

Marine Natural Values Study Summary

Merri Marine Sanctuary



Australia's southern waters are unique. Ninety per cent of our marine plants and animals are found nowhere else on earth.

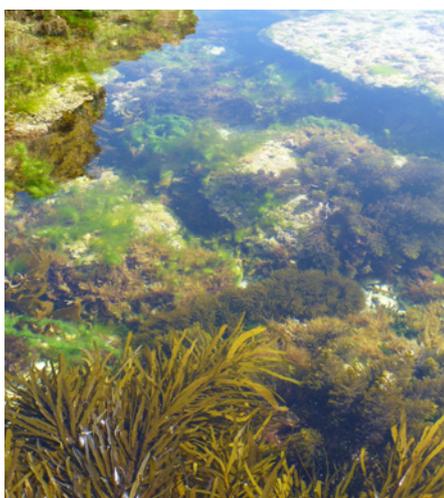
The system of Marine National Parks and Sanctuaries has been established to represent the diversity of Victoria's marine environment, its habitats and associated flora and fauna.

Victoria's marine environment has been classified into five bioregions according to a nationally agreed scheme based on physical and biological attributes.

The Merri Marine Sanctuary is one of two marine sanctuaries and two marine national parks in the Otway bioregion.

Image left:
Diverse algal community in an intertidal rock pool.
Photo by Jan Barton, Deakin University.

Image right:
Intertidal soft sediment at the mouth of the Merri River.
Photo by Jan Barton, Deakin University.



Description

The sanctuary covers 29 hectares from Thunder Point in the west and Breakwater Rock in the east, extending from the footbridge on the Merri River to the south-west for approximately 200 metres. It abuts a coastal reserve and surrounds Middle and Merri Islands, with Pickering Point a prominent headland.

Access is from Thunder Point, Stingray Bay and the Breakwater.

Parks Victoria acknowledges the Aboriginal Traditional Owners of Victoria – including its parks and reserves. Indigenous tradition indicates that the sanctuary is part of Country of Kirrae Whurrong and Country of Gunditjmarra.

Physical Parameters and Processes

The sanctuary is exposed to large swells and south-westerly winds from the Southern Ocean in winter, with currents carrying water from the west and south into the sanctuary. In spring and summer the Bonney Upwelling brings cold water and nutrients to the coastline, with its predominant south-east wind and current flow.

Surface water temperatures vary between averages of 13.5°C and 17°C. Tidal variation is 0.8 metres for spring tides and no variation for neap tides.

The Merri River estuary flows directly into the middle of the sanctuary at Stingray Bay and is regarded as being in poor ecological condition.

The Warrnambool Sewage Treatment Plant discharges 500 metres to the west of the sanctuary and the Hopkins River estuary discharges to the east. Freshwater inflow from the Merri River influences the local hydrodynamics of the sanctuary and the mouth of the Merri River is often closed.

High tides, storms, large swells and freshwater inflow cause significant sand movement. Modifications in the sanctuary and nearby, including the construction of the breakwater, have resulted in a significant accumulation of sand adjacent to the sanctuary.

Marine Habitat Distribution and Ecological Communities

The main habitats protected by the sanctuary include soft sediments (intertidal and subtidal) made up predominantly of fine sand; intertidal reef and subtidal reef made of calcarenite including high relief, low relief and cobbles; and the water column.

The intertidal soft sediment is found mostly the east of Merri Island at the mouth of the Merri River. Associated communities have a low diversity of benthic macroinvertebrates, though



this habitat is an important feeding and roosting habitat for shorebirds. Beach-washed materials on the sandy beaches (e.g. drift macroalgae) are a significant source of food for scavenging birds, and contribute to the detrital cycle that nourishes many of the invertebrates, such as bivalves, living in the sand.

Common fish found in subtidal soft sediment habitats include sea mullet *Mugil cephalus*, salmon *Arripis trutta*, cat shark *Parascyllium* sp., draughtboard shark *Cephaloscyllium laticeps* and the southern eagle ray *Myliobatis australis*.

Intertidal reef is found along the coastline (backed by coastal dunes) and around the islands. The intertidal reef flora and fauna includes algae such as sea lettuce *Ulva* sp., coralline algae *Corallina officinalis*, and less common is Neptune's necklace *Hormosira banksii*.

Gastropod snails such as the warrener *Turbo undulatus*, limpets *Siphonaria diemenensis* and *Cellana tramoserica* are the most common invertebrates on the intertidal reefs. Crabs, anemones, brittle stars, and terebellid polychaetes are also found.

Large rockpools can be home to fish including sea sweep *Scorpius aequipinnis*, Tasmanian blenny *Parablennius*

tasmanianus and wrasse. Seagrass is also occasionally seen in the rockpools.

Subtidal reefs are the dominant marine habitat and are either patchy and interspersed with areas of sand, or more consolidated hard reef cut by deeper depressions and large crevices.

Twenty-one different subtidal reef algal habitat types have been identified in the sanctuary including habitats dominated by the brown algae *Phyllospora comosa*, the green algae *Caulerpa* spp., the string kelp *Macrocystis pyrifera*, encrusting and branching coralline algae, and kelp *Ecklonia radiata*. The bull kelp *Durvillaea potatorum* is present on the fringe of the intertidal and subtidal reef.

The subtidal reef associated invertebrates present include the black lip abalone *Haliotis rubra*, the warrener *Turbo undulatus*, sponges, gastropods, crabs, and the occasional southern rock lobster *Jasus edwardsii*.

Common reef associated fish include the blue-throated wrasse *Notolabrus tetricus*, herring cale *Odax cyanomelas*, magpie perch *Cheilodactylus nigripes*, Victorian scalyfin *Parma victoriae*, zebrafish *Girella zebra*, sea sweep *Scorpius aequipinnis*, senator wrasse *Pictilabrus laticlavus* and the pot-bellied seahorse *Hippocampus abdominalis*.

The water column is home to a variety of planktonic and pelagic organisms. Those that make their permanent home in the water column include sea jellies, salps, many fish, and phytoplankton and zooplankton. A number of marine mammal species are also found in the water column in the sanctuary.

Species and Communities of Conservation Significance

The pot-bellied seahorse *Hippocampus abdominalis* is protected and frequently seen on subtidal reefs in the sanctuary.

Fifty-one shorebirds or seabirds of conservation significance have been recorded in or near the sanctuary including the endangered Australasian bittern *Botaurus poiciloptilus*, fairy tern *Sternula nereis*, gull-billed tern *Gelochelidon nilotica* and the little egret *Egretta garzetta*. Two large seabirds regarded as endangered, the wandering albatross *Diomedea exulans* and the southern giant petrel *Macronectes giganteus*, are more commonly found offshore of the sanctuary.

Marine mammals including southern elephant seals *Mirounga leonine*, the Australian fur seal *Arctocephalus pusillus doriferus*, Australian sea lion *Neophoca cinerea* and the leopard seal *Hydrurga leptonyx* have been

Merri Marine Sanctuary with Merri and Middle Islands in the background. Photo by Jan Barton, Deakin University.



observed in the waters in and around the sanctuary.

Major Threats

Measures to address or minimise threats identified for Merri Marine Sanctuary form part of the park management plan. Parks Victoria also uses an adaptive management approach which includes periodic reviews of priority natural values and threats through processes such as the State of the Parks evaluation and setting of desired conservation outcomes. Through these processes Parks Victoria has identified emerging threats and developed appropriate management responses.

Serious threats include oil spills, terrestrial inputs of poor water quality, marine pests and diseases, litter and debris, seismic testing, artificial opening of river mouths and human access (e.g. trampling).

Evidence of abalone viral ganglioneuritis which can kill a large proportion of abalone populations in affected areas has been observed in much of the Otway bioregion including Merri Marine Sanctuary.

The introduced algal species *Grateloupia turuturu*, *Caulerpa racemosa* var. *cylindracea* and *Codium fragile* subspecies *fragile* were also recorded in Portland Harbour in 2010 and there is some concern about their possible spread.

Climate change also poses a serious medium to long term threat to natural values. Parks Victoria will use an adaptive management approach to develop responses and actions that focus on priority climate change issues such as extreme weather events and existing risks that are likely to be exacerbated by climate change.

Research and Monitoring

Parks Victoria has established extensive marine research and monitoring programs that address important management challenges for the marine national parks and sanctuaries. These focus on improving baseline knowledge, as well as applied management questions.

Since the establishment of the parks in 2002 our knowledge and understanding of natural values and threats for the system have improved significantly through the marine science

program. Much of the research has been undertaken as part of the Research Partners Program involving collaboration with various research institutions.

There are five ongoing research projects and one habitat mapping project that are relevant to Merri Marine Sanctuary, while five research projects and two habitat mapping projects have already been completed. The sanctuary also has an ongoing shallow subtidal reef monitoring program.

While recognising there are still knowledge gaps Parks Victoria will continue to focus on addressing the information needs that will assist management.

For more information, including marine habitat mapping products, please see the full versions of the Marine Natural Values reports on www.parks.vic.gov.au.

Rock lobster on subtidal basalt reef. Photo by NRE.

