Marine Natural Values Study Summary

Marengo Reefs 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.

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

Image left:
Australian fur seal *Arctocephalus pusillus doriferus* over subtidal reef.

Image right:
Blacklip abalone *Haliotis rubra* on subtidal reef.

Description

The Sanctuary covers 12.5 hectares surrounding and including a reef system known as Little Henty Reef and lying within Mounts Bay.

The sanctuary is only 150 metres offshore and access is via boat, swimming, small water craft or during very low tides by foot at Hayley Point (Marengo) to the inner reef. Access to the outer reef is restricted due to its importance as a seal habitat.

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 Gadubanud. Other Aboriginal communities, including the Kirrae Wurrung, Framlingham Aboriginal Trust, Wathaurung Aboriginal Cooperative and the Southern Otways Indigenous Group have an association with the coastal region of this area.

Physical Parameters and Processes

The coastline is exposed to high wave energy including large south-westerly swells affecting the outer reef. Offshore currents predominantly carry water from the south-west towards the Outer Reef while the Inner Reef (separated from the outer reef by a channel) is also influenced by inshore processes within Mounts Bay.

Complex local hydrodynamics and wave energy contribute to a high diversity of habitat types. The seafloor is generally less than 15 metres deep.

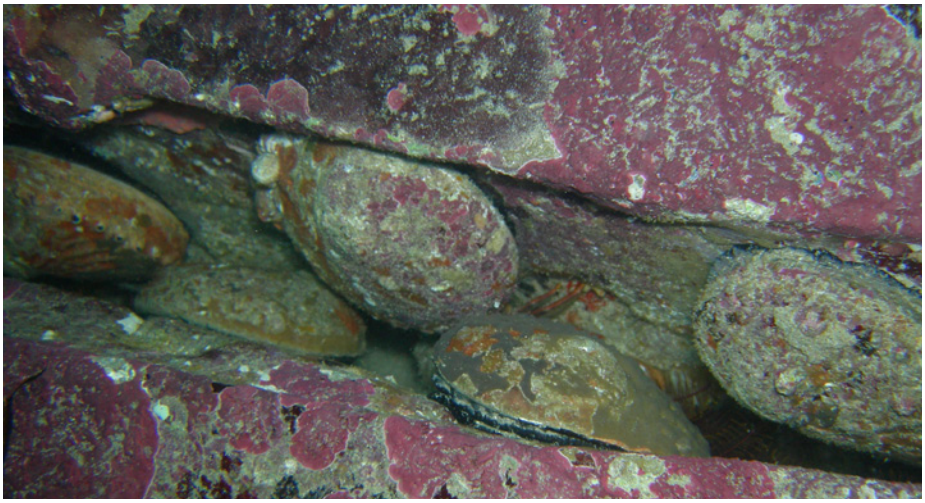
Surface water temperatures vary between an average 17°C in the summer and 13.5°C in the winter. Tidal variation is 1.7 metres for spring tides and 0.9 metres for neap tides.

The Marengo Sewerage Treatment Plant outfall discharges waste water from Apollo Bay, Skenes Creek and Marengo immediately to the west of the sanctuary. The Barham River estuary discharges into Mounts Bay 2 kilometres north-east of the sanctuary. The geology of the sanctuary is sandstone, the remnants of eroded islands.

Marine Habitat Distribution and Ecological Communities

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

The intertidal sandstone reef is home to more than one hundred and eight intertidal invertebrates, including nine seastar, five barnacle, seven crab and fifty two mollusc species. The bull kelp *Durvillaea potatorum* dominates the edge of the reef, and the cray weed *Phyllospora comosa* can occasionally



be seen at low tide, though it is generally found on shallow subtidal reefs.

The shallow subtidal rocky reefs are home to a low diversity of algal species, and in addition to the intertidal reef edge species *Durvillaea potatorum* and *Phyllospora comosa*, smaller brown algal species including *Cystophora retorta*, *C. moniliformis*, and *Acrocarpia paniculata* can be found. The algal understorey has very few species including a very low cover of red and green algae.

Common grazing subtidal invertebrates include the warrener *Turbo undulatus*, the predatory cartrut whelk *Dicathais orbita*, tulip shell *Pleuroploca australasia*, triton *Cabestana spengleri*, red bait crab *Plagusia chabrus* and a variety of sea stars including *Tosia australis*, and *Patiriella brevispina*. The blacklip abalone *Haliotis rubra* is particularly abundant.

The purple urchin *Heliocidaris erythrogramma* also occurs in low densities. The subtidal algae and invertebrate assemblages are similar to those found at Eagle Rock Marine Sanctuary.

More than seventeen fish species can be found on the subtidal reefs.

Southern rock lobster *Jasus edwardsii* under a ledge on subtidal reef.

Common species include the blue-throated wrasse *Notolabrus tetricus*, and purple wrasse *Notolabrus fucicola*. Other fish that have been recorded include the herring cale *Odax cyanomelas* and magpie morwong *Cheliodactylus nigripes*, while the horseshoe leatherjacket *Meuschenia hippocrepis* has also been recorded in low abundance.

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 and seabirds are also found in or use the water column in the sanctuary.

Species and Communities of Conservation Significance

Thirteen conservation listed seabirds and shorebirds have been found in or near the Marengo Reefs Marine Sanctuary including species such as the Australasian bittern *Botaurus poiciloptilus*, the eastern great egret *Ardea modesta*, the common sandpiper *Actitis hypoleucos* and the Shy Albatross *Thallassarche cauta* amongst others.

Hooded plovers *Thinornis rubricollis* nest on Haleys Point directly to the west of the sanctuary and on the beach at Mounts Bay to the north.

The nationally listed Australian fur seal *Arctocephalus pusillus doriferus* has a haul out area on the Outer Reef which has been declared a Special Protection Area and biotic site of state significance.

The nationally vulnerable southern elephant seal *Mirounga leonina* has also been recorded in or near the sanctuary.

Six fish species of conservation significance have been recorded in the sanctuary and include barracuda *Sphyraena novaehollandiae*, common gurnard perch *Neosebastes scorpaenoides* and dusky morwong *Dactylophora nigricans*.

The sanctuary is home to nine biota that are at or presumed to be at their distributional limit including red algae, one brown alga, a chiton, and a sea cucumber. This may reflect collection effort in this area rather than actual Victorian distributions.

Major Threats

Measures to address or minimise threats identified for Marengo Reefs 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 illegal harvesting, disturbance of seals, nutrients from increased population growth, turbidity from sedimentation due to nearby land use and coastal infrastructure development, lack of awareness, marine pests and pathogens, small boat use in the channel disrupting biota and proximity to the wastewater outfall.

Evidence of abalone viral ganglioneuritus which can kill a large proportion of abalone populations in affected areas has been observed in much of the Otway bioregion to the west, although there is no evidence that this virus has affected abalone in the sanctuary.

The invasive Japanese kelp *Undaria pinnatifida* has recently been found in Apollo Bay Harbour and there are serious concerns about its spread to sanctuary, given its close proximity to the harbour.

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.

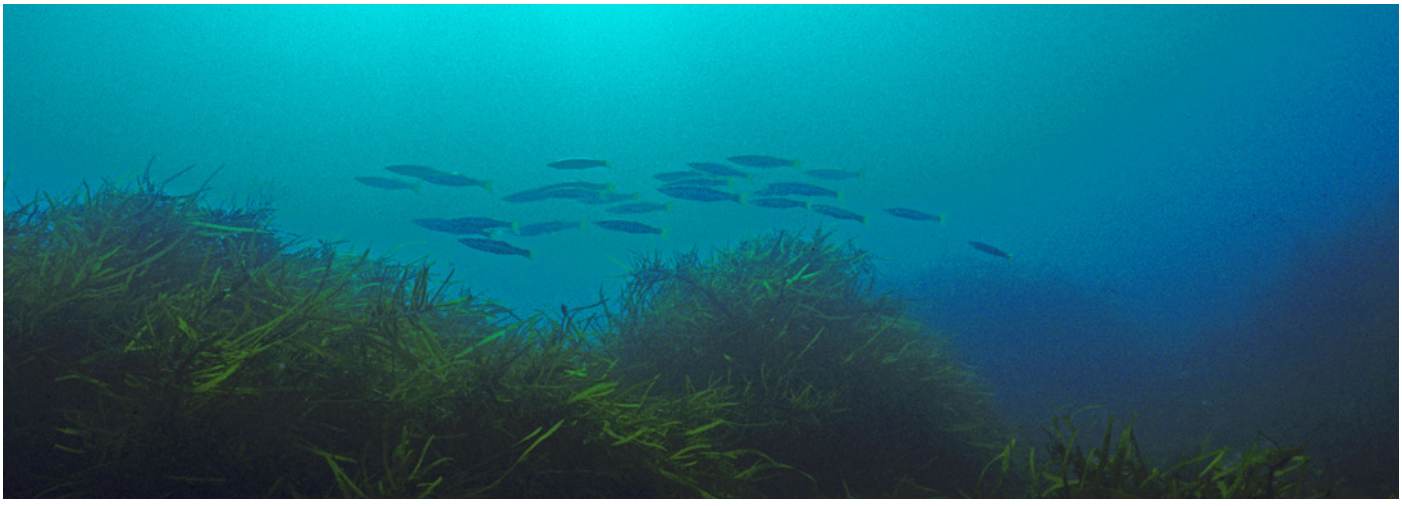
Since the establishment of the parks in 2002 our knowledge and understanding of natural values and threats for the system have improved significantly through the marine science program. Much of the research has been undertaken as part of the Research Partners Program involving collaboration with various research institutions.

There are five ongoing research projects, one habitat mapping project and one subtidal reef monitoring program that are relevant to Marengo Reefs Marine Sanctuary, while six research projects and one habitat mapping project have already been completed. DSE and Parks Victoria have also commissioned several surveys for the Japanese kelp *Undaria pinnatifida* around Cape Otway after this species was reported in Apollo Bay Harbour.

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.

Pike over subtidal reef kelp beds. Photo by NRE.



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