

Marine Natural Values Study Summary

Wilsons Promontory 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.

Wilsons Promontory Marine National Park is the only marine national park in the Flinders bioregion.

Image left:
Yellow zoanthid *Parazoanthus* sp. and sponge.
Photo by Julian Finn, Museum Victoria.

Image right:
Australian fur seal pups *Arctocephalus pusillus doriferus*
on Kanwona Island. Photo by Michael Sale.

Description

The park covers 15,580 hectares and is the largest of the marine national parks. It surrounds the southernmost tip of Wilsons Promontory National Park.

The park extends offshore from the high water mark along 44.6 kilometres of coastline from the southern end of Norman Bay to Cape Wellington, and offshore to within 300 metres of the Glennie Group of islands.

The park surrounds the Anser Group of islands (Anser, Wattle and Kanwona Islands and Anderson Islets, part of Wilsons Promontory National Park) to the mean high water mark along 13.3 kilometres of island coastline.

The park adjoins the section of Wilsons Promontory Marine Park that extends north along the west coast of Wilsons Promontory from Norman Bay.

It also adjoins the sections of Wilsons Promontory Marine Reserve near Cape Wellington and surrounding the Glennie Group of islands.

The park is accessible by boat or by foot through Wilsons Promontory National Park.

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 and Country of Gunai/Kurnai.

Physical Parameters and Processes

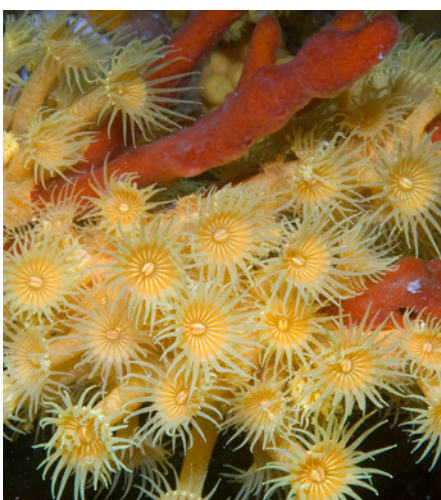
The Wilsons Promontory coastline is less exposed to swells than other parts of the Victorian coast, but is subject to strong current flows and high winds. These winds can create substantial surface waves, affect local currents and cause turbidity.

Strong and complex tidal patterns occur in the park. The western coast is generally subject to a south-west swell, and the eastern coast to a south-east swell. The only major current in the park area is the very weak termination of the East Australian Current.

The seafloor is predominantly more than 20 metres deep. Surface water temperatures vary between an average 17.5°C in the summer and 13°C in the winter. Tidal variation is 1.8 metres for spring tides and 1.4 metres for neap tides.

Numerous small estuaries run directly into the park.

The shoreline geology is dominated by a massif of Devonian granite. The area includes numerous geological and landform features of national geological and geomorphological significance.



Within the park, Cleft Island in the Anser Group is listed as having State geological significance.

Just outside the park the numerous sheets of granite at Norman Point are also listed while the sea caves of Great Glennie Island are of regional significance.

Wilson's Promontory is an important biogeographic barrier for biological communities.

Marine Habitat Distribution and Ecological Communities

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

The intertidal boulders in the park are home to marine plants such as lichens (e.g. *Lichina confinis*, *Gasparinnia murorum*), various brown algae (e.g. *Splachnidium rugosum*), and the globular cyanobacteria *Rivularia firma*.

Near the low water mark encrusting calcareous red algae, and medium sized brown algae *Cystophora* spp. can be common. Further down the shore the large brown algae *Durvillaea potatorum* is dominant.

Also dominant in the surge zone exposed only by low spring tides are

the brown algae *Ecklonia radiata* and *Phyllospora comosa*, along with coralline red algae.

Aggregating invertebrates found in the rocky intertidal zone include the mussel *Austromytilus rostratus*; the barnacles *Chthamalus antennatus*, *Chamaesipho columna*, *Catomerus polymerus* and *Austromegabalanus nigrescens*; and the ascidian *Pyura stolonifera*.

Mobile invertebrates found on the intertidal rocks include theperiwinkles *Austrolittorina unifasciata* and *Afrolittorina praeterrissa*. In amongst the mussels and barnacles are the limpets *Cellana solida*, *C. tramoserica*, *Notoacmea alta*, *N. mayi*, *N. petteridi*, *Patelloida victoriana*, and *P. latistrigata*.

The predatory gastropods *Dicathais orbita* and *Lepsiella vinosa* are also common and feed on the mussels and barnacles. Near the low-water mark the gastropods *Dicathais orbita* and *Turbo undulatus*, chitons of the genus *Plaxiphora* spp. and the limpet *Patella peroni* are common.

The subtidal soft sediments are predominantly inhabited by infauna (small crustaceans and worms that burrow into the sand) and bottom-dwelling skates and rays. Drift algae and algae attached to shells and debris are also common on soft sediments.

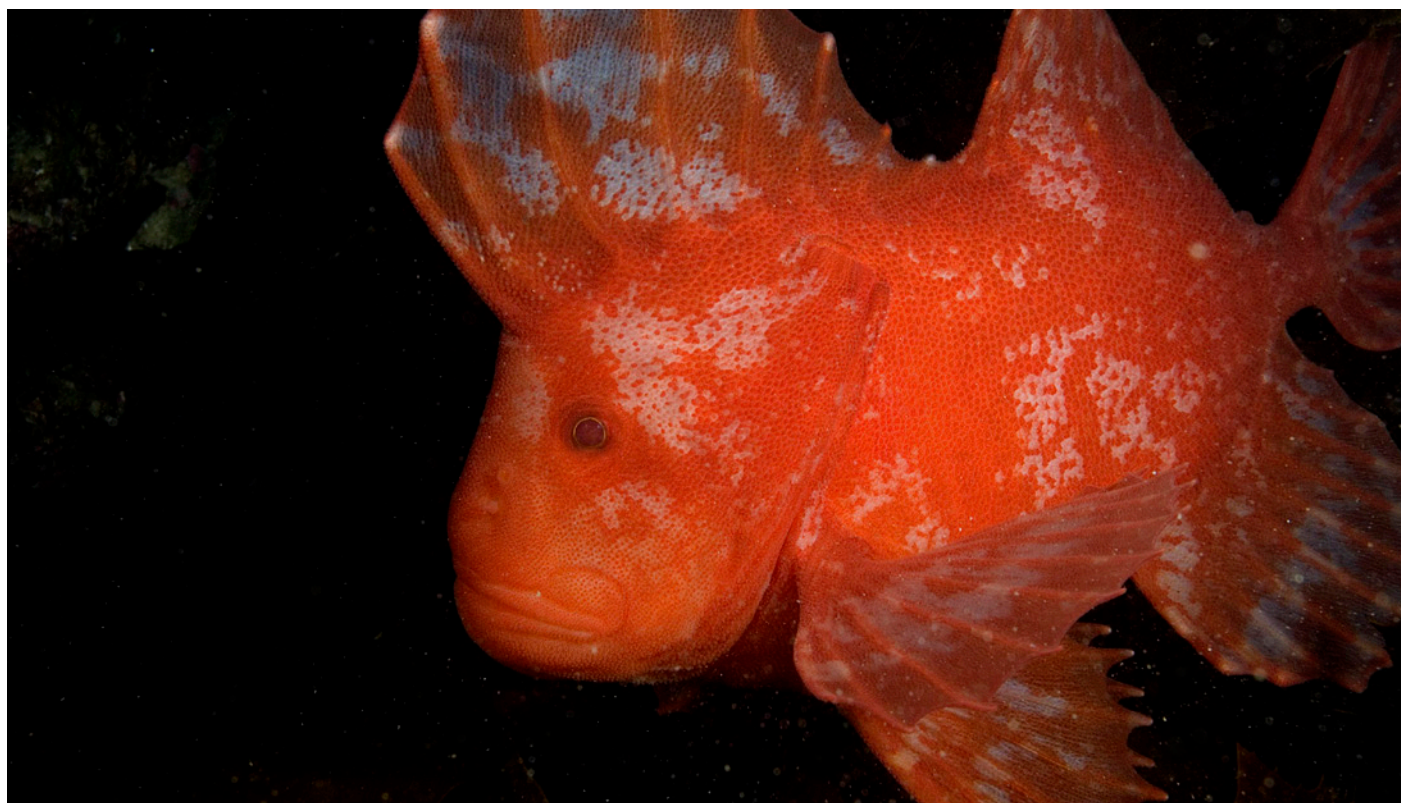
Seagrass beds of *Halophila australis* and *Heterozostera nigricaulis* are restricted to sheltered waters, in particular Waterloo and Oberon Bays.

A variety of fish have been recorded on seagrass and associated sand substrate including the southern goatfish *Upeneichthys vlamingii*, silverbelly *Parequula melbournensis*, wide-bodied pipefish *Stigmatopora nigra*, spotted pipefish *S. argus*, slender weed whiting *Siphonognathus attenuatus*, blue-throated wrasse *Notolabrus tetricus*, gobies *Nesogobius* spp., weedfish *Heteroclinus* spp. and *Cristiceps* spp. and toothbrush leatherjackets *Acanthaluteres vittiger*.

The demersal fish fauna of subtidal soft sediment environments are typical of much of the shallower parts of Bass Strait and include the sparsely spotted stingaree *Urolophus paucimaculatus*, Tasmanian numbfish *Narcine tasmaniensis*, banded stingaree *Urolophus cruciatus*, angel shark *Squatina australis*, shortnose sawshark *Pristiophorus nudipinnis*, sand flathead *Platycephalus bassensis*, silver trevally *Pseudocaranx dentex*, and prickly toadfish *Contusus brevicaudus*.

Benthic invertebrates found within the sediments are made up mostly of crustaceans including amphipods, cumaceans, isopods and ostracods

The Red Velvetfish *Gnathanacanthus goetzei*.
Photo by Mark Norman, Museum Victoria.



and polychaetes.

Subtidal reefs and the assemblages associated with them are strongly influenced by the position of the reef, its orientation, slope, depth, exposure and topography. These physical parameters influence key physical processes such as light, water flow and sedimentation, and biological processes such as foraging and recruitment.

Shallow subtidal reefs are often dominated by canopy forming algae. Deep reefs, where light penetration is limited, may be dominated by large sessile invertebrates such as massive sponges, whip corals (*Primnoella australasia*), soft corals and colonial ascidians.

Sessile invertebrates on more shallow reefs include zoanthids (e.g. *Parazoanthus* sp.) and gorgonians (e.g. *Pteronisis* sp. and *Acabaria* sp.). Both canopy forming algae and large sessile invertebrates can form habitat and food sources for invertebrates and fish.

The diversity and species composition of subtidal reefs in the park varies with location.

Some of the common macrophytes include canopy forming brown algae (e.g. *Phyllospora comosa*, *Ecklonia radiata* and *Seirococcus axillaris*), understory species (predominantly red algae, e.g. *Phacelocarpus peperocarpus*, *Plocamium* spp., *Pterocladia lucida*, *Ballia callitricha*, *Haliptilon roseum* and *Melanthalia*

Image left:
A common species in the park: butterfly perch
Caesioperca lepidoptera.

Image right:
Hermit crab (probably *Strigopagurus strigimanus*).
Photo by Julian Finn, Museum Victoria.

obtusata), and mixed brown algae (e.g. *Sargassum* spp. *Perithalia cordata* and *Acrocarpia paniculata*).

Mobile invertebrates found on subtidal reefs in the park include sea urchins (e.g. *Heliocidaris erythrogramma*), sea stars (e.g. *Cenolia trichoptera*, *Nectria* spp. and *Plectaster decanus*), molluscs (e.g. *Haliotis rubra*, *Turbo undulatus*), pycnogonids (e.g. *Stylopallene dorsospinum* and *Achelia transfugoides*) and bryozoans (e.g. *Canda arachnoides*, *Amathia* spp., *Euthyroides episcopalis* and *Triphyllozoon munitum*).

The fish fauna includes wide-ranging cool temperate species endemic to Southern Australian, with a much smaller proportion of warmer-water temperate species towards the southern limits of their range. Common species include old wives *Enoplosus armatus*, the large bastard trumpeter *Latriopsis forsteri*, various perch *Caesioperca* spp., various wrasse *Notolabrus* spp., southern hulafish *Trachinops caudimaculatus*, various sweep *Scorpiis* spp., magpie perch *Cheilodactylus nigripes*, the toothbrush leatherjacket *Acanthaluteres vittiger*, herring cale *Odax cyanomelas* and mado *Atypichthys strigatus*.

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 mammals, turtles and seabirds are also found in or use the water column.

Species and Communities of Conservation Significance

The park has many species of conservation significance including twenty five bird species (e.g. Latham's snipe *Gallinago hardwickii*, sanderling *Calidris alba*, Caspian tern *Hydroprogne caspia* and white-bellied sea-eagle *Haliaeetus leucogaster*), 5 marine mammals (e.g. humpback whale *Megaptera novaeangliae* and the killer whale *Orcinus orca*) and the leatherback turtle *Dermodochelys coriacea* on state, national or international conservation lists.

The conservation listed green turtle *Chelonia mydas* is a vagrant that has also been recorded in or near the park.

Seven species of fish found in the park are also regarded as being of conservation significance as they are numerically and spatially rare at the state level (e.g. *Sphyræna novaehollandiae* and *Pentaceropsis recurvirostris*).

The park is also a nationally significant area for recovery of white shark *Carcharodon carcharias* populations.

It is home to one hundred and twenty six biota that have been recorded or presumed to be at their distributional limit including algae (e.g. *Caulerpa* spp. and *Cystophora* spp.), seagrass (*Amphibolis antarctica*), shrimp (e.g. *Rhynchocinetes kuiteri*), sea stars (e.g. *Nectria multispina* and *Euantedon paucicirra*), molluscs (e.g. *Pisinna tumida tumida* and *Notoplax speciosa*), sea urchins (e.g. *Centrostephanus rodgersii* and *Spatangus luetkeni*), and fish (e.g. *Dotalabrus aurantiacus* and *Upeneichthys vlamingii*).



Two species of marine snail (*Liotella vercoi*, *Cystiscus halli*) and two species of chiton (*Eulima styliformis*, *Eulima victoriae*) are presumed to be endemic to the park, though this may reflect collection effort in this area rather than actual Victorian distributions.

Major Threats

Measures to address or minimise threats identified for Wilsons Promontory Marine National Park 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 invasive marine pests, nutrients from sewage, propeller scour, major oil spills and boat disturbance of seal colonies.

One introduced species has been recorded from the south-east of the park, the bryozoan *Bugula neritina*. It is thought that the introduced green shore crab *Carcinus maenas* is also found within the park.

The invasive New Zealand seastar *Astrostele scabra* and screw shell *Maoricolpus roseus* have been reported from marine protected areas to the east of Wilsons Promontory and there are concerns about their possible spread.

The Northern Pacific seastar *Asterias amurensis* was found at nearby Anderson Inlet in 2004–05, at San Remo in 2011, and most recently in 2012 in Tidal River in the Wilsons Promontory National Park. These populations appear to have been controlled, however there are concerns that this species could 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 will likely be exacerbated by climate change.

There are already some signs of climate change related effects in eastern Victoria with the black spined urchin *Centrostephanus rodgersii* expanding its range from NSW with a strengthening of the East Australian Current. This species forms urchin barrens (devoid of macroalgae) when it reaches high densities and significantly reduces biodiversity of subtidal reefs. At present, densities of this urchin in the park are relatively low.

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 nine ongoing research projects and one habitat mapping project that are relevant to Wilsons Promontory Marine National Park, while nine research projects and one habitat mapping project have already been completed. The park 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.