Glassfishes – Family Ambassidae</b>					
Chanda perch (Olive perchlet, Agassiz's glassfish)	<i>Ambassis agassizii</i>	3,4,7,8			P,C
<b>Freshwater eels – Family Anguillidae</b>					
Short-finned eel	<i>Anguilla australis</i>	3,4,7			C
<b>Hardyheads or Silversides – Family Atherinidae</b>					
Fly-specked hardyhead	<i>Craterocephalus stercusmuscarum fulvus</i>	3,4,7,8			C
<b>Gudgeons – Family Eleotrididae</b>					
Purple-spotted gudgeon	<i>Mogurnda adspersa</i>	3,4,7,8			P,C
Dwarf flathead gudgeon	<i>Philypnodon</i> sp.	3,4,7,8			C
Western carp gudgeon	<i>Hypseleotris klunzingeri</i>	3,4,7,8			C
Murray Darling carp gudgeon	<i>Hypseleotris</i> sp.	3,4,7,8			C
<b>Freshwater blackfishes - Family Gadopsidae</b>					
River blackfish	<i>Gadopsis marmoratus</i>	3,4,7,8			P,C
<b>Galaxids or Native minnows – Family Galaxiidae</b>					
Climbing galaxias	<i>Galaxias brevipinnis</i>	3,4,7,8			C
Mountain galaxias	<i>Galaxias olidus</i>	3,4,7,8			C
<b>Pouched lampreys – Family Geotriidae</b>					
Pouched lamprey	<i>Geotria australis</i>	3,4,7,8			C

Gobies – Family Gobiidae					
Bridled goby	<i>Acentrogobius bifrenatus</i>	3#4,7,8			
Tamar goby	<i>Afurcagobius tamarensis</i>	3#,4,7,8			
Western blue spot (Swan River) goby	<i>Pseudogobius olorum</i>	3#,4,7,8			
Lagoon goby	<i>Tasmanogobius lasti</i>	3#,4,7,8			
Shorthead lampreys – Family Mordaciidae					
Shortheaded lamprey	<i>Mordacia mordax</i>	3,4,7,8			C
Freshwater basses and cods – Family Percichthyidae					
Southern pygmy perch	<i>Nannoperca australis</i>	3,4,7,8			P,C
Estuary perch	<i>Macquaria colonorum</i>	3,4,7,8			C
Eel-tailed catfishes – Family Plotosidae					
Freshwater eel-tailed catfish	<i>Tandanus tandanus</i>	3,4,7,8			P
Congolli – Family Pseudaphritidae					
Congolli (Tupong)	<i>Pseudaphritis urvillii</i>	3,4,7,8			C
Birds					
Rails, Crakes, Swampheens, Coot – Family Rallidae					
Lewin's Rail	<i>Rallus pectoralis</i>	3			V
Curlews, Sandpipers, Snipes, Godwits, Phalaropes – Family Scolopacidae					
Latham's Snipe	<i>Gallinago hardwickii</i>	3,4	J/CAMBA CMS		V
Eastern curlew	<i>Numenius madagascariensis</i>	3,4,5,3	J/CAMBA CMS		V
Lapwings, Plovers, Dotterels – Family Charadriidae					
Hooded Plover	<i>Charadrius rubicollis</i>	3,4,5,3,6	CMS		V
Gulls, Terns etc – Family Laridae					
Little Tern	<i>Sterna albifrons</i>	3,4	J/CAMBA		V

**Key:**

**Conservation status:** E = Endangered, V = Vulnerable, T = Threatened

**State:** P – protected under the *Fisheries Act 1982*, C – provisional State conservation concern under the *draft Threatened Species Schedule NPWSA*. (refer:

[http://www.environment.sa.gov.au/biodiversity/latest\\_news.html#review\\_of\\_status](http://www.environment.sa.gov.au/biodiversity/latest_news.html#review_of_status))

JAMBA = Japan-Australia Migratory Bird Agreement, CAMBA = China-Australia Migratory Bird Agreement, CMS = Convention on Migratory Species

**Notes:**

\* = see above re this species and Department for Environment and Heritage compilation of a provisional list of threatened ecosystems.

# = Gobies considered significant as this is the only location where they are found in the Murray-Darling Basin.

For this criterion, "A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region"

- ❖ for freshwater species the appropriate biogeographic unit is the Murray-Darling Basin (Hammer M. P. and Walker K. F. (2004).
- ❖ for marine species the appropriate biogeographic unit is the Flindersian bioregion.



## Attachment 3:

### Species that qualify against criterion 4

#### Decision rules applied:

1. Supports native fish species at critical stages in their lifecycle or offers refuge.
  - ❖ All diadromous species qualify;
  - ❖ Estuarine species that spawn or have large populations qualify;
  - ❖ Species for which critical life stages are supported; such as, any freshwater taxa that spawn/recruit in the wetland qualify.
  
2. Supports birds species at critical stages in their lifecycle or offers refuge.
  - ❖ All JAMBA or CAMBA-listed migratory birds are included, since it is assumed the habitat provided by the site will be important pre- and post-migration. Convention on Migratory Species (CMS) listing on its own is ignored unless the species is within Annex I (Endangered species) of CMS.
  - ❖ Species that are migratory but not JAMBA or CAMBA listed can also be considered if they use the site at important stages of migration, and they also qualify against either criterion 5 or 6.
  - ❖ Species for which the site is considered important as a refuge during times of drought and which also qualify against either criterion 5 or 6.
  - ❖ Species that breed at the site on a regular basis (3 years in 5 on average) and which also qualify against either criterion 5 or 6.

#### Significant fish

Common name	Scientific name	Ramsar criteria	Status - national	IUCN status	Status-SA
<b>Hardyheads or Silversides – Family Atherinidae</b>					
Small-mouthed hardyhead	<i>Atherinosoma microstoma</i>	4,7,8			
<b>Herrings –Family Clupeidae</b>					
Sandy sprat	<i>Hyperlophus vittatus</i>	4,7,8			
Bony bream	<i>Nematalosa erebi</i>	4,7,8			
Blue sprat	<i>Spratelloides robustus</i>	4,7,8			
<b>Gudgeons – Family Eleotrididae</b>					
Flathead gudgeon	<i>Philypnodon grandiceps</i>	4,7,8			
Midgley's carp gudgeon	<i>Hypseleotris</i> sp.	4,7,8			
Hybrid carp gudgeon (e.g. Lakes carp gudgeon)	<i>Hypseleotris</i> spp.	4,7,8			
<b>Galaxids or Native minnows – Family Galaxidae</b>					
Common galaxias	<i>Galaxias maculatus</i>	4,7,8			
<b>Halfbeaks - Family Hemiramhidae</b>					
River garfish	<i>Hyporhamphus regularis</i>	4,7,8			
<b>Rainbowfishes – Family Melanotaeniidae</b>					
Murray (Crimson-spotted) rainbowfish	<i>Melanotaenia fluviatilis</i>	4,7,8			
<b>Grey mullets - Family Mugilidae</b>					
Yellow-eye mullet	<i>Aldrichetta forsteri</i>	4,7,8			
Jumping mullet	<i>Liza argentea</i>	4,7,8			
<b>Freshwater basses and cods – Family Percichthyidae</b>					
Golden perch	<i>Macquaria ambigua ambigua</i>	4,7,8			

Righteye flounders - Family Rhombosoleinae					
Greenback flounder	<i>Rhombosolea tapirina</i>	4,7,8			
Smelts – Family Retropinnidae					
Australian smelt	<i>Retropinna semoni</i>	4,7,8			
Drums - Family Sciaenidae					
Mulloway	<i>Argyrosomus hololepidotus</i>	4,7,8			
Scorpion fishes – Family Tetraogidae					
South Australian Cobbler	<i>Gymnapistes marmoratus</i>	4,7,8			
Breems – Family Sparidae					
Black bream	<i>Acanthopagrus butcheri</i>	4,7,8			
Grunters – Family Terapontidae					
Striped perch	<i>Helotes sexlineatus</i>	4,7,8			
Pufferfishes– Family Tetraodontidae					
Smooth toadfish	<i>Tetractenos glaber</i>	4,7,8			

## Significant birds

Common name	Scientific name	Ramsar criteria	Status - national	Status IUCN ®	J/CAMBA or CMS	Status-SA
Pelicans - Family Pelecanidae						
Australian Pelican	<i>Pelecanus conspicillatus</i>	4, 5.1, 5.2, 5.3				
Darters - Family Anhingidae						
Australian Darter	<i>Anhinga melanogaster</i>	4?				
Cormorants – Family Phalacrocoracidae						
Little Pied Cormorant	<i>Phalacrocorax melanoleucos</i>	4				
Pied Cormorant	<i>Phalacrocorax varius</i>	4				
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	4, 5.1, 5.2				
Great Black Cormorant	<i>Phalacrocorax carbo</i>	4, 5.1, 5.2				
Geese, Swans and Ducks – Family Anatidae						
Australasian Shoveler	<i>Anas rhynchotis</i>	4			CMS	R
Australian Shelduck	<i>Tadorna tadornoides</i>	4, 5.1, 5.2, 5.3			CMS	
Rails, Crakes, Swampheens, Coot – Family Rallidae						
Dusky Moorhen	<i>Gallinula tenebrosa</i>	4				
Purple Swampheens	<i>Porphyrio porphyrio</i>	4, 5.3				
Herons, Egrets, Bitterns – Family Ardeidae						
Little Egret	<i>Ardea garzetta</i>	4				
Cattle Egret	<i>Ardea ibis</i>	4				
Great Egret	<i>Ardea alba</i>	4			J/CAMBA	

Rufous Night Heron	<i>Nycticorax caledonicus</i>	4, 5.3				
<b>Ibises, Spoonbills – Family Threskiornidae</b>						
Glossy Ibis	<i>Plegadis falcinellus</i>	4			CAMBA	R
Straw-necked Ibis	<i>Threskiornis spinicollis</i>	4, 5.1				
Royal Spoonbill	<i>Platalea regia</i>	4, 5.3				
Yellow-billed Spoonbill	<i>Platalea flavipes</i>	4, 5.3				
<b>Curlews, Sandpipers, Snipes, Godwits, Phalaropes – Family Scolopacidae</b>						
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	4,5,3,6			J/CAMBA CMS	
Curlew Sandpiper	<i>Calidris ferruginea</i>	4,5,3,6			J/CAMBA CMS	
Common sandpiper	<i>Tringa hypoleucos</i>	4			J/CAMBA CMS	
Marsh Sandpiper	<i>Tringa stagnatilis</i>	4			CAMBA CMS	
Terek Sandpiper	<i>Xenus cinereus</i> ( <i>Tringa terek</i> )	4			J/CAMBA CMS	
Pectoral Sandpiper	<i>Calidris melanotos</i>	4			JAMBA CMS	
Red-necked Stint	<i>Calidris ruficollis</i>	4,5,3,6			J/CAMBA CMS	
Sanderling	<i>Crocethia alba</i>	4,6			J/CAMBA CMS	
Common Greenshank	<i>Tringa nebularia</i>	4,5,3,6			J/CAMBA CMS	
Red-necked Phalarope	<i>Phalaropus lobatus</i>	4			J/CAMBA CMS	
Bar-tailed godwit	<i>Limosa lapponica</i>	4			J/CAMBA CMS	
Black-tailed godwit	<i>Limosa limosa</i>	4, 5.3			J/CAMBA CMS	
Great Knot	<i>Calidris tenuirostris</i>	4			J/CAMBA CMS	
Red Knot	<i>Calidris canutus</i>	4			J/CAMBA CMS	
Grey-tailed Tattler	<i>Tringa brevipes</i>	4			J/CAMBA CMS	
Wandering Tattler	<i>Tringa incana</i>	4			JAMBA CMS	
Ruddy turnstone	<i>Arenaria interpres</i>	4			J/CAMBA CMS	
Ruff	<i>Philomachus</i>	4			J/CAMBA	

	<i>pugnax</i>				CMS	
<b>Oystercatchers – Family Haematopodidae</b>						
Pied Oystercatcher	<i>Haematopus longirostris</i>	4,5,3,6				
<b>Lapwings, Plovers, Dotterels – Family Charadriidae</b>						
Pacific Golden Plover	<i>Pluvialis fulva</i>	4,5,3,6			CMS	
Grey Plover	<i>Pluvialis squatarola</i>	4			J/CAMBA CMS	
Pacific Golden Plover	<i>Pluvialis fulva</i>	4			J/CAMBA CMS	
Lesser Sand Plover	<i>Charadrius mongolus</i>	4			CMS	
Oriental Plover	<i>Charadrius veredus</i>	4			CMS	
Double-banded Plover	<i>Charadrius bicinctus</i>	4			CMS	
<b>Gulls, Terns etc – Family Laridae</b>						
Crested Tern	<i>Sterna bergii</i>	4,5,1,5.2			JAMBA	
Caspian Tern	<i>Hydropogne tschegrava</i> ( <i>Hydroprogne caspia</i> )	4,5,3,6			CAMBA	
Pacific Gull	<i>Larus pacificus</i>	4?				
<b>Old World Warblers – Family Sylviidae</b>						
Great (Oriental) Reed-Warbler	<i>Acrocephalus arundinaceus</i>	4			CAMBA	
Little Grassbird	<i>Megalurus gramineus</i>	4				
Golden-headed Cisticola	<i>Cisticola exilis</i>	4?				

The order used follows that of *Field Guide to the Birds of Australia*, 6<sup>th</sup> Edition by Simpson and Day, 1999

**Key:**

**Conservation status:**

**National:** E – Endangered, V – Vulnerable under the *EPBC Act 1999*.

**IUCN:** CE = Critically endangered, Endangered, V – Vulnerable in the IUCN Red list

**State:** P – protected under the *Fisheries Act 1982*, C – provisional State conservation concern under the *draft Threatened Species Schedule NPWSA*. (refer:

[http://www.environment.sa.gov.au/biodiversity/latest\\_news.html#review\\_of\\_status](http://www.environment.sa.gov.au/biodiversity/latest_news.html#review_of_status))

JAMBA = Japan-Australia Migratory Bird Agreement, CAMBA = China-Australia Migratory Bird Agreement

**Attachment 4:**

**Species that qualify against criterion 5**

**Decision rules applied:**

Ramsar criterion 5 specifies that the site qualifies for Ramsar listing if it "...regularly supports 20,000 of more waterbirds.". At the time of listing (1985) the site regularly supported in excess of 200,000 waterbirds and so qualifying against this criterion was unquestioned. However, within the context of

describing the ecological character of site this simple recognition of total number of waterbirds was considered too superficial and more specific sub-criteria were developed to help better understand the composition and ecological roles of the waterbird community of the Coorong and Lower Lakes Ramsar site. These sub-criteria are detailed below along with advice on how they have been applied.

Note: waterbird species that qualify against either criteria 4 or 6 and considered to automatically qualify against this criterion also and so are not shown in the table below.

**Sub-Criterion 5.1: The species is a prominent component of the overall waterbird community in the Coorong and Lower Lakes Ramsar site.**

A species can be listed under this sub-category if it represents a numerical contribution equivalent to at least 5% of the aquatic bird community.

1. Since the waterbird communities of the Coorong and Lower Lakes Ramsar site typically contain greater than 20,000 birds during the summer months (but possibly less than this number in winter), in applying this sub-criterion, species were included that regularly (at least 3 in 5 years on average) accounted for at least 1,000 individuals (5% of 20,000), irrespective of season, OR,
2. Where data were limited to only a portion of the Coorong or Lower Lakes site, all species that regularly (at least 3 in 5 years on average) accounted for 5% of the counts in that location were included.

**Sub-Criterion 5.2: The species is a prominent component in ONE of the distinctive waterbird communities in the Coorong and Lower Lakes Ramsar site.**

One of the most important features of the overall waterbird community of the Coorong and Lower Lakes Ramsar site is that it consists of a series of distinct communities determined primarily by the various water regimes (fresh, estuarine, hypermarine) and ecological factors (mix of open water, protected riparian areas etc).

For the purpose of documenting the ecological character of this Ramsar site, six wetland components have been identified from a geographic/ecological perspective; namely, the South Lagoon, North Lagoon, Murray Mouth and estuary; Lake Albert, Lake Alexandrina and the tributaries of all waters that enter Lake Alexandrina. Several of the waterbird communities found in these components regularly consist of more than 20,000 birds and so would in their own right qualify under Ramsar criterion 5. Therefore, this sub-criterion allows for the recognition of those species that represent on a regular basis (at least 3 out of 5 years on average), either in a numerical or through biomass contribution, the equivalent of at least 5% of the waterbird community in the relevant system component (namely, South Lagoon, North Lagoon, Murray Mouth and estuary; Lake Albert, Lake Alexandrina and the tributaries of all waters that enter Lake Alexandrina). The decision rules applied here were the same as above.

**Sub-Criterion 5.3: The species occupies a unique or prominent foraging niche or represents a key trophic position in the aquatic bird communities of the Coorong and Lower Lakes Ramsar site.**

This sub-criterion acknowledges the importance of the diversity and range of ecological roles within the waterbird communities of the Coorong and Lower Lakes Ramsar site. Applying similar logic to that used to apply Ramsar criterion 7 for this project (see Significant Fish Table), species that forage in different ways on the same resources (e.g. Red-necked Avocet versus Banded Stilt; pelicans versus terns versus cormorants versus grebes versus Greenshanks versus herons all feed on fish but use different strategies to hunt them) or on different resources (e.g. the various Terns; Fairy, Whiskered, Caspian, Crested) or in different parts of the water column should have at least one representative species listed to capture the full ecological character and breadth of the waterbird communities.

Common name	Scientific name	Ramsar criteria	Status - national	Status IUCN ®	J/CAMBA or CMS	Status-SA
Note: waterbird species that qualify against either criteria 4 or 6 and considered to automatically qualify against this criterion also and so are not shown in the table below.						

Geese, Swans and Ducks – Family Anatidae						
Black swan	<i>Cygnus atratus</i>	5.1, 5.3			CMS	
Musk Duck	<i>Biziura lobata</i>	5.3			CMS	R
Grey Teal	<i>Anas gracilis</i>	5.1, 5.2, 5.3			CMS	
Chestnut Teal	<i>Anas castanea</i>	5.1, 5.2, 5.3			CMS	
Rails, Crakes, Swampheens, Coot – Family Rallidae						
Spotless Crake	<i>Porzana tabuensis</i>	5.3				
Herons, Egrets, Bitterns – Family Ardeidae						
White faced Heron	<i>Ardea novaehollandiae</i>	5.3				
Ibises, Spoonbills – Family Threskiornidae						
Australian White Ibis	<i>Threskiornis molucca</i>	5.3?				
Oystercatchers – Family Haematopodidae						
Sooty Oystercatcher	<i>Haematopus fuliginosa</i>	5.3				
Lapwings, Plovers, Dotterels – Family Charadriidae						
Masked Lapwing	<i>Vanellus miles</i>	5.3			CMS	
Red-kneed Dotterel	<i>Erthrogonyx cinctus</i>	5.3			CMS	
Stilts, Avocets – Family Recurvirostridae						
Black-winged Stilt	<i>Himantopus himantopus</i>	5.3			CMS	
Gulls, Terns etc – Family Laridae						
Whiskered Tern	<i>Chlidonias hybridus</i>	5.1,5.2,5.3				
Silver Gull	<i>Larus novaehollandiae</i>	5.1,5.2,5.3				

**Key:****Conservation status:**

**National:** E – Endangered, V – Vulnerable under the *EPBC Act 1999*.

**IUCN:** CE = Critically endangered, Endangered, V – Vulnerable in the IUCN Red list

**State:** P – protected under the *Fisheries Act 1982*, C – provisional State conservation concern under the *draft Threatened Species Schedule NPWSA*. (refer:

[http://www.environment.sa.gov.au/biodiversity/latest\\_news.html#review\\_of\\_status](http://www.environment.sa.gov.au/biodiversity/latest_news.html#review_of_status))

JAMBA = Japan-Australia Migratory Bird Agreement, CAMBA = China-Australia Migratory Bird Agreement

**Attachment 5:****Waterbirds that qualify against criterion 6****Decision rules applied:**

1% levels taken from Waterbird Population Estimates (Third edition, 2002) by Wetlands International which maintains these figures as reference of applying this Ramsar criterion.

1. Species that regularly (see below) exceed the 1% population level. Where possible the assessment has been based on surveys conducted around the time the site was Ramsar listed (1985). For some species more recent data has been used.

Common name	Scientific name	Ramsar criteria	Status - national	Status IUCN	J/CAMBA or CMS	Status-SA
<b>Grebes – Family Podicipedidae</b>						
Great Crested Grebe	<i>Podiceps cristatus</i>	5.3, 6				R
Hoary-headed Grebe	<i>Podiceps poliocephalus</i>	5.1, 5.2, 5.3, 6				
<b>Geese, Swans and Ducks – Family Anatidae</b>						
Cape Barren Goose	<i>Cereopsis novaehollandiae</i>	6			CMS	R
<b>Curlews, Sandpipers, Snipes, Godwits, Phalaropes – Family Scolopacidae</b>						
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	4,5,3,6			J/CAMBA CMS	
Curlew Sandpiper	<i>Calidris ferruginea</i>	4,5,3,6			J/CAMBA CMS	
Red-necked Stint	<i>Calidris ruficollis</i>	4,5,3,6			J/CAMBA CMS	
Sanderling	<i>Crocethia alba</i>	4,6			J/CAMBA CMS	
Common Greenshank	<i>Tringa nebularia</i>	4,5,3,6			J/CAMBA CMS	
<b>Oystercatchers – Family Haematopodidae</b>						
Pied Oystercatcher	<i>Haematopus longirostris</i>	4,5,3,6				
<b>Lapwings, Plovers, Dotterels – Family Charadriidae</b>						
Hooded Plover	<i>Charadrius rubricollis</i>	3,4,5,3,6			CMS	V
Red-capped Plover	<i>Charadrius ruficapillus</i>	5,3,6			CMS	
Pacific Golden Plover	<i>Pluvialis fulva</i>	4,5,3,6			CMS	
<b>Stilts, Avocets – Family Recurvirostridae</b>						
Banded Stilt	<i>Cladorhynchus leucocephalus</i>	5,3,6			CMS	
Red-necked Avocet	<i>Recurvirostra novaehollandiae</i>	5,3,6			CMS	
<b>Gulls, Terns etc – Family Laridae</b>						
Fairy Tern	<i>Sterna nereis</i>	3,4,5,1, 5,2, 5,3,6				V
Caspian Tern	<i>Hydropogne tschegrava</i> ( <i>Hydroprogne caspia</i> )	4,5,3,6			CAMBA	

**Key:****Conservation status:**

**National:** E – Endangered, V – Vulnerable under the EPBC Act 1999.

**IUCN:** CE = Critically endangered, Endangered, V – Vulnerable in the IUCN Red list

JAMBA = Japan-Australia Migratory Bird Agreement, CAMBA = China-Australia Migratory Bird Agreement

**Notes:**

Those hose species that regularly use (see below) the site in numbers representing 1% or more of the estimated flyway or sub-species population.

"Regularly is defined in the Ramsar guidance as follows:

(i) the requisite number of birds is known to have occurred in two thirds of the seasons for which adequate data are available, the total number of seasons being not less than three; or

(ii) the mean of the maxima of those seasons in which the site is internationally important, taken over at least five years, amounts to the required level (means based on three or four years may be quoted in provisional assessments only)." See Ramsar Wise Use 'toolkit' Handbook 7 (page 39 for further clarification).

The data used to establish the 1% flyway population level are as given by Wetlands International (<http://www.wetlands.org/IWC/WPEnote.htm>)

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## Attachment 6:

### Species that qualify against criteria 7 and 8

**Criterion 7:** This criterion allows for the recognition of species that are representative of wetland benefits and/or values, and thereby contribute to global biodiversity. The guidelines associated with this criterion are less than definitive and in general focus on the issues of biodiversity and biodisparity within the overall fish community found within the Ramsar site. In the absence of more specific guidance the following decision rules have applied here:

#### Decision rules:

- ❖ any species that qualified against criteria 2, 3 or 4 automatically qualify here also.
- ❖ species that contribute significantly to diversity within the fish community; such as through morphological body forms (large top order predators, omnivores through to small microphagic carnivores) or representative of a wide array of diverse families and classes etc. qualified.
- ❖ species with a wide diversity of ecological roles, such as in the interface of fresh and marine environments (overlap between fresh, estuarine and marine life history strategies) qualified.
- ❖ Endemic species qualify; genetically distinct subpopulations for Yarra and Southern pygmy perch occur in the Ramsar site. Other species likely to display similar patterns once research is undertaken include Estuary perch, Smelt, gudgeon and River blackfish.

Note: native fish species that qualify against criteria 2, 3, or 4 automatically qualify against this criterion also and so are not shown in the table below. See the relevant tables for these species.

### Criterion 8

#### Decision rules:

Supports fish through providing important sources of food, spawning ground, nursery and/or migration path. Rules applied here:

- ❖ any species that qualified against criterion 4 automatically qualifies here also;
- ❖ any species that spawn in the Ramsar area qualify;
- ❖ any species that use the area as a nursery qualify;
- ❖ any species that use the area as part of a migration pathway qualify.

#### Species omitted:

Species were omitted if the Ramsar site is not considered an 'important' location, that is, they don't breed there or are unlikely to be resident species.



Common name	Scientific name	Ramsar criteria	Status - national	IUCN status	Status-SA
Note: native fish species that qualify against criteria 2, 3, or 4 automatically qualify against this criterion also and so are not shown in the table below. See the relevant tables for these species.					
<b>Leptoscopids- Family Leptoscopidae</b>					
Sand fish	<i>Crapatalus arenarius lasti</i>	7			
<b>Goblin shark – Family Mitsukurinidae</b>					
Goblin shark	<i>Mitsukurina owstoni</i>	7			
<b>Pufferfishes- Family Tetraodontidae</b>					
Prickly toadfish	<i>Contusus brevicaudus</i>	7			
Richardson's toadfish	<i>Tetractenos hamiltoni</i>	7			

**Key:****Conservation status:**

**IUCN:** E – Endangered in the IUCN Red list, V- Vulnerable in the IUCN Red list

**National:** V – vulnerable under the *EPBC Act 1999*.

**State:** P – protected under the *Fisheries Act 1982*, C – provisional State conservation concern under the *draft Threatened Species Schedule NPWSA*. (refer:

[http://www.environment.sa.gov.au/biodiversity/latest\\_news.html#review\\_of\\_status](http://www.environment.sa.gov.au/biodiversity/latest_news.html#review_of_status))