

Marine Natural Values Study Summary

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

Description

The sanctuary covers 48 hectares and is located 600 metres offshore from Port Campbell on the Great Ocean Road.

The sanctuary can only be accessed by boat.

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 Gadubanud.

Physical Parameters and Processes

The Arches Marine Sanctuary is on a very exposed coastline, open to the prevailing south-west winds and swells of the Southern Ocean in winter. In spring and summer it is open to prevailing south-east winds and swells. The West Wind Drift causes an easterly current which is important for natural processes but also moves discharged fresh water or pollutants through the sanctuary from nearby areas.

Surface water temperatures vary between an average 17.5°C in the summer and 13.5°C in the winter. Tidal variation is 0.9 metres for spring tides and 0.3 metres for neap tides. Campbell Creek discharges one kilometre to the north of the sanctuary.

Marine Habitat Distribution and Ecological Communities

The main habitats protected by the sanctuary include the water column, some subtidal soft sediments, and subtidal limestone reef made up of formations such as canyons, tunnels, arches, caverns, ledges and vertical sink holes in water depths between 19 metres and 25 metres.

The subtidal reefs and soft sediments in the sanctuary are the remnants of an ancient eroding coastline; more recent geological processes have shaped the limestone features closer to the surface.

The subtidal reefs support a diverse range of algae, sponges, bryozoans, hydroids, gorgonians and sea stars characteristic of deeper Bass Strait waters.

Upper surfaces of arches are covered with the kelp *Ecklonia radiata* and an understory of red seaweeds such as *Sonderopelta coriacea*, *Phacelocarpus peperocarpus*, *Pterocladia lucida*, and *Plocamium* spp.

The undersides and canyon walls provide habitat for sessile invertebrates such as sponges, the encrusting soft coral *Erythropodium hicksoni*, which grow on the ledge edges, the erect gorgonian coral *Mopsella* and the ascidian *Herdmania momus*.

Seastars are the dominant mobile invertebrates in the sanctuary and include *Nectria macrobrachia*, *Nepanthiaroughtoni* and *Tosia magnifica*.

Fish observed on the subtidal reefs are sea sweep *Scorpius aequipinnis*, barber perch *Caesioperca rasor*, blue-throated wrasse *Notolabrus tetricus*, bastard trumpeter *Latridopsis forsteri*, magpie perch *Cheilodactylus nigripes* and the dusky morwong *Dactylophora nigricans*.

Other common fish species that have been reported from this sanctuary include the zebra fish *Girella zebra*, snapper *Chrysophrys auratus*, marble fish *Aplodactylus arctidens*, Australian salmon *Arripis truttacea*, scaly fin *Parma victoriae* and Port Jackson shark *Heterodontus portusjacksoni*.

The water column is home to a variety of planktonic and pelagic organisms including sea jellies, salps, many fish, and phytoplankton and zooplankton. A number of marine mammals and seabirds, as well as the leatherback turtle, are also found in or use the water column. The short-fin mako shark *Isurus oxyrinchus* is also known from surrounding waters and is probably found in the sanctuary.

Species and Communities of Conservation Significance

The open waters are a likely habitat for the threatened migratory southern bluefin tuna *Thunnus maccoyii*, the grey nurse shark *Charcharias* and the great white shark *Carcharodon carcharias*.

Marine mammals of conservation significance found in or near the sanctuary include Southern right whale *Eubalaena australis*, humpback whale *Megaptera novaeangliae*, southern elephant seal *Mirounga leonine*, and Australian fur seal *Arctocephalus pusillus doriferus*.

The leatherback turtle *Dermochelys coriacea* is also likely to use the waters of the sanctuary.

Birds including the shy albatross *Thalassarche cauta*, the black-browed albatross *T. melanophris*, the short-tailed shearwater *Ardenna tenuirostris*, the pied cormorant *Phalacrocorax varius* and the black-faced cormorant *Phalacrocorax fuscescens* use the sanctuary as a feeding ground and are all of conservation significance.

Major Threats

Measures to address or minimise threats identified for The Arches 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 spill, terrestrial inputs of poor water quality, marine pests and diseases, litter and debris, and seismic testing.

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.

The invasive Japanese kelp *Undaria pinnatifida* has been recently found in Apollo Bay Harbour and there are concerns about its 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 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 The Arches Marine Sanctuary, while five 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.