

Marine Natural Values Study Summary

Corner Inlet 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.

Corner Inlet Marine National Park is the only marine national park in Corner Inlet, which is part of the Victorian Embayments bioregion.

Image left:
Solitary corals *Culicia australiensis* on subtidal reef.
Photo by Julian Finn, Museum Victoria.

Image right:
Potbellied seahorse *Hippocampus abdominalis* in *Posidonia australis* seagrass bed.
Photo by Mark Norman, Museum Victoria.

Description

The park covers 1,333 hectares and comprises two separate sections in the south-east coast of Corner Inlet.

The northern section of the park extends west from near White Dog Point to a point approximately 6 kilometres offshore and then back to the shore at Tin Mine Cove. The near shore areas include the deep waters of Bennison Channel. The southern section extends west from the southern part of Chinaman Long Beach to Bennison Island, and from Bennison Island south to Barry Hill.

It can be accessed by boat, or on foot from Wilsons Promontory National Park.

The park forms part of an area that has been recognised as a wetland of international significance under the Ramsar Convention. It is part of the East Asian-Australasian Flyway for migratory waders. A special Protection Area – Natural Values Area management overlay covers the park except Bennison Channel, to protect the significant seagrass beds and wading bird habitats from disturbance.

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 Gunai/Kurnai and Country of Boonwurrung.

Physical Parameters and Processes

The park is influenced by tidal variations which are further complicated by changes in wind speed and direction, high and low pressure systems, wave action and storm surges. Tidal variation is 2.1 metres for spring tides and 1 metre for neap tides. Surface water temperatures vary between an average 20°C in the summer and 12°C in the winter.

The substrate is predominantly soft sediment though a regionally significant area of weathered granite shore platform and active granite sand spit development occurs between Barry Hill and Bennison Point. Direct discharges into the park include Chinaman Creek and several intermittent creeks from Wilsons Promontory National Park.

Marine Habitat Distribution and Ecological Communities

The park protects a wide variety of marine habitats ranging from deep channels to extensive shallow seagrass beds, tidal sand and mud flats, sandy beaches, and some rocky reefs, mangroves and saltmarsh.

The park is especially significant for over-wintering migratory wading birds, supporting up to 50 per cent



of Victoria's migratory waders and 20 per cent of Victoria's total wader population. Another important natural value of the park is the extensive beds of the seagrass *Posidonia australis*, the only large beds in Victoria.

Mangrove and saltmarsh communities in and adjacent to the park contribute organic matter to Corner Inlet, and are breeding and nursery grounds for many organisms including microcrustacea, bivalves and fish, and act as filters for sediments and other matter.

The white mangrove *Avicennia marina* subsp. *australasica* reaches the most southern extent of its distribution in Corner Inlet. The *A. marina* Mangrove Shrubland community grows on the sediment on intertidal mudflats on the shores of the southern section of the park and fringes the seaward edge of saltmarsh. The main saltmarsh community is Wet Saltmarsh Herbland dominated by beaded glasswort *Sarcocornia quinqueflora*.

Large areas of unvegetated intertidal mud and sand support invertebrates, microphytobenthos and demersal fish. Benthic invertebrates in both unvegetated and vegetated mudflats are an important food resource for

many migratory shorebirds. Intertidal cobbly reef occurs around Granite and Bennison Islands and along the shore in the northern section of the park. Shorebirds use the reef and sand shoals to roost.

Subtidal soft sediments are home to invertebrates such as polychaetes, crustaceans, bivalves and gastropods. Epifaunal species of Corner Inlet include gastropods, sea stars, urchins and ascidians. Fish associated with the subtidal sediments and in the deep channels of Corner Inlet include stingrays, perch, flathead, and gobies.

Four of Victoria's five main species of seagrass form meadows in the intertidal and subtidal soft sediments. The short eelgrass *Zostera muelleri* forms dense mats around the intertidal fringes and frequently lies exposed at low tide. The long eelgrass *Heterozostera nigricaulis* is found in slightly deeper water. Broad-leaf seagrass or strapweed *Posidonia australis* is the dominant seagrass on the submerged banks and is considered to be a "keystone" species providing shelter and food for many other creatures in Corner Inlet. The southern paddleweed *Halophila australis* occurs sparsely around broad-leaf *P. australis* seagrass beds or across sandy patches, although it can be locally common.

Seagrass beds are home to leatherjackets, conservation listed syngnathids (the group that includes seahorses and pipefish), and small juvenile fish (e.g. Whiting *Sillaginodes punctata*). Rock flathead *Platycephalus laevigatus* are permanent residents of seagrass beds.

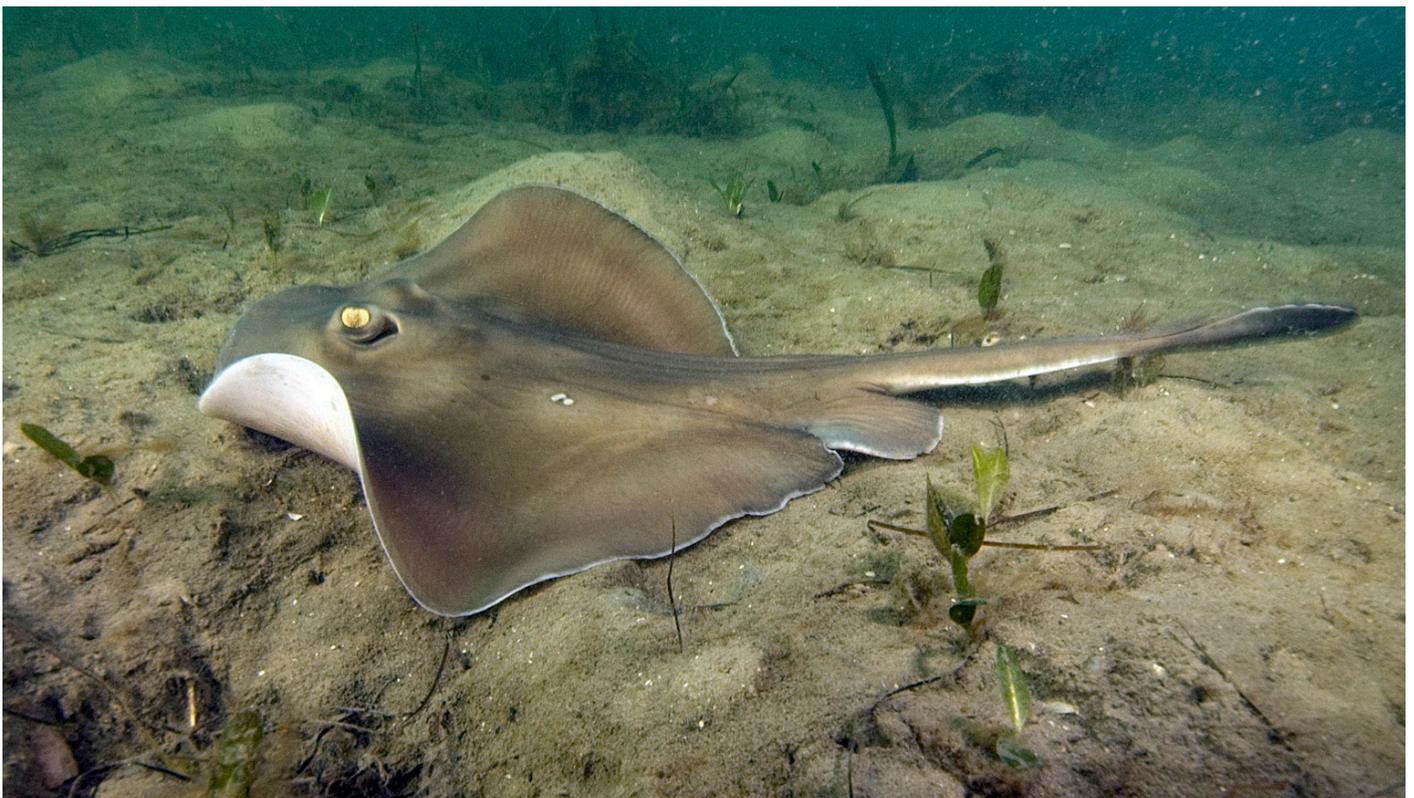
Small areas of subtidal reef occur mostly in shallow waters (<5 metres), but at least one area occurs in the deeper waters of Bennison Channel. The headland separating Tin Mine Cove and Chinaman Long Beach is the main example of a deep subtidal rocky reef within the park. Diverse marine life is present in these habitats.

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.

Species and Communities of Conservation Significance

Corner Inlet Marine National Park habitats provide important feeding and roosting habitat for twenty-four conservation listed bird species such as the orange-bellied parrot *Neophema chrysogaster*, which is listed under the

Sparsely spotted stingaree *Urolophus paucimaculatus* over subtidal soft sediment. Photo by Mark Norman, Museum Victoria.



Flora and Fauna Guarantee Act and regarded as critically endangered both in Victoria and nationally.

The park protects feeding areas for fourteen internationally important migrant species protected under the Australia Migratory Bird Agreement with either China (CAMBA) or Japan (JAMBA).

Ten species of marine flora and fauna are believed to be at their distributional limits within the park.

Major Threats

Measures to address or minimise threats identified for Corner Inlet 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 increased sediment and nutrients from the catchment, seawalls, invasive marine pests, changed catchment hydrology, dredging, propeller scour, and oil or chemical spills.

Two marine pests, the green shore crab *Carcinus maenas* and broccoli weed *Codium fragile* subspecies *fragile*, have been recorded in the park.

Six-spine leatherjacket *Meuschenia freycineti* above *Posidonia australis* seagrass bed.
Photo by Mark Norman, Museum Victoria.

The cordgrass *Spartina anglica* is also present in the park, but is more widespread in northern Corner Inlet in the Marine and Coastal Park.

Since the 1970s large areas of the seagrass *Posidonia australis* have been lost in Corner Inlet through dieback, particularly in the west. The most probable cause is thought to be associated with the increased sediment and nutrient loads. *P. australis* loss has not been observed in the park, although the potential for it to occur is a significant threat.

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 are likely to 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 Corner Inlet Marine National Park, while five research projects and one habitat mapping project have already been completed. There is one ongoing community based monitoring program (Sea Search), which monitors the broad-leaf seagrass in the park.

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.

