Marine Natural Values Study Summary

Barwon Bluff 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.

Barwon Bluff Marine Sanctuary is one of five marine sanctuaries and two marine national parks in the Central Victoria bioregion.

Image left:
Southern rocklobster *Jasus edwardsii* on the subtidal reef.
Photo by Mark Rodrigue, Parks Victoria.

Image right:
Submerged intertidal reef dominated by the brown algae Neptune's necklace *Hormosira banksii*.
Photo by Mark Rodrigue, Parks Victoria.

Description

The sanctuary covers 15.7 hectares and extends from the high water mark at the Point Flinders headland, locally known as "The Bluff" at the mouth of the Barwon River.

Close to the township of Barwon Heads, the sanctuary extends 400 metres to the east and south of the headland. It is accessible from the shore through the Barwon Heads township or from "The Bluff" via stairways.

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 Wadda wurrung.

Physical Parameters and Processes

Waters to the east of Point Flinders are relatively calm, influenced predominantly by tidal currents and the flow of water from Barwon River. West of Point Flinders the intertidal platforms and beach are exposed to persistent high-energy south-westerly swells in Bass Strait.

Wind and wave action influence the beaches, affecting grain size, deposition and erosion. Natural hydrodynamic events such as storm surges displace seaweed and kelp communities, erode beaches and deposit sand over the reefs.

Surface water temperatures vary between an average 17.5°C in the summer and 13.5°C in the winter. Tidal variation is 2.1 metres for spring tides and 0.7 metres for neap tides.

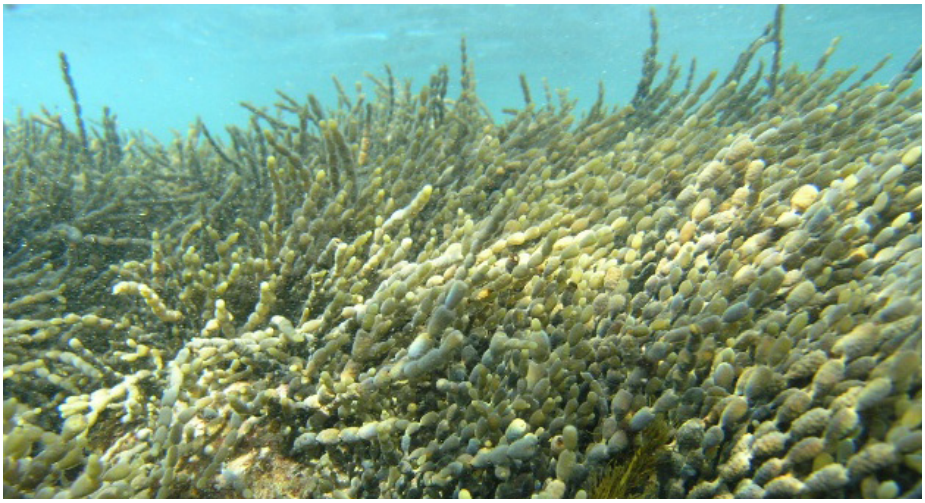
The Barwon River estuary runs into Bass Strait 600 metres north of the sanctuary. Barwon Heads is geologically significant as a coastal bluff in Pleistocene dune calcarenite with interbedded palaeosoils, resting on basalt.

Marine Habitat Distribution and Ecological Communities

The main habitats protected by the sanctuary include intertidal and subtidal soft sediment, intertidal and subtidal reefs, and the water column.

The intertidal calcarenite and basalt reef is home to a variety of marine plants. The brown algae Neptune's necklace *Hormosira banksii* is a key habitat forming plant on these intertidal reefs. Other brown algae (e.g. *Cystophora retorta*, *C. retroflexa*) are largely found very low on the shore or in rock pools. The seagrass *Amphibolis antarctica* can also be found in rock pools.

Large patches of the red turfing algae *Capreolia implexa* can have very high



cover on the intertidal reef. This alga can form a matrix with the tiny horse mussel *Limnoperna pulex*, which occurs in low abundance on the reef. Other aggregating invertebrates found at in the sanctuary include the rosette barnacle *Tetraclitella purpurascens* and six-plated barnacle *Chthamalus antennatus*.

The sanctuary is home to more than thirty five species of intertidal invertebrates including anemones (e.g. *Oulactis* spp., *Aulactinia veratra* and *Actinia tenebrosa*) that are common in rock pools, molluscs (e.g. *Bembicium nanum*, *Nodilittorina* spp., *Clypidina rugosa*, *Notoacmea mayi*, *Cellana tramoserica*, *Siphonaria* spp., *Cominella lineolata*, *Dicathais orbita*, and *Aplysia gigantean*), seastars (e.g. *Meridiastra calcar* and *Parvulastra exigua*) and shore crabs (e.g. *Cyclograpsus* spp. and *Paragrapsus* spp.). The ascidian *Pyura stolonifera* is also present on the lowest perimeter of the reef.

Common fish on the Barwon Heads intertidal platform (found in rock pools) are the Tasmanian blenny *Parablennius tasmanianus* and the southern crested weedfish *Cristiceps australis*.

Bull kelp *Durvillaea potatorum* covered subtidal reef. Photo by Mark Rodrigue, Parks Victoria.

The shallow (mostly <5 metres) subtidal rocky reefs in the sanctuary include areas of low profile reef close to sand patches which are generally dominated by mixed brown algae. In the west and away from the sand patches, the reef becomes dominated by the brown alga crayweed *Phyllospora comosa*.

On the seaward edge of the intertidal platform bull kelp *Durvillaea potatorum* forms a narrow band approximately 10 metres to15 metres wide. Beds of giant kelp *Macrocystis pyrifera* are found in the southern corner of the sanctuary.

A variety of invertebrates are found on subtidal reefs including molluscs (e.g. black lip abalone *Haliotis rubra*, warrener *Turbo undulatus*, elephant snail *Scutus antipodes* and cartrut whelk *Dicathais orbita*), echinoderms (e.g. *Coscinasterias calamaria*, *Tosia australis*, *Uniophora granifera*, *Nectria* sp. *Patiriella brevispina* and *Echinaster varicolour*). Also present is the ascidian *Pyura gibbosa* and crustaceans (e.g. red bait crab *Plagusia chabrus* and the southern rocklobster *Jasus edwardsii*).

At the eastern tip of the sanctuary filter-feeding invertebrates such as feather-stars and sponges are common due to the fast currents. Sea slugs (opisthobranchs) can also be found on the reef sides.

Common fish on the subtidal reefs include the blue-throated wrasse *Notolabrus tetricus*, herring cale *Odax cyanomelas*, scalyfin *Parma victoriae*, sea sweep *Scorpis aequipinnis*, magpie morwong *Cheliodactylus nigripes* and various leatherjackets. Sharks and rays such as the Port Jackson shark *Heterodontus portusjacksoni*, southern eagle ray *Myliobatis australis* and smooth stingray *Dasyatis brevicaudata* have also been recorded on the subtidal reef.

Drift observed in the intertidal soft sediments provides important feeding and roosting habitat for shorebirds, many of which are of conservation significance.

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 seabirds also use the waters of the sanctuary.

Species and Communities of Conservation Significance

The Barwon Bluff Marine Sanctuary has twenty seven conservation listed seabirds and shorebirds including petrels (e.g. *Macronectes giganteus* and *Halobaena caerulea*), albatross (*Thalassarche cauta*), knot (*Calidris tenuirostris*), egrets (*Ardea modesta* and *Ardea ibis*), terns (*Hydroprogne*

caspia, *Sternula nereis* and *Sterna striata*) and many others.

The sanctuary is also home to two fish species of conservation significance including the dusky morwong *Pentaceropsis recurvirostris* and the longsnout boarfish *Pentaceropsis recurvirostris*.

Major Threats

Measures to address or minimise threats identified for Barwon Bluff 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 and actions.

Serious threats for this sanctuary include illegal fishing, trampling and disturbance, increased nutrients from shore and marine pollution, and marine pests. A number of introduced marine pests have the potential to colonise within the sanctuary, from nearby waters in Port Phillip Bay and the ocean waters of Bass Strait.

Climate change 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 will likely 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 relevant to Barwon Buff Marine Sanctuary, while ten research projects and one habitat mapping project have already been completed. The sanctuary has an ongoing intertidal reef monitoring program and two community-based monitoring programs (Reef Watch and Sea Search).

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

Image left:
Old wife *Enoplosus armatus* on subtidal reef.
Photo by Mark Rodrigue, Parks Victoria.

Image right:
Port Jackson shark *Heterodontus portusjacksoni*.
Photo by Mark Rodrigue, Parks Victoria.

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