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Port Phillip Heads Marine National Park



Management Plan July 2006

**PORT PHILLIP HEADS MARINE NATIONAL PARK
MANAGEMENT PLAN**



July 2006

Published in July 2006 by Parks Victoria
Level 10, 535 Bourke St, Melbourne, Victoria, 3000.

Cover: Diver at Point Lonsdale (Photo: Anthony Plummer© 2006)

Parks Victoria 2006, Port Phillip Heads Marine National Park Management Plan, Parks Victoria, Melbourne

Port Phillip Heads Marine National Park management plan :

July 2006.

Bibliography.

ISBN 0 7311 8349 5.

1. Marine parks and reserves - Victoria - Port Phillip
Region - Management. 2. Conservation of natural resources -
Victoria - Port Phillip Region. 3. Port Phillip Heads
Marine National Park (Vic.) - Management. I. Parks
Victoria. II. Title.
333.783099451

Acknowledgements

Acknowledgement of *Country*. In their rich culture, Indigenous Australians are intrinsically connected to the continent – including the area now known as Victoria. Parks Victoria recognises that the park is part of *Country* of the Traditional Owners.

Parks Victoria is grateful to all those organisations and individuals who have contributed to this Final Management Plan. Special thanks go to members of the Port Phillip Heads Marine National Park Management Plan Advisory Group: Rod Barber, David Burges, Allan Cayzer, Jim Curtis, Sue Longmore, Dianne Moore, Greg Parry, Alan Ray, Mark Rodrigue, Ralph Roob, Len Salter and Geoff Sparks.

Note: Technical terms used in this plan are explained in the Glossary at the end of the plan.

Disclaimers

This plan is prepared without prejudice to any negotiated or litigated outcome of any native title determination applications covering land or waters within the plan's area. It is acknowledged that any future outcomes of native title determination applications may necessitate amendment of this plan; and the implementation of this plan may require further notifications under the procedures in Division 3 of Part 2 of the Native Title Act 1993 (Cwlth).

The plan is also prepared without prejudice to any future negotiated outcomes between the Government/s and Victorian Aboriginal communities. It is acknowledged that such negotiated outcomes may necessitate amendment of this plan.

Every effort has been made to ensure that the information in this plan is accurate. Parks Victoria does not guarantee that the publication is without flaw of any kind and therefore disclaims all liability for any error, loss or other consequence which, may arise from you relying on any information in the publication.

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FOREWORD

Port Phillip Heads Marine National Park protects some of Victoria's most treasured marine and coastal environments. The six areas making up the park have outstanding environmental, cultural and recreational values. The park has long been a popular bayside destination for Melburnians and is readily accessible to large numbers of people. It is significant for its many and varied opportunities for enjoying the marine environments and marine education.

The shipwrecks, scenic underwater seascapes and unique marine communities, including internationally recognised dive sites, are now safe within the park.

Many in the community maintain strong associations with the park, including the Traditional Owners. The park and the surrounding coastline are culturally significant to Indigenous communities. The waters of Port Phillip Heads are steeped in maritime history and contain many significant shipwrecks.

The care of the park is not a task for the government alone, nor only for those who live on the coast. It is a task for the whole Victorian community. This Management Plan sets out the ways in which we can work together to learn about, protect and sustain the valuable natural and cultural values of the park today and for future generations.

I thank the Port Phillip Heads Marine National Park Management Plan Advisory Group for their valuable contribution to the plan, and also wish to thank those individuals and organisations who made submissions on the draft plan. I look forward to the community's ongoing involvement in and support for the management of Port Phillip Heads Marine National Park.



JOHN THWAITES MP
Minister for Environment

APPROVED MANAGEMENT PLAN

This Management Plan has been prepared under section 17D of the *National Parks Act 1975* (Vic.) and is approved for implementation.

The plan provides the basis for the future management of Port Phillip Heads Marine National Park. It was finalised following consideration of the 30 submissions received on the Draft Management Plan.

PROF. LYNDSEY NEILSON
Secretary to the
Department of Sustainability and Environment

MARK STONE
Chief Executive
Parks Victoria

INTRODUCTION TO THE MARINE ENVIRONMENT

Victorians are custodians of some of the most remarkable, diverse and culturally important marine environments on Earth. These include deep open water, shallow embayments, rocky reefs, canyons, seagrass meadows, tidal sandflats and mudflats, and estuaries, and they support more than 12 000 known species. Around 90% of these marine species are found only in the waters of southern Australia.

Broadly speaking, Victoria has responsibility for the waters which extend off-shore to three nautical miles and cover around 70 000 square kilometres. Marine National Parks and Marine Sanctuaries make up about 5% of this area, but protect a range of significant species and important habitats as well as maritime artefacts and Indigenous sites and objects.

The vast three-dimensional marine environment has characteristics that are very different from those of the land and atmosphere. The fundamental physical properties — pressure, temperature, salinity, density and availability of nutrients and gases — are all very different. There are also great differences in the types of substrates, and the physical and biological processes that occur, such as tides, currents, light penetration, erosion, sedimentation, oxygen uptake, life cycles and even the food chains.

The organisms that occupy the marine environment are different as well. On land vascular plants dominate, but in marine habitats they are very rare, occurring only in very shallow water on sheltered coastlines. In most marine environments their ecological roles in photosynthesis and oxygen production are undertaken by algae, which range in size from giant kelps to minute single-celled species. Other single-celled organisms such as diatoms, cyanobacteria, dinoflagellates and forams, together with invertebrate larvae and marine fungi, make up most of the abundant marine plankton that is the basis of all marine food chains.

As on land, invertebrates, including molluscs (e.g. octopus, abalone, snails), crustaceans (e.g. crabs, lobsters, tiny amphipods) and echinoderms (e.g. sea cucumbers, sea stars and sea urchins), dominate the marine fauna, but insects — the most abundant invertebrates on

land — are almost absent. The dominant vertebrates are fish, although mammals and reptiles also inhabit the marine environment and many birds inhabit both realms.

Although they are very different physically and biologically, the land, atmosphere and marine environments are interconnected. Water and gases are transferred between oceans and the atmosphere. There are animals with both marine and freshwater life stages, and some species breed in estuaries where fresh water from the land mixes with oceanic salt water. Fresh water and sediments from catchments far inland are dispersed into coastal waters, bringing with them nutrients needed to maintain inshore marine ecosystems but also pollution from human activities.

The sea interconnects marine habitats over great distances. Tides and currents move sediments, plankton and organic matter into and through habitats, along with flotsam, jetsam, ballast water and oils from catchments or inshore waters, released from ships on the open seas or washed from the shores of other countries. Many marine animals migrate long distances, passing freely into and out of Victorian waters and spending much of their lives in the open ocean.

A vision for Victoria's system of Marine National Parks and Marine Sanctuaries

‘A world-class system of Marine National Parks and Marine Sanctuaries that conserves the diversity of Victoria's marine environments, protected and enjoyed by Victorians and visitors, forever.’

This vision for Victoria's system of Marine National Parks and Marine Sanctuaries is detailed in the Marine National Parks and Marine Sanctuaries Management Strategy 2003–2010 (Parks Victoria 2003a). It is described in the following extract:

‘The vision for Victoria's system of Marine National Parks and Marine Sanctuaries is to maintain marine ecosystems in their natural state, enjoyed by visitors and protected from the effects of inappropriate activities. The system will safeguard representative examples of undisturbed natural marine habitats, respect cultural heritage values, and be a place of

inspiration, enjoyment and renewal for all people. The system will complement our world-class national park system on land.

This vision seeks to preserve the diversity of our marine environment, its flora and fauna, its natural beauty, and the diversity of activities that may be enjoyed there. It is a vision that invites all Victorians to become involved, to take pride in our Marine National Parks and Marine Sanctuaries, and to share in their stewardship.'

Contribution of Port Phillip Heads Marine National Park to the statewide system

The Port Phillip Heads Marine National Park is significant in the representative statewide system as it contains some of Victoria's most treasured marine and coastal environments, and is within easy access of Melbourne and Geelong. The six areas making up the park have outstanding environmental, cultural and recreational values. Foremost among these values are:

- the incised entrance to Bay (the Rip) and the 'Heads' at Point Nepean and Point Lonsdale
- spectacular dive sites such as the Lonsdale and Nepean Walls and popular recreational dive locations
- intertidal rock platforms at Cheviot Beach and Point Lonsdale
- the coastal landscape of Point Nepean in Point Nepean National Park
- Bottlenose Dolphin populations
- sites listed under the Ramsar Convention for their importance for migratory wading birds (Swan Bay, Mud Islands)
- distinctive bird-dominated island ecosystem of Mud Islands
- sheltered environments such as the seagrass meadows of Swan Bay.

Implications for management

The differences and connections in the marine environment mean that Victoria's Marine National Parks and Marine Sanctuaries must be managed somewhat differently from land environments. Natural, recreational and cultural values may be affected by the use of both land and marine areas some distance away, over which park managers have no direct control or influence. Impacts on one marine habitat can quickly affect another and human activities and natural events on land and in the atmosphere can have widespread consequences for the marine environment. Boundaries in the ocean can be difficult to define, and the effects of human activities can be hidden from view. Like the atmosphere, but in contrast to land, the marine environment is a common resource which is rarely in private ownership and there are few natural or artificial barriers to movement. Many of the strategies used to concentrate the impacts of recreational activities in terrestrial parks (e.g. the creation of walking tracks and picnic areas) are not feasible in the marine context.

Conserving of historic and cultural heritage places is also a challenge because it is often difficult to identify an underwater cultural heritage place or monitor activities that take place on the open sea or under water. *Sea Country*, and cultural associations with or past use of, underwater places which were exposed before sea level rise, must also be considered.

The long-term protection of the Marine National Parks and Marine Sanctuaries relies on the support and goodwill of the community, together with the help of coastal managers and government agencies. The plan seeks to foster a strong sense of custodianship of the Port Phillip Heads Marine National Park and to strengthen its protection while respecting cultural and community associations with the areas.

SUMMARY

Port Phillip Heads Marine National Park lies at the southern end of Port Phillip and comprises six sections: the headlands on both sides of Port Phillip's entrance (Point Lonsdale and Point Nepean), Swan Bay, Mud Islands, Portsea Hole and Popes Eye. The park protects a wide range of habitats, including extensive rocky intertidal and subtidal reef systems, vast seagrass meadows, dynamic intertidal sandy beaches, sheltered subtidal soft substrates and a deep water column environment.

Swan Bay and Mud Islands are internationally significant shorebird habitats and form part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site listed under the Ramsar convention and on the Register of the National Estate.

Port Phillip is Melbourne's most important recreational area. The park contains some of Victoria's most treasured marine and coastal environments, easily accessible from the Mornington and Bellarine Peninsulas.

The park is popular for diving and snorkelling and has internationally recognised dive sites. Its unique natural features draw many visitors, largely to observe nature.

The sea and the surrounding coastline are culturally significant to Indigenous communities. The waters of Port Phillip Heads are steeped in maritime history and contain many culturally significant shipwrecks. The underwater cultural heritage of this area is unparalleled in Australia in terms of the number and type of shipwrecks and the extent of preservation of the remains located thus far.

Port Phillip Heads Marine National Park makes a valuable contribution to Victoria's system of Marine National Parks and Marine Sanctuaries, which aims to protect representative samples of the State's marine environment.

Future management aims to provide enhanced and sustainable opportunities for visitor enjoyment and appreciation of the park while protecting park values. Major management directions for the park include the following.

- Natural processes including competition, predation, recruitment and disturbance will

be protected to ensure an overall benefit to biodiversity and variety of marine ecological communities in the park.

- Popes Eye and Portsea Hole will be managed for sustainable diving to minimise impacts on habitats, communities and ecological processes.
- Feeding and roosting habitat values at Point Lonsdale, Popes Eye, Swan Bay and Mud Islands will be maintained for resident and migratory seabirds and shore birds.
- Compliance with legislated provisions that prohibit extractive activities, including fishing, will be ensured through education, information, community support, and improved surveillance and enforcement.
- Features of archaeological, historical and cultural significance will be protected from interference or damaging activities.
- Scientific research, surveys and monitoring will be supported and encouraged to contribute to better management of the park.
- The park will be promoted as a gateway to introduce Victorians to the Marine National Parks system with its numerous opportunities to enhance visitors' experiences.
- The Traditional Owners' cultural lore, interests and rights in the park and aspirations for *Country*, will be reflected in the park's planning and management.
- Indigenous cultural lore relating to *Country* will be respected, promoted and interpreted in accordance with the views of the Traditional Owners.
- Friends and volunteer groups will be supported and encouraged and opportunities promoted for the community to work together and with Parks Victoria to achieve common goals for the park.
- Collaborative work with agencies and stakeholders to assist in the park's management will be encouraged.

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1 INTRODUCTION

1.1 Location and planning area

Port Phillip Heads Marine National Park is at the southern end of Port Phillip, about 60 km south-west of Melbourne, and stretches along 40 km of coastline (figure 1). The park (3580 ha) is made up of six sections:

- Swan Bay (~2106 ha): includes almost the entire bay, and protects 21 km of coastline. The inlet west of Burnt Point, the waters north and south of Rabbit Island, a narrow area of water along the western side of Duck Island and Edwards Point, and a 300 m wide channel, identified by in-water navigation markers and extending from Swan Bay Jetty to the park boundary north of Duck Island, are not within the park (figure 2b).
- Mud Islands (625 ha): these islands are protected by a 2.5 km by 2.5 km square section that includes the islands and protects 10 km of their coastline (figure 2c).
- Point Lonsdale (~415 ha): protects 3 km of coastline and extends along and offshore from Clarkes Beacon to west of Point Lonsdale, excluding an area 50 m on each side of the pier (figure 2a).
- Point Nepean (~420 ha): protects 6 km of coastline and extends from Observatory Point 250 m offshore to Corsair Beacon–Rock Beacon, and then forms a large wedge to the south until it rejoins the coast at Cheviot Beach (figure 2a).
- Popes Eye (4 ha): a circular area 100 m in radius, centred on the centre of the annulus (figure 2d).
- Portsea Hole (10 ha): this feature is protected within a rectangular section approximately 400 m by 250 m which is 600 m offshore from the Portsea Pier (figure 2a).

1.2 Creation of the park

Port Phillip Heads Marine National Park forms part of the system of 13 Marine National Parks and 11 Marine Sanctuaries in Victorian waters. The selection of these areas was based on more

than 10 years of research, investigation and community consultation by the former Land Conservation Council (LCC) and Environment Conservation Council (ECC), summarised in the *Marine, Coastal and Estuarine Investigation Final Report* (ECC 2000). The recommendations of the ECC accepted by government (Government of Victoria 2002) included establishment of the new parks and sanctuaries under the *National Parks Act 1975* (Vic.). Port Phillip Heads Marine National Park was included on Schedule 7 of the National Parks Act on 16 November 2002 (appendix 1).

When created, much stronger penalties were applied for all forms of fishing, including shellfish collection in Marine National Parks or Marine Sanctuaries, than apply for taking or damaging fauna, plants or objects from these areas.

Swan Bay, Popes Eye, Mud Islands, Point Nepean and Point Lonsdale were originally gazetted as part of the Harold Holt Marine Reserves in 1979 and re-gazetted as the Harold Holt respective Fisheries Reserves in 1998. Small areas of the Harold Holt Fisheries Reserves were not included in the Marine National Park (e.g. in Point Nepean and Swan Bay); these areas were revoked when the park was established.

Port Phillip Heads Marine National Park includes the area between the high and low water mark at Point Nepean that was formerly part of Point Nepean National Park (formerly Mornington Peninsula National Park).

1.3 Plan development

This first Management Plan for the park was prepared by Parks Victoria, with significant input from the Port Phillip Heads Marine National Park Management Plan Advisory Group and other stakeholders. It takes into account existing information, reports and research findings that relate to the park and is informed and supported by a range of best practice management systems.

The strategies outlined in this plan have been guided by the statewide *Marine National*

Parks and Marine Sanctuaries Management Strategy 2003–2010 (Parks Victoria 2003a).

The plan is a strategic guide for future management of the park. As a public document, the plan establishes how Parks Victoria will protect the natural and cultural values of the park, and describes the services and facilities that will be provided to help visitors to enjoy, appreciate and understand the park in ways that are consistent with this. The plan also serves to inform and encourage cooperative land management and participation in community-based programs between Parks Victoria and the managers of areas adjacent to the park.

As a working document for the park, the plan informs Parks Victoria's development of Corporate Plans, serves as a framework for subsequent detailed planning and governs management activities.

This Final Plan was published as a Draft Plan for public comment in 2004, and 30 submissions were received (appendix 2).

Where necessary, further consultation with the community and stakeholders was undertaken.

Key changes to the draft in preparing this final plan included:

- strengthening of the regulations to manage boating activities in Swan Bay
- clarification of the role of Parks Victoria and other government agencies
- strengthening mechanisms to better manage and monitor visits by schools groups and monitor trampling impacts
- strengthening strategies to manage the impacts from marine pests in the park
- permitting appropriate Defence Force training activities
- greater detail about plan implementation, reporting, performance measuring and evaluation at the end of the plan.

The final management plan will direct future management of the Port Phillip Heads Marine National Park, until reviewed.

2.1 Regional context

Port Phillip Heads Marine National Park forms part of a representative system of 13 Marine National Parks and 10 other Marine Sanctuaries in Victoria, established within the broader context of a National Representative System of Marine Protected Areas (NRSMPA). The establishment of an NRSMPA contributes to the establishment of a global representative system of marine protected areas (ANZECC TFMPA 1999).

Port Phillip Heads Marine National Park is one of eight Marine National Parks and Marine Sanctuaries in the Victorian Embayments marine bioregion, as identified by the Interim Marine and Coastal Regionalisation for Australia (IMCRA). This regionalisation identified 60 marine bioregions, five of which apply to Victorian waters (IMCRA Technical Group 1998). The park protects approximately 1.2% of the Victorian Embayments marine bioregion.

The bioregion encompasses the larger bays and inlets of Port Phillip, Western Port, Corner Inlet – Nooramunga, Gippsland Lakes and Mallacoota Inlet. It is characterised by sheltered waters with extensive areas of subtidal and intertidal sediments.

Indigenous tradition indicates that the Mornington Peninsula side of the park, including Mud Islands, is part of *Country* of the Boonwurrung¹ and that the Bellarine Peninsula side of the park is part of *Country* of the Wathaurong (section 5.1).

The park is part of the Barwon River Basin of the Corangamite Catchment on the Bellarine Peninsula, and the Western Port Catchment of the Port Phillip and Western Port Catchment Region on the Mornington Peninsula. The foreshore adjacent to the park on the Bellarine Peninsula is within the Borough of Queenscliffe and the City of Greater Geelong. Parks Victoria manages the foreshore adjacent to the park on the Mornington Peninsula.

¹ This management plan adopts the spelling used by Department of Justice. Boonwurrung may also be spelt in a number of different ways, including 'Boonerwung' and 'Bunurong'.

On the Bellarine Peninsula side of the park the area of catchment is approximately 1 334 000 ha, and 73% of the land is used predominantly for livestock grazing and dryland agriculture. Areas with remnant natural and semi-natural vegetation are scattered through the catchment. Most run-off from the catchment drains ultimately into the Barwon River, which flows into Bass Strait at Barwon Heads. Frederick Mason Creek and Yarram Creek discharge into the park via Swan Bay. On the Mornington Peninsula side of the park the catchment is approximately 343 000 ha in area, of which 42% is used for agricultural purposes, including dairying, grazing and horticulture. The coastline and forested hills of the upper catchment support valuable natural areas, including the forests and remnant vegetation on freehold land; indigenous vegetation covers 22% of the catchment. No waterways or stormwater drains discharge into the park on the Mornington Peninsula side of the park.

The park is in Tourism Victoria's Melbourne's Bays and Peninsulas product region. Camping and accommodation areas close to the park include Rosebud, Portsea, Sorrento, Queenscliff and Point Lonsdale. Melbourne's Bays and Peninsulas product region receives 16% of all tourist visits to Victoria, comprising 2.2 million domestic overnight visitors, 6.7 million domestic day visitors, and 53 000 international overnight visitors (Tourism Victoria 2003).

The park is at the southern end of Port Phillip and comprises six sections, including the headlands on both sides of Port Phillip's entrance (Point Lonsdale and Point Nepean) as well as Swan Bay, Mud Islands, Portsea Hole and Popes Eye. Port Phillip is Melbourne's most important recreational area and provides shipping access to one of Australia's busiest seaports. The waters around the entrance to Port Phillip, including the park, contain many heritage-listed shipwrecks.

The park contains some of Victoria's most treasured marine and coastal environments, easily accessible from the Mornington and Bellarine Peninsulas. It is an important venue

for recreation and tourism, and protects many popular recreational diving locations.

The park protects 40 km of coastline and is complemented by a number of nearby parks, including the following:

- Barwon Bluff Marine Sanctuary, at the mouth of the Barwon River. Protecting unique basalt and sandstone reefs, the sanctuary provides excellent opportunities for educational rock rambles and is popular for snorkelling, diving and surfing.
- Point Nepean National Park, abutting the Point Nepean component of Port Phillip Heads Marine National Park. A very popular summer holiday destination featuring diverse coastal environment such as basalt cliffs, remnant native bushlands, outstanding cultural values and surf, and providing opportunities for a wide range of activities.
- Lake Connewarre State Game Reserve, southeast of Geelong on the lower Reaches of the Barwon River. The Reserve contains one of the largest estuaries in Victoria. It is part of the Port Phillip (Western Shoreline) and Bellarine Peninsula Ramsar site and is listed on the Register of the National Estate for its wetland values. Nature study, passive recreation, duck and quail hunting and fishing are popular activities within the reserve.
- Edwards Point Wildlife Faunal Reserve, near St Leonards on the northern shores of Swan Bay. This protects significant remnant saltmarsh vegetation and wildlife and is a popular destination for walking, nature study and birdwatching.
- Lake Victoria – Lonsdale Lakes Wildlife Reserve, on the Bellarine Peninsula. A system of wetlands and dunes facing Bass Strait that abut significant components of Swan Bay, the reserve is a significant site for migratory and resident birds and has significant remnant vegetation communities.
- A network of foreshore reserves managed by committees of management, popular for recreation.
- Mornington Peninsula and Western Port Biosphere Reserve. The Mornington Peninsula has been identified as part of a

United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserve to encourage and promote sustainable use of the region's valuable natural resources.

2.2 Park significance and values

Port Phillip Heads Marine National Park makes a valuable contribution to Victoria's parks system, which aims to protect viable representative samples of the State's natural marine and terrestrial environments. Parks also provide opportunities for visitors to enjoy and appreciate natural and cultural values, and many make important contributions to tourism.

The park is assigned the International Union for the Conservation of Nature and Natural Resources (IUCN) Category II of the United Nation's List of National Parks and Protected Areas. Category II areas are managed primarily for ecosystem protection and recreation.

Swan Bay and Mud Islands form part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site which is recognised for wetlands of international significance under Article 2 of the Ramsar Convention (Ramsar 1971). The strategic management plan for the Port Phillip (Western Shoreline) and Bellarine Peninsula Ramsar site (DSE 2003b) gives overarching management directions.

The area included in the park is significant to many people in the community, especially the Traditional Owners. A number of local environmental groups including the Friends of Mud Islands, other community groups, individuals, local residents and the education and research community, have strong historical associations with the park area. Parks Victoria respects these traditional and historical associations.

In recognition of the area's outstanding values and its heritage importance, the Swan Bay and Mud Islands components of Port Phillip Heads Marine National Park are listed on the Register of the National Estate.

The significant natural values of each section include the following.

Point Lonsdale

- intertidal reef platforms that contain the highest invertebrate diversity of any calcarenite reef in Victoria
- diverse and abundant algal assemblages on Lighthouse Reef
- deep undercuts in the Lonsdale Reef with algae communities more typical of deeper waters — a geological feature that is seldom found along Victoria's open coast
- diverse fish and invertebrate assemblages with extensive encrusting communities such as ascidians, bryozoans and sponges on the Lonsdale Wall
- calcarenite shore and reef platforms that are of regional significance and state significance for shorebird feeding habitat
- frequent sightings of threatened marine mammals along the open coast of Point Lonsdale.

Mud Islands

- an exposed section of the Great Sands, the result of a tidal delta — a highly unusual formation of state significance
- dense seagrass beds that are habitat for invertebrates and fertile feeding grounds for resident and migratory birds, and provide important nursery areas for juvenile fish
- internationally significant shorebird habitat for resident and migratory birds, listed under the Ramsar Convention and on the Register of National Estate
- isolated saltmarsh communities largely protected from human influences and pest animals.

Swan Bay

- internationally significant shorebird habitat, listed under the Ramsar Convention and on the Register of National Estate
- key wintering site for the Orange-bellied Parrot

- extensive and species-rich seagrass beds that provide important fish habitat and nursery areas, with two rare species of seagrass
- regionally significant intertidal mudflats and extensive saltmarsh that support a rich community of birds, fish and other fauna
- a regionally significant distributary delta where the Yarram Creek runs into Swan Bay.

Popes Eye

- a natural sand shoal formation with an artificial rock structure on top, supporting a rich benthic community of encrusting algae, sedentary organisms, sponges and soft corals
- state significance for seabirds, one of a few artificial structures in Victoria where Australasian Gannets nest and roost
- diverse and abundant fish assemblages within the only site in Victoria where fishing has been prohibited since 1979.

Portsea Hole

- unusual geomorphology consisting of a remnant section of the Yarra River, with a sharp gradient between the depths of 12 and 32 m exposing strata changes over depth, descending from a limestone structure to a sandy base
- abundant and diverse fish assemblages and a rich benthic community of encrusting algae, sedentary organisms, sponges and soft corals.

Point Nepean

- dynamic sedimentation regime related to the tidal and wave movement of sand through Port Phillip Heads, with sustained sandy accretion at Observatory Point
- an unusual example of a shore platform that has developed in contrasting wave environments, highlighting the processes that have shaped the opening to Port Phillip
- intertidal reef platforms that contain a high invertebrate diversity similar to Point Lonsdale which have been protected due to long-standing park regulations that prohibit access

- subtidal reefs with diverse fish and invertebrate assemblages with extensive encrusting communities such as ascidians, bryozoans and sponges
- frequent sightings of dolphin pods
- shorebird habitat along the reef platforms and sandy beaches.

The significant cultural values of each section include the following.

Point Lonsdale

- numerous heritage-listed shipwrecks in the waters around Point Lonsdale
- history of shipping, migration, navigational use, rescue and piloting services, defence and naval activities
- site of early scientific research and botanical surveys
- recognised for its ecological values and protected as one of the first marine reserves in Victoria since 1979.

Swan Bay

- history of defence and naval activities
- recognised for its ecological values and protected as one of the first marine reserves in Victoria since 1979.

Mud Islands

- a long and unbroken history of Friends group involvement
- recognised for its ecological values and protected as one of the first marine reserves in Victoria since 1979.

Popes Eye

- an unusual sand shoal formation on which construction of a fort was commenced in the 1880s from bluestone brought from Point Wilson (but never finished), in defence of the West and Symonds Channel
- recognised for its ecological values and protected as one of the first marine reserves in Victoria with a fishing prohibition since 1979.

Portsea Hole

- the only visible remnant section of the ancient Yarra River, probably used by

Indigenous people for water collection and fishing when Port Phillip was a dry plain.

Point Nepean

- numerous heritage-listed shipwrecks in the waters around Point Nepean
- history of shipping, migration, quarantine and defence and naval activities
- includes site of Prime Minister Harold Holt's 1967 disappearance at Cheviot Bay
- remnants of an early jetty at Observatory Point where people, supplies and later cattle for the Quarantine Station were landed
- archaeological remains of jetty and artefacts from the former engine house
- recognised for its ecological values and protected as one of the first marine reserves in Victoria since 1979.

The significant tourism and recreational values of each section include the following.

Pt Lonsdale

- leisure activities such as swimming, surfing, walking, birdwatching, nature observation and passive recreation
- spectacular subtidal reefs, popular for diving and underwater photography and internationally recognised
- snorkelling opportunities between Lightning Reef and the Point Lonsdale Pier
- recreational boating and sailing
- excellent opportunities for guided marine education and nature-based tourism
- scenic landscapes that provide for spectacular photography and filming activities.

Point Nepean

- walking and nature observation between The Bend and Observatory Point only
- recreational boating activities including boat-based surfing on offshore surf breaks
- internationally recognised dive sites at spectacular subtidal reefs that provide for snorkelling and diving activities

- excellent opportunities for guided marine education and nature-based tourism
- guided dolphin and seal swimming activities
- scenic landscapes that provide spectacular opportunities for photography and filming.

Swan Bay

- recreational boating, including canoeing, kayaking and sailing from the Yacht Club
- opportunities for guided marine education and nature-based tourism
- leisure activities, birdwatching and nature observation, and passive recreation
- subtidal seagrass meadows suitable for snorkelling
- scenic landscapes that provide opportunities for spectacular photography and filming activities.

Mud Islands

- subtidal seagrass meadows suitable for snorkelling
- opportunities for birdwatching and nature observation and guided marine education.

Popes Eye

- excellent snorkelling and diving opportunities
- opportunities for guided marine education and nature-based tourism
- birdwatching and nature observation
- popular short-stay destination for pleasure craft.

Portsea Hole

- excellent opportunities for guided marine education and nature-based tourism via diving activities.

2.3 Evidence of past use

Indigenous communities have a long association with the coastline and are known to have inhabited the Port Phillip region for around 40 000 years. Communities hunted and collected food on the large flat plains of Port Phillip during the last interglacial phase before the sea level rose to flood the plains. The Boonerwong from the Mornington Peninsula

and the Wathaurong from the Bellarine Peninsula frequently used the coastal areas around Port Phillip Heads Marine National Park to hunt fish and gather shellfish from the reefs. The sea provided plentiful food resources, and reliable sources of water could be found along the coast.

The waters around the Heads have been used since European settlement to access Port Phillip. Commercial ships use shipping channels adjacent to the park to navigate the entrance and southern waters of Port Phillip and access the Port of Melbourne and Port of Geelong.

The treacherous nature of the waters has resulted in many shipwrecks in the past. Piloting and rescue services have also used (and still use) the waters to assist shipping access and rescue survivors of ships wrecked by the hazardous conditions.

The entrance to Port Phillip and its southern waters were used for defence activities from the 1850s, and fortifications on and around the Heads, including Popes Eye, were built to defend Port Phillip in the event of an invasion.

The unique marine flora and fauna of Point Nepean, Point Lonsdale, Popes Eye, Mud Islands and Swan Bay were protected as the Harold Holt Marine Reserves in 1979, the first marine reserves in Victoria (section 1.2).

The Mornington and Bellarine peninsulas have long been popular for recreational activities, include diving, snorkelling, swimming, beachcombing, rock-pool rambling and nature observation, and recreational boating. Recreational fishing has been very popular, particularly in the waters around Point Lonsdale, and commercial fisheries including rock lobster, abalone, netting and line fishing occurred in the waters and reefs that now make up the park.

2.4 The park visitor

The park is easily accessible from the Bellarine and Mornington peninsulas, which are very popular destinations for international and local visitors all year round. Many visitors come to Queenscliff, Point Lonsdale, Portsea and Sorrento for beachside holidays in the summer months, when the populations of these local townships increase substantially.

Access to the park is by shore and by boat. At Point Nepean shore-based access is prohibited, except for walk-in access to a small area of the intertidal shoreline on Point Nepean (section 6.2).

The unique natural and geomorphological features of Port Phillip Heads Marine National Park draw visitors to the park to observe nature by sightseeing, beach walking, rock-pool rambling, birdwatching, diving and snorkelling, and swimming with dolphins and seals. Many of these activities are offered within the park by licensed tour operators, thus increasing the accessibility of the park to recreational users.

Divers from around the world come to the park to experience some of the best diving and snorkelling sites in Victoria. Diving activities peak during the summer months, although they occur all year round.

Visitors also enjoy surface water sports such as surfing, kayaking and canoeing in the park, as well as recreational boating and sailing.

The park is an excellent location for guided marine and heritage educational activities. Marine education tours and school groups frequent the intertidal reefs in the park. A strong sense of stewardship exists in the local area, and there are opportunities for involvement in activities provided by Friends groups.

There are no visitor services other than ranger patrols within the parks, and facilities consist only of boundary markers (section 7.2) and signage (section 6.1).

2.5 Legislation and ECC recommendations

Port Phillip Heads Marine National Park is reserved and managed under the National Parks Act. The Act requires the Secretary to DSE to preserve and protect the natural condition of the park and its natural and other features and, subject to this, to provide for the use of the park by the public for enjoyment, recreation and education. Appropriate research activities are also provided for under the Act. The National Parks (Park) Regulations 2003 apply to the park.

All forms of extraction, including recreational and commercial fishing, and shellfish

collection are prohibited within the park under the National Parks Act and regulations. A Statewide Compliance Strategy and a Regional Compliance Plan have been developed in partnership with Fisheries Victoria – Department of Primary Industries to manage compliance with the no-fishing provisions within the park (section 8.3).

The objects and provisions of the National Parks Act set the framework for the management of Port Phillip Heads Marine National Park (appendix 1). Specific legislation and ECC recommendations accepted by government also govern particular aspects of management of the park, as described below and in subsequent sections of the plan.

The *Coastal Management Act 1995* (Vic.) applies to the use and development of the whole of the park.

The *Archaeological and Aboriginal Relics Preservation Act 1972* (Vic.) and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cwlth) apply to the park and protect all Aboriginal cultural heritage values including places and objects (section 5.1).

The *Native Title Act 1993* (Cwlth) applies to the management of the park.

The *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) applies to the whole of the park with respect to actions that have, will have, or are likely to have, a significant impact on matters of national environmental significance, including listed threatened species and communities and listed migratory species and wetlands of international importance in the park.

The *Parks Victoria Act 1998* (Vic.) enables management services for the park to be provided by Parks Victoria on behalf of the Secretary to DSE.

Other legislation, and policies and guidelines (section 2.6) at both the Commonwealth and State levels apply to management of the park and specific activities and uses.

ECC recommendations

The former Environment Conservation Council (ECC) in its *Marine, Coastal and Estuarine Investigation Final Report* (ECC

2000), recommended the creation of Port Phillip Heads Marine National Park for its treasured marine and coastal environments, within easy access of Melbourne and Geelong. The six areas making up the recommended park have outstanding environmental, cultural and recreational values. The ECC also made a number of recommendations that relate to the park. The recommendations included:

Recommendation A Use of Port Phillip Marine National Park (A3) in accordance with the general recommendations for marine national parks.

- R3 Planning and management relating to traditional interests and uses in coastal marine areas will be based on recognition and respect for the traditional relationship of Aboriginal people with the land and sea.
- R13 Further research will be undertaken on biological community composition and structure, both within and external to marine protected areas, with an emphasis on assessing the impacts of harvesting marine fauna.
- R14 Assessments will be made and strategies developed for protection of vulnerable or threatened marine species and communities, using the provisions of the *Flora and Fauna Guarantee Act 1988* (Vic.) as appropriate.
- R18 Measures will be implemented by responsible agencies to reduce the risk of marine pest species arriving in Victoria, and to ensure a rapid and effective response in the event of an introduction.
- R26 Public land and waters will continue to be available for a wide range of tourism and recreational uses. Development should not preclude public access to foreshore and offshore areas other than to meet safety and security requirements that cannot be achieved in other ways.
- R34 Priority will be given to establishing monitoring programs for Marine National Parks to determine the extent to which these areas are meeting their objectives.

All of these recommendations were accepted by the State Government in 2002 (Government of Victoria 2002) with the exception that the outside boundary of Point Nepean be extended

offshore and the inside eastern boundary be aligned with the adjacent Point Nepean National Park (formerly the Mornington Peninsula National Park) boundary. In subsequent negotiations prior to the passage of legislation the boundaries of the Point Lonsdale and Swan Bay sections were also modified.

2.6 Policy and guidelines

The park is managed in accordance with Parks Victoria's operational policies and, where appropriate, in accordance with other relevant policies and guidelines, including:

- *Victoria's System of Marine National Parks and Marine Sanctuaries Management Strategy 2003–2010* (Parks Victoria 2003a)
- *Indigenous Partnerships Strategy and Action Plan* (Parks Victoria 2005a)
- *Guidelines for Working with Aboriginal Communities and Protection of Cultural Sites* (Parks Victoria 2002)
- *Victoria's Biodiversity Strategy* (NRE 1997a)
- *National Strategy for the Conservation of Australia's Biological Diversity* (ANZECC 2001)
- *The Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site Strategic Management Plan* (DSE 2003b)
- *National Strategy for Ecologically Sustainable Development* (COAG 1992)
- *Heritage Management Strategy* (Parks Victoria 2003b)
- *Victorian Heritage Strategy: Shipwrecks 2005* (Heritage Victoria 2000).

The park is also managed within the broader context of a number of other plans and strategies including:

- *Nature Based Tourism – Directions and Opportunities for Victoria 2000–2003* (Tourism Victoria 2000)
- *Policy for Sustainable Recreation and Tourism on Victoria's Public Land* (NRE 2002a)

- *Port Phillip and Western Port Regional Catchment Strategy 2004–2009* (PPWPCMA 2004)
- *Port Phillip Bay Environmental Management Plan* (NRE 2002b)
- *Port Phillip Coastal and Marine Planning Program 2000* (ABM 2000)
- *State Environment Protection Policy (Waters of Victoria: Waters of Port Phillip Bay)* (EPA 1970)
- *Corangamite Regional Catchment Management Strategy 2003–2008* (CCMA 2003)
- *Victorian Coastal Strategy* (VCC 2002).

3 STRATEGIC DIRECTIONS

3.1 Park vision

A future visitor to the Port Phillip Heads Marine National Park finds a living example of the rich tapestry of Victoria's marine and coastal environments. The park preserves a diversity of habitats, from complex calcarenite reefs supporting many endemic species to tranquil seagrass meadows, colourful sponge gardens, mud flats and sandy deltas that nurture generations of species, some previously threatened.

Inclusive and effective park management strengthens a history of marine protection, recognising and conserving a marine history from Indigenous times to recent European maritime and nautical uses. These values are appreciated by visitors and embody the lasting connection between people and the sea.

Local and international visitors are drawn to explore the natural values of the park. Divers and snorkellers continue to be awed and inspired by the spectacular underwater environment. Accessible intertidal reefs and quiet shallows are a haven of discovery and support sustainable tourism and educational visitation.

Well-practised and integrated coastal management protects the park from nearby shipping channels and the pressures of human activities on adjacent land and water, and realises community aspirations for the park, the jewel of Port Phillip.

3.2 Zoning

A park management zoning scheme is normally used to define areas where various types and levels of use are appropriate. However, management zones do not need to be defined in Marine National Parks and Marine Sanctuaries because the management aims for these areas are clearly outlined in the National Parks Act and are consistent across all Marine National Parks and Marine Sanctuaries (section 2.5 and appendix 1).

Several overlays are used to summarise requirements additional to those of the underlying park. Three Sea Use Designation overlays apply over the park, including the Ticonderoga Bay Sanctuary Zone and two

public safety areas in the Point Nepean section. A Special Protection Area overlay also applies in Swan Bay to protect seagrass beds and seabird and shorebird habitat. Management requirements for the overlays are summarised in table 1, and the boundaries of the overlays are shown in figures 2a and 2b.

3.3 Management directions

Major management directions for the park are outlined below:

Natural values conservation

- Natural processes, including competition, predation, recruitment and disturbance, will be protected to ensure an overall benefit to biodiversity and variety of marine ecological communities in the park.
- The subtidal reefs with endemic and highly diverse algal and invertebrate assemblages, in particular extensive encrusting communities such as ascidians, bryozoans and sponges, will be protected, subject to natural ecological processes.
- Seagrass areas will be maintained, subject to natural ecological processes.
- Popes Eye and Portsea Hole will be managed for sustainable diving to minimise impacts on the habitats, communities and ecological processes.
- The feeding and roosting habitat value of the intertidal reef areas at Point Lonsdale and Popes Eye, and intertidal soft-sediment areas at Swan Bay and Mud Islands, will be protected for migratory seabirds and shorebirds.
- Impacts of changes to water quality will be minimised through cooperation with catchment managers and other relevant agencies.
- Compliance with legislated provisions that prohibit extractive activities, including fishing and shellfish collection, will be ensured through education, information, community support, and improved surveillance and enforcement.

- Identified threats to the park will be minimised through addressing the outcomes of ongoing monitoring, risk assessment and, where feasible, complementary adjacent, coastal and catchment management.
- Research and monitoring to improve the scientific basis for management, including baseline data collection, marine habitat mapping and threat assessment, will be undertaken as outlined in the Statewide Management Strategy (Parks Victoria 2003a) and through collaborative research links.

Cultural values conservation

- Indigenous places and objects will be protected from interference or damaging activities.
- The Traditional Owners' cultural lore, interests and rights in the waters and land, and aspirations for *Country*, will be reflected in the park's management, in accordance with legislation and policies.
- Indigenous cultural lore relating to *Country* will be respected, promoted and interpreted in accordance with the views of the Traditional Owners.
- Shipwrecks and other historic relics and places will be conserved by protecting them from damaging or inappropriate activities.
- Research into Indigenous and maritime and other cultural heritage of the park will be encouraged and supported as appropriate, in consultation with the Indigenous and wider communities.

The park visit

- As an icon, the park will be promoted as a gateway offering numerous opportunities to introduce Victorians to the system of Marine National Parks and Marine Sanctuaries and enhance visitors' appreciation and understanding of their values.
- Visitors will have opportunities to learn about the park and its special values.
- Visitor understanding and appreciation of the park's natural and cultural values will be enhanced by the implementation of

information, interpretation and education programs.

- Visitors will enjoy opportunities to observe marine life, enjoy water sports and participate in other recreational activities, in ways that encourage enjoyment and understanding, with minimal impact on the park.
- Recreation activities will be permitted in accordance with table 2.
- Visitors will be encouraged to adopt minimum impact techniques and to adhere to industry-developed standards appropriate to their activity.
- The park will be incorporated into Tourism Victoria's Regional Tourism Strategies, promoting the park as a destination and giving visitors to the region a wider range of experiences.

Community awareness and involvement

- Friends, volunteers, Indigenous and other community groups will be encouraged and supported to participate in areas of park management that relate to their interests.
- An awareness and understanding of the park and its management, and a sense of custodianship, will be encouraged among local communities and visitors.
- Strong relationships will be further developed and maintained with people, groups and communities with strong connections with or interests in the park, as a basis for encouraging their appropriate participation in the park's management.
- Strong collaborative partnerships will be developed with the Traditional Owners to facilitate the reflection of their cultural lore, rights, and interests and aspirations in the park's planning and management.
- Collaborative partnerships will be established with relevant agencies to progress areas of mutual interest which strengthen protection of the park.
- Ongoing opportunities will be given for individuals, groups, local communities and government agencies to discuss aspirations and issues of mutual concern relating to the park.

TABLE 1 MANAGEMENT OVERLAYS

OVERLAY	LOCATION	VALUES	GENERAL MANAGEMENT AIM
Special Protection Area – Natural Values	2106 ha, all of the Swan Bay section of the park (figure 2b)	Significant habitat areas, including sensitive seagrass beds and feeding areas for wading birds	Protect sensitive seagrass communities and significant shorebird feeding areas from disturbance from vessels, including noise and propeller scour. Restrict all vessels to a 5 knot speed limit in accordance with Marine Act 1988.
Sea Use Designation – Ticonderoga Bay Sanctuary Zone	10 ha, part of the Point Nepean section of the park	Dolphin habitat	Protect dolphins in accordance with the Wildlife (Whales) Regulations 1998.
Sea Use Designation – Prohibit entry (public safety)	All of the intertidal shoreline of the Point Nepean section of the park	Public safety when visiting and using the park	Prohibit the landing of vessels on the intertidal area of Point Nepean up to the high water mark. Prohibit water-based and shore-based access in the intertidal area of Point Nepean (except pedestrian access to the section of beach between Observatory Point and The Bend).
Sea Use Designation – Prohibit swimming (public safety)	The waters between The Bend and Observatory Point at Point Nepean section of the park	Public safety when visiting and using the park	Protect visitors from the hazardous waters of the Rip. Prohibit swimming in the intertidal area and adjacent waters of Point Nepean between The Bend and Observatory Point.

TABLE 2 SUMMARY OF RECREATIONAL ACTIVITIES

PORT PHILLIP HEADS MARINE NATIONAL PARK

ACTIVITY	SWAN BAY	MUD ISLANDS	POPES EYE	PORTSEA HOLE	POINT LONSDALE	POINT NEPEAN	SEA USE DESIGNATION OVERLAYS – POINT NEPEAN SECTION	– TICONDEROGA BAY DOLPHIN SANCTUARY	– PROHIBIT ENTRY (PUBLIC SAFETY)	– PROHIBIT SWIMMING (PUBLIC SAFETY)
Aircraft landing/launching (incl. sea planes, hang-gliding, paragliding)	N	N	N	N	N	N	N	N	N	N
Beachcombing (no collecting)	Y	Y	Y	NA	Y	N	N	N	N	N
Bait collection	N	N	N	N	N	N	N	N	N	N
Birdwatching	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Boating (section 6.3)										
Hovercraft	N	N	N	N	N	N	N	N	N	N
Kite-boarding / wind-surfing	N	N	N	Y	Y	Y	Y	Y	N	N
Motorised boating (excluding hovercraft)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Non-motorised boating (canoe, kayak, surf-ski)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Personal watercraft (PWC)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Sailing	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Boating – operation (sections 6.2 & 6.3)										
Anchoring	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Landing	Y	Y	N	NA	Y	N	N	N	N	N
Launching (no facilities, no trailers)	Y	NA	NA	NA	Y	N	N	N	N	N
Mooring (private)	N	N	N	N	N	N	N	N	N	N
Camping	N	N	NA	NA	N	N	N	N	N	N
Collection of animals, seaweed, shells and driftwood	N	N	N	N	N	N	N	N	N	N
Cycling	N	N	N	N	N	N	N	N	N	N
Diving and snorkelling (section 6.4)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Dogs on lead (except on board vessels) (section 6.6)	N	N	N	N	Y	N	N	N	N	N
Driving on beaches	N	N	NA	NA	N	N	N	N	N	N
Educational/guided activities (sections 6.1 & 6.7)	Y	Y	Y	Y	Y	Y	Y	Y	N	N

Table 2 contd.

PORT PHILLIP HEADS MARINE NATIONAL PARK										
ACTIVITY	SWAN BAY	MUD ISLANDS	POPES EYE	PORTSEA HOLE	POINT LONSDALE	POINT NEPEAN	SEA USE DESIGNATION OVERLAYS – PT NEPEAN SECTION	– TICONDEROGA BAY DOLPHIN SANCTUARY	– PROHIBIT ENTRY (PUBLIC SAFETY)	– PROHIBIT SWIMMING (PUBLIC SAFETY)
Feeding wildlife	N	N	N	N	N	N	N	N	N	N
Filming & photography	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Fires on beaches	N	N	N	NA	N	N	N	N	N	N
Fishing (all forms)	N	N	N	N	N	N	N	N	N	N
Fossil / artefact collection	N	N	N	N	N	N	N	N	N	N
Horse riding	N	N	NA	NA	N	N	N	N	N	N
Licensed tours (section 6.7)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Nature photography, painting, Picnicking (excludes on a vessel)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Prospecting and metal detecting	N	N	N	N	N	N	N	N	N	N
Rock climbing / abseiling	NA	NA	NA	NA	N	N	N	N	N	N
Rockpool rambling	NA	NA	NA	NA	Y	N	N	N	N	N
Scenic viewing	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Shell collecting	N	N	N	N	N	N	N	N	N	N
Surfing / boogie boarding	NA	NA	NA	NA	Y	Y	Y	Y	N	N
Swimming (section 6.5)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Wake boarding / water skiing (section 6.3)	N	N	N	Y	Y	Y	Y	Y	N	N
Walking (intertidal zone – soft)	Y	Y	NA	NA	Y	Y	N	N	N	N
Walking (intertidal zone – rocky)	NA	NA	NA	NA	Y	N	N	N	N	N
Licensed tours (section 6.7)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Whale / dolphin / seal watching (sections 6.7 & 4.4)	Y	Y	Y	Y	Y	Y	Y	Y	N	N
Wreck diving (section 6.4)	NA	NA	NA	NA	Y	Y	Y	Y	N	N

The use of chainsaws and generators is prohibited within the park

Key: Y Yes, subject to overlay prescriptions and conditions prescribed by legislation, permits or elsewhere in the plan as indicated

N Not permitted NA Not applicable

4 STRATEGIES FOR NATURAL VALUES CONSERVATION

4.1 Geological and geomorphological features

The two peninsulas of Point Lonsdale and Point Nepean form the narrow entrance to Port Phillip, one of the most significant features of the Victorian coastline. The unusually narrow entrance to Port Phillip ('the Rip') has also helped to create other geomorphological features protected by the park, including Mud Islands, Point Lonsdale, and Observatory Point at Point Nepean.

The peninsulas consist of Pleistocene dune limestone (calcarenite) and have shore platforms that extend into the intertidal area of the Rip. The platform at Point Lonsdale displays strong weathering features such as solution pits and abrasion scars, and beyond the intertidal area are reefs with deep undercuts and unusual formations that have been shaped by the powerful movement of water through the narrow opening. The beach on the northern side of Point Lonsdale, in Lonsdale Bay, is a low tide terrace beach, and on the southern side of Point Lonsdale the beach is a reflective/low tide terrace beach with reef flats (Short 1996). Reflective and low tide terrace beaches are low-energy beaches with fine to medium sand and have a surf zone with bars and rips.

The platform at Point Nepean has developed in contrasting wave conditions, and weathering of the platform has created solution pits, pinnacles and rock stacks, including Beacon Rock. The beaches of Point Nepean are low-energy reflective beaches with fine sediment, and there are outer reef flats on the southern side of the point. The round, broad foreland of Observatory Point at Point Nepean displays sustained sandy accretion, a feature rarely seen in Port Phillip. The accretion is evidence of a dynamic movement of sand by tidal and wave movement through the Rip.

Mud Islands are a low, dynamic formation of three sandy islands encircling a lagoon. The islands have a low and level surface rising less than 3 m above high spring tide. They are constantly under the effect of tidal and weather influences. The islands are the only exposed outcrop of consolidated dune calcarenite in

Port Phillip and are of state significance (Rosengren 1988). Sand has accumulated at this exposed part of the Great Sands and created a habitat for saltmarsh, and cemented shell beds have formed to the south of the islands. Swan Bay is a shallow embayment with a constricted tidal entrance and a muddy shoreline fringed with extensive saltmarshes, lagoons and locally significant alluvial fans and tidal flats. Yarram Creek discharges onto the western shoreline of Swan Bay. It is the best example of a distributary delta in Port Phillip and is of regional significance (Rosengren 1988). Adjacent to the park and part of Swan Bay, Swan Island and the Edwards Point Spit comprise part of the most complex depositional feature of Port Phillip and are of state significance (Rosengren 1988).

Portsea Hole is a remnant section of the Yarra River, where a sharp gradient between the depths of 12 and 32 m exposes strata changes with depth, descending from a limestone structure to a sandy base. Popes Eye is a natural sand shoal formation of the Great Sands with an artificial rock structure on top.

Seasonal wave conditions, current patterns, and storm energy create a dynamic environment in which there is natural accretion and attrition of beaches, causing sand to cover and uncover the reefs and other habitats. Events such as storms and regular sand accretion and attrition are considered to be ongoing natural processes.

Human impacts, including coastal modifications and beach renourishment nearby or adjacent to the park, could affect the geological values of the park through longshore drift, deposition and erosion. The proposal to deepen sections of Port Phillip's shipping channels to allow larger ships to enter the port has the potential to affect the park (section 7.2).

Aim

- Protect features of geological and geomorphological significance from the impacts of human activity.

Management strategies

- *Minimise visitor and management impacts on sites of geological and geomorphological significance.*
- *Thoroughly understand the natural coastal processes before considering any beach renourishment proposals.*
- *Encourage research into geological and landform features within the park.*
- *Encourage research to identify geomorphological features of special significance to the Traditional Owners and protect them from damaging or inappropriate activities (sections 5.1 and 8.2).*
- *Consider the significance of landforms to the Traditional Owners in interpreting the park and implementing management (sections 4.5, 5.1, 6.1 and 8.2).*

4.2 Catchment and water quality

Port Phillip Heads Marine National Park is affected by inputs of clean water from Bass Strait and by the general health of Port Phillip. Port Phillip receives water from a number of significant rivers, including the Yarra, Maribyrnong, Werribee and Patterson, which drain catchments supporting agricultural, urban and industrial land uses. Port Phillip also receives water from the Western Treatment Plant (Werribee).

On the Bellarine Peninsula the park is situated within the Barwon River Basin of the Corangamite Catchment, which is the responsibility of the Corangamite Catchment Management Authority (section 8.3). The catchment has an area of 1 334 000 ha and a population of 325 000 people. Agricultural purposes comprise 73% of the catchment, but urban development is rapidly expanding (CCMA 2003). Areas with remnant natural and semi-natural vegetation are scattered through the catchment. It receives approximately 600–800 mm rainfall annually and predominantly drains into the Barwon River, which flows into Bass Strait at Barwon Heads. Frederick Mason Creek, Yarram Creek and several drainage lines discharge into the park at Swan Bay. These two creeks are part of the Swan Bay Catchment within the Barwon

River Basin and drain land used for rural, residential and agricultural purposes.

On the Mornington Peninsula the park is within the Western Port Catchment of the Port Phillip and Western Port Catchment Region, which is the responsibility of the Port Phillip and Westernport Catchment Management Authority (section 8.3). The catchment has an area of 343 000 ha and a population of 225 000 people. Dairying, grazing and horticulture are the main agricultural purposes and use 42% of the catchment. The catchment is a significant area for tourism and recreation and a major future site for urban growth. Indigenous vegetation covers 22% of the catchment, and the coastline and forested hills of the upper catchment support natural vegetation areas. This catchment receives approximately 800–1000 mm in rainfall annually. There are no waterways or stormwater drains discharging into the park on the Mornington Peninsula.

Potentially threatening processes originating from the two catchments can be either short term or long term and include litter, visitor impacts and residential pressures, sediments and nutrient inputs from runoff, chemical and other pollution from stormwater, and contamination of ground water through failing septic tank systems. Activities within the catchments could have detrimental impacts on water quality and consequently on the natural values of the park. The proposal to deepen sections of Port Phillip's shipping channels to allow larger ships to enter the port has the potential to affect the park (section 7.2).

The park could be affected indirectly by runoff from the Yarra Catchment via the Yarra River, the Maribyrnong Catchment via the Maribyrnong River, the Werribee Catchment via the Werribee River and the Western Treatment Plant, and the Dandenong Catchment via the Patterson River (section 8.3). The main waterways in the catchments do not discharge directly into the park. These waterways have a minimal effect on the park because of their distance from it.

Discharge from Frederick Mason Creek, Yarram Creek and other drainage lines into the Swan Bay section of the park is managed by the Corangamite Catchment Management Authority. These creeks and drainage lines drain private farming land used for grazing and

dryland agriculture. Poor agricultural practices and degraded riparian vegetation can increase sediment and nutrient loads discharging into Swan Bay. Frederick Mason Creek also drains land used as a quarry and a waste transfer and recycling station. Urban development at Point Lonsdale near Swan Bay has the potential to impact on the Swan Bay section of the park though stormwater discharge into Lakers Cutting in Swan Bay. Although Lakers Cutting is not in the park, its waters flow into the park, carrying the stormwater discharge with it. There is a potential for increased sediment and nutrient loads and toxicants from industrial uses, agricultural practices and urban development to enter the waterways and drainage lines. Increased sediment and nutrient loads can lead to higher turbidity levels and algal blooms, ultimately leading to a reduction in water quality and habitat values in Swan Bay.

Sections of the Borough of Queenscliffe's drainage system date back to the mid 1800s, and offer little or no control of the water quality entering the park. Four stormwater drains managed by the Borough of Queenscliffe (section 8.3) discharge directly into the park on the Bellarine Peninsula. At Point Lonsdale three of the stormwater drains discharge into the park at Jordan Road, Kirk Road and Albert Street. Collectively they drain 37 ha of the local residential area. These drains will require consents from the Secretary (section 7.1). At Swan Bay a drain discharges into the park at Learmonth Street and drains 20 ha of the local residential area.

The Borough of Queenscliffe has developed a Stormwater Management Plan (BoQ 2002) to manage stormwater discharge and implement the environmental objectives outlined in the *State Environment Protection Policy (Waters of Victoria) (Schedule F6 – Waters of Port Phillip Bay 1997)* (EPA 1970) (SEPP). The Stormwater Management Plan recommends reducing stormwater pollutants by investigating in-line pollutant prevention methods and using education programs to raise the awareness of the community about stormwater management.

The health of the park and the adjacent local environment can be improved through the implementation of a Neighbourhood Environment Improvement Plan (NEIP) for

Frederick Mason Creek, Yarram Creek, Lakers Cutting and several small drainage lines. NEIPs are action plans developed in partnership by all parts of the community and administered by EPA Victoria under the *Environment Protection Act 1970* (Vic.) They are designed to address environmental issues of importance to the community at a local scale and build on and support other efforts to protect Victoria's environment (section 8.2).

Under the Environment Protection Act., littering and the discharge of wastes from vessels are illegal. Litter in the park may be derived from urban areas and transported through stormwater systems and waterways, discarded from vessels within in or near the park, or discarded by visitors to beaches and adjacent areas. Litter discarded by recreational fishers from vessels or piers near the park may also enter the park. More information about the sources of litter is required to develop targeted preventative programs. Litter may have to be collected from beaches to prevent injury to people and animals, and the recirculation of litter into the marine environment. The Borough of Queenscliffe has undertaken the clean-up of litter accumulated on beaches below the high water mark to ensure public health and safety in the past. Beach cleaning operations need to minimise disturbance and avoid removing natural sea wrack (section 4.4).

The SEPP requires operators of vessels to install effective waste containment facilities on board the vessel to avoid the disposal of wastes or sewage from vessels (section 6.3).

The proximity of the park to shipping lanes and its use by recreational and commercial vessels make it vulnerable to oil or chemical spills. The proximity of the park to shipping lanes and its use by recreational and commercial vessels makes it vulnerable to potential impacts from channel dredging and oil or chemical spills originating from sea (section 7.2).

Responses to marine incidents, in accordance with the *Emergency Management Act 1986* (Vic.), often require a diverse range of skills and resources, involving coordination between multiple agencies including Parks Victoria and members of the community. As the manager of 70% of Victoria's coastal areas, Parks Victoria

plays a significant support role in responses to marine pollution incidents (section 8.3). In Victorian waters the *Victorian Marine Pollution Contingency Plan (VICPLAN)* (MSV 2002) outlines broad response arrangements to a potential oil or chemical spill.

Aims

- Minimise the impacts of changes to water quality on park values.
- Minimise the impact of threatening processes from catchment-sourced activities.

Management strategies

- *Investigate sources of litter within the park, and remove accumulated litter from intertidal areas where necessary to ensure public safety and to protect park values.*
- *Permit mechanical beach cleaning activities below the high water mark only where necessary to ensure public health and safety, or as part of an emergency response such as to oil or chemical spills.*
- *Liaise with the Borough of Queenscliffe to minimise litter within the park.*
- *Liaise with the Borough of Queenscliffe and the EPA to minimise the impacts of stormwater drains and achieve water quality levels consistent with SEPP objectives. Seek the installation of in-line pollution prevention methods in the interim and the amalgamation or removal of stormwater drains where possible.*
- *Seek amendment to the Borough of Queenscliffe's stormwater management plan to acknowledge and, incorporate strategies to protect, park values.*
- *Liaise with the Port Phillip and Westernport Catchment Management Authority and the Corangamite Catchment Management Authority on catchment issues that may indirectly influence the water quality of the park (section 8.3).*
- *Liaise with the Corangamite Catchment Management Authority and local industries in the management of Frederick Mason Creek, Yarram Creek and other major drainage lines to encourage replanting of riparian vegetation and use*

of sustainable industrial and agricultural practices (section 7.2) to reduce sediment and nutrient loads in creek discharge.

- *Work with the Borough of Queenscliffe and Greater City of Geelong to ensure that future urban developments incorporate water-sensitive urban design to minimise stormwater impacts and ensure that the park's values are given due consideration in future developments.*
- *Encourage the participation of community groups in litter investigation, prevention and collection programs in the park, subject to safety considerations.*
- *Incorporate water quality and catchment issues in interpretation and education programs and liaise with relevant agencies to communicate the need to improve park protection in wider community education programs.*
- *Support the development of a NEIP for Frederick Mason Creek, Yarram Creek, Lakers Cutting and several drainage lines in Swan Bay and adjacent neighbourhood (section 8.3).*
- *Respond to marine incidents within the park in accordance with the Emergency Management Act and the Victorian Marine Pollution Contingency Plan (VICPLAN) (MSV 2002).*

4.3 Hydrodynamics

Port Phillip is 1930 km² in area and is quite shallow, with a maximum depth of 24 m (Harris et al. 1996). The waters of the Rip — the deep (90 m), narrow entrance to Port Phillip — are very turbulent and treacherous, and are strongly influenced by ocean swell, strong tidal currents and weather patterns derived from the Southern Ocean.

The water temperature in Port Phillip shows very little day to day variation. In summer the average surface water temperature in Port Phillip is 21°C, and in winter is 11°C (Harris et al. 1996).

Tidal currents through the Rip dominate the circulation of water in the southern part of Port Phillip. During the peak floods and ebbs the current can be as fast as 2.5 metres per second (m/s), slowing to 0.1 m/s north of the Great

Sands tidal delta. The strong tidal currents and storm events continually alter the shape of Mud Islands and the Great Sands.

The narrow entrance to Port Phillip and the Great Sands restrict the exchange of water between Bass Strait and Port Phillip. The tidal amplitudes in Port Phillip are considered to be microtidal and are half those of Bass Strait. The tidal range is less than 2 m, with an unequal semidiurnal tidal pattern. The flooding and ebbing both have a higher and lower event per day. The average tidal volume is 1 km³ and the flushing time of Port Phillip varies from zero at The Rip to about 260 days in the main body of the bay (Harris et al. 1996). The tidal currents diminish before they reach Swan Bay, and the tidal amplitude there is less than 1 m. Tides circulate through both the southern and northern entrance to Swan Bay. The flushing time is estimated to be around 1.5 days with the extremities of the bay being a week or longer (DCE 1991).

The beaches on the southern side of Point Nepean and Point Lonsdale receive ocean waves averaging about 1.7 m, which break on the outer reef flats and arrive on the beach with reduced energy and a wave height averaging only 0.5 m (Short 1996). The beaches on the inside coast of Point Nepean and Point Lonsdale receive low wave energy, with waves between 0.5 and 2.5 m, and have strong tidal currents. Wind and wave action also influence the beaches, affecting grain size and the deposition and erosion of sediments.

Groynes can provide coastal protection and increase amenity by trapping sand and building a wider beach. However, erosion tends to occur along the section of beach downdrift of the groyne. Three rock groynes in Lonsdale Bay, completed in 2005, are within the Point Lonsdale section of the park. All maintenance works must comply with conditions of Ministerial consents (sections 2.5 and 7.1).

Human-induced changes to the hydrodynamic regime within and outside the park could have an impact on the park's values. Any proposals for new infrastructure, including artificial reefs, will generally be inappropriate in Marine National Parks or Marine Sanctuaries. Potentially threatening processes include sea-level rise and altered current flows. Natural hydrodynamic events such as storm surges and

regular sand erosion or deposition are considered to be ongoing natural processes.

Aim

- Minimise impacts on park values from human-induced changes to local hydrodynamic processes.

Management strategies

- *Provide advice on planning applications for developments that could affect park hydrodynamic processes, where appropriate (section 7.2).*
- *Encourage research into hydrodynamic processes to increase knowledge and understanding and direct future management of the park.*

4.4 Habitats and communities

Port Phillip Heads Marine National Park protects a wide range of habitats. These include extensive intertidal reef platforms and subtidal reef systems at Popes Eye, Portsea Hole, Point Lonsdale and Point Nepean, seagrass meadows and sheltered subtidal soft substrates at Swan Bay and Mud Islands, and dynamic intertidal sandy beaches and a deep water column environment at Point Lonsdale and Point Nepean.

The flora and fauna of the marine environment of Victoria are diverse and highly endemic as a result of southern Australia's geographical isolation and the physical and biological processes that have occurred over a long period of time in isolation. The strong tidal currents and ocean swell at the entrance to Port Phillip have created a unique environment inhabited by an endemic assemblage of diverse and colourful sessile invertebrates. Port Phillip Heads marks the eastern distribution limit for cold-water species from western Victoria, and the western distribution limit for warm-water species from eastern Australia.

Sandy beach communities

In addition to their recreational and scenic values, the park's sandy beaches are an important habitat for meiofauna and other invertebrates such as amphipods, isopods, molluscs and polychaetes, and are also feeding grounds for fish and sea birds. Intertidal sandy beach habitats are found within the Point

Lonsdale, Point Nepean and Mud Islands sections of the park and along with other sediment areas comprise 314 ha of the park.

Physical factors greatly affect the distribution and composition of organisms found in sandy beaches. Finer-grained beaches with low wave energy have a greater diversity of fauna than coarser, steeper beaches with high wave energy. The sandy beaches of the park have fine to medium-grained sand and probably support a moderately diverse fauna. Intertidal sandy beaches are understudied environments, and there have been no formal studies of invertebrate fauna within these sections of the Port Phillip Heads Marine National Park (Plummer et al. 2003).

Natural sea wrack, in the form of seaweed, and other organic material washes ashore on the park's beaches. Wrack is a habitat for invertebrates, a food source for seabirds and an intrinsic part of the beach ecosystem. Beach cleaning that removes kelp and invertebrates from intertidal sandy beach areas can affect ecological processes and biodiversity (Brown & Lachlan 2002) (section 4.2).

Key threatening processes for sandy beaches within the park include bait collection, litter, pollution, oil and chemical spills, removal of wrack, and hydrodynamic changes from modified coastal processes.

Subtidal soft sediment communities

Subtidal soft substrates are found within all six sections of Port Phillip Heads Marine National Park. Subtidal soft sediments are diverse and nutrient-rich habitats. The composition of species depends on the grain size and physical structure of the sediment. The subtidal soft substrates of the park are inhabited by numerous species of meiofauna such as nematodes and copepods in the spaces between the sand grains, which provide habitat. Larger macrofauna, such as bivalves, gastropods, amphipods and polychaetes, are associated with the upper layers of the sediment, while larger animals such as benthic fish, crabs and seastars are associated with the sediment surface (Plummer et al. 2003). The protected subtidal soft substrate inside Popes Eye is also inhabited by stargazers, goatfish and heart urchins (M. Rodrigue pers. comm.).

Seagrass beds in the park have a soft mud or sandy substrate and can vary in density; seagrass stabilises the sediment. The seagrass meadows comprise 390 ha of Mud Islands and 1270 ha of the Swan Bay sections of the park, and are dominated by *Zostera muelleri* and *Zostera tasmanica*. Two less common species of seagrass, *Lepilaena marina* and *Halophila decipiens*, also occur at Swan Bay (DCE 1991). Seagrass is generally not found in highly dynamic environments, although dense patches of the seagrass *Amphibolis antarctica* occur in the Point Lonsdale and Point Nepean sections of the park. Seagrass beds are complex and extremely productive environments and are a habitat for epiphytic algae and diatoms, mesograzers such as gastropods and amphipods, and macrofauna such as fish, pipefish, and larger crabs. The seagrass meadows of Mud Islands and Swan Bay are important resident and migratory shorebird habitat and nursery areas for fish, including the commercially important King George Whiting.

Visitors may be unaware of and unable to recognise exposed seagrass beds as vulnerable habitat. To prevent impacts to seagrass communities and significant shorebird feeding areas a Special Protection Area overlay applies over the Swan Bay section of the park (table 1, figure 2b). Within Swan Bay a speed limit of 5 knots applies to all vessels, and motorised vessels are encouraged to avoid shallow areas (sections 6.3 and 8.1, figure 2b).

Key threatening processes include disturbance from human activities such as anchor damage and propeller scarring, marine pests, changes in sediment deposition patterns and siltation from dredging, water flow, pollution and stormwater runoff.

Intertidal reef communities

The park's intertidal rocky reefs support some of the most interesting and accessible marine habitat types. Species that inhabit intertidal rocky shores have adapted to survive environmental extremes and high wave energy. The composition of species found on intertidal reefs depends on the dynamic processes of competition, predation, recruitment, disturbance and frequency of tidal submergence.

Intertidal rocky reefs occur within the Point Lonsdale and Point Nepean sections of the park, and together with subtidal reefs comprise approximately 300 ha of the park. The intertidal reef platforms at Point Lonsdale have the highest invertebrate diversity of any calcarenite reef in Victoria; similar faunal assemblages are found at Point Nepean (Plummer et al. 2003).

Organisms that can tolerate irregular submergence, such as cyanobacteria, algae, lichens, small gastropods and some isopods and amphipods, live high on the shore in the park. Large rockpools in the platforms support an overstorey of large brown algae as well as red, coralline and calcified encrusting coralline algae. Lower on the platforms, where there is regular submergence, there is a high diversity of herbivorous molluscs including limpets, anemones, seastars, crustaceans and algae. At Point Lonsdale and Point Nepean this region is dominated by Neptune's Necklace, an alga that forms dense mats covering most of the rock surface. The reef area that is generally submerged has a diverse range of organisms, such as limpets, chitons, ascidians, coralline algae and brown seaweeds. The deep undercuts of Lighthouse Reef have a lower light intensity, which promotes a unique assemblage of unusual algal species typical of much deeper waters (Plummer et al. 2003).

Fish are very mobile and can be found around both the intertidal and subtidal reefs. The fish assemblages of the Point Lonsdale and Point Nepean intertidal reefs are very diverse and include common species such as Wrasse, Herring Cale, Sea Sweep and Magpie Perch.

These reefs are areas of high primary productivity. Key threatening processes include changes in tidal patterns, trampling, marine pests, pollution, turbidity and sedimentation from dredging, and removal of biota for collection, bait or food.

Subtidal reef communities

The diverse and colourful sessile invertebrates of the park's subtidal reefs are easily accessible to snorkellers and scuba divers and are among the most dazzling and spectacular sights in the Southern Ocean. The composition of species found on subtidal reefs in the park depends on the dynamic processes of competition, predation, recruitment,

disturbance, and tidal currents. The algal composition of subtidal reefs is particularly vulnerable to natural storm damage, which can change algal communities overnight. Subtidal reef habitats are found at Point Lonsdale, Point Nepean, Portsea Hole and Popes Eye, and together with intertidal reefs comprise approximately 300 ha of the park.

The subtidal reefs in the park are characterised by diverse brown, red and green algae species that generally have an understorey of fleshy and coralline red algae. Lonsdale Bay has a very high diversity of algal species and the channel between the main rock platform and the outer reef of Point Lonsdale contains a small forest of Giant Kelp, a species which is showing signs of decline along the south-east coast of Australia (Plummer et al. 2003).

The invertebrates recorded include a variety of sponges, abundant hydroid species, gorgonians, soft corals, jewel anemones, yellow zooanthids, hard corals, encrusting and bushy bryozoans and compound and colonial ascidians. Non-sessile invertebrates are also common, including abalone, nudibranchs, sea stars and the feather stars.

The fish assemblage at the Lonsdale Wall is considered to be very diverse with a total of 43 species recorded in one study and up to 27 species recorded on a single dive (Plummer et al. 2003). Similar fish assemblages are found at other subtidal reefs within the park. Common species include Herring Cale, Horseshoe and Six-spined Leatherjackets, Scaly Fin, Sea Sweep, Wrasses, Sea Carp and the Weedy Sea-dragon. The population of Blue Devilfish in the park is thought to be the largest in Victoria despite being near the eastern extent of its range.

Key threatening processes include changes in tidal patterns, damage from divers, marine pests, pollution, turbidity and sedimentation from dredging, and removal of biota for collection, bait or food.

Water column communities

Ocean swell and tidal currents affect the open waters (water column environment) of Point Lonsdale and Point Nepean. The water column environment of the park is dominated by planktonic species, which drift with the movement of the water and rely on currents for

their distribution, nutrients and food. Nekton or free-swimming animals can travel great distances in the water column environment, moving freely within the park and the open ocean in search of food and to reproduce. Many intertidal and subtidal species have larvae that spend the early stage of their life in the water column environment and rely on currents to return recruits to their intertidal and subtidal habitats.

Common plankton species found in the water column environment include phytoplankton such as diatoms, and zooplankton such as copepods, jellyfish and ctenophores. Common nektonic species include squid, bony fish such as snapper and pilchards, marine mammals and sharks.

Threatened marine mammals including the Australian Fur Seal, the Southern Right Whale and the Humpback Whale have been recorded within and around the park. Dolphins are frequently sighted in the park, especially in the area around Point Nepean, which has been recognised as a significant habitat for dolphins (Hale 2002). The genetically distinct population of approximately 80 Bottlenose Dolphins in Port Phillip Bay is vulnerable to extinction due to its small size, female natal philopatry, restricted home range and human activities within the home range that are likely to be having an adverse impact on the dolphins (Hale 2002). The Ticonderoga Bay Sanctuary Zone was established to protect the habitat of Port Phillip's vulnerable dolphin population, the sanctuary zone extends from the low water mark to 500 m offshore, between Police Point (east of the park) and Nepean Rock at Point Nepean.

All whales and dolphins are protected under the *Wildlife Act 1975* (Vic.) and the Wildlife (Whale) Regulations. These regulations were based on the biological needs of the animals, to limit the danger to observers, and to meet community expectations for their protection. Under this legislation the minimum approach distances for whales and dolphins are 30 m for swimmers and divers, 50 m for surfers and 100 m for recreational and commercial vessels including, personal water craft and motorised swimming aids. A speed limit of 5 knots also applies to all vessels within 300 m of a whale or dolphin. Private boat operators take advantage of chance encounters for viewing

whales, seals and dolphins. Additional conditions apply for vessels conducting dolphin and whale swimming and watching tours under permit. Location-specific conditions apply throughout the park to licensed tour operators and commercial vessels. Licensed tour operators frequently conduct seal swimming and watching activities within the park (section 6.7).

The *Victorian Cetacean Contingency Plan* (NRE 1999c) details arrangements for dealing with marine mammals that become stranded, entrapped, entangled or wounded. The *Wildlife Response Plan for Oil Spills* (NRE 1997b) guides the rescue and treatment of injured or oiled wildlife.

All forms of extraction, including recreational and commercial fishing, are prohibited within the park. Aquaculture and the feeding of animals, including fish and birds, are not permitted in Marine National Parks and Marine Sanctuaries.

Mud Islands vegetation

The three low-lying sand islands of Mud Islands consist of saltmarsh and dune shrubland surrounding a sheltered lagoon. The vegetation is highly dynamic and is supported by a distinctive bird-dominated ecosystem. The terrestrial vegetation is dominated by large stands of Coast Saltbush and Coast Hollyhock although 112 plant species have been recorded on Mud Islands (Plummer et al. 2003).

Coast Saltbush and Coast Hollyhock compete for space on the dunes but have contrasting ecology: Coast Saltbush is a primary coloniser of dunes favoured by marine influences, but Coast Hollyhock a secondary coloniser of bird colonies favoured by avian influences; this 'ornithocoprophilous' (guano-loving) species is dispersed by birds.

Changes in vegetation dominance are influenced by changing bird populations. Silver Gulls have increased dramatically in population at Mud Islands since the 1970s. Gulls cause vegetation change within their colony sites by increasing the number of exotic species in the vegetation through soil disturbance, increased nutrients, and the transport of seeds from exotic pest species (Yugovic 1988) (section 4.6).

Straw-necked and Australian White Ibis have also increased dramatically in population at Mud Islands since the 1990s. Their nesting activities using coast saltbush to construct large, elaborate stick nests have changed the vegetation. The bare areas left by the ibis are rapidly colonised by Coastal Hollyhock.

Changes in island configuration and the low level of the islands can lead to changes in vegetation. Key threatening processes include changes in currents and tidal patterns, damage from visitors, pest plants and animals and arise in sea level.

Resident and migratory seabirds and shorebirds

The park is an important roosting and feeding area for resident and migratory sea and shorebirds, including species listed for protection under the Flora and Fauna Guarantee Act (FFG Act) and by international JAMBA and CAMBA agreements. Swan Bay and Mud Islands are internationally significant shorebird habitats (Garnett et al. 1986), making up the second most important shorebird area in Victoria, and are part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar site (DSE 2003b). The Convention on Wetlands of International Importance (the Ramsar Convention) is an intergovernmental treaty that provides for international cooperation in the wise use and conservation of wetlands (Ramsar 1971).

The Orange-bellied Parrot, listed as endangered under the EPBC Act and threatened under the FFG Act, migrates annually to coastal Victoria between March and October. The intertidal saltmarsh of Swan Bay is an important roosting and feeding site for the Orange-bellied Parrot. The species is threatened by loss of habitat, in particular saltmarsh feeding grounds, urban development, predation by foxes and cats, agricultural practices and recreation.

The Orange-bellied Parrot FFG Action Statement (DSE 1993) recommends specific actions around Swan Bay that include continuing to exclude grazing from habitat, encouraging landholders to enhance habitat, and regular control of predators.

Waders feed throughout Swan Bay's intertidal flats, but there are major feeding areas along

the northern shore and between Swan Island and Duck Island. The flats around the northern shore are of particular importance as feeding grounds and assembly points for waders on a rising tide, and as major roost sites on neap tides. The number of feeding waders peaks in the summer months and can be as high as 10 000 (Plummer et al. 2003). The birds assemble on the flats on the northern shore of Swan Bay, and disperse to roost on Mud Islands, Sand Island and the western shore of Swan Bay. There are minor roosting sites along the western shore of Swan Bay and Swan Island. In addition to migratory waders Swan Bay also supports a large number of Black Swans. The seagrass beds provide important feeding habitat for the swans.

At low tide, the western shore intertidal sand flats of Mud Islands represent important wader feeding areas, and birds also feed to a lesser extent within the lagoon. Mud Islands is the largest and most diverse shorebird roosting site in southern Port Phillip, and the number of roosting waders there can reach 5000 in summer (Plummer et al. 2003). This site is also a significant nesting area, where breeding species include around 50 pairs of Australian Pelicans between July and February and 1000–2000 pairs of Crested Terns between October and January.

Hooded Plover, listed as a vulnerable species under the FFG Act, feed and nest on the beach between the high tide mark and the foredune and in adjacent sand dunes on the beaches of Point Nepean. This species is particularly vulnerable to disturbance by people and dogs. Little Penguins feed in Port Phillip and may be observed feeding or swimming within the park.

Popes Eye is the major nesting and roosting site for Australasian Gannets on an artificial substrate in Victoria. The rocky shore platforms along the Point Lonsdale and Point Nepean coast are of state significance as feeding habitats for many bird species (Plummer et al. 2003).

Human activities including boating activities (section 6.3), shore-based activities (section 6.5) and annoyance from dogs (section 6.6) can disturb breeding, roosting and feeding birds, and disturbance can result in species no longer visiting a site, a decline in species

numbers and low body weight in migratory birds, and ultimately pose a threat to the survival of species. Visitors can help minimise their impacts by avoiding roosting, breeding and feeding habitats, especially during the breeding and migratory season from August until March.

All species recorded within the park listed as threatened or protected by international agreements or other legislation (e.g. JAMBA, CAMBA) are either birds or large marine mammals. This reflects the current vertebrate focus of threatened species management. Environmental management within the park takes a habitat-based, rather than a species-based approach. Management of marine ecological communities within the park, rather than threatened species, is also likely to protect and enhance threatened species populations. Whole-of-habitat management may also result in the protection of species not yet identified because of their rarity, cryptic nature, or lack of search effort.

Scientific research has been an important use of the park by a range of universities, research institutions, the Victorian Marine Science Consortium and the Department of Primary Industries Research Victoria (PIRVic, formerly MAFRI) for many years.

The southern end of Port Phillip has been favoured by scientists as a site for monitoring and research. Point Lonsdale has been the site of many botanical surveys since the 1850s (Ducker 1983). A considerable amount of information is available as a result of study of intertidal and subtidal reefs at Point Lonsdale and Point Nepean, including subtidal reef monitoring (Edmunds et al. 2003), algae taxonomy (Bitans 1999), occurrence of intertidal invertebrates (Handreck & O'Hara 1994), effects of intertidal trampling (Povey & Keogh 1991) and dolphin behaviour (Hale 2002).

Swan Bay has been the focus for research on commercially important fish species by PIRVic and seagrass monitoring and research (e.g. Longmore et al. 2002; Blake & Ball 2001; Denning et al. 1986).

Research at Popes Eye has centred on the Australasian Gannet (Bunce 2000) and reef fish (Norman & Jones 1984); little is known about the soft sediment environment within the

annulus. Migratory bird populations (Ma et al. 2001) and the vegetation dynamics at Mud Islands have been studied (Yugovic 1988) and the Friends group conducts an ongoing seagrass monitoring program. To date no research has focused on the Portsea Hole section of the park.

Having such a wealth of marine science expertise on its doorstep, it is likely that the park will continue to be a key site for marine research and monitoring, increasing the already considerable ecological knowledge base of the park and allowing comparisons between its ecology and that of the surrounding environment to be made over time.

Current research and ongoing monitoring is directed by the Statewide Strategy (Parks Victoria 2003b) and is targeted at collecting baseline biological information for the park that will be used to build knowledge, identify threats, understand long-term changes in population abundances, community structure and ecological processes in the life of this plan. Long-term subtidal reef monitoring sites are established within the park (Edmunds et al. 2003). To understand the park within a broader context, monitoring compares these with sites outside the park boundaries. This work will assist in identifying indicator species and habitats. The results, available on Parks Victoria's website, will enable an assessment of the ecological condition of the park to be made.

Volunteers and community groups can make valuable contributions to monitoring, and other management programs (section 8.2).

Aims

- Protect marine ecological communities and indigenous flora and fauna, and allow natural processes to continue.
- Improve knowledge of marine ecological communities, flora and fauna and threatening processes to improve their management, protection and appreciation.

Management strategies

- *Manage visitor activities to minimise impacts to habitats, communities and individuals, and encourage visitors to avoid shallow seagrass and bird roosting*

and feeding areas, particularly in Mud Islands and the Special Protection Area in Swan Bay from August to March (sections 6.1, 6.3, 6.5, and 8.3).

- *Maintain roosting and feeding habitats of the park by prohibiting dogs from the intertidal reef areas of Point Lonsdale, and all areas of the Point Nepean, Mud Islands, Popes Eye and Swan Bay sections of the park, except where confined on a vessel (sections 6.6).*
- *Implement priority actions from approved action statements or recovery plans to address threats to threatened species or communities listed under the FFG and EPBC Acts.*
- *Ensure that all sightings of significant marine flora and fauna are recorded on the Parks Victoria Environmental Information System and DSE statewide databases.*
- *Identify and encourage research into key threatening processes and knowledge gaps.*
- *Undertake regular risk assessment to assess the major threats to habitats and communities, and review management programs as appropriate.*
- *Continue and expand appropriate long-term habitat monitoring programs as part of relevant statewide marine habitat monitoring programs.*
- *Encourage and support scientific research, surveys and monitoring of biodiversity as a reference against which other areas, including the park, may be compared.*
- *Support seabird and shorebird monitoring programs by seabird and shorebird conservation organisations in the park and in conjunction with adjacent areas.*
- *Encourage research to identify Indigenous cultural lore relating to communities and species (sections 5.1 and 8.2).*
- *Reflect Indigenous knowledge of communities and species in management practices as appropriate, and ensure that their significance to the Traditional Owners is respected in all management and visitor activities.*

- *Map habitats at scales suitable for management purposes, in accordance with statewide habitat mapping programs.*
- *Promote awareness of minimal approach distances and other regulations governing wildlife interactions, swimming, viewing and the additional constraints in the dolphin sanctuary zone (sections 3.2 and 6.1)*
- *Respond to cetacean incidents in accordance with the Victorian Cetacean Contingency Plan (section 8.3).*

4.5 Landscape and seascape

The landscape and seascape of Port Phillip Heads Marine National Park have long been admired by local, national and international visitors. The natural beauty of this protected area and surrounds is the basis of a locally treasured lifestyle, and is an integral part of the attraction for visitors and hence of cultural value to the community.

The Boonerwung and Wathaurong have a long association with the park's coastline, and many places on along the Point Nepean and Point Lonsdale coastline are spiritually significant. The landscape and seascape of park are an intrinsic element of *Country* of the Traditional Owners.

Point Nepean and Point Lonsdale comprise the gateway to Port Phillip, and Queenscliff is the focus for those coming through the entrance. The seascape is dominated by the energy of the ocean swells and currents, and this awe-inspiring body of water has claimed many ships and lives. The low limestone and sandy points at Point Lonsdale and Point Nepean frame the power of the Rip. Vegetation is low in exposed areas, which contrasts with the tall exotic plantings at Queenscliff. Major landmarks in the area include the lighthouses at Point Lonsdale and Queenscliff and the distinctive heritage character of Queenscliff, a complex of structures and exotic vegetation. Other landmarks include the Queenscliff pier and lifeboat shed, Queenscliff Harbour, ferry terminal facilities, and old fortifications at Point Lonsdale and Point Nepean.

Swan Bay and the surrounding Bellarine Hills are also major features in the area. The Swan Bay catchment is currently being planned and

managed in an integrated way to protect the environmental features and qualities of Swan Bay (VCC 1998a).

Key visual experiences in southern Port Phillip include:

- unusual rock formations and high cliffs
- spectacular coastal panoramas
- tranquil views of a sheltered bay
- vast areas of the ocean and bay meeting the land
- high-energy ocean swells and currents
- subtle patterns and colours on windswept beaches, rocks and coastal vegetation
- an array of underwater colour and diversity.

Visitors can enjoy the land and seascapes by boat, or from walking tracks, lookouts, piers and beaches adjacent to the park.

Many people see the park from an emotional or spiritual perspective. Local residents and visitors have a strong connection and affinity with the area's seascapes. Divers and snorkellers see the park as part of an underwater wonderland encompassing a beautiful array of marine life.

Landscape setting types broadly characterise different landscapes (VCC 1998a). Port Phillip Heads Marine National Park is within Landscape Setting Type 10 – The Heads, and also Type 11 – Rural Flat and Undulating with Features.

Special considerations for Landscape Setting Type 10 – The Heads, which is of outstanding scenic quality requiring appropriate planning controls for its protection, include the following:

- any change proposed for this area needs to acknowledge the special heritage and natural landscape setting type character described, and the dramatic constant variation due to shipping activity. Extreme care needs to be taken to protect the quality of the setting type, as otherwise it could be 'loved to death'
- developments must be kept low to reduce visual impact

- navigation, defence and Aboriginal heritage must be respected
- the complex coastal processes must be studied carefully before undertaking the development of any marine structures.

Special considerations for Landscape setting 11 – Rural Flat and Undulating with Features include the following:

- this setting type is facing enormous development pressure resulting from the spread of the City of Geelong. As a consequence, the towns are increasingly growing into dormitory suburbs
- the siting of development near cliffs should be avoided, given their unstable nature. Development should be concentrated so as to reduce visual clutter across the landscape.

Because these landscapes are based around a predominantly natural combination of sea and land, they are particularly vulnerable to inappropriate development. The *Siting and Design Guidelines for the Victorian Coast* (VCC 1998b) assist in the protection of coastal landscape values (section 7.2).

The Borough of Queenscliffe and City of Greater Geelong's planning schemes regulate developments on the adjacent foreshore to protect the park's landscapes (section 7.2).

Aims

- Protect landscape and seascape values within the park in accordance with the *Siting and Design Guidelines for the Victorian Coast*.
- Minimise visual impacts on the seascape and landscape, including management activities, and ensure any future developments are sensitively integrated with their natural settings.

Management strategies

- *Liaise with the Borough of Queenscliffe and City of Greater Geelong to minimise management activities that could affect landscape values.*
- *Liaise with the Borough of Queenscliffe, City of Greater Geelong and other external agencies to ensure the recognition*

of seascape and landscape values associated with the park (section 7.2).

- *Consider the significance of landscape to Traditional Owners in planning and implementing management activities, interpretation and education programs (sections 4.1, 5.1, 6.1 and 8.2).*

4.6 Marine and other pests

Exotic organisms are considered to be pests when they cause large changes to habitats, food chains or ecosystems, by feeding on or competing with native species. Over 100 exotic marine species are known to have become established in Victorian marine waters (Hewitt et al. 1999), and some have become marine pests. Exotic marine pest species recorded within Port Phillip Heads Marine National Park include the European Green Crab in some intertidal areas of the park, the Northern Pacific Seastar at Mud Islands and the European Fan Worm in Swan Bay.

Marine pests can have a devastating impact on Marine National Parks and Marine Sanctuaries. The introduction of marine pests into Victorian waters is listed as a potentially threatening process on Schedule 3 of FFG Act. Victoria's management priorities in relation to marine pests are set out in the relevant FFG Action Statement (NRE 1999a).

Prevention of marine pest invasions is the most effective management option. Prevention involves reducing the risk that a pest will be introduced to the park. In a very limited number of cases, with specific criteria, control measures may be attempted for established pest populations generally as part of coordinated regional or national response. However, experience elsewhere has shown that proposals to control established marine pests need to consider fully their likely effectiveness. The interconnectedness of the marine environment and the ability of many marine pests to migrate over long distances mean that control measures may be feasible only in limited circumstances. For example, using techniques that are successful on land, such as physical removal by hand, might make the situation worse, as some marine pests regenerate fully from fragments dislodged during removal. Where implemented, control measures will meet national guidelines for

managing marine pests. Because of the possibility of misidentifications or exacerbation of the pest problem, control measures will need to be part of authorised programs. In some cases, further research is required into control measures.

Victorian marine pest emergency management arrangements (*Interim Victorian Protocol for Managing Exotic Marine Organism Incursions*) (NRE 1999b) will form the basis for responding to new introductions and existing incursions of marine pests. The adoption of the *Waste Management Policy (Ships' Ballast Water)* (EPA 2004) for Victorian waters will help reduce the risk of marine pest incursions from ships' ballast water. Emergency responses to marine pest outbreaks in Victoria are managed as part of agreed national arrangements for marine pest emergencies. The Consultative Committee for Introduced Marine Pest Emergencies provides national oversight. Parks Victoria actively supports the protocol, by adopting best practice within the organisation and educating and informing the community about prevention measures.

Vessel cleaning and maintenance guidelines to help prevent the spread of marine pests (DSE 2004) aim to reduce the risk of spreading marine introduced pests by providing practical solutions for vessel operators for cleaning gear and hulls. Supporting initiatives include *Cleaner Marinas EPA Guidelines for Protecting Victoria's Marinas* (EPA 1998).

Parks Victoria Rangers, Fisheries Victoria Fisheries Officers, community-based organisations (e.g. dive clubs), and visitors play an important role in the monitoring and early detection of marine introduced pests in the park.

Terrestrial plant pest species are a problem in parts of Mud Islands within the park. Invasive species can pose a threat to the islands' bird populations, ecology and landscape values. Pest species on Mud Islands include Boxthorn, Mirror Bush, Tree Mallow, Prickly Saltwort, Galenia, Kikuyu and Couch-grass. The Friends of Mud Islands regularly undertake pest plant removal activities on their monthly visits to the islands.

In the past cattle straying from farms adjoining Swan Bay have damaged the fragile saltmarsh

vegetation and degraded the intertidal area by trampling and defecation. Fencing of all intertidal areas managed by Parks Victoria and most other areas has reduced this problem (section 6.6). Wandering cats from residential properties near Swan Bay can kill birds and other fauna that inhabit the intertidal area of Swan Bay. Under Borough of Queenscliffe by-laws, cats must be restrained between 8.00 p.m. (9.00 p.m. during daylight saving) and 6.00 a.m.

Aims

- Minimise the risk of introduction of marine and other pests by human activities, and their subsequent establishment in the park.
- Establish arrangements for the detection of new incursions within the park in support of Victorian marine pest management arrangements.
- Implement national or Victoria-wide control arrangements as they relate to the park.
- Minimise impacts on park values from wandering domestic animals.

Management strategies

- *Support DSE in educating Parks Victoria staff, Fisheries Victoria Officers and the community to identify marine pests.*
- *Encourage community groups, researchers, licensed tour operators and contractors to integrate the identification of marine pests into their activities and to report any sightings.*
- *Ensure that the detection of marine pests is reported in accordance with Victorian pest management arrangements and recorded on Parks Victoria's Environmental Information System and other relevant databases.*
- *Establish an ongoing program to minimise the risk of marine pest introduction and subsequent spread that addresses improving the understanding of the potential means of introduction and spread and formalising arrangements for*

prevention, reporting, monitoring and response.

- *Manage all pest incursions in accordance with the Interim Victorian Protocol (NRE 1999b) (section 8.3).*
- *Undertake pest programs only where research indicates that control or eradication is feasible and likely to be effective or as part of a co-ordinated regional or national response.*
- *Avoid translocation or new introductions by promoting boat-cleaning protocols for all recreational boats and contractors (section 6.3) in accordance with the DSE brochure 'Aquatic Pests: Treat 'em mean – keep your boat clean'.*
- *Ensure that management vessels operating in the park are maintained according to Victorian Government boat-cleaning protocols (DSE 2004).*
- *Include boat-cleaning protocols in contracts, licences or permits of contracted vessels, research vessels, and commercial and licensed tour operator vessels operating in the park.*
- *Ensure that new marine infrastructure within the park, such as buoys or markers, is cleaned to prevent translocation of marine pests.*
- *Encourage research into marine pests and the development of control programs for marine pests.*
- *Continue terrestrial pest plant and animal control programs at Point Nepean, Swan Bay and Mud Islands and support and coordinate pest plant control programs conducted by volunteers.*
- *Work with land owners adjoining Swan Bay to fence properties above high water mark and maintain existing fencing to exclude dogs, horses and cattle from the intertidal areas (sections 6.6 and 7.2).*
- *Support the Borough of Queenscliffe's cat curfew laws and the promotion of responsible pet ownership.*

5 STRATEGIES FOR CULTURAL VALUES CONSERVATION

5.1 Indigenous cultural heritage

The coast and sea are culturally significant to Indigenous communities. Indigenous communities have a long association with the coastline, which provided a reliable source of food and water. Indigenous tradition indicates that the Mornington Peninsula side of the park, including Mud Islands is part of *Country* of the Boonwurrung and that the Bellarine Peninsula side of the park is part of *Country* of the Wathaurong. The Boonerwung, Wathaurong and three other wurrungs (language groups) form the federation group Kulin Nation which occupies an area covering most of central Victoria.

Indigenous people have inhabited the Port Phillip region for around 40 000 years, and middens along the coast indicate that the Boonerwung and Wathaurong have inhabited the area for at least 6000 years and provide an important chronological record of life. At the end of the last interglacial phase, about 4000 years ago, the sea level rose to flood the large flat plains of Port Phillip where Indigenous communities once hunted animals and collected food.

The Boonerwung occupied the Port Phillip and Western Port area from the Werribee River in the west to the Tarwin River in South Gippsland (Clark 1998). The ancestors of the Burinyung-Bulluk clan, one of six clans that made up the Boonerwung language group, inhabited the southern section of the Mornington Peninsula. The clan frequented the coastal area around Point Nepean to hunt and gather shellfish from the reefs and collect fresh water from rock wells. The women from the Burinyung-Bulluk clan and women from other Boonerwung clans gathered at Point Nepean, a spiritual place for women to visit.

Point Nepean National Park contains a wide range and large number of Aboriginal archaeological sites. The density of sites in the coastal zone is among the highest recorded in Victoria. A comprehensive archaeological survey of Mornington Peninsula was undertaken in 1981. Over 200 Aboriginal archaeological sites have been recorded in the Point Nepean National Park and Mornington

Peninsula National Park (Parks Victoria 1998). These are predominantly shell middens, ranging from extensive and stratified shell deposits to small surface scatters. Stone artefacts occur at some sites, sometimes in large numbers. Cumulatively the sites have a high scientific, cultural and educational significance.

Ancestors of the Bengalat balug clan, one of the 27 clans that make up the language group of the Wathaurong, inhabited the Bellarine Peninsula section of the park. The Wathaurong occupied the Port Phillip and Geelong region from the Werribee River along the coastline to the Lorne Peninsula area, and inland to Colac, through to Cressy and onwards to Ballarat. The Wathaurong also form part of the federation group Kulin Nation.

The Bengalat balug clan frequented the coastal area around Point Lonsdale in the warmer seasons; living in the caves around the point they hunted fish and gathered shellfish from the reefs and the shallows of Swan Bay. Several large shell middens have been recorded at Buckley Park Foreshore Reserve at Point Lonsdale and along Lonsdale Bay, and some sites have also been recorded along the shoreline of Swan Bay, although much of Swan Bay has not been surveyed.

European settlement and the resulting conflicts, reduction in food resources and introduction of new diseases dramatically reduced the Boonwurrung and Wathaurong. Clans found it difficult to maintain their way of life and in many places were evicted from their land. Nevertheless the Boonwurrung and Wathaurong have strong connections with the park area today.

All Indigenous places and objects are protected under the Archaeological and Aboriginal Relics Preservation Act and the Aboriginal and Torres Strait Islander Heritage Protection Act. It is an offence to damage, interfere or endanger an Aboriginal site, place or object without obtaining prior written consent from the scheduled Aboriginal community.

Issues relating to the protection of cultural heritage and the involvement of the scheduled Aboriginal community are approached in

accordance with these Acts. Under the Commonwealth Act, the Wathaurong Aboriginal Cooperative Ltd is designated as the scheduled Aboriginal community for the Bellarine Peninsula side of the park and the Victorian Boonerwung Elders Land Council Aboriginal Corporation is designated as the scheduled local Aboriginal community for the Mornington Peninsula side of the park, including Mud Islands. Although there are no recorded Indigenous places or objects in the park, they are thought to exist. Surveys have yet to be undertaken to identify and record these sites.

Issues relating to native title are dealt with according to the Native Title Act (section 2.5).

Parks Victoria respects the Traditional Owners' cultural lore, interests and rights in the land, and aspirations for *Country* and seeks to reflect these in planning and management (Parks Victoria 2005a).

Aims

- Protect Indigenous cultural heritage from interference or damaging activities.
- Nurture Indigenous cultural lore relating to the park.

Management strategies

- *Protect Indigenous places and objects from disturbance and damage in partnership with the Traditional Owners and in cooperation with the scheduled Aboriginal community and AAV (section 8.2), and in accordance with:*
 - *relevant legislation including the Archaeological and Aboriginal Relics Preservation Act and Aboriginal and Torres Strait Islander Heritage Protection Act*
 - *Parks Victoria's Guidelines for Working with Aboriginal Communities and Protection of Cultural Sites (Parks Victoria 2002).*
- *Maintain confidentiality in respect of Indigenous cultural lore, places, objects and aspirations, in accordance with the views of Traditional Owners (sections 6.1 and 8.2).*

- *Ensure that all management actions are in accordance with the Native Title Act.*
- *Encourage research into the Indigenous cultural heritage, relating to the park, in collaboration with relevant Indigenous communities and in liaison with AAV (section 8.3). Use results to target protection and other management activities.*
- *Respect Indigenous cultural lore and the Traditional Owners' aspirations for Country, and in all collaboration with them and the scheduled Aboriginal Community and in accordance with Parks Victoria's operational policies, reflect the Traditional Owners' cultural lore, interest and rights in all planning and management of the park (sections 4.1, 4.4, 4.5, 6.1, 7.1 and 8.2).*
- *Assess and identify Indigenous cultural heritage suitable for promotion and interpretation in collaboration with the Traditional Owners and in liaison with AAV (sections 6.1 and 8.3).*

5.2 Maritime and other cultural heritage

Port Phillip and its surrounds have a rich European cultural heritage. Point Lonsdale and Point Nepean were the first landmarks of Port Phillip sighted by Lieutenant John Murray in January 1802. Murray explored the bay and named it Port King in honour of the governor of New South Wales, who renamed it Port Phillip after the first governor.

Mathew Flinders navigated Port Phillip in April 1802. He rowed into Swan Bay in May 1802 (named Swan Harbour, after the abundance of black swans, by Murray ten weeks earlier) and renamed it Swan Pond. On the same day in May 1802 the naturalist Robert Brown explored the coastal flora of Swan Pond (S. Longmore, pers. comm.).

The waters of Port Phillip Heads are steeped in maritime history. With the discovery of gold in 1851, Melbourne soon became a major entry point to Australia. The treacherous nature of the Rip at Port Phillip Heads creates a navigational hazard, and many losses at the Rip have occurred when ships attempted to enter without a pilot or against a strong ebb

tide. The Port Phillip Sea Pilots have provided pilot services to ships passing through the heads since 1839 (Dr. H Hudson, pers. comm.). Early pilots were taken to and from ships by 30-foot whaleboats, which were often crewed by convicts.

The underwater cultural heritage of this area is unparalleled in Australia in terms of the number and type of shipwrecks and the extent of preservation of the remains located thus far (Foster 1988). Thirty-one of the 120 shipwrecks known to have occurred within a 10 nautical mile radius of Port Phillip Heads are thought to be within the park (appendix 3). The wrecks of the *Holyhead* and *George Roper* within the park are part of Heritage Victoria's Underwater Shipwreck Discovery Trail (section 6.4).

The first European to live on the Bellarine Peninsula was the escaped convict William Buckley in 1803, followed by members of the Port Phillip Association from Van Diemen's Land in 1835. Squatters occupied the Peninsula in 1836 before it became an agricultural area. Today small farms still exist across the peninsula between the numerous towns and holiday resorts dotted around the coast. Point Lonsdale was also a site of early scientific research and botanical survey (Ducker 1983).

The fortification of Queenscliff began in 1859, and by 1891 the fort had powerful defences, and defence activities were regularly practised within the waters surrounding Point Lonsdale. In 1909 Swan Island was used by the Royal Australian Navy as a mine and torpedo boat depot (Bognuda & Moorhead 1980).

Another island in Swan Bay, Tip Island, the small island of Burnt Point was used as a rubbish depot in 1900. During this time Tip Island and Burnt Point could be accessed at low tide from Queenscliff by an old access track (B. Duncan, pers. comm.). The coastline of Swan Bay was permanently altered in the 1950s by shell grit mining that created the area that is now Lakers Cutting. The mining continued until the mid 1980s and again in 1936 when a channel was dug from Port Phillip Bay into Swan Bay so that fishing boats could take shelter from the sea quickly (Hill 2004), and later the channel was widened to become a harbour.

Swan Bay has been used for fishing both commercial and recreational since the 1860s. Its value as a fish nursery was recognised in the 1870s and various fishing restrictions have applied over the years in an attempt to preserve the fish populations (DCE 1991).

The Queenscliff – Lonsdale Yacht Club (formerly the Swan Bay Yacht Club) have used Swan Bay for sailing activities since the early 1900s. The clubhouse was moved to its current location in 1913; its facilities included a pier which has since been demolished (DCE 1991) (section 6.3).

Popes Eye is an unusual natural sand shoal formation first spotted by Master Pope aboard HMS *Rattlesnake* in 1836. Two ships, the *Marco Polo* and *Melanopie*, have run aground on Popes Eye (Dr. H Hudson, pers. comm.). To aid the fortification of Port Phillip, the construction of a bluestone annulus on the shoal was commenced (though not completed) in the late 1880s with bluestone brought from Point Wilson. The partially built annulus was designed to be a fort in defence of the West and Symonds Channels (Noble 1979). The Popes Eye Shoal Fort was abandoned as it now remains, a semi-circular stone wall rising above the water. Despite popular belief the north-eastern side of the annulus was never left open to enable HMVS *Cerberus* to be floated as a portable fort.

Point Nepean is an area of high archaeological significance as the location of early settlement in Victoria in 1843, including pastoral, minor agricultural and limeburning activities. It is the location of early quarantine and defence activities which were important in the history of the Colony and the Commonwealth. The first permanent quarantine station was built in 1852 at Ticonderoga Bay, and the ruins of a cattle jetty built in 1879 remain at Observatory Point. The jetty was used to land people and supplies for the quarantine station, and later to land cattle.

Fortifications were developed at Point Nepean in 1882 to improve the protection of Port Phillip (Bognuda & Moorhead 1980). A jetty built at Point Nepean proper was used to receive supplies and equipment from Fort Queenscliff until the 1960s. Defence activities at Point Nepean have left unexploded ordnance in the waters and intertidal areas directly off

the engine house on the north-western tip of Point Nepean, and other undiscovered locations. Australia's first major oil spill occurred at Petriana Reef on the Bass Strait side of Point Nepean when the SS *Petriana* ran aground in 1903, carrying 1300 tons of oil. The oil was pumped out in an attempt to lighten the vessel to aid recovery, causing contamination of fish and pollution to nearby beaches that lasted for months.

Cheviot Bay is notable as the location of the disappearance of Australia's 17th Prime Minister, Harold Holt, on 17 December 1967. A memorial plaque to the Prime Minister was fixed to the seabed off Cheviot Beach by the Underwater Explorers Club of Victoria.

The Harold Holt Marine Reserves were gazetted in 1979. The first marine reserves in Victoria, they encompassed Point Nepean, Point Lonsdale, Popes Eye, Mud Islands and Swan Bay. They were re-gazetted as the Harold Holt Fisheries Reserves in 1998.

Formerly known as Swan Isles, Signet Island and Flat Islands, Mud Islands has remnants of guano deposits that were mined from 1860 until 1902 for fertiliser. Mud Islands was proclaimed a sanctuary for all native game in 1931, although there is speculation that Middle Island was reserved as a bird sanctuary as early as 1898. Such a reservation would make Mud Islands one of the earliest conservation reserves in Victoria (Yugovic 1998). Mud Islands has had a long history of Friends group involvement. The Friends of Mud Islands have been visiting the islands since 1992 to participate in activities to conserve their natural values.

Heritage Victoria (DSE) has primary responsibility for the management of underwater cultural heritage, including shipwrecks, lost anchors, jetties, discarded bottles and plates and tip sites within the park. Parks Victoria has established a Memorandum of Understanding (MOU) with Heritage Victoria which identifies respective roles and responsibilities in relation to protection, compliance and interpretation of shipwrecks, shipwreck artefacts and other archaeological sites within the boundaries of Marine National Parks and Marine Sanctuaries (appendix 3).

Aims

- Conserve and protect places and values of historic and cultural significance.
- Encourage learning and understanding about maritime and other historic heritage of the park.

Management strategies

- *Manage places and values of historic and cultural significance in accordance with the Burra Charter of Australia ICOMOS: the charter for the conservation of places of cultural significance, the provisions of the Heritage Act 1995 (Vic.) and the Historic Shipwrecks Act 1976 (Cwlth), and Parks Victoria's Heritage Management Strategy.*
- *Record, conserve and, where appropriate, interpret any cultural heritage places in the park in accordance with Parks Victoria operational policies.*
- *Liaise with Heritage Victoria to document historic heritage values and assess the risk to those values (section 8.3). Enter data into Parks Victoria's Asset Management System.*
- *Liaise with Heritage Victoria and user groups to investigate the interpretation of the history of Popes Eye for divers at Popes Eye.*
- *Cooperate with and support Heritage Victoria's maritime heritage research programs.*
- *In accordance with the MOU, support Heritage Victoria's maritime heritage protection and research programs. Consult Heritage Victoria about management activities that might affect known wrecks or artefacts.*
- *Report concerns of shipwreck or relic damage by human interference and the environment to Heritage Victoria's Maritime Heritage Unit.*
- *Include historic heritage information in education, information and interpretation programs for the park (section 6.1).*

6 STRATEGIES FOR VISITORS

6.1 Information, interpretation and education

Providing information, interpretation and education can help orientate and inform visitors, increase visitor enjoyment and satisfaction, foster an understanding and appreciation of the park's special natural and cultural values, build understanding of management activities, and help visitors to experience the park in a safe and appropriate manner. Parks Victoria delivers information, interpretation and education to visitors by various means, including its website, ranger patrols, Marine Notes, signage, tourism brochures and other publications, displays, and licensed tour operators. These services may be developed and provided in collaboration with other agencies.

Having a representative system of Marine National Parks and Marine Sanctuaries in Victoria presents a unique opportunity to educate visitors and the broader community about the features and benefits of a statewide system of protected areas. At the same time, a range of information, interpretation and education products that are specific to the park are or will be provided.

With its diverse and treasured marine and coastal environments within easy access of Melbourne and Geelong, the park is uniquely placed to educate visitors and the broader community on the features and benefits of a statewide system of marine protected areas. At the same time, a range of information, interpretation and education products that are specific to the key features of the park will be provided.

Pre-visit information and Marine Notes (available in several languages) for the park are available from Parks Victoria offices, the Parks Victoria Information Centre and website, and accredited information centres.

Orientation, information and regulatory signs and interpretation infrastructure, including regulatory totems, are outside the park on adjacent foreshore reserves and piers. Some of these adjacent areas are managed by the Borough of Queenscliffe (section 7.2). Signs

and interpretation infrastructure outside the park are located at:

- key access points on the adjacent foreshore, including car parks at Point Lonsdale, Queenscliff Harbour and Swan Bay
- local boat ramps, including Queenscliff, Swan Bay, Sorrento and Rye
- local piers, including the Portsea Pier and Point Lonsdale Pier
- the Swan Bay walking track
- Point Lonsdale Lighthouse
- Point Nepean Visitor Centre.

Orientation, information and regulatory signs and interpretation infrastructure are located on the navigational structure at Popes Eye and on the northern and southern end of Mud Islands.

Existing interpretation and education for the park convey information on the park location, boundaries, natural values, recreational activities, safety and compliance. Providing further information about other key features of the park would assist visitor appreciation and understanding of park values.

Visitors may access the park by boat and through a number of walking tracks or along the beach, so it is difficult to provide effective visitor orientation signage. As a result, an educational approach must be employed to complement boundary markers, signage and publications.

Yellow on-shore triangles mark where the park boundary intersects with the coast; the triangles point toward the Marine National Park. In-water 'Special Marks' (yellow buoys or piles with a yellow cross) define the water boundary of the park. Special Marks are also used to indicate a special area or feature, the nature of which may be found by consulting a navigational chart; some examples include spoil grounds and aquaculture reserves (section 7.2). Park boundaries can also be identified by using a global positioning system (GPS) (section 7.2).

Port Phillip Heads Marine National Park offers opportunities to develop themes related to the

park's geological significance, diverse habitats, endemic marine flora and fauna, marine pests, and Indigenous cultural heritage, maritime heritage and recreational history. Rangers organise interpretive activities for community and school groups on request. Coast Action / Coastcare offers school holiday, community and summer activity programs within the park at Point Lonsdale and Swan Bay (section 8.3).

Many individuals, school and community groups visit the park independently, or with licensed tour operators. A number of licensed tour operators offer guided interpretive walks and rockpool rambles as well as nature observation activities including seal and dolphin watching and snorkelling. Licensed tour operators offering activities within the park can be found on Parks Victoria's website or Parks Victoria Information Centre on 13 1963. All tour operators offering educational tours conducted in the park must be licensed under the National Parks Act (section 7.1).

The Marine Discovery Centre at Queenscliff assists people of all ages to discover the wonders of southern Australia's marine environment within the park at Point Lonsdale and Swan Bay. The centre conducts a range of services to schools, universities, tourism, government agencies and overseas visitors and as well as school holiday, community and summer activity programs. Adjacent to the park on Swan Bay, the centre is in an ideal location for learning about the park's marine and coastal environments with a range of the park's diverse marine habitats including rocky intertidal shores, mudflats and temperate reefs within easy reach. The Marine Discovery Centre is operated by DPI's Research and Development arm, Primary Industries Research Victoria (PIRVic), and supported by philanthropic organisations, corporate sponsors and the efforts of a volunteer team.

Trampling from rockpool rambling has the potential to threaten sensitive intertidal communities if visitor numbers and activities are not carefully managed (section 6.5). Parks Victoria (2003) has developed Minimal Impact Guidelines (available on the Parks Victoria website www.parkweb.vic.gov.au) in partnership with providers of education to help manage these activities and works with the Department of Education to encourage schools

to notify Parks Victoria (on 13 1963) of any intended school group visits. Prior notification allows teachers to obtain relevant information and education materials, Minimal Impact Guidelines and advice on suitable sites, and will enable Parks Victoria to monitor the number and timing of visits.

Aims

- Promote and encourage visitors to discover, enjoy and appreciate the park's natural, recreational and cultural values in a safe and appropriate manner through information, education and interpretation.
- Provide and support high-quality interpretation and education opportunities, appropriate to the range of user groups.

Management strategies

- *Maintain visitor information, interpretation and educational material appropriate to the park and raise the profile of the park among the local and wider community (section 8.1).*
- *Liaise with the Borough of Queenscliffe in the development of an integrated approach to signage, and visitor information, interpretation and educational material.*
- *Develop and deliver interpretation themes related to the statewide system and the park's geological significance, hydrodynamic processes, diverse habitats and marine flora and fauna communities, Indigenous and maritime cultural heritage, recreational history and management practices to promote protection and foster appreciation by visitors (section 8.1).*
- *Educate visitors and the general public about the significance and sensitivity of the seagrass and saltmarsh communities in Mud Islands and Swan Bay and the need to comply with the 5 knot speed restrictions that apply in those sections of the park (sections 4.4, 6.3 and 8.1).*
- *Liaise with educational organisations, other agencies, community and Friends groups and licensed tour operators to ensure the delivery of coordinated and consistent messages about key management strategies and interpretation themes.*

- *Continue to allow sustainable educational use by school and community groups including the Marine Discovery Centre (section 6.5).*
- *Promote the need for schools to notify Parks Victoria (on 13 1963) of any intended school group visits.*
- *Undertake standardised monitoring of impacts of trampling on intertidal reefs at Point Lonsdale from educational use and review the effectiveness of management measures. If impacts increase, work with users to develop an appropriate carrying capacity for the reefs and consider limiting or reducing annual visitation numbers.*
- *Promote greater public understanding, appreciation of, and respect for, Indigenous culture by incorporating information about Indigenous cultural lore, places and objects in information, interpretation and education programs, in collaboration and accordance with the views of the Traditional Owners (sections 5.1 and 8.2).*
- *Provide appropriate opportunities and support relevant Indigenous communities to participate in the interpretation of Indigenous cultural heritage relating to the park, with the agreement of the Traditional Owners (section 8.2).*
- *Promote opportunities for education and interpretation programs through facilitating partnership arrangements with providers of marine education programs.*
- *Regularly evaluate information and interpretive programs and success in communicating key themes and management practices.*

6.2 Access

The park is readily accessible from the Bellarine and Mornington peninsulas. Visitors can access the Point Lonsdale and Swan Bay sections of the park through many shore-based access points and a network of paths, stairs and car parking areas on the adjacent foreshore. The Borough of Queenscliffe and Parks Victoria manage access infrastructure on the Bellarine Peninsula side of the park. On the Mornington Peninsula side access

infrastructure is managed by Parks Victoria in the Point Nepean National Park and at Portsea pier, which is outside the park. The management of access points requires a coordinated approach between the Borough of Queenscliffe and Parks Victoria (sections 7.2 and 8.3).

Access to the waters of the Point Nepean section of the park is only by boat. Landing boats or swimming from boats to access intertidal area of Point Nepean is prohibited (Parks Victoria 1998). Because unexploded ordnance is a potential hazard in the Point Nepean section, intertidal beach access is restricted (table 2 and section 6.8). Shore-based access is prohibited from Point Nepean National Park into the Point Nepean section of the park, except for pedestrian access to the intertidal beach area between The Bend and Observatory Point.

Access to Mud Islands, Portsea Hole and Popes Eye is also only by boat. There are no boat ramps in the park, although there are many nearby boat launching facilities: at the Queenscliff Lonsdale and the Blairgowrie Yacht Clubs, and boat ramps at Swan Bay, Queenscliff, St Leonards, Portarlington, Sorrento and Blairgowrie, and at other bayside locations such as Patterson River. Launching facilities for deep-keeled sailing vessels are located at the Blairgowrie and the Queenscliff Cruising Yacht Clubs. Maintaining appropriate boat access to the park requires a coordinated approach between boat ramp managers and Parks Victoria.

In the past vessels have been launched from vehicles in the intertidal areas of Swan Bay, causing damage to the fragile saltmarsh vegetation and intertidal communities. Under the Land Conservation (Vehicle Control) Regulations 1992 vehicles are not permitted to enter the intertidal area unless on a designated boat ramp. Other small vessels, including canoes, sea kayaks, sailboards and small sailboats launched by hand, can be launched at designated boat ramps to protect the delicate nature of the saltmarsh vegetation and intertidal communities of Swan Bay.

Aim

- Ensure that access to the park is appropriate and safe.

Management strategies

- *Liaise with the Borough of Queenscliffe and other land managers in the management of shore-based access points to minimise the impact of access on the natural and cultural values of the park.*
- *Work with the managers of local boat-launching facilities to ensure appropriate access to the park.*
- *Liaise with vessel operators to ensure the landing and launching of all vessels, including canoes at designated boat ramps to protect sensitive intertidal vegetation.*
- *Continue to prohibit access from both water and shore to all intertidal areas at Point Nepean except for pedestrian access via Point Nepean National Park to the intertidal beach between The Bend and Observatory Point.*

6.3 Recreational boating and surface water sports

The waters of the park are widely used for surface water sports and motorised and non-motorised boating activities. Although conditions within the park are generally suitable for recreational boating, they can change quickly (section 6.8). The park is regularly used for sailing by individuals and clubs, including the Queenscliff – Lonsdale Yacht Club, the Queenscliff Cruising Yacht Club and the Blairgowrie Yacht Club. Sea kayaking and canoeing allow visitors to take in the tranquillity of Swan Bay, and when conditions are favourable at Point Lonsdale wind surfers and kite boarders also use the park.

The surf breaks around the point at Point Nepean are very popular for surfing, although these breaks are only accessible by boat as there is no shore-based access for surfers (section 6.2). The waters around Point Nepean are hazardous and surfers need to be aware of the weather and sea conditions (section 6.5).

Motorised boats regularly pass through the park en route to fishing locations outside the park. Popular diving locations at Portsea Hole, Popes Eye, Point Lonsdale, and Point Nepean also bring motorised boat users into the park. The popularity of Popes Eye and Portsea Hole as dive sites can lead to congestion with too

many boats trying to access the sites during the slack tide, especially at peak times in the summer months (section 6.4). Water skiing is not common in the park because wave and other conditions are usually unfavourable.

Parks Victoria is responsible for the management of port infrastructure and recreational boating, including navigational aids, in Port Phillip, under the *Port Services Act 1995* (Vic.) (section 7.2). As in all Victorian enclosed waters, all boating activities, including kayaking and canoeing, are subject to a 5 knot speed limit within 200 m of the water's edge. This also applies to Popes Eye and Mud Islands and its lagoons. Other speed restrictions apply in specified circumstances in the Marine Act (MSV 2005). Boats are not permitted to land or access the intertidal area at Point Nepean (sections 3.3 and 6.2).

Where conditions are suitable for boating, vessels generally have minimal impact on the park's values. However, vessels operated in shallow areas, particularly in Swan Bay and around Mud Islands, can damage the seabed, including sensitive seagrass and intertidal mud flats, through vessel groundings and propeller scarring. Propeller scarring has the potential to fragment seagrass beds, resulting in habitat loss, decreased productivity, and the possibility for further erosion and degradation (section 4.4). Anchoring also has the potential to damage the seafloor, especially sensitive seagrass areas.

Motorised and wind-powered vessels (including wind surfers and kite boarders) can also disturb roosting and feeding birds and marine mammals (section 4.4) through vessel noise and fast movement. Research shows that personal water craft (PWCs) (Burger 1998) and hovercraft are particularly disturbing to roosting and feeding birds. Hovercrafts by their design are able to access the shoreline and shallow intertidal areas that are inaccessible to other vessels. When operating as vessels, hovercraft can pose a serious threat to shorebirds, especially if travelling over exposed intertidal flats. On land they are classed as vehicles, which are prohibited from travelling off-road. Kite and wind surfers can damage intertidal vegetation and mudflats through trampling when launching or landing

in the intertidal areas of Swan Bay (section 6.2).

The important roosting and feeding sites for local and migratory birds at Swan Bay and Mud Islands, protected under the Ramsar Convention (Ramsar 1971) (section 4.4) are vulnerable to disturbance by vessels, particularly during the breeding season from August until March. A Special Protection Area overlay applies to the Swan Bay section of the park (table 1, figure 2b, sections 3.2 and 4.4). A speed limit of 5 knots and an education program for motorised and other vessel operators (including Personal Water Craft) will be introduced to help protect birds, bird habitats and sensitive shallow seagrass meadows (sections 6.1 and 8.1).

Vessels can also conflict with other users of the park, including, snorkellers and divers at Popes Eye and Portsea Hole (section 6.8) and swimmers (section 6.5).

Boats can introduce marine pests if boat-cleaning protocols are not followed (section 4.6) and fuel leaks, oil spills and the disposal of wastes or sewage could have a significant impact on water quality (section 4.2) and flora and fauna (section 4.4). State Environment Protection Policies prohibit vessel operators from discharging sewage, oil, garbage, sediment, litter or other wastes to surface waters in any Victorian State waters. While the EPA has primary responsibility for pollution management, Parks Victoria supports the provision of waste-receiving and pump-out facilities at marinas, ports, and other suitable sites (section 4.2).

Private infrastructure within the park is also not permitted. A private mooring was constructed in Swan Bay prior to the establishment of the park. The Queenscliff – Lonsdale Yacht Club has relocated its sailing activities and now only uses Swan Bay for shallow draught sailing by junior sailors. These vessels are launched by hand across the intertidal area. A boat ramp at the Queenscliff – Lonsdale Yacht Club, built prior to the establishment of the park, is no longer in use.

Officers from Parks Victoria, Fisheries Victoria – DPI and Victoria Police undertake regular water-based patrols and have contact with recreational boat users. Patrols offer an

opportunity for boat users to learn about the park.

Aim

- Provide for a range of boating and water sports activities within the park while minimising impacts on the natural values.

Management strategies

- *Permit boating and surface water sports in the park in accordance with table 2 and the 5 knot speed restriction within:*
 - 50 m of a swimmer
 - 100 m of a vessel or buoy with a 'diver below' flag
 - 200 m of the shoreline, which includes Popes Eye and Mud Islands and its lagoons
 - all of the Swan Bay section of the park
 - 300 m of a whale or dolphin.
- *Prohibit use of hovercraft within the park.*
- *Develop an education program targeting vessel operators using the Swan Bay and Mud Islands sections of the park to protect seagrass and significant seabird and shorebird habitat by encouraging vessel operators:*
 - *to anchor over sandy substrate and avoid anchoring over seagrass and other communities*
 - *to avoid significant seabird and shorebird habitat from August until March.*
- *Monitor boating impacts on the park, in particular interactions with bird populations, seagrass and intertidal areas in the Swan Bay section of the park. Review impacts and adequacy of management measures and if necessary take appropriate action to minimise impacts.*
- *Permit anchoring within the park, monitor impacts, and if necessary take appropriate action to reduce any impacts on natural values.*
- *Prohibit installation of private moorings within the park and remove the existing private mooring.*

- *Liaise with the Queenscliff – Lonsdale Yacht Club about future use of the boat ramp and the timing of its removal.*
- *If necessary provide navigation aids to provide for the safe navigation of the park by all vessels.*
- *Liaise with recreational vessel operators, particularly during patrols, to:*
 - *promote safe and sustainable use*
 - *encourage observance of, and enforce, the National Parks Act and the Marine Act*
 - *raise awareness of boat cleaning protocols (section 4.6).*

6.4 Diving and snorkelling

The southern end of Port Phillip is internationally recognised for its spectacular dive sites. Many of these sites are within Port Phillip Heads Marine National Park. Subtidal reefs at Point Lonsdale and Point Nepean have endemic, diverse and colourful arrays of sessile invertebrates, reef fish and algae that rival or surpass the colour and diversity seen on tropical coral reefs. The park also offers challenging wreck, drift and wall dives for appropriately qualified divers. Two wrecks within the park, the *Holyhead* and *George Roper*, form part of Heritage Victoria's Underwater Shipwreck Discovery Trail. Heritage Victoria's website provides information of the history of the wrecks and also a dive Information sheet with a map (including GPS positions) and notes on the diving conditions.

Abandoned as a fortification in the 1880s and protected since 1979 as part of the Harold Holt Marine Reserves (section 1.2), Popes Eye is steeped in maritime history (sections 5.2 and 6.1) and has an abundant array of fauna and flora inside and outside the annulus. It is a popular diving and snorkelling destination that can be accessed with relative ease. Portsea Hole, a remnant section of the Yarra River with steep walls to 32 m in depth, is also popular for diving.

Sheltered reefs between the Point Lonsdale pier and Lightning Reef, and in Nepean Bay at Point Nepean, give snorkellers and divers an opportunity to view the marine fauna and flora

on intertidal reef systems. The seagrass beds of Swan Bay and Mud Islands are also excellent locations for snorkelling. Snorkellers can see an array of invertebrates, pipefish and juvenile fish among the seagrass fronds.

Scuba diving and snorkelling in the park can be undertaken privately or through a licensed tour operator. Scuba diving and snorkelling offered by licensed tour operators are managed by permit conditions that detail access, safety regulations, permitted activities and site-specific restrictions (section 6.7). Some dive sites within the park are exposed to large waves, strong currents that may cause entanglement in kelp, entrapment under ledges and crevices and exposure to marine animals and cold. It is preferable that divers access the more challenging dive sites through a licensed tour operator (section 6.8). Divers and snorkellers need to be aware of potential dangers, particularly from vessels passing through the park near dive sites (section 6.8). Under the Marine Act scuba divers must dive with a flag indicating a diver below. To increase safety for snorkellers, they are advised to display a flag indicating a diver below when snorkelling (section 6.8).

The current levels of diving and snorkelling in some sections of the park are high, and could increase as the opportunities in the park become more widely known. Portsea Hole and Popes Eye are very popular diving locations but both are small areas and have limited capacity. On a number of days during the year, generally public holidays or weekends with good weather during summer, there can be congestion and issues of equitable access. Recreational users and licensed tour operators have successfully self-managed activities in the past by implementing time limits, anchoring outside the annulus and using other sites. Increased use could lead to further congestion at peak periods.

The proximity of some locations to The Rip, the strong currents and water surge and the potential for repetitive long-term damage to sensitive natural values and maintenance issues make the park unsuitable for an underwater diving or snorkelling trail. The provision of off-site information can help to guide and enhance diver experience (section 6.1).

Popes Eye is a popular site for diver training in the park. Educating divers and snorkellers about minimal impact practices, particularly those new to these activities, will help minimise adverse impacts and assist with park management. Potential impacts from diving and snorkelling include propeller scouring and anchor damage, fin disturbance to sensitive sediments, intertidal trampling, damage to shipwrecks and relics, and illegal removal of flora and fauna.

To ensure diver safety, divers should refer to the Scuba Divers Federation of Victoria (SDFV) *Codes of Practice, General operating guidelines for recreational scuba diving and related activities* (SDFV 2005).

Divers and snorkellers need to be aware of the no-take provisions in the park and can assist in the early detection of marine pests in the park (sections 4.6 and 8.2), and the detection of unrecorded cultural places and objects.

Aim

- Promote and encourage appropriate opportunities for diving and snorkelling in the park.

Management strategies

- *Permit diving and snorkelling activities in accordance with table 2.*
- *Manage recreational, educational and licensed tour operated diving and snorkelling activities to minimise impacts on natural values. At Popes Eye and Portsea Hole in particular:*
 - *encourage voluntary time limits especially inside the annulus at Popes Eye*
 - *encourage licensed tour operators to drop off divers and snorkellers inside the annulus at Popes Eye and anchor outside*
 - *encourage diving at dispersed locations across the park at peak periods*
 - *promote compliance of snorkellers and recreational scuba divers with relevant codes of practice and Adventure Activity Standards (section 6.7).*

- *Regularly observe diving activities at Popes Eye and Portsea Hole and assess congestion, diver safety and impacts on the natural values. If congestion increases and impacts from diving and snorkelling become apparent:*
- *review the effectiveness of management measures*
- *if necessary investigate, in consultation with licensed tour operators, users and interest groups, the installation of public mooring infrastructure.*
- *Provide off-site information and signage to guide divers and snorkellers to suitable areas/underwater routes in the park.*
- *Do not install fixed structures that define an underwater trail within the park.*
- *Encourage and support research into the impacts from diving and snorkelling at Popes Eye and Portsea Hole within the park with a view to determining an appropriate carrying capacity.*
- *Encourage the use of clean diving practices and vessels to prevent translocation of marine pests (section 4.6), and integrate minimal impact messages into existing information, interpretation and education programs (section 6.1).*
- *Support dive clubs and industry representatives to promote environmentally responsible diving practices.*
- *Encourage diving with licensed tour operators for diver training and at the more challenging dive sites or those with hazardous conditions in the park.*

6.5 Swimming and shore-based activities

Many international and local visitors come to Point Lonsdale to admire the landscape and seascape and to contemplate the Indigenous and maritime history of the Rip. The sandy beaches at Point Lonsdale are a popular attraction for many visitors. Shore-based activities include relaxing, sunbaking, informal games, walking and general recreation. The beaches along the ocean coast are hazardous for swimming, and a number of lives have

been lost there. In summer the Point Lonsdale Surf Life Saving Club patrols the Point Lonsdale back beach adjacent to the park at Point Lonsdale and the Santa Casa Beach in Queenscliff.

At low tide a large area of the intertidal reef at Point Lonsdale is accessible to visitors and is frequently used for rockpool rambles and general nature observation by individuals and families and especially by groups, schools and educational marine tours (sections 6.1 and 6.7). Intensive trampling of the intertidal reef from a large number of visitors and groups walking of the reefs and undertaking rockpool rambles could lead to significant damage to fauna and flora, and in some sites a reduction in biodiversity and reef habitats (Povey and Keogh 1991) (section 4.4).

Minimal Impact Guidelines developed by Park Victoria (available on its website) provide information on minimal impact practices for visitors and school groups. Visitors to the intertidal reefs at low tide also have the potential to disturb roosting and feeding shorebirds (section 4.4).

Shore-based activities can also be undertaken on the intertidal beach area between The Bend and Observatory Point at Point Nepean, but swimming is prohibited because of the proximity of the hazardous waters of the Rip (Parks Victoria 1998). Vessels have the potential to be a danger to swimmers in the intertidal area, and waves washing over rock platforms also present a hazard to visitors at Point Lonsdale and Point Nepean (section 6.8).

The shorelines of Swan Bay and Mud Islands are used for bird watching and general nature observation. Human activities can disturb breeding, roosting and feeding birds, and ultimately pose a threat to the survival of species. The intertidal saltmarsh of Swan Bay is an important roosting and feeding site for the Orange-bellied Parrot from March to October (section 4.4).

Visitors (particularly groups) can pose a threat to roosting, breeding and feeding birds at Mud Islands and Swan Bay, especially during the breeding and migratory season, from August until March (section 4.4). Under the National Parks Act visitors are prohibited from handling fauna, including eggs. Visitors approaching breeding colonies can cause birds to flee the

nest, leaving eggs and young vulnerable to exposure and predation. Visitors can also damage the saltmarsh vegetation of Mud Islands and the intertidal areas of Swan Bay.

The intertidal collection of living or dead organisms, rocks, seaweed, sand and natural driftwood is prohibited within the park (section 4.4). Litter collection and mechanical beach cleaning will avoid impacts to these natural values (sections 4.2 and 4.4).

The lighting of fires within Marine National Parks and Marine Sanctuaries will not be permitted, except on board a vessel that is seaward of the mean high water mark or as an emergency signal.

Aim

- Promote and encourage appropriate shore-based recreation within the park while minimising impacts on the natural values.

Management strategies

- *Permit shore-based recreational activities in accordance with table 2, except in restricted areas at Point Nepean (sections 3.2 and 6.2).*
- *Continue to prohibit swimming in the hazardous waters near the Rip in the area between The Bend and Observatory Point in the Point Nepean section of the park.*
- *Ensure all visitors to the park, particularly education, school and other groups, including the Marine Discovery Centre, adopt Parks Victoria's Minimal Impact Guidelines.*
- *Manage shore-based activities to reduce impacts on the natural values and minimise damage associated with trampling, and if required manage visitors through:*
 - *voluntary protocols (e.g. booking systems) for visitors, educational institutions and other organised groups*
 - *conditions placed on tour operator permits*
 - *regular patrols during popular periods and times to encourage appropriate visitor use.*

- *Reduce impacts on natural values, particularly from trampling during educational use by school and other groups, including the Marine Discovery Centre, by ensuring that:*
 - *students are adequately supervised while in the park*
 - *school group sizes do not exceed class sizes (maximum 30 participants per leader)*
 - *formal interpretation and other groups do not exceed 25 participants per leader*
 - *groups using the park, particularly the intertidal reef at Point Lonsdale, vary the locations to reduce pressure, especially during high use periods*
 - *groups are encouraged to use areas outside the park and off-site marine education and interpretation.*
- *Encourage and support research into the impacts of intertidal trampling on intertidal communities at Point Lonsdale within the park with a view to determining an appropriate carrying capacity for the site.*
- *Minimise disturbance to seabirds and shorebirds and damage to vegetation at Mud Islands and Swan Bay by encouraging visitors to:*
 - *avoid roosting, breeding and feeding habitats during the breeding and migratory season, from August until March*
 - *avoid important Orange-bellied Parrot roosting and feeding sites in Swan Bay from March to October*
 - *keep group numbers below 10, be adequately supervised, and remain together when visiting Mud Islands.*
- *Regularly observe shore-based activities and interactions with bird populations especially at Mud Islands and Swan Bay and effectiveness of management measures and take appropriate action to minimise impacts.*
- *Integrate minimal impact messages for intertidal areas into existing information,*

interpretation and education programs to promote a greater appreciation of intertidal marine organisms (section 6.1).

6.6 Dogs and horses

The Point Lonsdale and Swan Bay sections of the park are adjacent to urban areas, and many local residents and other visitors enjoy walking and exercising their dogs on the beaches in the park. Dog walking was permitted on beaches in the park at specified times prior to the proclamation of the park. The Borough of Queenscliffe's by-laws require dogs to be on a lead at all times and prohibit dogs from all sandy intertidal beach areas between 8.00 am and 8.00 pm from 1 December to 28 February. However, the borough allows dogs to be walked off-lead, but under effective control, at an approved dog beach outside the park, along the northern beach of Lonsdale Bay.

The park provides important feeding, roosting and nesting areas for local and migratory seabirds, including species listed for protection under the Flora and Fauna Guarantee Act and by international JAMBA and CAMBA agreements (section 4.4), especially at Swan Bay and Mud Islands which also form part of the Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site.

Dogs can have serious impacts on bird populations and other wildlife (Kirby, Clee & Seager 1993) through trampling, predation, disturbance and faecal pollution. Their presence, scent and noise may disturb birds, leading to reduced species numbers, lower numbers of returning birds and low weight in migratory birds. Some visitors, particularly small children, may be annoyed or intimidated by unrestrained dogs. It is an offence for a dog to harass or injure people or wildlife under the *Feral and Nuisance Animals Act 1994* (Vic.) and the *Wildlife Act*.

Dogs are considered incompatible with the aims and objectives of areas managed under the National Parks Act such as the park, and are generally prohibited from these areas. However, a number of parks have areas set aside to allow dogs provided they are leashed, under control and restrained from causing annoyance to people and wildlife or damage to property.

Horses are not permitted on any beach in the Borough of Queenscliffe including the beaches that are now in the park. The beaches in the park are not suitable for riding horses because of conflicts with other visitors. In the past horses and other domestic animals have strayed from farms adjoining Swan Bay into the fragile saltmarsh vegetation. Fencing of all intertidal areas managed by Parks Victoria and most other areas has reduced this problem (section 4.6).

Aims

- Provide opportunities for walking dogs in the park where compatible with the protection of natural values.
- Minimise conflicts with other visitors and impacts on park values from dogs and horses.

Management strategies

- *Continue to permit walking and exercising of dogs in the Point Lonsdale section of the park provided:*
 - *they are on a lead and on the sandy intertidal beach area, including adjacent sandy areas with shallow water, except between 8.00 a.m. and 8.00 p.m. from 1 December to 28 February (consistent with existing adjacent foreshore management arrangements)*
 - *people in charge of dogs remove their dog's droppings from the park.*
- *Exclude dogs from the intertidal reef areas of Point Lonsdale and all other sections of the park.*
- *Allow dogs in the park if confined to a vessel and under control.*
- *Continue to prohibit horses from the park to protect the natural values of the park.*
- *Provide information to visitors regarding dog access and regulations through Marine Notes, information signs and ranger patrols (section 6.1).*
- *Engage with the Borough of Queenscliffe to encourage an integrated approach to dog management in the foreshore reserve adjacent to the park, in particular the*

exclusion of dogs from the foreshore areas around Swan Bay.

6.7 Tourism services

Parks Victoria's licensed tour operators play a key role in nature-based tourism in Victoria by offering guided park tours and supported recreation activities, and information that promotes park values and appropriate use. Nineteen licensed tour operators offer activities in the park, including snorkelling and diving, kayaking, cultural and marine education, wildlife viewing and coastal walking.

Activities by licensed tour operators are managed by permit conditions that detail access, safety regulations, permitted activities and site-specific restrictions in accordance with the National Parks Act and the *Policy for Sustainable Recreation and Tourism on Public Land* (2002). To ensure diver safety licensed tour operators providing diving activities should also refer to the Dive Industry Victoria Association (DIVA) *Code of Practice for Commercial Providers of Recreational Snorkelling & Scuba Diving Services in Victoria* (DIVA 2004) and for snorkelling activities should refer to the *Snorkelling, scuba diving, and wildlife swims – Adventure Activity Standards Diving Adventure Activity Standard* (ORC 2004) (www.orc.org.au) (section 6.4).

Tourism Alliance Victoria is a membership-based industry association that provides a representative and professional development role for tourism businesses. Parks Victoria works collaboratively with Tourism Alliance Victoria in administering the Tour Operator Licensing system across Victoria's public land estate, including the park.

Tour operators conducting dolphin swimming and watching activities within Port Phillip require a permit from the DSE (section 4.4). The *Code of Conduct for Seal Tourism in Port Phillip Bay* (Curtis 2003) was developed to minimise the impact of these activities on seal populations and to maximise visitor experience. The voluntary code was developed by marine tour operators in Port Phillip, with the assistance of Tourism Alliance Victoria, Parks Victoria and the DSE.

Aim

- Provide opportunities for appropriate tourism services offered by external providers while minimising impacts on natural and cultural values of the park.

Management strategies

- *Ensure all licensed tour operators using the park are licensed and promote awareness of relevant codes of practice and Adventure Activity Standards.*
- *Continue to work with licensed tour operators and the tourism industry to assist with the delivery of appropriate park information.*
- *Ensure licensed tour operators provide a range of appropriate activities for an appropriate number of visitors, and at recommended, dispersed sites (section 6.1 and 6.4) that are compatible with the protection of park values.*
- *Work collaboratively with licensed tour operators and Tourism Alliance Victoria to ensure:*
 - *the provision of a high-quality service*
 - *that tour operator activities are based on minimal impact practices and adopt Parks Victoria's Minimal Impact Guidelines*
 - *that information conveyed to visitors on tours is consistent with the management objectives for the park.*
- *Encourage licensed Indigenous tour operators to enhance the tourism experience in the park by developing and delivering interpretive and educational tours on Indigenous culture and history.*
- *Engage with licensed tour operators conducting seal swimming and watching activities to adopt the Code of Conduct for Seal Tourism in Port Phillip Bay.*

6.8 Public safety

Some activities undertaken in the natural environment can pose inherent risks to visitors. This risk is increased if visitors are not familiar with local environment, prevailing weather conditions and tidal height. Visitors need to be

aware of safety risks to ensure that they enjoy a safe visit.

Accessible intertidal areas of the park are highly used by visitors; potential dangers for shore-based activities or intertidal rock rambling include slippery and unstable rocks, broken glass and rubbish, venomous fauna and large waves. Visitors need to monitor weather and tide conditions, wear appropriate footwear and ensure adequate protection from the sun and wind.

Short surveyed all Victoria's beaches in 1996 and rated their safety as being in one of four hazard categories; safest, moderately safe, low safety and least safe. Lonsdale Bay front beach and the Point Lonsdale east beach are rated safest (Short 1996) and are the only beaches within park suitable for swimming. Visitors should exercise caution while swimming in the park, or use nearby lifeguard patrolled beaches. In summer Point Lonsdale Surf Life Saving Club provides lifeguard patrols on the swimming beaches on the Point Lonsdale back beach adjacent to the park at Point Lonsdale and at the Santa Casa Beach in Queenscliff.

Unexploded ordnance is a potential hazard in the Point Nepean section of the park. Shore-based access is permitted only on the beach area between The Bend and Observatory Point. However, swimming is prohibited in this area because of the proximity of the hazardous waters of the Rip (section 3.3).

Although some sites in the park may appear inviting for water sports, the presence of vessels, rocks, rips, gutters, strong currents and high wave energy can make conditions dangerous. While the underwater environment of the park has high visual values and provides opportunities for snorkelling and diving, visitors undertaking such activities need to be aware of the unpredictable nature of the marine environment. Risks associated with snorkelling and diving in the park include large waves, strong surge, strong currents, entanglement in kelp, vessels at speed or anchoring, entrapment under ledges and crevices and exposure to marine animals and cold. Snorkellers, swimmers and divers should only undertake activities within their capabilities, under appropriate conditions. Caution should be exercised when diving on some wrecks as currents may create hazardous diving

conditions. Many sites are only suitable for diving during slack water and in good weather conditions, and the more challenging sites should be accessed through a licensed tour operator.

Vessels can be a potential risk to swimmers, snorkellers and Scuba divers and vessel operators need to be aware of their presence in the water. Under the Marine Act, scuba divers must dive with a flag indicating a diver below; snorkellers should also adopt this practice when snorkelling to increase their visibility and safety (section 6.4). Public information and education programs are one of the most effective ways to promote safety. Safety messages are presented to visitors through signs, Marine Notes and ranger patrols (section 6.1).

Boating activities undertaken in the park can pose inherent risks to visitors. Vessel operators need to be aware of the changing weather conditions, tidal height and the local environment as well as other vessels, swimmers, snorkellers and divers in the water. Vessels can be a potential risk to swimmers, snorkellers and scuba divers, particularly at popular dive sites such as Popes Eye and Portsea Hole. All powered recreational vessel operators operating in State waters are required to have a current licence. Recreational boating accidents are highest in Victoria during summer and most fatalities are associated with recreational vessels of less than 8 metres in length (Bugeja 2003).

Marine Safety Victoria conducts safety and awareness programs for recreational boat users, and the *Victorian Recreational Boating Safety Handbook* contains necessary safety information and outlines the requirements for operating a recreational vessel in Victoria (MSV 2005) (section 6.3).

The responsibilities for responding to emergency incidents in Victoria and Victorian waters are outlined in the *Emergency Management Act 1986* (Vic.). Parks Victoria is not the lead agency for most emergency response situations. Instead, it supports other agencies, including the Department of Sustainability and Environment, Marine Safety Victoria, the Country Fire Authority, the State Emergency Service and Victoria Police, in emergency incidents, where required.

Relevant agencies respond to incidents within the park in accordance with the Municipal Emergency Response Plan. Parks Victoria's response to emergency incidents during normal operating activities within the park is guided on the Bellarine Peninsula by the *Bellarine Peninsula Marine Protected Area's Marine Assets and Bellarine Terrestrial Reserve Emergency Management Plan*, and on the Mornington Peninsula by the *Southern Port Phillip Emergency Management Plan*.

Under the *Port Services Act 1995* (Vic.) Parks Victoria is the Local Port Manager of Port Phillip and manages the safety and environment of the port consistent with the Safety and Environment Management Plan (SEMP) (Parks Victoria 2005b).

Aims

- Promote visitor safety and awareness of safety issues and risks within the park associated with access and use.
- Promote and observe safe practices, and cooperate with emergency services.

Management strategies

- *Work with the Borough of Queenscliffe to ensure that visitor safety signs on the foreshore are maintained (section 6.1) and encourage visitors to adopt safe operating guidelines appropriate to their activity.*
- *Develop an Emergency Management Plan for the park and ensure that staff and licensed tour operators are aware of the plan.*
- *Cooperate with and support responsible agencies in emergency response and ensure that Parks Victoria staff have adequate levels of training in emergency procedures.*
- *Promote the need for snorkellers to display diver below flags.*
- *Ensure that marine safety initiatives within the park and adjacent waters, including the implementation of the SEMP, improve environmental protection and visitor safety in the park (section 8.3).*

- *Engage with the Borough of Queenscliffe, City of Greater Geelong and the Mornington Peninsula Shire to ensure that the Municipal Emergency Response Plan makes adequate provision for likely incidents in the park.*

7 STRATEGIES FOR AUTHORISED AND ADJACENT USES

7.1 Authorised uses

A number of uses and activities may be permitted in the park, subject to specified conditions to minimise impacts.

Three groynes in Lonsdale Beach help maintain a wider beach in the Point Lonsdale section of the park (section 4.3).

The Borough of Queenscliffe manages four storm water drains that discharge into the park (section 4.2).

Petroleum extraction, exploratory drilling, mineral exploration and mining, and invasive searching for or extraction of stone and other materials, are prohibited in the park under the National Parks Act. Petroleum exploration such as seismic survey from an aircraft or from a vessel, that is carried out in a manner which does not detrimentally affect the seabed or any flora or fauna of the park may be allowed with the consent of the Minister. However the Government has announced that it will not release any further areas in Victoria that contain Marine National Parks or Marine Sanctuaries for petroleum exploration. There is no petroleum exploration permit over this park. Construction of pipelines or seafloor cables may be permitted with the consent of the Minister in some circumstances.

Parks Victoria recognises the significant role that the filming and photography industry plays in the social and economic well-being of the community, and in providing for these activities seeks to ensure protection of the natural and cultural values of the park. This is achieved through a permit system for all filming and photography conducted as part of a trade or a business. Amateur photographers or people taking film or video for personal or hobby interest do not require a permit.

All research and monitoring planned for a Marine National Park or Marine Sanctuary by external partners or individuals requires a research permit under the National Parks Act. Permits are issued by DSE.

Protected areas are generally avoided as locations for Defence Force training exercises, although they occasionally host search and rescue, field navigation and incident response

activities (provide details of activities undertaken). Activities are subject to a permit with conditions and are undertaken in accordance with Parks Victoria's operational guidelines to ensure that values of the park are protected.

Aim

- Manage authorised uses in accordance with the National Parks Act and minimise their impact on park values.

Management strategies

- *Maintain the groynes in Lonsdale Bay in accordance with Ministerial consents under the National Parks and Coastal Management Act.*
- *Review all uses of the park that do not conform with the objectives of the National Parks Act. Allow uses to continue only in accordance with authorisations that are consistent with legislation and include conditions that effectively minimise the impacts of uses on the park.*
- *Seek permission from the Secretary to DSE for all existing storm water drains including conditions to ensure that their operation and maintenance are consistent with the protection of the park's natural and cultural values and amenity for visitors.*
- *Permit authorised uses with appropriate conditions, and monitor authorised activities to ensure conditions are met. Assess the effectiveness of conditions of authorisations in protecting the park and seek review of authorisations if necessary to mitigate impacts.*
- *Permit commercial photography and filmmaking in accordance with Parks Victoria operational policy.*
- *Permit Defence Force adventure training or field navigation exercises in the park in accordance with Parks Victoria's operational guidelines and relevant permit conditions.*

7.2 Boundaries and adjacent uses

The Swan Bay section of the park is marked on the foreshore by yellow triangle boundary markers that point in the direction of the park (figure 2b). Regulatory totems are also located on the foreshore reserve at the main access points. A 300 m wide channel, identified by in-water navigation markers extending from Swan Bay Jetty to the park boundary north of Duck Island, is not within the park.

The Mud Islands section of the park is marked out on each corner by four pile markers with directional arrows 2.5 km apart, and by four intermediate pile markers with directional arrows (figure 2c).

The boundary of Popes Eye extends in a circle 100 m in radius from its centre; the boundary is not marked, although an interpretive and regulatory sign is located on the side of the horizontal structure attached to the annulus (figure 2d).

The boundary of the Portsea Hole section of the park is not marked. The position of a boat relative to the boundary can be determined reliably only by using a global positioning system receiver (figure 2a).

At Point Nepean and Point Lonsdale the park is marked on the foreshore by yellow triangle boundary markers that point in the direction of the park (figure 2a). Regulatory totems are also located on the foreshore reserve at the main access points. The boundaries of the park that face Bass Strait and the entrance to Port Phillip have strong swell conditions, depth and wave action that prevent the placement of buoys or pile markers in the water to mark out the boundaries at Point Nepean and Point Lonsdale. The boundaries of the park that face Port Phillip have calmer conditions that may allow for the placement of buoys to improve boundary identification for vessel operators. However dislodged markers could create a hazard to recreational boating and commercial shipping in the nearby shipping channels.

The northern boundary of the Point Lonsdale section and the south-eastern (Bass Strait) boundary of the Point Nepean section can be identified using Clarkes Beacon and the Marcus Hill Column navigational marker on the Bellarine Peninsula (figure 2a). The two park boundaries are directly in line with the

yellow triangle boundary marker on the foreshore at Point Lonsdale, Clarkes Beacon and the Marcus Hill Column navigational marker. The eastern boundary of the Point Lonsdale section of the park follows a line west of the Western Lead. The Western Lead can be found by lining up the high light on the Black Lighthouse over the Hume Tower at Shortlands Bluff, Queenscliff (figure 2a).

All sections of the park extend 200 m below the sea bed. The large size of some sections of the park makes it difficult to identify distant boundary markers, and navigation of the park boundaries can be complicated. People fishing adjacent to the park can access information on the boundary coordinates and information about the park to aid compliance on Parks Victoria's website and in Marine Notes.

The foreshore adjacent to the park at Point Nepean is part of Point Nepean National Park, which is managed by Parks Victoria in accordance with an approved management plan (Parks Victoria 1998). The foreshore reserve adjacent to the park at Point Lonsdale is reserved under the *Crown Land (Reserves) Act 1978* (Vic.) and is managed by the Borough of Queenscliffe as the committee of management. The foreshore adjacent to the park at Swan Bay is partly privately owned (on the south-western shoreline), and partly foreshore reserve under the *Crown Land (Reserves) Act*, which is also managed by the Borough of Queenscliffe, consistent with *Siting and Design Guidelines for the Victorian Coast* (VCC 1998b).

The adjacent northern foreshore is Edwards Point Wildlife Faunal Reserve and the western foreshore is a Public Purpose Reserve; Parks Victoria manages both. The foreshore adjacent to the park on Swan Island is managed by the Department of Defence.

The Borough of Queenscliffe Planning Scheme (BoQ 1999) provides a statutory framework for managing proposals and developments on adjacent land that are not protected areas. Administered by the Borough of Queenscliffe, the scheme extends to 600 m offshore. The park is mostly zoned as a Public Conservation and Resource Zone under the local planning schemes, consistent with the *State Planning Policy Framework* (DSE 2003a). However, a section is zoned as a

Public Park and Recreation Zone. The adjacent areas are mainly zoned Public Conservation and Resource Zone or Public Park and Recreation Zone with environmental and significant landscape overlays.

Coastal modifications and other changes to the hydrodynamics nearby or adjacent to the park, including artificial renourishment of the beach, could affect the natural and other values of the park through longshore drift, deposition and erosion (section 4.1 and 4.3).

The ECC recommended that the adjacent coastal areas that are not existing national parks be zoned as either a Coastal Protection or Coastal Recreation Zone (ECC 2000) as indicated in the Victorian Coastal Strategy (VCC 2002). Part of the area adjacent to the Swan Bay section of the park is unzoned or zoned as a Coastal Protection Zone. The area adjacent to the Point Lonsdale section of the park is a Coastal Recreation Zone.

Parks Victoria is the Local Port Manager for Port Phillip under the *Port Services Act 1995* (Vic.). Under this legislation, Parks Victoria is responsible for the management of port infrastructure, including breakwaters, piers and jetties, and recreational boating including navigational aids, and for the preparation and implementation of the Port Safety and Environment Management Plan for Port Phillip (sections 4.2 and 6.8).

The Port of Melbourne Corporation is the Port Manager for the Port of Melbourne, which includes shipping channels that access the port. Oil or chemical spills from vessels accessing the South Channel could impact on the natural and recreational values of the park.

The Port of Melbourne Corporation proposal to deepen sections of Port Phillip's shipping channels to allow larger container ships to enter the port has the potential to affect the park, at least temporarily. Detailed predictions of impacts and proposed mitigation measures are outlined in the Port of Melbourne Corporation's Environmental Impacts Statement (POMC 2004). At the time of publication a Supplementary Environmental Effects Statement was underway to further examine environmental and technical issues, including the potential for impacts on important ecological communities including within the park.

The proposed harbour development at Queenscliff also has the potential to impact on the natural values of the Swan Bay section of the park through increased turbidity from dredging and increased potential for oil and chemical spills in the harbour to enter Swan Bay. The Pinnacle Channel Aquaculture Fisheries Reserve (PCAFR), near the Mud Islands section of the park, was recommended by the ECC for its favourable conditions for the growth of shellfish (ECC 2000). At the time of publication there were no commercial aquaculture activities within the PCAFR. Future activities within the PCAFR could include aquaculture of blue mussels, scallops, and flat oysters, and cage culture of abalone (DPI 2003). Commercial aquaculture of bivalves has the potential to increase the introduction and translocation of marine pest species. DPI has developed guidelines to prevent the introduction and translocation of marine pest species (section 8.3).

State waters and the underlying sea bed adjoining the park are currently unreserved Crown land. The Government accepted the ECC's recommendation that a Coastal Waters Reserve be established under the Crown Land (Reserves) Act for the major portion of Victoria's marine area not otherwise designated for a particular purpose, to provide for a diverse range of activities that are compatible with long-term sustainable use (ECC 2000).

The waters adjacent to the park are used for general recreational activities, recreational and commercial fishing and aquaculture, passenger ferry services, piloting services and recreational boating, and by commercial ships accessing the Port of Geelong and the Port of Melbourne.

Major sporting events, including swimming and triathlon events and yacht races, which occur nearby the park, can increase the awareness, use and enjoyment of the park. However, events can cause environmental damage and interfere with other visitors and with significant fauna. Events can also draw large crowds, including spectator fleets associated with boating events, and can impact on the park and neighbouring areas. Organisers of such events need to be aware of the park boundaries and any potential impacts.

Shark fishing is common off the Point Lonsdale Pier, which is excluded from the park for an area of 50 m from all sides of the pier. Berley used to attract sharks drifts into the park, increasing nutrient levels and reducing water quality within the park.

Aims

- Effectively communicate the location of the park boundaries.
- Minimise impacts from adjacent developments and uses on park values.

Management strategies

- *Maintain the existing system of boundary markers and signs and information about park boundaries.*
- *Trial the installation of buoys at Point Nepean and continue to identify areas of boundary uncertainty, conduct surveys and install markers where appropriate.*
- *Investigate the effectiveness of land boundary markers, and increase their visibility where necessary.*
- *Work with the Borough of Queenscliffe in the management of access points to minimise the impact of access on the natural and cultural values of the park.*

- *Work with DSE and consult the Borough of Queenscliffe to ensure beach renourishment activities and coastal remediation works adjacent to or near the park have minimal impact on the park (section 4.1).*
- *Liaise with the Borough of Queenscliffe to amend the planning scheme and zone the entire park as Public Conservation and Resource Zone, and ensure that appropriate overlays apply to the adjacent areas.*
- *Work with adjacent land and water managers to minimise impacts from management actions on the natural and cultural values of the park, and ensure that the park's values are given due consideration in future developments.*
- *Liaise with the Port of Melbourne Corporation to minimise the risk of oil and chemical spills from the nearby shipping channels impacting on the park.*
- *Encourage fishers not to use berley in fishing activities from the Point Lonsdale pier.*

8 STRATEGIES FOR COMMUNITY AWARENESS AND INVOLVEMENT

8.1 Community awareness

Raising the community's awareness of the park's values is an essential step in developing its sense of custodianship for the park and engagement in the area's management. The community is more likely to develop a sense of custodianship for the park if its views and values are respected and park-related social networks are encouraged and supported. A strong connection with the park among visitors and the local and broader community assists in wider public education, raising awareness and reaching others in the community.

Parks Victoria aims to communicate the benefits of a healthy parks system and its contribution to the health of individuals and society through the 'Healthy Parks Healthy People' program.

The Coast Action / Coastcare summer activity programs at Point Lonsdale and Swan Bay encourage the broader community to experience the coast and raise awareness of the park and marine environments (section 8.2). The Marine Discovery Centre at Queenscliff and Friends and volunteer groups have active connections with the park and can help to raise community awareness (section 8.2). Education and interpretation programs (section 6.1) play an important role in raising awareness of the park in the wider community. Government agencies, business associations, welfare bodies, Indigenous and ethnic associations, tourism and recreational organisations and schools could also help to build community awareness.

Swan Bay and Mud Island in particular protect important seagrass and saltmarsh areas for resident and migratory seabirds and shorebirds to roost and feed. Many park visitors and boat operators using these sections of the park are unaware of these values and the potential impacts of their presence (section 4.4). A community awareness program incorporating information for boat operators in Swan Bay and Mud Islands could help prevent impacts.

The park contains some of the most popular dive locations in Victoria. The large number of

divers and associated dive clubs and organisations that visit the park creates a potential network of custodians that can help raise awareness of the park with other divers and in the broader community.

Aims

- Increase the community's awareness and mutual understanding of the park's values and management activities.
- Support the sense of shared ownership and custodianship for the park among community groups and individuals.

Management strategies

- *Promote opportunities for community members to improve park management through taking shared responsibility and becoming directly involved through interpretation and other information (section 6.1).*
- *Develop an awareness program about importance of seagrass and saltmarsh areas particularly for resident and migratory sea and shorebirds and the speed restrictions that apply in the Swan Bay section of the park (sections 4.4 and 6.3).*
- *Profile the work of Friends, volunteers and community groups to the wider community.*
- *Encourage dive clubs and organisations to profile the park to members to increase awareness of the parks among divers and the broader community.*
- *Work with community groups to identify opportunities to increase public awareness about the park.*
- *Promote the benefits of assisting park programs to community groups in line with 'Healthy Parks Healthy People' objectives.*

8.2 Community participation

Participation of community groups and individuals in the park's management is pivotal in the effective long-term planning, use and care of the park's values.

Volunteers and community groups can make valuable contributions to park management. They bring diverse and valuable information, specific local knowledge, skills, concerns and experience that may otherwise not be available to the park managers. Despite the ongoing challenges of increasing administrative obligations, fluctuating membership and funding constraints, community groups bring considerable enthusiasm and add a valuable perspective and resources to assist with the care of the park.

The interests of community groups in the park often overlap and may not be complementary. There can be considerable mutual benefits where such groups work together and with Parks Victoria to achieve common goals. Parks Victoria can assist groups with advice and training, and by promoting the benefits of volunteerism.

The Traditional Owners have considerable interest in and aspirations for the park as part of *Country*. They are an important potential source of traditional knowledge about the area that has yet to be documented. A strong working relationship with them will be essential to the reflection of their cultural lore in the park's planning and management and reconciliation of their interests and aspirations with those of other members of the community.

Formed in 1992, the Friends of Mud Islands make monthly visits to the islands to remove weeds such as boxthorn and monitor seagrass and bird-nesting patterns. Other Friends groups concerned with the park and the nearby foreshore reserves are the Friends of Buckley Park and the Friends of Edwards Point.

Other volunteer organisations involved in the conservation of the park's flora and fauna are the Victorian Wader Studies Group (VWSG) and the Swan Bay Environment Association. Formed in 1978, the VWSG conducts long-term comprehensive studies of both migrant and resident species of waders and terns throughout the park. Friends groups associated with the adjacent Point Nepean National Park are: Friends of the Hooded Plover; Friends of the Fort; Point Nepean; Friends of Moonah; Point Nepean National Park; and Friends of South Channel Fort.

Coast Action / Coastcare programs work with a variety of volunteer groups and community organisations to help protect, monitor, manage and restore coastal and marine environments. In addition Coast Action / Coastcare conducts education, training and awareness-raising programs.

The Marine Discovery Centre enables volunteers to become involved in marine education in the park through assisting with the wide range of educational marine programs and recreational services provided to schools, universities, tourism, government agencies, individuals and overseas visitors.

Reef Watch is a non-profit project developed by the Australian Marine Conservation Society (AMCS) and the Marine and Coastal Community Network (MCCN) and funded by the Federal and State Governments through Coast Action / Coastcare. The project calls on the voluntary assistance of Victorian divers to help describe and monitor marine life in a variety of habitats. Opportunities exist for Friends and volunteers to participate in Reef Watch programs in the park.

Sea Search is a monitoring program for community groups volunteering in Victoria's Marine National Parks and Marine Sanctuaries. Volunteers can explore and learn about the diversity of marine plants and animals found in Victoria's Marine National Parks and Marine Sanctuaries while adding to the scientific knowledge of the park.

The Swan Bay Integrated Catchment Management Project comprises representatives from key stakeholders in the Swan Bay catchment and includes community, local government and agency groups. This project commenced in 1997 and has achieved statewide recognition for its integrated approach in whole catchment management to address the major environmental, land and waterways management issues identified across the catchment. The project offers opportunities for volunteers to become involved in marine and catchment conservation projects that address the major environmental, land and waterways management issues identified across the catchment.

Aims

- Support and encourage community groups and volunteers to assist actively in the park's management by participating and contributing their knowledge and skills.
- Inform, enrich and strengthen the park's management with the community's tradition and customs, especially Traditional Owners' cultural lore.

Management strategies

- *Continue to maintain a strong and collaborative relationship with Friends and volunteer and community groups to ensure sustainable and rewarding volunteer experiences.*
- *Coordinate opportunities for Friends and volunteer and community groups to share experiences and discuss management objectives and work programs and progress in implementing the plan with Parks Victoria rangers.*
- *Support initiatives in particular Sea Search, which build the capability of community members and groups to effectively contribute to park management objectives.*
- *Maintain ongoing dialogue with active groups, neighbouring clubs and community groups with a broad community agenda, as well as appropriate training and other measures that better enable their participation in managing the park.*
- *Promote and support such groups to work together with each other and Parks Victoria to achieve shared goals for the park.*
- *Promote and support Coast Action / Coastcare programs within the park, particularly focusing on community interpretation and education.*
- *Promote community involvement in Reef Watch monitoring and recording programs and other programs using standard methods (sections 4.4 and 4.6).*
- *Work to continue to build, and strengthen and maintain relationships with relevant Indigenous communities. In particular,*

seek to further develop a close inclusive working partnership with the Traditional Owners and cooperation with the scheduled Aboriginal community.

- *Work with community groups to foster ongoing community engagement that captures the diversity of people, ideas and opinions present in the community.*

8.3 Agency partnerships

Although Parks Victoria is responsible for overall management of the park, other agencies are responsible for planning, managing or regulating certain activities in the park.

All activities relating to the park that are carried out by Parks Victoria or other agencies need to accord with all legislation and government policy and, as far as practical, be consistent with agencies' policies and guidelines. To ensure this occurs Parks Victoria staff work closely with staff of relevant agencies and collaborate in implementing activities where appropriate.

Department of Sustainability and Environment (DSE) establishes parks, oversees the management of land and resources of Victoria's coastal Crown land and waters, and provides strategic direction and policy advice for management of the park, including marine flora and fauna values and threatening processes. Parks Victoria is a support agency for responses to oiled wildlife and cetacean stranding or entanglement operating at the direction of DSE (sections 4.2 and 4.4).

As part of agreed service delivery arrangements, Fisheries Victoria – Department of Primary Industries has primary responsibility for enforcement to ensure compliance with the fishing prohibitions in the National Parks Act. Parks Victoria will continue collaborate with Fisheries Victoria and Victoria Police in activities such as cooperative Ranger and Fisheries officer patrols and support arrangements in accordance the *City and Bays Regional Compliance Plan* (Parks Victoria 2003a).

The Central Coastal Board (CCB) provides direction and policy advice to facilitate sustainable development of the central region of the Victoria coast through the implementation of the Victorian Coastal

Strategy (VCC 2002) and Coastal Priorities for the Central Region (CCB 2003) (section 4.2).

Port Phillip and Western Port Catchment Management Authority and the Corangamite Catchment Management Authority are responsible for ensuring the protection and sustainable development of land, vegetation and water resources within the region, including the preparation of a regional catchment strategy to address the impact of land use and management on the catchment (section 4.2). The Port Phillip and Western Port Regional Catchment Strategy (PPWPCMA 2004) focuses on the management of land, water and biodiversity including the coastal and marine areas under the *Catchment and Land Protection Act 1994* (Vic.). The Corangamite Regional Catchment Management Strategy 2003–2008 (CCMA 2003) sets out a strategic management framework for the protection of assets within the catchment under the *Catchment and Land Protection Act*.

The Environment Protection Authority (EPA) has the primary responsibility for environment protection of all waters in Victoria and is responsible for administering and enforcing the *Environment Protection Act 1970* (Vic.), including all activities relating to the discharge of litter and waste to the environment. EPA also develops and implements State Environment Protection Policies (SEPP) for state waters and facilitates the development of Neighbourhood Environment Improvement Plans (NEIPs) which enable communities to work towards achieving local environmental improvements (section 4.2). The Borough of Queenscliffe is responsible for the management of stormwater runoff into the park (sections 4.2 and 7.2).

Parks Victoria is a support agency for Marine Safety Victoria at a statewide and regional level for marine pollution incidents, contributing on-site response and incident management as well as technical advice. Parks Victoria is also the local authority responsible for administering the Marine Act, including marine safety initiatives (section 6.8) and planning and implementation of pollution response in accordance with the *Victorian Marine Pollution Contingency Plan* (MSV 2002) (section 4.2).

The Borough of Queenscliffe administers the planning scheme for land adjacent to the park, including assessing developments that could have an impact on park values. Parks Victoria provides input into planning applications to ensure that park values are protected.

Through Aboriginal Affairs Victoria (AAV), the Department for Victorian Communities (DVC) has responsibility for administering legislation protecting cultural heritage (sections 2.5 and 5.1). AAV and the Cultural Heritage Unit advise Parks Victoria on Indigenous matters.

Heritage Victoria (DSE) is the central government agency which provides information and advice about places listed on the Victorian Heritage Register and Archaeological Inventory. It supports the Heritage Council through research, recommends additions to the Register and issues permits for alterations to heritage places.

Tourism Victoria is the State Government authority responsible for developing and marketing Victoria to Australian and international travellers.

Aim

- Enhance park management by collaborating with other agencies to ensure that they give appropriate consideration to park values in planning and implementing activities that relate to the park.

Management strategies

- *Work collaboratively with all agencies to implement the vision and directions of the plan. In particular work with:*
 - *AAV on compliance with relevant cultural heritage legislation and Indigenous affairs (section 5.1)*
 - *the Borough of Queenscliffe on complementary management of the adjacent foreshore reserves and to protect the park from adverse impacts of adjacent uses and to minimise impacts associated with discharge of waste into the environment, particularly discharge from storm water drains (section 7.2)*

- *the Central Coastal Board on any future plans and strategies that relate to the park*
- *DSE regarding future planning and management, including protection of marine flora and fauna from potentially threatening processes*
- *DSE to ensure any applications for aquaculture development which may impact on the park give due consideration to the potential spread of marine pests.*
- *EPA to minimise impacts associated with discharge of waste into the environment particularly those from stormwater, boating, shipping, marinas, ports and associated dredging activities (section 7.2) and assist local communities to develop a NEIP (section 4.2)*
- *Fisheries Victoria to implement the fishing prohibition and the City and Bays Regional Compliance Plan*
- *Heritage Victoria on heritage management, and compliance with the Heritage Act*
- *Marine Safety Victoria on recreational boating safety and marine pollution incidents*
- *Port Phillip and Western Port CMA and Corangamite CMA to reduce the impacts of land use and catchment management on the park and develop appropriate actions in the Regional Catchment Strategy*
- *State and regional tourism authorities regarding promotion of the park in regional visitor information centres and in regional tourism strategies.*
- *Update contingency plans for marine pollution incidents such as oil and chemical spills, and cetacean/wildlife incidents, as required, and communicate arrangements to staff, relevant agencies and interested parties*

9 PLAN IMPLEMENTATION

9.1 Delivery and reporting

A range of approaches will be used to implement strategies in this plan. Some will be undertaken as part of routine management activities such as ranger visits; others will be addressed as part of regional programs undertaken across the State each year.

A priority list of all the strategies in the plan will be used to guide routine management, and identify detailed actions in annual regional programs. Priorities for regional programs vary from year to year, depending on available resources and government priorities.

At the end of each year, progress towards implementing strategies in the plan will be reviewed and the priority list updated. Staff report internally against 'on time and within budget' delivery of regional programs and whether the completed strategy has achieved the objective. Parks Victoria reports annually to Government on the overall delivery of regional and divisional programs. This broader reporting on management performance is available in annual reports prepared on the National Parks Act and Parks Victoria.

During implementation of the plan, Parks Victoria will work in partnership with Traditional Owners and the scheduled Aboriginal community. On-going collaborative activities with the relevant Indigenous communities, interested members of the community, scientists and agencies in realising the vision and management directions for the park will be especially important as outlined in previous sections of the plan.

Implementation of the plan will be consistent with Parks Victoria's commitment to sustainable practices, which involves the delivery of operations, services and facilities in an ecologically and socially responsible manner with minimal use of expendable resources and minimal generation of waste.

In implementing the plan, management will respond to monitoring and research information as it emerges. Parks Victoria's Environmental Management Framework (EMF) makes this possible. Based on the International Standard for Environmental

Management Systems (ISO 14001), the framework ensures that the future condition of values is considered in identifying threats and developing actions to ameliorate them. Over time the success of actions is reviewed against set objectives to ensure ongoing learning and refinement of management. The selection of actions and treatments of threats are guided by the precautionary principle. Management options are evaluated on the basis of least impact on the environment. Treatment of threats with a potential for serious damage that is not addressed in the plan will not be postponed for lack of information.

Parks Victoria will use a variety of means to report to the community about the progress of implementation of the plan. The primary means will be through routine liaison between Parks Victoria, interested groups and individuals from the local community and relevant government agencies. In addition to giving regular updates, there will be opportunities for input by interested members of the community into annual priority setting and feedback on management performance. Events such as Park open days and community and volunteer forums will offer similar opportunities for reporting and discussions about annual programs.

The results of monitoring and research work will continue to be available to the community as technical reports available on Parks Victoria's website, www.parkweb.vic.gov.au

Parks Victoria will also report on evaluation of the plan (section 9.3) at the start of the new or revised plan, through routine liaison and community forums and in the subsequent draft plan.

Future reporting on the Statewide Strategy (Parks Victoria 2003b) and State of the Parks reports, which will be available on the Parks Victoria's website, www.parkweb.vic.gov.au will also include information on management performance in the park.

9.2 Plan amendment

During the 10-year life of the plan, amendments to the plan may only be made by the Secretary to DSE, following an authorised

process which includes community consultation.

Circumstances that might lead to amendment of the plan include:

- the results of monitoring or research, management experience or new information (such as greater understanding of new threatening processes) which indicate the need for a change in management direction
- significant changes in visitation or use
- a change in policy that calls into question plan objectives
- new legislation (such as significant boundary changes).

The plan may also be amended if an activity, development or use which conflicts with the provisions of the plan is approved by government (such as native title outcomes).

9.3 Evaluation and review

Periodically through the life of the plan Parks Victoria will assess overall progress towards implementing the strategies in the plan and also assess progress towards achieving the plan vision and directions. These evaluations will inform a decision about whether a new or revised plan is required. The achievements of the plan will be assessed by considering performance areas such as:

Protecting natural values

- Overall benefit to biodiversity.
- Compliance with no-fishing provisions and park regulations.
- Timely management intervention to minimise threats.
- Minimal impact of permitted uses.

Protecting cultural values

- Progress towards working with Traditional Owners in managing the park and in protecting and interpreting Indigenous cultural heritage.
- Timely management intervention to avoid damaging activities and threats.

Managing recreation and visitor use

- Managing impact from visitors, including individuals and school and tour groups.
- Meeting community expectations in relation to Parks Victoria's management of the park.
- Improving community and visitor awareness.

Providing for research and promoting understanding

- Improving understanding of the composition and distribution of habitats and ecological processes.
- Ongoing Traditional Owners and other community participation.
- Clear identification of major knowledge gaps and threats.

Methods for evaluating the benefits of the plan are likely to be refined over time. Parks Victoria partners external research agencies to establish benchmarks and indicators for major communities and habitats. Through sound monitoring and assessment methods this monitoring and research work will strengthen the basis for comparing management performance over time.

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GLOSSARY

Accretion – slow addition to land by deposition of water-borne sediment.

Algae (seaweed) – photosynthetic plant-like organisms belonging to the kingdom Protista. Unlike plants, not differentiated into roots, stems and leaves. Commonly called seaweed.

Alluvial fan – a fan-shaped body of sediment deposited by a stream.

Amphipod – a small crustacean of the order Amphipoda, such as the beach flea, having a laterally compressed body with no carapace.

Aquaculture – cultivation of fish, molluscs or other aquatic organisms in fresh or salt water.

Artefacts – an object produced or shaped by human craft, especially a tool, weapon, or ornament of archaeological or historical interest.

Ascidian (sea squirt) – common solitary or colonial marine animal.

Attrition – a rubbing away or wearing down by friction.

Ballast water – water carried in a ship's tanks for stability; normally discharged to the sea when the ship is loaded, and can be contaminated with pollution or exotic organisms.

Beach renourishment – artificial renourishment of eroding beaches by pumping sand from a suitable part of the seabed.

Benthic – of or relating to or happening on the bottom under a body of water

Berley – bait, usually ground up oily fish, which is scattered on the water.

Biodiversity – the natural diversity of all life: the sum of all our native species of flora and fauna, the genetic variation within them, their habitats and the ecosystems of which they are an integral part.

Bioregion – an area with particular underlying environmental and ecological features.

Biota – the combined flora and fauna of a region.

Bivalve – type of mollusc with a pair of hinged shells (e.g. scallop, mussel).

Bryozoan (lace coral) – common small colonial marine animal with a flat or upright growth form and a range of colours.

Calcarenite – soils and sedimentary rock with a sandy texture which has become hardened or cemented together and is composed largely of calcium carbonate fragments formed by the

mechanical breakage or abrasion of the parent rock: i.e. dune limestone.

Canopy – a structural overstorey (e.g. of kelp).

Catchment – the area of land that drains to a watercourse or estuary.

Cetacean – marine mammals of the order Cetacea, including the whales, dolphins, and porpoises, characterized by a nearly hairless body, anterior limbs modified into broad flippers, vestigial posterior limbs, and a flat notched tail.

Coast – in broad terms, the sea and the seabed to the State limit (three nautical miles, or 5.5 km) and the land and inland waters within the coastal catchment.

Coastal zone – includes coastal waters and those areas landward of the coastal waters where there are processes or activities that affect the coast and its values.

Coastline – generally, where the land meets the sea.

Committee of Management – a committee appointed under the *Crown Land (Reserves) Act 1978* to manage reserved Crown land on behalf of the Minister. For coastal land, committees are either an agency (e.g. the local municipality, Parks Victoria or the Department of Sustainability and Environment) or a committee appointed through an expression of interest process.

Competition – an interaction between or among two or more individuals or species in which exploitation of resources by one affects any others negatively.

Coralline algae – algae which contain calcified components. Can take a variety of forms, from encrusting to upright.

Country – in Indigenous usage, all of nature, culture and spirituality relating to an area.

Crown land – land belonging to the State.

Crustacean – arthropods of the class Crustacea, including lobsters, crabs, shrimps, and barnacles, characteristically having a segmented body, a chitinous exoskeleton, and paired, jointed limbs.

Cryptic – tending to conceal or camouflage

Ctenophores – any of various marine animals of the phylum Ctenophora, having transparent, gelatinous bodies bearing eight rows of comblike cilia used for swimming; also called a comb jelly.

Cultural lore – tradition about stories, songs, rituals, ceremonies, dances, art, customs and spiritual beliefs.

Customs – observances and practices of people (includes land management and resource use) in accordance with their tradition.

Cyanobacteria – photosynthetic bacterium of the class Coccogoneae or Hormogoneae, generally blue-green in color and in some species capable of nitrogen fixation. Cyanobacteria were once thought to be algae: also called blue-green alga.

Diatom – a microscopic unicellular alga.

Dinoflagellates – small protozoans of the order Dinoflagellata, characteristically having two flagella and a cellulose covering and forming one of the chief constituents of plankton; including bioluminescent forms and forms that produce red tide.

Disturbance – a rapid change in an environment that greatly alters a previously persistent biological community.

Driftwood – wood from natural a source floating or that has been washed ashore

Ebbing – receding tide

Echinoderm – radially symmetrical marine invertebrates of the phylum Echinodermata, which includes the starfishes, sea urchins, and sea cucumbers, having an internal calcareous skeleton and often covered with spines.

Ecologically sustainable development (ESD) – development that improves the total quality of life both now and in the future, in a way that maintains the ecological processes on which life depends.

Ecosystem – a dynamic complex of interacting organisms and their associated non-living environment.

Endemic – unique to a particular area, and not found naturally anywhere else.

Epiphytic – a plant that grows on another plant upon which it depends for mechanical support but not for nutrients.

Exotic marine organism/species – refer to *Pest*.

Female natal philopatry – where females tend to remain in the population and the area in which they were born.

Flooding – advancing tide

Flotsam – in maritime law, applies to wreckage or cargo left floating on the sea after a shipwreck. The common phrase flotsam and jetsam is now used loosely to describe any objects found floating or washed (respectively) ashore. See also Jetsam.

Foram – protozoans of the order Foraminifera, characteristically having a calcareous shell with perforations through which numerous pseudopods protrude.

Foreshore – generally, the land between a coastal road and the low water mark.

Freehold land – land under private ownership.

Gastropod – molluscs of the class Gastropoda, such as the snail, slug, cowrie, or limpet, characteristically having a single, usually coiled shell or no shell at all, a ventral muscular foot for locomotion, and eyes and feelers located on a distinct head.

Geomorphology – the scientific study of landforms and geological formations and the processes that shape them.

Gorgonian – soft coral fan generally found in high flow areas.

Groundwater – water beneath the earth's surface, often between saturated soil and rock, that supplies wells and springs

Habitat – the preferred location or ‘home’ of an organism.

Hard coral – coral with solid calcareous cases for structure. Generally colonial and found on hard surfaces.

Heritage – a, place, activity, cultural way of life, structure or group of structures that have aesthetic, historic, scientific or social value for past, present or future generations.

High water mark – the landward boundary of high water mark is the average of the highest tides (spring and neap).

Hydroid – small, tentacled animal related to corals and sea-jellies. Common but often overlooked.

Indigenous cultural heritage – the cultural lore, places and objects of significance to Indigenous people in accordance with tradition.

Indigenous people – people who are descendants of Aboriginal Australians.

Indigenous species – species that occur naturally in a region.

Infrastructure – physical structures that facilitate the human use of an area (e.g. roads, paths and toilet blocks).

Inter-glacial – occurring between glacial epochs.

Intertidal – the area between low and high tide levels, which is subject to daily changes in physical and biological conditions from tide movements.

Invertebrate – an animal without a backbone at any stage of development (e.g. worms, sponges, crustaceans, molluscs).

Isopods – crustaceans of the order Isopoda, characterized by a flattened body bearing seven pairs of legs and including the sow bugs and gribbles.

Jetsam – in maritime law, applies to cargo or equipment thrown overboard from a ship in distress and either sunk or washed ashore. The common phrase flotsam and jetsam is now used loosely to describe any objects found floating or washed (respectively) ashore. See also Flotsam

Lichens – any plant organism of the group Lichenes, composed of a fungus and an alga in symbiotic association.

Macrofauna – invertebrate animals that are larger than 0.5 mm.

Marine National Park – in Victoria, highly protected areas reserved and managed under Schedule 7 of the National Parks Act that represent the range of marine environments in Victoria, and in which no fishing, extractive or damaging activities are allowed.

Marine Park – in Victoria, a small, highly protected area reserved and managed under Schedule 8 of the National Parks Act to protect special values, and in which no fishing, extractive or damaging activities are allowed. These areas complement Marine National Parks.

Marine protected area – a marine area that has some form of protection and is managed for conservation objectives.

Marine Sanctuary – in Victoria, a small, highly protected area reserved and managed under Schedule 8 of the National Parks Act to protect special values, and in which no fishing, extractive or damaging activities are allowed. These areas complement Marine National Parks.

Meiofauna – invertebrate animals that are smaller than 0.5 mm but larger than 0.063 mm.

Midden – a mound or deposit containing the remains of shellfish eaten by Indigenous people. Coastal shell middens can consist of the shells and other remains from a single meal or many different meals eaten in the same location over many years. Middens can also contain other cultural items such as stone and bone artefacts.

Mollusc – broad group of animals including snails, sea slugs, squids, octopuses, cuttlefish and mussels.

Mooring – a structure or apparatus used to secure any floating object. A private mooring is a mooring

installed and maintained by any non-Government agency or individual other than Parks Victoria.

Nature-based tourism – tourism that provides a range of experiences associated with the natural environment, generally related to outdoor activity.

Neap tide – tide occurring twice every month between spring tides but is slightly lower.

Nekton – organisms with swimming abilities that permit them to move actively through the water column and to move against water currents.

Nematodes – worms of the phylum Nematoda, having unsegmented, cylindrical bodies, often narrowing at each end.

Pest – exotic organisms (plants, animals or pathogens) that, if introduced outside their natural or previous distribution, they cause significant changes to habitats, food chains, ecosystems or human health by feeding on or competing with native species. Can refer to either terrestrial or marine species.

Photosynthesis – the process by which organic molecules are made from carbon dioxide and water, using light energy. This process is essential for the growth and survival of plants and algae.

Phytoplankton – small plants that drift in open water.

Plankton – the collection of small or microscopic organisms, including algae and protozoans, that float or drift in great numbers in fresh or salt water, especially at or near the surface, and serve as food for fish and other larger organisms.

Poaching – to take fish or game in a forbidden area.

Polychaetes – annelid worms of the class Polychaeta, including mostly marine worms such as the lugworm, and characterized by fleshy paired appendages tipped with bristles on each body segment.

Practices – the traditional land management and resource use practices of Indigenous people.

Predation – the consumption of one organism by another.

Primary Productivity – a measure of the rate at which new organic matter is developed through photosynthesis and chemosynthesis in producer organisms based on the oxygen released and carbon taken in; the transformation of chemical or solar energy to biomass

Ramsar Convention on Wetlands – an international agreement created in Ramsar, Iran in 1971 to recognise wetland of international importance.

Recruitment – the residual of those larvae that have dispersed, settled at the adult site, made some final movements toward the adult habitat, metamorphosed successfully and survived to be detected by the observer.

Relevant Indigenous communities – includes the Traditional Owners, and any scheduled Aboriginal Community/s for areas included in the park.

Remnant vegetation – remaining natural vegetation.

Saltmarsh – a coastal habitat consisting of salt-resistant plants residing in an organic-rich sediment accreting toward sea level

Scheduled Aboriginal community – body or bodies scheduled as the Local Aboriginal Community under the Aboriginal and Torres Strait Islander heritage Protection Act relating to the park.

Sediment – insoluble material carried in water, consisting mainly of particles derived from rock, soil and organic material; in particular such material that has settled out of the water, onto the seabed.

Sedimentation – the deposition of sediment on a surface.

Semidiurnal – occurring or coming approximately once every 12 hours, as the tides.

Sessile organism – an organism that is attached to an underwater surface (e.g. pier, seabed, pile).

Sewage – household or commercial waste water including human and industrial wastes.

Shellfish – an aquatic animal, such as a mollusc or crustacean, which has a shell or shell-like exoskeleton.

Soft coral – coral without a solid calcareous cases for structure. Generally colonial and found on hard surfaces.

Sponge – multicellular filter-feeding animals with a variety of forms. Sponges are the simplest form of invertebrate life.

Spring tides – occur twice every month at new and full moon, and are the highest tides.

Stakeholder – an individual or group that has a vested interest in, or may be affected by, a project or process.

Stormwater – runoff from land during and following rain. Stormwater removes accumulated material including litter, soil, nutrients, pathogens, chemicals, pesticides, oils and grease.

Substrate – a surface on which an organism grows or is attached.

Subtidal – waters below the low-tide mark.

Threatening process – a source of potential harm or a situation with a potential to cause loss.

Toxicant – a poison or poisonous agent,

Tradition – the body of knowledge, belief and customs that is passed from generation to generation.

Traditional owners – communities of people that reasonably assert an association with the park area that is based on direct descent from the original Indigenous custodians of Country, in accordance with Indigenous tradition.

Translocation – the transfer of pests from one area to a new area.

Turbidity – having sediment or foreign particles stirred up or suspended; muddy: turbid water.

Understorey – organisms living beneath a canopy of taller species.

Values – natural and cultural assets (e.g. historic artefacts, features, species, communities) that have been given worth or are considered to be desirable.

Vascular plant – plants, such as the ferns and seed-bearing plants, in which the phloem transports sugar and the xylem transports water and salts.

Vessel – (as defined in the Marine Act) any kind of vessel that is used, or capable of being used, in navigation by water, however propelled or moved, and includes (a) a barge, lighter, floating restaurant or other floating vessel; and (b) an air-cushion vehicle, or other similar craft, that is used in navigation by water; and (c) any aeroplane that is designed for and capable of being waterborne, for so long as that aeroplane is waterborne.

Victorian Marine Science Consortium – comprises six partner institutions namely Deakin, Melbourne, RMIT, Monash and Victoria Universities plus PIRVic.

Water column – water habitat extending between the surface and the seabed.

Wetland – land where saturation by water is the dominant factor for soil type and plant and animal communities (eg. tidal areas, saltmarshes and mangroves).

Wrack – seaweed and other organic material that has been washed ashore.

Zooplankton – plankton that consists of animals, including the corals, rotifers, sea anemones, and jellyfish.

Abbreviations

AAV – Aboriginal Affairs Victoria

ANZECC – former Australian and New Zealand Environment and Conservation Council. ANZECC was represented by government Ministers and guided national policy and programs related to the management of the environment and its conservation

CAMBA – China Migratory Bird Agreement

CMA – Catchment Management Authority

CRIMP – Centre for Research on Introduced Marine Pests

CSIRO – Commonwealth Scientific and Industrial Research Organisation

DIVA – Dive Industry Victoria Association

DSE – Department of Sustainability and Environment, formerly NRE

DVC – Department of Victorian Communities

ECC – Environment Conservation Council, formerly LCC

EMF – Environmental Management Framework of Parks Victoria.

EPA – Environment Protection Authority

EPBC – Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)

FFG – Flora and Fauna Guarantee

GPS – Global positioning system

IMCRA – Interim Marine and Coastal Regionalisation for Australia

IUCN – International Union for the Conservation of Nature

JAMBA – Japan Migratory Bird Agreement

LCC – Land Conservation Council

MOU – Memorandum of understanding

MSV – Marine Safety Victoria

NEIP – Neighbourhood Environment Improvement Program

NRE – former Department of Natural Resources and Environment

NRSMPA – National Representative System of Marine Protected Areas

PIRVic – Department of Primary Industries Research Victoria (formerly Marine and Fisheries Research Institute – MAFRI).

PPWPCMA – Port Phillip and Western Port Catchment Management Authority

PV – Parks Victoria.

PWC – Personal Water Craft

Scuba – Self contained underwater breathing apparatus

SDFV – Scuba Divers Federation of Victoria

SEMP – Safety and Environment Management Plan

SEPP – State Environment Protection Policy

TFMPA – Taskforce for Marine Protected Areas

VCC – Victorian Coastal Council.

APPENDIX 1 MANAGEMENT OBJECTIVES FOR MARINE NATIONAL PARKS

Management objectives for marine national parks and marine sanctuaries included on Schedule 7 or 8 of the National Parks Act are in Sections 4 and 17D as listed below. For an up-to-date copy of the *National Parks Act 1975* (Vic.), refer to Victorian Acts Legislation and Parliamentary Documents website (www.dms.dpc.vic.gov.au).

4. Objects of the Act

The objects of this Act are-

- (a) to make provision, in respect of national parks, State parks, marine national parks and marine sanctuaries –
 - (i) for the preservation and protection of the natural environment including wilderness areas and remote and natural areas in those parks;
 - (ii) for the protection and preservation of indigenous flora and fauna and of features of scenic or archaeological, ecological, geological, historic or other scientific interest in those parks; and
 - (iii) for the study of ecology, geology, botany, zoology and other sciences relating to the conservation of the natural environment in those parks; and
 - (iv) for the responsible management of the land in those parks;
- (c) to make provision in accordance with the foregoing for the use of parks by the public for the purposes of enjoyment, recreation or education, and for the encouragement and control of that use.

17D Marine national parks and marine sanctuaries

(3)(a) The Secretary, subject to this Act will ensure that each marine national park and marine sanctuary is controlled and managed in accordance with the objects of this Act in a manner that will –

- (i) preserve and protect the natural environment and indigenous flora and fauna of the park and any features of the park which are of geological, geomorphological, ecological, scenic, archaeological, historic or other scientific interest; and
 - (ii) promote the prevention of the introduction of exotic flora and fauna into the park; and
 - (iii) provide for the eradication or control of exotic flora and fauna found in the park; and
- (b) subject to paragraph (a) –
- (i) provide for the use, enjoyment and understanding of Marine National Parks and Marine Sanctuaries by the public; and
 - (ii) promote and understanding of the purpose and significance of Marine National Parks and Marine Sanctuaries; and
- (c) prepare a plan of management in respect of each marine national park and each marine sanctuary.

APPENDIX 2 SUBMISSIONS ON THE DRAFT MANAGEMENT PLAN

A total of 30 submissions were received of the draft plan, comprising 20 from organisations, 10 from individuals and 2 marked confidential.

ORGANISATION/ INDIVIDUAL	SUBMISSION NUMBER
Submissions from organisations	20
Aboriginal Affairs Victoria (AAV) – Gippsland	29
Australian Marine Conservation Society, Melbourne Branch	20
Australian Marine Ecology	21
Bird Observers Club of Victoria	10
Central Coastal Board	23
Department of Defence – Australian Government	17
Department of Sustainability and Environment (DSE) – Gippsland	30
Dolphin Research Institute	26
EPA	22
Fisheries Victoria – DPI	16
Geelong Field Naturalists Club	9
Heritage Victoria	24
Polperro Dolphin Swims	12
Queenscliff Cruising Yacht Club	13
Sail Sorrento	25
Scuba Divers Federation of Victoria SDFV	19
Swan Bay Environment Association Inc.	11
Swan Bay Integrated Catchment Management Committee	14
Tourism Victoria	28
Victorian Wader Study Group	27
SUBMISSIONS FROM INDIVIDUALS	10
Robert Beames	8
W.T. Brown	6
Neil & Barbara Clowes	4
April Nutter	18
Rosalind Smallwood	1
Lynne, Mirto, Antony and Andrew Vago	15
R. Wasterval	5
Jennifer Zikos	2

APPENDIX 3 SHIPWRECKS AND OTHER CULTURAL HERITAGE SITES

SHIPWRECK NAME	LOCATION	COMMENTS
LOCATION KNOWN		
<i>SS Conside</i>	Lonsdale Reef	Iron screw steamship, built 1848, lost 15 Sep 1852, 14 lives lost. Delayed on passage from Sydney by strong winds, short of provisions and anxious to make port, the vessel was misled on approaches to Port Phillip and struck Lonsdale reef. First steamship across the Pacific, first screw steamship between Sydney and Melbourne, first purpose-built steam collier. Rare geared oscillating engine.
<i>David</i>	Lonsdale Reef	Wooden sailing schooner, built 1842, lost 15 Apr 1850. Struck Lonsdale reef while entering Port Phillip on a voyage from Hobart.
<i>Gange</i>	Lonsdale Reef	Iron sailing barque, built 1885, lost 23 July 1887. On a voyage from London to Melbourne the vessel went too close to shore. The pilot schooner <i>Mavis</i> tried to show the way out of trouble but the vessel struck Lonsdale reef and sank.
<i>George Roper</i>	Lonsdale Reef	Iron sailing ship, built 1882, lost 4 July 1883. 2104 While being towed into Port Phillip by steam tug <i>William</i> , the tug and the vessel both struck Lonsdale reef.
<i>Holyhead</i>	Lonsdale Reef	Iron sailing barque, built 1889, lost 12 Feb 1890. On maiden voyage from Liverpool to Melbourne the vessel ran too close in shore and struck reef while signalling unsuccessfully for a pilot.
<i>SS Cheviot</i>	Point Nepean	Iron screw steamer, built 1870, wrecked 20 October 1887, 35 lives lost. On a voyage from Melbourne to Sydney the Cheviot lost its propeller while on the outer edge of Rip. The sails were set immediately but it drifted ashore and broke in two before going to pieces.
<i>Edward</i>	Point Nepean	Wooden sailing brig, built 1874, wrecked 29 Sept 1912, no lives lost. The last surviving vessel of its type, the <i>Edward</i> was on a voyage from Oakwood, Tasmania, to Port Pirie, South Australia, and called at Port Phillip for provisions. The <i>Edward</i> drifted ashore at Point Nepean after dragging its anchors.
<i>Frisk</i>	Point Nepean	Brig built 1835, Wrecked 28 May 1853, 4 lives lost. On a voyage from Liverpool to Melbourne the <i>Frisk</i> attempted to enter Port Phillip without the aid of a pilot and struck Point Nepean Reef.
<i>Isabella Watson</i>	Point Nepean	Wooden sailing ship, built 1840, lost 21 March 1852, 9 lives lost. On a voyage from London to Melbourne the <i>Isabella Watson</i> struck Corsair Rock.
<i>SS Petriana</i>	Point Nepean	Iron steamer screw ship, built 1879, lost 28 Nov 1903, no lives lost. On a voyage from Balikpapan, Borneo, to Melbourne the iron steamer ran ashore. Because of danger from oil cargo, officers and crew were quickly taken off. Abandoned after unsuccessful attempts by tugs to move vessel. Oil was pumped out in attempt to lighten the vessel, causing contamination of fish and pollution to nearby beaches that lasted for months. This was Victoria's and Australia's first major oil spill.
LOCATION UNKNOWN		
<i>Don</i>	Lonsdale Reef	Wooden sailing schooner, built 1864, lost 2 July 1875. Vessel drifted onto Lonsdale Reef while leaving Port Phillip on a voyage to River Mersey.
<i>Halcyon</i>	Lonsdale Reef	Motor vessel, lost 11 Nov 1972. Struck Lonsdale reef and sunk while on a voyage from Lakes Entrance to Melbourne.
<i>Lorna</i>	Lonsdale Reef	Motor vessel built 1947, lost 1948. Vessel broke into two in big swell.
<i>MV Spray</i>	Lonsdale Reef	32 foot crayfish/ shark fishing boat, lost 17 June 1983. One of the first local fishing boats to have an engine salvaged from an RMS Australia lifeboat.

Appendix 3 contd.

SHIPWRECK NAME	LOCATION	COMMENTS
<i>Nonpareil</i>	Lonsdale Reef	Wooden sailing schooner, lost 13 Oct 1857. Struck Lonsdale reef on a voyage from Adelaide to Melbourne.
<i>Portland</i>	Lonsdale Reef	Wooden sailing schooner, lost 14 Sep 1852. Struck Lonsdale reef on a voyage from Hobart to Melbourne.
<i>Prince of Wales</i>	Lonsdale Reef	Wooden sailing schooner, built 1842, lost 6 Jan 1861. Vessel ran ashore on Lonsdale reef while entering Port Phillip on a voyage from Tasmania to Melbourne.
<i>Princess Royal</i>	Lonsdale Reef	Wooden barque, lost 24 Feb 1849. On a voyage from Hong Kong to Melbourne the vessel struck Lonsdale reef while laying off the Heads until daylight.
<i>PS Black Boy</i>	Lonsdale Reef	Steamer screw, built 1857, lost 8 July 1883. Drifted onto Mushroom Rock, Lonsdale Reef, with flood tide after fouling propeller while salvaging cargo from the <i>George Roper</i> .
<i>Sacramento</i>	Lonsdale Reef	Wooden barque built 1850, lost 27 Apr 1853. On a voyage from London to Melbourne the vessel drifted ashore while laying off the Heads until daylight.
<i>Thetis</i>	Lonsdale Reef	Wooden sailing schooner, built 1847, lost 26 May 1848, 4 lives lost. The <i>Thetis</i> is the first vessel known to be wrecked on Lonsdale Reef, hitting the reef while entering Port Phillip on a voyage from Sydney to Melbourne.
<i>W.J. Taylor</i>	Lonsdale Reef	Wooden sailing ketch, built 1884, lost 26 Dec 1894. On a voyage from San Remo to Melbourne the vessel struck Lonsdale reef.
<i>Anita</i>	Point Nepean	Motor vessel, lost 9 April 1985. On a voyage from Queenscliff to Rye the shark boat hit reef while going out to retrieve its nets.
<i>Aguna</i>	Point Nepean	Ketch, lost 16 July 1950. The vessel hit rocks at Point Nepean and broke up and sank.
<i>Asa Packer</i>	Point Nepean	Wooden sailing barque, lost 24 May 1861, no lives lost. On last voyage from Melbourne to Newcastle the pilot refused to take vessel out because of bad weather, but master ignored pilot's advice and the vessel struck reef inside the extreme end of Point Nepean and sunk.
<i>Jane Elizabeth</i>	Point Nepean	Schooner, built 1853, wrecked 19 Dec 1856, no lives lost. On a voyage from Launceston to Melbourne the <i>Jane Elizabeth</i> was lost on Point Nepean.
<i>Ontario</i>	Point Nepean	Wooden sailing ship, built 1845, lost 14 Nov 1853, no lives lost. On a voyage from London to Melbourne via Rio de Janeiro the <i>Ontario</i> struck Corsair Rock.
<i>Pryde</i>	Point Nepean	Brig ship, built 1842. Lost 8 Feb 1866, no lives lost. On a voyage from Newcastle to Melbourne the <i>Pryde</i> drifted onto rocks at Nepean Reef.
<i>Robert John</i>	Point Nepean	Lost 19 October 1954.
<i>Sussex</i>	Point Nepean	Barque ship, built 1831, lost 26 Aug 1870, no lives lost. On a voyage from Newcastle to Geelong the <i>Sussex</i> struck Nepean Reef and sunk.
<i>Winifred</i>	Point Nepean	Built 1927, lost 1928, no lives lost.
OTHER CULTURAL HERITAGE SITES		
Point Nepean jetty	Point Nepean	Archaeological remains of jetty and artefacts from the former engine house.
Observatory Point jetty	Point Nepean	Archaeological remains of a cattle jetty.
Cheviot Beach	Point Nepean	A memorial plaque is located off Cheviot Beach in the water where the Australian Prime Minister Harold Holt disappeared and was believed to have drowned while swimming in the surf in December 1967.

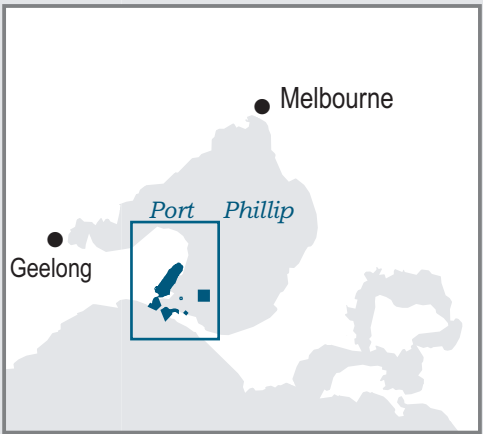
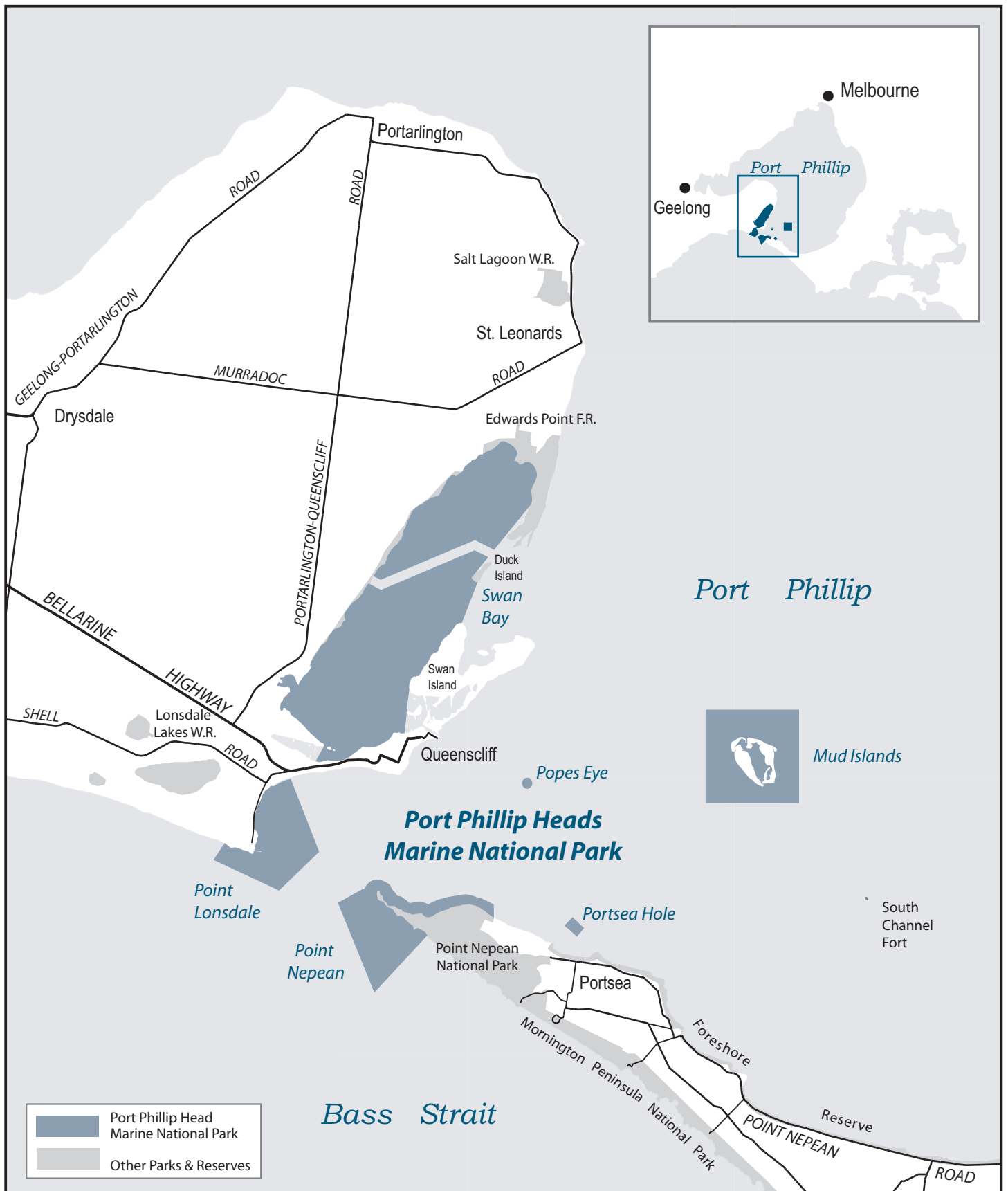
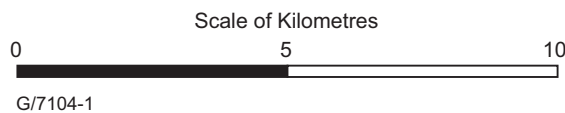


Figure 1
LOCATION

Port Phillip Heads Marine National Park



G/7104-1



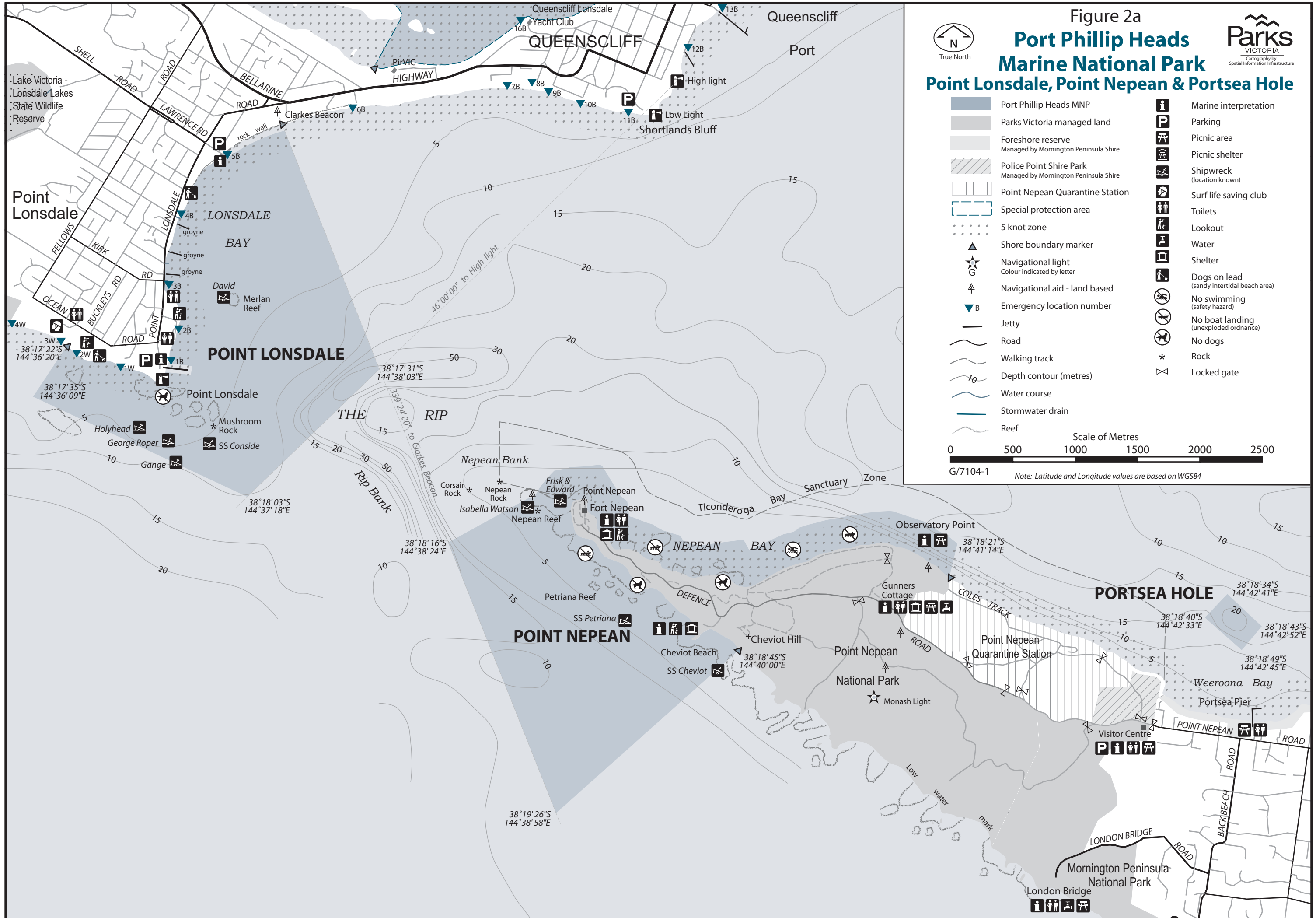


Figure 2b

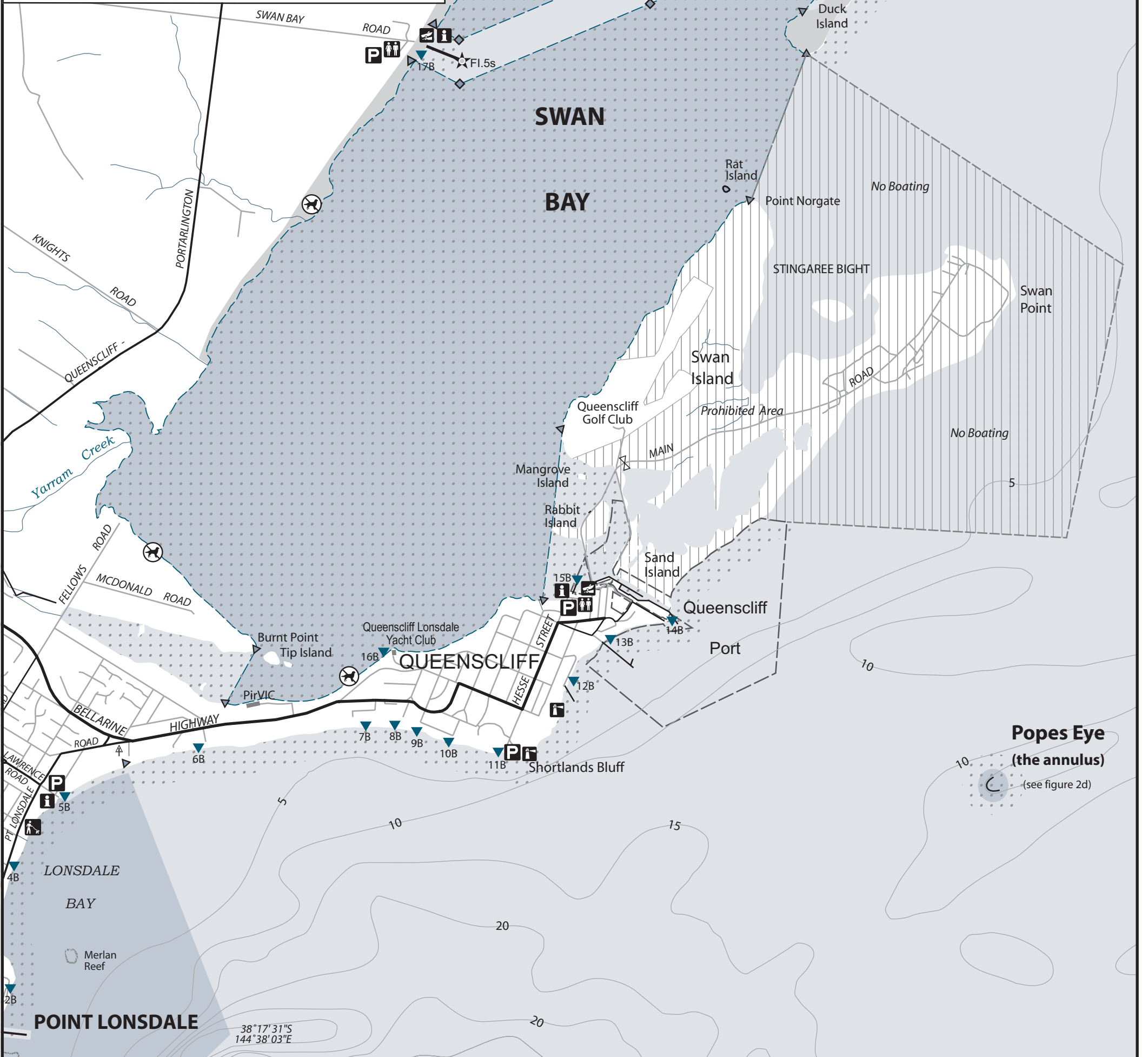
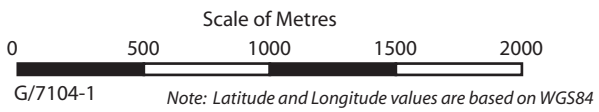
Port Phillip Heads Marine National Park

Swan Bay



Cartography by Spatial Information Infrastructure

- | | | | |
|--|--|--|---|
| | Port Phillip Heads Marine National Park | | Road |
| | Parks Victoria managed land | | Walking track |
| | Commonwealth land & water | | Depth contour (metres) |
| | Harbour area | | Water course |
| | No boating area | | Stormwater drain |
| | Special protection area | | Jetty |
| | 5 knot zone | | Marine interpretation |
| | Shore boundary marker | | Parking |
| | Water boundary marker - pile | | Boat ramp |
| | Navigational light
Colour indicated by letter | | Picnic area |
| | Navigation aid - land based | | Toilets |
| | Emergency location number | | Lighthouse |
| | Emergency location number | | Seat |
| | Emergency location number | | Dogs on lead
(sandy intertidal beach area) |
| | Emergency location number | | No dogs |



Popes Eye (the annulus)
(see figure 2d)

38°17'31"S
144°38'03"E

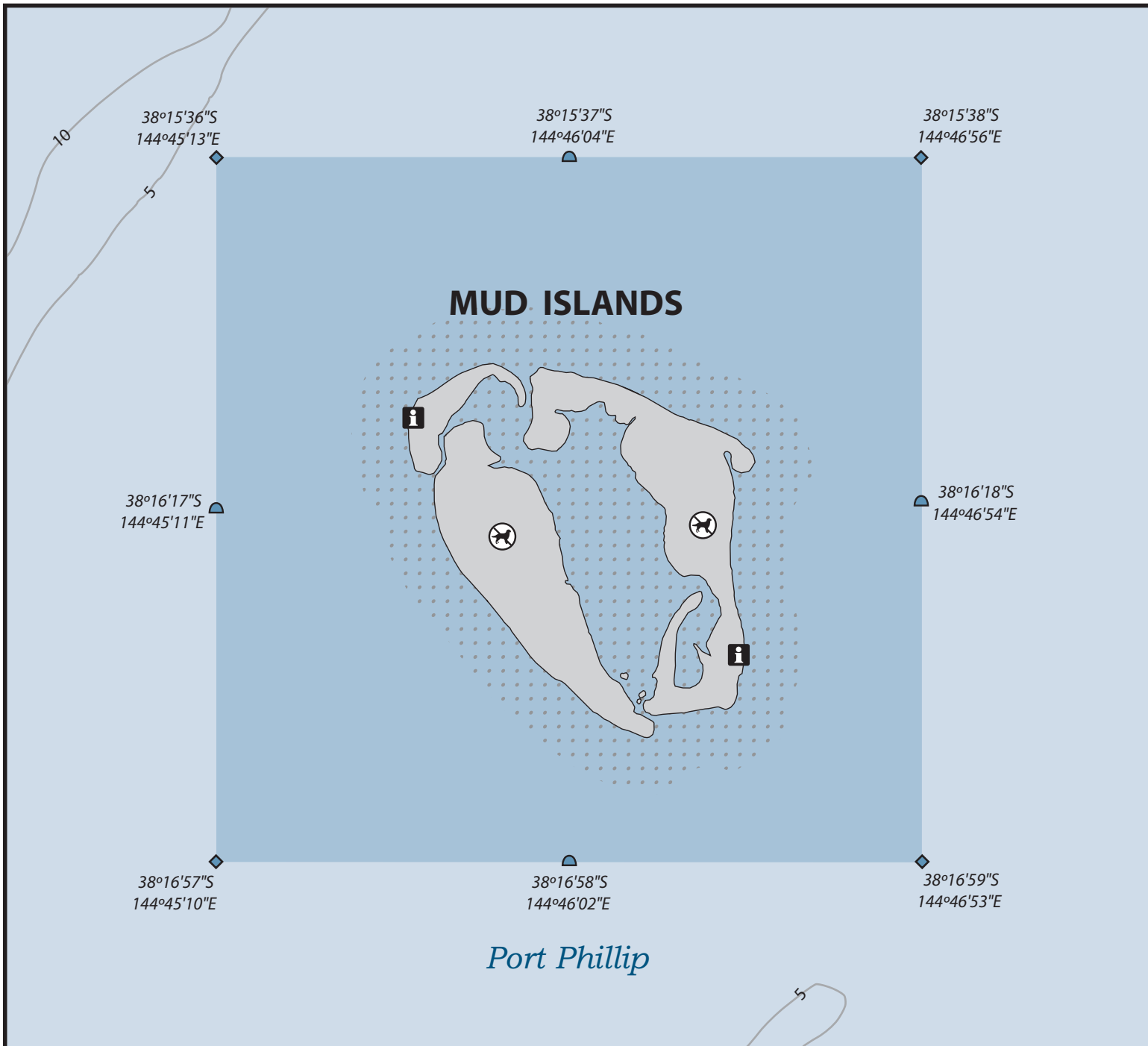










Figure 2c

Port Phillip Heads Marine National Park

Mud Islands



-  Port Phillip Heads MNP
-  Islands, Port Phillip Heads MNP
-  5 knot zone
-  Marine interpretation
-  No dogs
-  Water boundary marker - pile
-  Water boundary marker - buoy
-  Depth contour (metres)



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Note: Latitude and Longitude values are based on WGS84

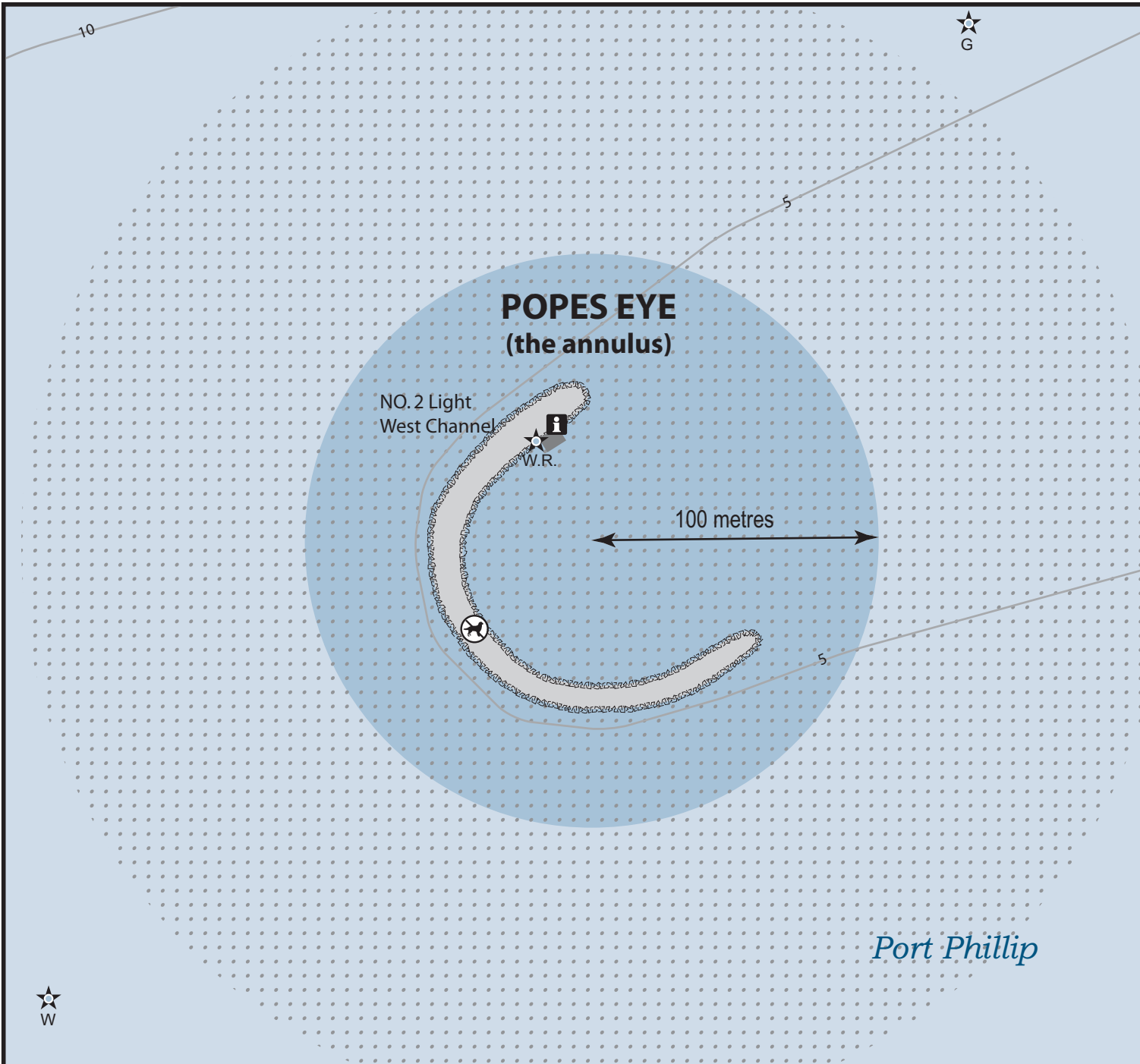

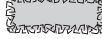








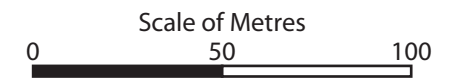
Figure 2d

Port Phillip Heads Marine National Park

Popes Eye (the annulus)



-  Port Phillip Heads MNP
-  Rock Structure, Port Phillip Heads MNP
-  5 knot zone
-  Navigational light
Colour indicated by letter
-  Navigational structure
-  Marine interpretation
-  No dogs
-  Depth contour (metres)



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