

Marine Natural Values Study Summary

Churchill Island Marine National Park



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.

Churchill Island Marine National Park is one of three marine national parks in Western Port Bay, which is part of the Victorian Embayments bioregion.

Image left:
The 'living fossil' lampshell or brachiopod *Magellania flavescens* on subtidal sediments. Photo by NRE.

Image right:
Churchill Island Marine National Park.
Photo by Chris Hayward, Parks Victoria.

Description

The park covers 670 hectares and is located south of Rhyll on the eastern shore of Phillip Island. It extends from the high water mark along 11 kilometres of the Swan Bay coastline. The north boundary of the park is between Long Point on Phillip Island and North Point on Churchill Island.

The intertidal areas of the park can only be accessed from the cobble and shingle beaches and the rest of the park by boat.

The park is part of three special protection areas that cover Western Port Bay including the Western Port Ramsar site, the East Asian-Australasian Flyway, and the Mornington Peninsula and Western Port UNESCO Biosphere Reserve.

The mudflats, mangroves and saltmarsh of Churchill Island and Swan Bay are recognised as locally significant on the National Trust Register.

Within the park a Special Protection Area for Natural Values covers the saltmarsh and mangrove areas, extending seaward from the high water mark to the edge of the intertidal vegetation.

Parks Victoria acknowledges the Aboriginal Traditional Owners of Victoria – including its parks and

reserves. Indigenous tradition indicates that the park is part of Country of Boonwurrung.

Physical Parameters and Processes

The park is influenced by high turbidity in the bay which arises from daily reworking and re-suspension of fine sediment by tidal, wind and wave action.

The park is protected from prevailing south-westerly winds, but is exposed to some wind-driven waves. Tidal variation is 2 metres for spring tides and 0.8 metres for neap tides. Surface water temperatures vary between an average 20.4°C in the summer and 11.7°C in the winter.

The substrate is predominantly soft sediment though some gravel-cobble reef occurs in intertidal areas. No rivers or creeks flow directly into the park.

Active and reflective cliffs indicative of higher sea levels at Swan Corner, and raised beach and emerged coastal forms between Chambers Point and Long Point are significant geological features within the park.

Marine Habitat Distribution and Ecological Communities

The main habitats protected by the park include intertidal and subtidal soft sediments (including small areas



of mangroves and saltmarsh, and seagrasses), some shingle-cobble rock areas, and the water column.

The majority of the saltmarsh in the park is Wet Saltmarsh Herbland community dominated by *Sarcocornia quinqueflora*.

Stands of the mangrove *Avicennia marina* are home to the barnacle *Elminius coertus* which is the dominant epifaunal organism on pneumatophores, the lower parts of mangrove trees and on mangrove seedlings at the seaward edge of the forest. Also found in the Mangrove shrublands are the common littorinid *Bembicium auratum*. The trunks and pneumatophores of mangroves also provide habitat for epiphytic filamentous algae, gastropods and mussels. The mangrove fringes of the park are also inhabited by crabs and, at high tide, fish such as gobies, mullet, and toadfish.

Small shingle and cobble spits provide habitat for reef associated fauna off the bluffs and promontories in the park.

The exposed intertidal flats are largely bare of vegetation or have sparse cover of the seagrass *Zostera muelleri*. The majority of the park is subtidal

habitat and is covered with dense beds of *Zostera / Heterozostera* seagrass and algae.

The soft sediments in the park have abundant microalgae growing on their surface, considerably more than many other areas in the bay. Of the seventeen macroinvertebrate species found in the intertidal mudflats, the most common were the sentinel crab *Macrophthalmus latifrons* and the Phoronid *Phoronopsis albomaculata*. Also common were the polychaete worms *Barantolla lepte* and *Lumbrineris* sp. and the bivalve mollusc *Tellina deltoids*.

Dense populations of the highly unusual and rare 'living fossil' lampshell or brachiopod *Magellania flavescens* are found on the subtidal sediments in the park.

The dendritic network of tidal channels provide a habitat for a range of invertebrate species such as gastropods, sea stars, urchins, ascidians, and the seapen *Sarcoptilus grandis*. Fish associated with the subtidal sediments and in the channels include stingrays, perch, flathead and gobies.

The water column habitat is dominated by drifting planktonic species, which rely on currents for movement, nutrients and food. Common plankton found in the water column

includes phytoplankton such as diatoms, and zooplankton including copepods, jellyfish and ctenophores. Highly mobile fish, sharks and stingrays also inhabit the water column.

Post-larvae of King George whiting appear in the bay from September to November each year from adults spawning in South Australia and far western Victoria.

Species and Communities of Conservation Significance

The park provides important feeding and roosting habitat for forty-one conservation listed bird species such as the orange-bellied parrot *Neophema chrysogaster* and grey-tailed tattler *Heteroscelus brevipes*, which are listed under the *Flora and Fauna Guarantee Act* and regarded as critically endangered in Victoria.

The park and surrounds is a feeding area for twenty-nine internationally important migrant species protected under the Australia Migratory Bird Agreement with either China (CAMBA) or Japan (JAMBA).

The rare 'living fossil' lampshell *Magellania flavescens* occurs in high densities on the subtidal sediments in the park.

Seagrass in Churchill Island Marine National Park.
Photo by Parks Victoria.



Potentially thirty two species of marine flora and fauna are at their distributional limits in Western Port Bay and may occur within the park.

Major Threats

Measures to address or minimise threats 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 Churchill Island Marine National Park include oil spills, invasive marine pests, human disturbance and fox predation of birds, and excessive nutrients and sediments from the catchment.

The Northern Pacific seastar *Asterias amurensis* is well established in Port Phillip Bay and was recently found at San Remo (although the San Remo population may have been eradicated).

Mangroves *Avicennia marina* fringing Churchill Island Marine National Park. Photo Chris Hayward, Parks Victoria.

There are concerns about possible spread of this species to the park.

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 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 four ongoing research projects and one habitat mapping project that are relevant to Churchill Island Marine National Park, while four research projects and one habitat mapping project have already been completed.

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.

