

# Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

## 1. Date this sheet was completed/updated:

1 June 1998

FOR OFFICE USE ONLY.

DD	MM	YY

Designation date

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Site Reference Number

## 2. Country:

Australia

## 3. Name of wetland:

Western Port, Victoria

## 4. Geographical coordinates:

Latitude: 38° 12' to 38° 31' S;      Longitude: 145° 02' to 145° 32' E

## 5. Altitude:

Less than 20 metres above sea level.

## 6. Area:

59,297 ha

Note: This is a revised area figure based on GIS Mapping (1995) and does not represent any change to the Ramsar Site boundary.

## 7. Overview:

Western Port is of national zoological significance as a foraging area and high tide roosting site for migratory waders, as well as for its population of the endangered Orange-bellied Parrot. It is of national botanical significance for its extensive saltmarsh communities and also has a number of sites of national and international geomorphological significance.

## 8. Wetland Type:

marine-coastal:	A	B	C	D	E	F	G	H	I	J	K
inland:	L	M	N	O	P	Q	R	Sp	Ss	Tp	Ts
	U	Va	Vt	W	Xf	Xp	Y	Zg	Zk		
man-made:	1	2	3	4	5	6	7	8	9		

## 9. Ramsar Criteria:

1a    1b    1c    1d    | 2a    2b    2c    2d    | 3a    3b    (3c)    | 4a    4b

Please specify the most significant criterion applicable to the site:

10. Map of site included? Please tick yes  -or- no.

11. Name and address of the compiler of this form:

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## **12. Justification of the criteria selected under point 9, on previous page.**

1(a)(b) Western Port Bay is a very good example of a saltmarsh-mangrove-seagrass wetland system within the South East Coastal Plain.

3(c) Western Port Bay supports more than 5% of the Victorian population of 8 wader species: Eastern Curlew (*Numenius madagascariensis*); Whimbrel (*Numenius phaeopus*); Grey-tailed Tattler (*Tringa brevipes*); Curlew Sandpiper (*Calidris ferruginea*); Red-necked Stint (*Calidris ruficollis*); Double-banded Plover (*Charadrius i*); Bar-tailed Godwit (*Limosa lapponica*) and Greenshank (*Tringa nebularia*).

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## **13. General location:**

Southern Victoria east of Port Phillip Bay.

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## **14. Physical features:**

Western Port is a large bay off Bass Strait in Southern Victoria, surrounding French Island and incorporating 270 km<sup>2</sup> of tidal mudflats.

Six rivers from the north and east of the catchment flow into the northern and eastern shores of Western Port and several minor rivers and creeks on the eastern slopes of the Mornington Peninsula drain into the western shores. The streams are (from west to east) Cardinia Creek, Toomuc Creek, Bunyip River, Tarago River, Lang Lang River and Bass River.

The Bay has a roughly annular water area surrounding French Island and two entrances which are substantially closed off from the sea by Phillip Island. A proportion of the water mass is circulated in a clockwise direction around French Island. In addition some water, after completing a circuit around French Island, may recycle around the island again. Thus some of the material entering the Bay waters may be retained for a considerable time before entering the open ocean. Because of this, biological systems, especially the supply of oxygen, are probably more delicately poised than in other bays, for example Port Phillip.

There are 2 sites of international geological/geomorphological significance, 3 of national significance, 27 of state significance, 19 of regional significance and 6 of local significance.

### **Sites Of International Geological/Geomorphological Significance**

#### **Pioneer Bay - Quaternary Stratigraphy**

This is the best documented and dated site in the Western Port region to contribute to an understanding of late Quaternary sea level changes. It therefore constitutes a site of international significance as part of the growing network of such localities on the Australian coast. These sites are of interest to Quaternary scientists attempting to elucidate the nature of sea level change on different continents.

#### **Western Port - Tidal Watershed**

This is a major tidal divide system. It is one of the most intensively investigated tidal watershed systems on the Australian coast and is of a size and complexity that warrants inclusion on an international register of such features. The dynamics of the area play a critical role in determining the nature of tidal flow in other parts of the Bay. The sea floor sediments here are of considerable interest for the data they hold concerning the development of the on-shore swamplands, and for the history they record of late Quaternary sea level changes in the northern Bay.

## Sites Of National Geological/Geomorphological Significance

### Bass River Delta and Floodplain

This site includes the point of largest natural sediment influx into the bay and is one of the most closely investigated quaternary sedimentological and geomorphological sites in Western Port. The delta is a feature of considerable complexity and provides opportunity for continuing research into deltaic and intertidal dynamics.

### Yallock Creek - Swamp Sediments

The site includes one of the few remnants of the landscape of the great swamp areas that existed to the north-east of Western Port. It illustrates the hydrological and topographical distinctiveness of the area between the Tobin Yallock and Koo-Wee-Rup swamps. The outcrops in the coastal cliffs are of particular interest to display the phases of wetland sediment accumulation.

### Lyall Inlet to Bunyip River - Coastline

The area displays the impact of the drainage of the Koo-Wee-Rup Swamp upon the adjacent coast. By comparison with records and maps dating back to 1842 the site provides a major reference point for measuring the rates and nature of coastal change. Comparison may be made with areas such as Watsons Inlet which have been less affected by drainage schemes. The distinctive low cliff between the saltmarsh and the fluvial and swamp deposits (as marked by the abandoned cliff) is an important feature in determining the Holocene sea level history of the Western Port region.

The annual rainfall is about 750 mm.

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## **15. Hydrological values:**

Western Port has a surface area of 68,000 ha and a catchment of 3240 sq km. There are 17 inflowing streams supplying an average discharge of water into the bay of approximately 1100 megalitres a day, small in comparison to its volume.

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## **16. Ecological features:**

There is an unusually wide variety of habitat types in Western Port, ranging through deep channels, seagrass flats, extensive mangrove thickets and saltmarsh vegetation. Such variety is not common elsewhere in Victoria.

White Mangroves (*Avicennia marina*) line 40% of the coastline. On a world-wide basis the mangrove communities are of considerable interest since, with the exception of Corner Inlet, they are the only large community situated so far from the Equator.

Seagrass beds cover some 38% of Western Port, main species are *Zostera muelleri*, *Heterozostera tasmanica* and *Amphibolis antanica*.

## Site Of National Botanical Significance

Western Port salt marshes are one component of a fairly uniform community found from Port Augusta to Corner Inlet. However, despite this large geographical range (approx. 2,000 km of coast) the salt marsh is restricted to relatively few areas and actually occupies less than 10% of this coastline. The Western Port salt marshes are an important component of the vegetation in this range for a number of reasons:

(1) Extent: Salt marshes extend a kilometre or more from the shoreline in many places (e.g. Quail Island, northern French Island, Tooradin) and occupies a large proportion of the coast of Western Port.

(2) It is floristically rich: Although salt marsh is floristically poor when compared to most other communities, the Western Port salt marsh is richer than most other salt marshes on the southern coast. For example, there are extensive expanses of salt marsh in Corner Inlet, Victoria, which support only *Arthrocnemum* and *Sarcocornia*, whereas most *Arthrocnemum* dominated vegetation in Western Port supports six or more species.

(3) It is relatively undisturbed: A good deal of the salt marsh around Spencer Gulf in South Australia has suffered from the heavy industrialization in that area. Similarly salt marsh on the Victorian coast west of Melbourne, particularly that on the western shores of Port Phillip Bay, has been disturbed by industry and

heavy grazing, and often supports a significant weed flora. The Western Port salt marsh, however, does not have a serious weed problem nor does it appear to have suffered greatly from grazing or heavy industry.

Thus Western Port can be said to support one of the most significant stands of salt marsh in south-eastern Australia, and thus can be considered to be of national significance.

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## **17. Noteworthy flora:**

### Threatened Species

Rare in Victoria

Creeping Rush (*Jancus revolutus*)

Tiny Arrow Grass (*Triglochin minutissimum*)

Coast Ballart (*Exocarpos syticola*)

Vulnerable in Victoria

Dense Leek-orchid (*Prasophyllum spicatum*)

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## **18. Noteworthy fauna:**

The Bay provides habitat for numerous species listed in the Japan-Australia Migratory Birds Agreement (JAMBA) and the China-Australia Migratory Birds Agreement (CAMBA).

Western Port is one of the three most important areas for waders in Victoria. Wader surveys indicate that Western Port supports about 10,000 waders (approx. 12 per cent of the Victorian population). 16,000 were recorded in 1974-75 (Loyn, 1975). It is estimated that Western Port periodically supports in excess of 10,000 ducks and Black Swans *Cygnus atratus*.

There are 5 sites of national zoological significance, 4 of state significance and 2 of regional significance.

### Sites Of National Zoological Significance

#### Primary Foraging Area of Waders in Western Port

Western Port is one of the three most important areas for migratory waders in Victoria with respect to total numbers and density. A recent survey of the Victorian coast showed that Western Port supported 12.3% of the overall number of waders recorded.

Thirty-seven species of waders, five of which are vagrants have been recorded in Western Port. Ten species, including the Eastern Curlew, Whimbrel, Bar-tailed Godwit, Grey-tailed Tattler, Greenshank and Terek Sandpiper occur in some of their highest numbers in Western Port. The Bay is also a stronghold for the Whimbrel population in Victoria. This site includes the most important feeding areas of migratory waders in the bay and also some of the important roosting areas such as Tortoise Head, Rams Island, Barrallier Island, Rhyll Inlet, Blue Gum Point, Bunyip River, Long Island, Stockyard Point and Fairhaven.

The rare and endangered Orange-bellied Parrot has been recorded from Barrallier Island.

#### Yallock Creek Mouth

Yallock Creek is a major high tide roost for migratory waders. It is important for the Greenshank, Curlew Sandpiper, Red-necked Stint, Sharp-tailed Sandpiper, Eastern Curlew and Masked Lapwing.

#### Settlement Road

This area is one of the few sites in Western Port where the Orange-bellied Parrot has been recorded. The shore here is a major high tide roost for migratory waders such as the Double-banded Plover, Curlew Sandpiper, Eastern Curlew, Red-necked Stint and Red Knot.

#### Reef Island

Reef Island is an important high tide roost for migratory waders and other waterbirds. Species which regularly use this roost include the Red-necked Stint, Curlew Sandpiper, Red-capped Plover, Ruddy Turnstone and Double-banded Plover.

#### French Island

The main body of French Island is not included within the Ramsar boundary, however the shores of the island can be considered to be part of the wetland area and these do contribute to the listing as nationally significant. The extensive saltmarsh areas provide valuable breeding sites for waterfowl, particularly the

Australian Shelduck which in the catchment breeds almost exclusively on the northern and western coasts of the island, and the Chestnut Teal and Black Swan. One of only two regularly active Australian Pelican colonies in Victoria is in the saltmarsh on the north of the island.

Tortoise Head, on the south-western corner of the island, is one of the two most important roosts in Western Port and is the most important roost for Mongolian Plovers and Eastern Curlews. It is the site of a breeding colony of Short-tailed Shearwaters and Caspian and Fairy Terns also breed here.

Rams Island off the southern coast is an important breeding site of the Fairy Tern (vulnerable) in Victoria and is also used for breeding by Caspian Terns and Pied Oystercatchers. It is one of the most important roosting sites of waders, used by Bar-tailed Godwits and Whimbrels and also three less abundant species, the Ruddy Turnstone, Mongolian and Large Sand Plovers.

Elizabeth Bluff (Red Bluff), a headland on the southern coast is the only site in Western Port where the White-bellied Sea-Eagle is known to breed.

Barrallier Island, off the north western corner of French Island, is a large high tide roost where some of the highest numbers of waders for the bay, including rare species such as the Grey-tailed Tattler and Terek Sandpiper have been observed.

### Sites Of State Zoological Significance

#### Yaringa

This site includes native vegetation including saltmarsh and mangrove communities on the north western shore of Western Port. This is one of the few sites in the state where the New Holland Mouse has been recorded. The Southern Emu-wren, a threatened species, is locally common on the saltmarshes of this site.

#### Secondary Foraging Areas of Waders in Western Port

The mudflats of Hanns Inlet provide important feeding areas for the Royal Spoonbill. Those in Watsons Inlet and off the north coast of French Island are used by the Great Egret. Both species utilise mudflats in Hastings Bight and those off the north coast of French Island also provide valuable feeding areas for the Black Swan. All the intertidal mudflats included in the site provide feeding areas for the thirty-two species of migratory waders which are regularly recorded from Western Port, although they may be used at lower feeding intensities or when inclement conditions restrict feeding in primary feeding areas.

#### Tooradin

The Mourning Skink, a species which is generally regarded as uncommon and has restricted habitat preferences has been found in high densities at this site. Many species of waterbirds roost in the saltmarshes and mangroves during high tide. The Australasian Bittern (insufficiently known), a species which has declined in abundance since settlement is also known from this area.

#### Bass River Mouth

The Orange-bellied Parrot has been observed in the saltmarshes opposite Reef Island. The saltmarshes are also important for many other birds such as the Black Swan, Chestnut Teal, Australian Shelduck, Little Grassbird and Golden-headed Cisticola.

The invertebrate fauna is extremely rich and diverse, with 1381 species recorded from 23 major groups. The invertebrate fauna of Western Port Bay contains three to four times the total number of species present in Port Phillip Bay and includes the majority of the species which occur in that bay.

The members of the amphipod family Phoxocephalidae found in the Bay exhibit a striking example of adaptive radiation of species in the marine environment. This is of considerable scientific interest.

The bay is an important nursery area for many fish.

### Threatened Species

### Birds

Grey Goshawk (*Accipiter novaehollandiae*) - rare in Victoria  
Magpie Goose (*Anseranas semipalmata*) - insufficiently known  
Great Egret (*Ardea alba*) - restricted colonial breeding in Victoria  
Intermediate Egret (*Ardea intermedia*) - restricted colonial breeding in Victoria  
Australasian Bittern (*Botaurus poiciloptilus*) - insufficiently known  
Cape Barren Goose (*Cereopsis novaehollandiae*) - rare in Victoria  
King Quail (*Coturnix chiensis*) - rare in Victoria  
Little Egret (*Egretta garzetta*) - restricted colonial breeding in Victoria  
Letter-winged Kite (*Elanus scriptus*) - rare in Victoria  
Black Falcon (*Falco subniger*) - rare in Victoria  
White-bellied Sea-Eagle (*Haliaeetus leucogaster*) - rare in Victoria  
Swift Parrot (*Lathamus discolor*) - endangered in Victoria and vulnerable nationally  
Helmeted Honeyeater (*Lichenostomus melanops cassidix*) - endangered in Victoria and nationally  
Square-tailed Kite (*Lophoictinia isura*) - vulnerable in Victoria  
Orange-bellied Parrot (*Neophema chrysogaster*) - endangered in Victoria and nationally  
Barking Owl (*Ninox connivens*) - rare in Victoria  
Eastern Curlew (*Numenius madagascariensis*) - rare in Victoria  
Blue-billed Duck (*Oxyura australis*) - rare in Victoria  
Fairy Prion (*Pachyptila turtur*) - restricted colonial breeding in Victoria  
Australian Pelican (*Pelecanus conspicillatus*) - restricted colonial breeding in Victoria  
Pied Cormorant (*Phalacrocorax varius*) - restricted colonial breeding in Victoria  
Royal Spoonbill (*Platalea regia*) - restricted colonial breeding in Victoria  
Grey-crowned Babbler (*Pomatostomus temporalis*) - endangered in Victoria  
Baillon's Crake (*Porzana pusilla*) - insufficiently known  
Lewin's Rail (*Rallus pectoralis*) - rare in Victoria  
Painted Snipe (*Rostratula benghalensis*) - insufficiently known  
Little Tern (*Sterna albifrons*) - endangered in Victoria and nationally  
Caspian Tern (*Sterna caspia*) - restricted colonial breeding in Victoria  
Fairy Tern (*Sterna nereis*) - vulnerable in Victoria  
Freckled Duck (*Stictonetta naevosa*) - rare in Victoria  
Hooded Plover (*Thinornis rubricollis*) - vulnerable in Victoria

### Mammals

Swamp Antechinus (*Antechinus minimus*) - rare in Victoria  
Swamp Skink (*Egernia coventryi*) - rare in Victoria  
Southern Right Whale (*Eubalaena australis*) - endangered in Victoria and nationally  
Humpback Whale (*Megaptera novaeangliae*) - endangered in Victoria and nationally  
Glossy Grass Skink (*Pseudemoia rawlinsoni*) - insufficiently known  
New Holland Mouse (*Pseudomys novaehollandiae*) - endangered in Victoria

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

A number of sites of archaeological significance have been identified around the bay. Churchill Island, within Western Port, is the site of Victoria's first settlement (the first planting of European crops and the earliest known substantial building). The settlement was established under the command of Lt. James Grant in 1801.

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## **20. Land tenure/ownership:**

In 1977, the Land Conservation Council's final recommendations were that 28,400 ha be declared Wildlife Management Co-operative Area under the Wildlife Act 1975, this recommendation has not yet been implemented.

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## **21. Current land use:**

- (a) **the site:** Port facilities and ship movement, recreation, native conservation, commercial fishing, source of coolant for industry and receiving water for wastes.
  - (b) **the surroundings/catchment:** Grazing, market gardening, industry and urban development.
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## **22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:**

No significant ecological change has occurred since the last update of the Ramsar information sheet in 1992.

Factors affecting ecological character at selected locations within the Ramsar site include:

- long term changes in the catchment including clearing of indigenous vegetation (particularly in the lower catchment) and construction of drains and channels leading to erosion and siltation.
  - impacts on intertidal areas due to vehicle access and grazing of stock (leading to compaction of soil and damage to vegetation), rubbish dumping, construction of levee banks and drains and presence of *Spartina* at the mouth of the Bass River which has the potential to cover large intertidal areas.
  - the risk of oil spills associated with port development and shipping.
- dredging and dredge spoil disposal.
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### **23. Conservation measures taken:**

The Port Phillip Regional Catchment Strategy 1996 proposes actions to address catchment issues in Western Port, including the development of a catchment action plan.

The exotic cord grass, *Spartina sp*, introduced in the 1930s occurs in the mouth of the Bass River. The Bass River infestation has not yet been controlled but other small infestations in the Bay have been eradicated, notably an infestation in the San Remo Marine Community in 1996/97.

*Codium fragile* ssp *tomentosoides*, an introduced algal subspecies, was found in the San Remo Marine Community in 1998. An eradication program has been successfully carried out. A literature review of the ecological impacts of *Codium fragile* ssp *tomentosoides* and possible control techniques has been initiated and will be completed by 1 August 1998.

The Western Port Bay Strategy approved in 1992 outlines the significant Ramsar values of the Western Port Bay area and recommendations for the management of the Bay.

An oil spill management plan has been prepared to direct the response in the event of an oil spill.

Action Statements under the Flora and Fauna Guarantee Act 1988 have been produced for the following fauna species and community that occur in the Ramsar site. Action statements outline management strategies to conserve species and communities.

- Orange-bellied Parrot (1993)
- White-bellied Sea-eagle (1994)
- Helmeted Honeyeater (1994)
- Little Tern (1994)
- Hooded Plover (1992)
- New Holland Mouse (1996)

San Remo Marine Community (1997)

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### **24. Conservation measures proposed but not yet implemented:**

- A project to map seagrass is proposed to provide a baseline for future seagrass monitoring.
  - A fisheries habitat assessment report is being prepared.
  - The Western Port Schedule to the SEPP: Waters of Victoria is currently being reviewed. The Schedule will review and update strategies to protect water quality in Western Port.
  - A Coastal Action Plan is planned for Western Port which will review the existing Western Port Bay Strategy (1992) and update strategies for environmental protection of Western Port.
  - A Shoreline Response Plan is being prepared for 1998-99 to address potential oil spills.
  - In an integrated approach to planning at Ramsar sites, management strategies are being prepared for all Ramsar sites in Victoria, including Western Port, to provide general strategic direction and site specific strategies. The strategies will be completed by June 1999.
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**25. Current scientific research and facilities:**

The Bird Observers Club Australia (BOAC) has conducted regular counts (approximately five per year) of waterbirds since 1973 and a number of postgraduate theses have dealt with the ecology of waterbirds and fish.

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**26. Current conservation education:**

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**27. Current recreation and tourism:**

Western Port has a very high recreational fishing and boating values and is a significant tourist site.

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**28. Jurisdiction:**

Government of Victoria.

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**29. Management authority:**

Managed under the Department of Natural Resources and Environment Parks Program by Parks Victoria - 59,204 Ha (99.8%)

Natural Resources and Environment - 50 Ha (0.1%)

Private Freehold - 43 Ha (0.1%)

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**30. Bibliographical references:**

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