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Bunurong Marine National Park

Bunurong Marine Park, Bunurong Coastal Reserve and
Kilcunda-Harmers Haven Coastal Reserve



Management Plan July 2006

BUNURONG MARINE NATIONAL PARK
BUNURONG MARINE PARK
BUNURONG COASTAL RESERVE
KILCUNDA–HARMERS HAVEN COASTAL RESERVE
MANAGEMENT PLAN



July 2006

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Cover: Eagles Nest from Shack Bay, Bunurong Marine National Park (Photo: Brian Martin).

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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 planning area is part of *Country* of the Traditional Owners.

Parks Victoria is grateful to all those organisations and individuals who have contributed to this Management Plan. Special thanks go to members of the Advisory Group: Terri Allen, Dennis Ginn, Arnis Heislars, June Laycock, Gary Martyn, Noel Maud, Amaryll Perlesz, David Sutton, Rosemary Swart, Steve Swearer, Lex Thorbecke and Jim Whitelaw.

Note

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

Disclaimer

This plan is prepared without prejudice to any negotiations or litigated outcome of any native title determination applications covering land or water 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 Indigenous 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

Bunurong Marine National Park and Bunurong Marine Park are an important component of Victoria's outstanding parks and reserves system, forming the largest continuous marine protected area within the Central Victorian Marine Bioregion.

Together with the Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve, these parks and reserves protect a unique landscape of sculptured sandstone cliffs and headlands, sheltered sandy coves and extensive intertidal rock platforms and subtidal rocky reefs.

The extensive, gently sloping intertidal rock platform and shallow subtidal reefs of the Bunurong coast are different from elsewhere in Victoria, supporting species-rich red and brown algae communities. They provide habitat for a diverse range of marine flora and fauna, including a number species at the limits of their distributions.

The Bunurong coast provides a spectacular natural setting for a variety of water-based activities, including diving, snorkelling, surfing and boating.

This Management Plan establishes a long-term management framework for preserving and protecting significant conservation, cultural, and landscape values, and maintaining recreational and other opportunities for visitors to enjoy and appreciate this coast.

The care of marine environments 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 an important part of our marine environment.

I recognise the valuable contributions that are made to the park's management by a number of community groups, and welcome the initiatives in the plan to further strengthen relationships with the community, including relevant Indigenous communities.

I am pleased to take this opportunity to thank the Bunurong Marine National Park Management Plan Advisory Group for their valuable contribution to the plan, and to those individuals and organisations who contributed to this plan by responding to requests for information or views, or by making submissions on the Draft Plan. I look forward to continuing and broadening community support in helping to conserve these unique parks and reserves of the Bunurong coast.



JOHN THWAITES MP
Minister for Environment

APPROVED MANAGEMENT PLAN

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

The plan provides the basis for the future management of Bunurong Marine National Park, Bunurong Marine Park, Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve. It was finalised following consideration of the 24 submissions received on the Draft Management Plan released in September 2005.

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 offshore 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 evidence of past Indigenous occupation and use.

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. octopuses, abalones, 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 is detailed in the *Marine National Park and Marine Sanctuary Management Strategy 2003–2010* (Parks Victoria 2003a) and 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 parks system on land.

This vision aims 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 Bunurong Marine National Park in the statewide system

Bunurong Marine National Park features extensive intertidal rock platforms and subtidal rocky reefs which extend several kilometres from shore, but which are in relatively shallow water. Marine flora and fauna are abundant and diverse, and a number of species have only been recorded from this area or reach their eastern distributional limits within the park. It is one of only three Marine National Parks in the Central Victoria Marine Bioregion, the others being Point Addis Marine National Park between Torquay and Anglesea and the open coast parts of Port Phillip Heads Marine National Park at Point Lonsdale and Point Nepean.

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.

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 historic and cultural places and objects is also a challenge because it is difficult to identify an underwater place or monitor activities that take place on the open sea or under water. *Sea Country*, and cultural association to, or past use of, underwater places which were exposed before the sea level rose 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 planning area and to strengthen its protection while respecting cultural and community associations with the area.

SUMMARY

The planning area comprises two marine protected areas and the adjacent coastal reserves, including:

- Bunurong Marine National Park (2100 ha)
- Bunurong Marine Park (1203 ha)
- Bunurong Coastal Reserve (93 ha)
- part of Kilcunda–Harmers Haven Coastal Reserve (80 ha).

The planning area contains some of Victoria’s most extensive and accessible intertidal and subtidal reefs, offering magnificent underwater seascapes for divers and snorkellers to explore.

The Bunurong coast features rugged sandstone cliffs, rocky headlands, intertidal rock platforms and sandy coves with sweeping views of the ocean and coastline. It is a spectacular natural setting for a range of beach activities, including rockpooling, swimming, walking and birdwatching.

A variety of terrestrial and marine habitats are protected in these areas which are home to a number of threatened species, including Swamp Antechinus, Hooded Plover and the rare sea cucumber *Pentocnus bursatus*. As the largest continuous marine protected area within the Central Victoria Marine Bioregion, the marine national park and marine park, make an important contribution to the National Representative System of Marine Protected Areas.

Indigenous tradition indicates that the planning area is part of the *Country* of the Boonwurrung¹ Indigenous people, who are traditionally and culturally associated with the planning area. At the time of publication, there were several groups asserting traditional ownership of the area.

¹ This management plan adopts the spelling used by the Native Title Unit, Department of Justice. Boonwurrung is a known form of the name for this Aboriginal tribal group. There are a number of alternative spellings and pronunciations, including ‘Boonerwung’ and ‘Bunurong’.

Bunurong Marine National Park and Bunurong Marine Park will be managed as world-class marine protected areas, and for conservation and appropriate recreation. They will contribute to the overall maintenance of marine biodiversity in the Central Victorian Marine Bioregion, protecting a range of marine ecological communities and marine flora and fauna, including threatened marine mammals and shorebirds.

Future management will be integrated across the marine and terrestrial areas and seek to protect the overall biodiversity, improve scientific knowledge and strengthen the ongoing support of friends and volunteers, community groups, Indigenous communities and government and other agencies to foster care for the area.

Significant management directions for the planning area are summarised as follows.

- Natural processes, including competition, predation, recruitment and disturbance, will be protected to ensure an overall benefit to the biodiversity and variety of marine and terrestrial habitat types in the planning area.
- Research and monitoring to improve the scientific basis for management, including base line data collection, marine habitat mapping, and threat assessment, will be undertaken.
- Identified threats to natural and cultural values of the planning area will be minimised through addressing the outcomes of ongoing monitoring, risk assessment and, where feasible, complementary management of adjacent coastal areas and the catchment.
- The Traditional Owners’ cultural lore, interests and rights in the planning area and aspirations for *Country*, will be reflected in planning and 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.

- Maritime and other cultural heritage from the post-settlement period, including places and shipwrecks, will be protected as far as practicable from damaging natural processes and inappropriate recreational activities.
- Visitor safety, understanding and appreciation of the area's natural and cultural values will be enhanced through information, interpretation and education programs and services.
- Visitors will be encouraged to adopt minimal-impact techniques and to adhere to industry-developed standards appropriate to their activity.
- Community and interest groups, including relevant Indigenous communities, will be encouraged and supported to become actively involved in management of the planning area.
- Impacts of illegal harvesting will be minimised through information, interpretation and education, and improved surveillance and enforcement.

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1 INTRODUCTION

1.1 Location and planning area

Bunurong Marine National Park and Bunurong Marine Park are 140 km south-east of Melbourne, and extend along approximately 17 km of coast from Coal Point in the west to Wreck Creek in the east (figure 1). The parks are adjacent to the settlements of Harmers Haven and Cape Paterson and adjoin the south-western corner of the township of Inverloch.

As the boundary of the Marine National Park and Marine Park cease at the mean high water mark, adjoining public land areas (excluding the Cape Paterson Foreshore Reserve) have been incorporated into the planning area to facilitate integrated management of the coastal zone.

The planning area (3476 ha) includes the following parks and reserves:

- Bunurong Marine National Park (2100 ha)
- Bunurong Marine Park (1203 ha)
- Bunurong Coastal Reserve (93 ha)
- part of Kilcunda–Harmers Haven Coastal Reserve (80 ha).

Bunurong Marine National Park (2100 ha) extends from the mean high water mark along 5 km of coastline between the southernmost headland west of The Oaks beach and the headland at the eastern end of Eagles Nest beach, and offshore for approximately three nautical miles (5.5 km) to the limit of Victorian waters (figure 2). The Marine National Park extends to 200 m below the seabed.

Bunurong Marine Park (1203 ha) comprises two separate areas along 12 km of coastline adjoining the Bunurong Marine National Park. It extends from the mean high water mark to 1 km offshore, between Coal Point and the southernmost headland west of The Oaks beach, and the eastern end of Eagles Nest beach to Wreck Creek (figure 2). The marine park extends vertically from the water surface to the centre of the Earth.

Bunurong Coastal Reserve (93 ha) includes the narrow strip of public land (above the mean

high water mark) adjacent to Bunurong Marine Park and Bunurong Marine National Park, between the eastern boundary of the Cape Paterson Foreshore Reserve at Undertow Bay in the west and Wreck Creek in the east (figure 2).

The part of Kilcunda–Harmers Haven Coastal Reserve that was formerly Harmers Haven Flora and Fauna Reserve is included in the planning area. It consists of 80 ha of public land (above the mean high water mark) adjacent to Bunurong Marine Park, from Coal Point in the west to the western boundary of the Cape Paterson Foreshore Reserve at Wilson Road in the east (figure 2).

For the purposes of this plan, Bunurong Marine National Park, Bunurong Marine Park, Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve are collectively called ‘the planning area’.

1.2 Creation of the parks and reserves

Bunurong Marine National Park

Bunurong Marine National Park forms part of the system of 13 Marine National Parks and 11 Marine Sanctuaries in Victorian waters. 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 reservation of the new parks and sanctuaries under the National Parks Act. Bunurong 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 of fauna, plants or objects from these areas.

Bunurong Marine National Park includes areas between the high water mark and 1 km offshore that were formerly the Sanctuary zone of the Bunurong Marine Park.

Bunurong Marine Park

Part of the marine park was reserved for the protection of coastline on 20 March 1984 (GG 28/3/1984 –962). On 17 December 1991 the government temporarily reserved Bunurong Marine Park (GG 18/12/1991 –3531) under the *Crown Land (Reserves) Act 1978* (Vic.).

Bunurong Marine Park was temporarily reserved ‘for the preservation of an area of ecological significance, conservation of an area of natural interest or beauty or of scientific historic or archaeological interest and for public recreation’. Concurrently the park was added to Schedule 4 of the National Parks Act and the Bunurong Sanctuary Zone proclaimed and rules specified under Section 79A of the *Fisheries Act 1968* (Vic.) to prohibit fishing.

The proclamation of Bunurong Marine National Park on 16 November 2002 revoked only the Sanctuary zone of the Bunurong Marine Park. All other areas of the marine park along the coast between Coal Point and Undertow Bay, and Eagles Nest Beach and Wreck Creek, remain (figure 2, section 1.1).

Bunurong Coastal Reserve

Bunurong Coastal Reserve (92.9 ha) encompasses three areas temporarily reserved for public purposes, 4.9 ha on 26 July 1961 (GG 2/8/1961 – 2066), 12.2 ha on 15 November 1955 (GG 23/11/1955 – 6426) and 75.8 ha on 11 August 1879 (GG 15/8/1979 – 2045).

Kilcunda–Harmers Haven Coastal Reserve

The former Harmers Haven Flora and Fauna Reserve (officially named William Hovell Reserve) was permanently reserved on 8 September 1981 for the ‘protection of coastline’ under the Crown Land (Reserves) Act (GG 16/9/1981 – 3026). In July 2005, this reserve was combined with other areas of coastal reserve between the eastern edge of Kilcunda township and Wilson Road, and named the Kilcunda–Harmers Haven Coastal Reserve. Only the section of the reserve adjacent to the Bunurong Marine Park,

between Coal Point and Wilson Road, is included in the planning area.

1.3 Development of the management plan

This first Management Plan for the Bunurong Marine National Park, Bunurong Marine Park, Bunurong Coastal Reserve and Harmers Haven Coastal Reserve was prepared by Parks Victoria with significant input from the Bunurong Marine National Park Management Plan Advisory Group and other stakeholders. It takes into account existing information, reports and research findings that relate to the planning area 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 planning area. As a public document, the plan establishes how Parks Victoria will protect the natural and cultural values of the planning area, and describes the services and facilities that will be provided to help visitors to enjoy, appreciate and understand the planning area 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 planning area.

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

The Draft Management Plan was published for public comment in 2005, and 24 submissions were received (appendix 2).

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

Key changes made to the Draft Plan in preparing this Final Management Plan included:

- increased emphasis on integrated planning and agency partnerships across broad activities such as fire, and biodiversity and

catchment management, with relevant regional plans and strategies and programs more clearly described

- revision of management strategies for recreational fishing to be clearer on the intent and responsibilities of Fisheries Victoria
- additional information on unauthorised pedestrian access tracks at Harmers Haven

and proposed strategies to minimise their impact on park values.

This Management Plan will direct future management of the Bunurong Marine National Park, Bunurong Marine Park, Bunurong Coastal Reserve and part of Kilcunda–Harmers Haven Coastal Reserve, until reviewed.

2.1 Regional context

Bunurong Marine National Park forms part of a representative system of 12 other Marine National Parks and 11 Marine Sanctuaries in Victoria, established within the broader context of a National Representative System of Marine Protected Areas (NRSMPA) (Parks Victoria 2003a). Bunurong Marine Park complements this system. The NRSMPA contributes to the establishment of a global representative system of marine protected areas (ANZECC TFMPA 1999).

Bunurong Marine National Park and Bunurong Marine Park are two of the nine marine protected areas in the Central Victorian Marine Bioregion, identified by the Interim Marine and Coastal Regionalisation for Australia (IMCRA). This regionalisation identifies 60 marine bioregions, five of which apply to Victorian waters (IMCRA Technical Group 1998). Bunurong Marine National Park (2100 ha) and Bunurong Marine Park (1203 ha) protect 0.5% and 0.3% of the Central Victorian Marine Bioregion respectively.

The Central Victorian Marine Bioregion extends from Cape Otway to east of Cape Liptrap. It does not include Port Phillip Bay and Western Port, nor the offshore waters of Bass Strait. It is characterised by steep to very steep offshore gradients, sandy beaches and cliffs. Sea surface temperatures are representative of Bass Strait waters, and wave energy is moderate (Parks Victoria 2003a).

As part of the Gippsland Plain Bioregion, Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve protect important remnants of a number of coastal communities, with several threatened species.

Indigenous tradition indicates that the planning area is part of the *Country* of the Boonwurrung Indigenous people (section 5.1). At the time of publication there were several Indigenous groups asserting traditional ownership of the planning area.

As part of the Screw Creek, Pound Creek and Anderson Inlet sub-catchment, the planning area is influenced by certain activities within the catchment, within the West Gippsland

Catchment Management Authority's area of responsibility. The catchment is characterised by elevated farmland of open pasture with numerous small perennial creeks that discharge into the planning area.

The planning area is in the Bass Coast Shire, which features spectacular and diverse natural and rural landscapes, inter-dispersed with small coastal townships. The rugged sandstone cliffs, headlands, sandy coves and broad rock platforms of the Bunurong coast contrast with the tidal mudflats of Anderson Inlet and the wide sandy beaches backed by high dunes at Kilcunda and Venus Bay.

The planning area is popular with residents and visitors for surfing, swimming, rockpooling, fishing, boating, diving and snorkelling, or just enjoying the spectacular coastal scenery.

The planning area is in Tourism Victoria's Gippsland marketing and promotion region. Camping and accommodation areas close to the planning area include designated camping areas within Cape Paterson and Inverloch Foreshore Reserves, and motel, bed and breakfast, cabins and farm stay accommodation within townships of Inverloch, Cape Paterson, Wonthaggi and Kilcunda. The Gippsland region receives 7% of all tourist visits to Victoria (Tourism Victoria 2002a), comprising 1.7 million domestic overnight visitors, 3.6 million domestic day visitors, and 56 000 international overnight visitors (Tourism Victoria 2002b).

Protecting the open coastline of the Bunurong coast from Coal Point in the west to Wreck Creek in the east, the planning area is complemented by a number of nearby parks and a range of other natural attractions in Gippsland, including

- Cape Liptrap Coastal Park
- Shallow Inlet Marine and Coastal Park
- Wonthaggi Heathland Nature Conservation Reserve
- Anderson Inlet Fisheries Reserve.

2.2 Park significance and values

Bunurong Marine National Park, Bunurong Marine Park, Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve make a valuable contribution to Victoria’s park and reserve system, which aims to protect viable, representative samples of the State’s natural marine and terrestrial environments. These areas also provide opportunities for visitors to enjoy and appreciate natural and cultural values, and many make important contributions to tourism.

Bunurong Marine National Park is assigned the International Union for the Conservation of Nature and Natural Resources (IUCN) Category II (National Park) of the United Nation’s List of National Parks and Protected Areas. Category II areas are managed primarily for ecosystem protection and recreation. Bunurong Marine Park is assigned the IUCN Category VI. Category VI areas are managed primarily for the sustainable use of natural ecosystems. Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve are assigned the IUCN Category III (national monument). Category III areas are managed primarily for conservation of specific natural features.

In recognition of the area’s outstanding values and its heritage importance, sections of the Bunurong Marine National Park, Bunurong Marine Park and Bunurong Coastal Reserve between Cape Paterson and Inverloch have been listed on the Register of the National Estate.

Important values and opportunities of the planning area are listed below.

Natural values

- The largest continuous marine protected area in the Central Victorian Marine Bioregion.
- Extensive intertidal rock platforms and subtidal rocky reefs with a geology and form that is uncommon along the Victorian coast, and which extend several kilometres from shore but are in relatively shallow water (Plummer et al. 2003; ECC 2000).
- Abundant and diverse marine flora and fauna, including 201 algal species, 87 fish species and 258 subtidal invertebrate species (Campbell 1989; Edmunds et al. 2000; Wilson et al. 1983).
- Over 22 species of marine flora and fauna recorded, or presumed to be, at their eastern or western distributional limits (Plummer et al. 2003).
- Highest diversity of intertidal and shallow subtidal invertebrate fauna recorded in Victoria on sandstone (ECC 2000).
- A high proportion of the common invertebrates occurring along the Victorian coast, including 7 of 8 species of brittle stars, 9 of 11 species of sea-cucumbers, 8 of 11 species of barnacles, all 5 anemones and 15 of the 20 species of chitons (ECC 2000).
- High diversity of vegetation communities, many of which are considered rare, depleted or endangered within the region (WGCMA 2003; Carr 2003).
- Complex of vegetation communities at Kilcunda–Harmers Haven Coastal Reserve supporting 1 plant species of National significance, 6 species of State significance and 37 of regional significance (Carr 2003).
- Important coastal habitat for several threatened species, including Hooded Plover, Swamp Antechinus, Growling Grass Frog, Swamp Skink and Common Bent-wing Bat (DSE 2005a).
- Spectacular coastal scenery, featuring rugged sandstone cliffs, rocky headlands, intertidal rock platforms and sandy coves.
- Eagles Nest, a prominent rock stack, recognised as a site of national geological and geomorphological significance (Buckley 1993).
- One of the richest Mesozoic fossil areas in Victoria, with sites of international and national significance for mammal, dinosaur and the number and variety of taxa collected (Thomas 1968; Rich et al. 1997).
- Opportunities for scientific investigation and learning in an area representative of the Central Victorian Marine Bioregion that has been subject to minimal human disturbance.

Cultural values

- Landscape and seascape of cultural significance to Indigenous people.
- Numerous places and objects of significance to Indigenous people.
- A European history rich in diversity, including sites associated with shipping, coal mining, holidaying and living on the coast.
- Two historical shipwrecks, listed on the Victorian Heritage Register (Heritage Victoria 2004).
- Opportunities for cultural values investigation in an area protected from human disturbance.

Tourism and recreational values

- Extensive subtidal reefs with magnificent underwater seascapes, offering numerous opportunities for diving and snorkelling.
- Highly accessible intertidal rock platforms offering opportunities for rockpooling, marine education and interpretation.
- Spectacular coastal drive, with numerous lookouts and panoramic views of the coast and surrounding waters.
- Coastline offering opportunities for swimming, surfing, boating, fishing and rockpooling in a natural setting.

2.3 Evidence of past use

Cultural places and objects within the planning area and adjoining Wonthaggi Heathlands Nature Conservation Reserve provide evidence of Indigenous occupation from at least 2000 years ago (section 5.1). As recently as 10 000 years ago, sea levels of the planning area were approximately 50 m lower than today, and Victoria was connected to Tasmania by a ‘land-bridge’ (Wallis 1998). During this time, Bunurong Marine National Park and Bunurong Marine Park were terrestrial areas, and certainly inhabited by Indigenous people. It is likely that the Boonwurrung Indigenous people lived in the area by hunting and gathering, frequently moving to harvest seasonally abundant resources along the coast, including shellfish, seabirds (particularly shearwaters and penguins) fish, seals, vegetables, fruits and edible roots (DCE 1992).

The first confirmed contact of Europeans with the Bunurong coast occurred in 1798, when George Bass explored the area by whaleboat. Sporadic contact followed through the 19th century, predominantly with whalers, coal miners and pastoralists (section 5.2). Some physical evidence of these activities remain, with steel spikes from a coal tramway evident in the rocks at Cape Paterson swimming bay, and a mine shaft inland from ‘The Wreck Beach’ in Kilcunda–Harmers Haven Coastal Reserve.

Uncontrolled commercial exploitation of the marine environment followed George Bass’s glowing reports on the region’s seal and whale resources. Operating from temporary camps along the coast, this industry had a devastating effect on local seal and whale populations, resulting in the demise of many species from Victorian waters by the 1860s.

Significant shipping traffic also passed the Bunurong coast throughout this period. Owing to the severity of Bass Strait weather, many wrecks occurred along the length of the Victorian coast (Jordan 1995). There are at least two documented wreck sites within the planning area, and others may exist (Heritage Victoria 2004).

With the establishment of the town of Wonthaggi in 1910, the coast became part of the lifestyle for many ‘locals’. Huts were built from scavenged materials at Cutlers Rocks (Harmers Haven), Cape Paterson, The Oaks, Twin Reefs, Shack Bay and Flat Rocks. A second home for working families, they continued to be used until the mid 1970s (Hayes 1998). Some physical evidence can be found of these camps, including the remains of a flying fox at Shack Bay, concrete slabs at Harmers Haven and exotic trees and shrubs at Flat Rocks.

The original rough track from Wonthaggi that led to these huts and along the Bunurong cliffs was eventually upgraded (Cape Paterson – Inverloch Road), giving spectacular views of the coast (Williams 2002).

Cape Paterson swimming bay was always popular with Wonthaggi residents. The Wonthaggi Life Saving Club was formed in 1938. Significant physical evidence of this remains in the form of a concrete diving platform, the remains of an elevated steel

diving tower and a substantial swimming pool blasted out of the rock platform by zealous volunteers during the late 1950s and early 1960s (Hayes 1998).

More recently, the planning area has made important social and economic contributions. Commercial fishing activities included fishing for rock lobster and abalone, and gill mesh netting (ECC 2000). Recreational diving, snorkelling, surfing and boating continue to be popular.

2.4 The park visitor

The planning area adjoins the settlements of Harmers Haven and Cape Paterson and the township of Inverloch. Together, these areas are one of Victoria's prime summer holiday destinations, attracting over 250 000 visit-days per year. Traditionally, the highest visitation has been in the warmer summer months between January and March, when the population of the region swells to over 15 000.

Visitors are attracted primarily to the ocean, beaches, intertidal rock platforms and reefs, and the recreational opportunities that they offer. Wonthaggi and Inverloch, and the small coastal settlements Cape Paterson and Harmers Haven, have traditionally provided a base from which visitors explore and enjoy the natural attractions and recreational opportunities of the area. The planning area therefore makes a significant contribution to the regional economy.

The majority of visitors to the planning area are either permanent or seasonal residents of Wonthaggi, Harmers Haven, Cape Paterson, Inverloch or the surrounding area, or come from Melbourne and other parts of Gippsland.

The Bunurong Coastal Drive (Cape Paterson – Inverloch Road) is the main access route for visitors to the planning area. The boat ramp at Cape Paterson and beach launching site at Flat Rocks provide boat access to the waters of the planning area. In addition, a small number of boat-based visitors access it from the Inverloch boat ramp on Anderson Inlet.

Eagles Nest is the highest profile attraction within the planning area. Promoted as part of the Bunurong Coastal Drive, Eagles Nest and its beach and intertidal rock platform attract large crowds during the summer months. Most visitors to the region identify with this rock

stack. In themselves, Bunurong Marine National Park and Bunurong Marine Park are not well known or widely promoted as natural attractions. Visitation research shows a general lack of awareness about the location of marine national parks and the activities permitted within them (Newspoll 2004).

The majority of visits to the planning area are for water-based recreational activities. Research showed that the majority of visitors to the planning area undertook snorkelling or diving, followed by short walks, then fishing (Newspoll 2004). Under certain conditions, many of the planning area's beaches are ideal for visitors undertaking specific recreational activities, including rockpooling, swimming, surfing and boating.

Traditionally, the planning area has also been used for walking dogs, particularly by residents of the adjacent coastal settlements of Harmers Haven and Cape Paterson and the township of Inverloch and exercising horses.

Eagles Nest, Shack Bay, The Oaks and Twin Reefs provide lookouts with panoramic views of the sandy coves, cliffs, rock platforms and surrounding coastline. They are popular stops for vehicle-based tourists to the area.

In terms of statewide priorities, Parks Victoria has rated the Marine National Park and Marine Park as having statewide importance for its provision of a unique visitor experience. They contribute significantly to the diversity of the park network. For this reason, visitor service levels in the planning area will be maintained to satisfy high and growing visitor demand. Resources will focus on Eagles Nest, Shack Bay, Flat rocks and Harmers Haven.

Located in Tourism Victoria's Gippsland marketing and promotion region, the planning area will continue to be integrated into regional tourism information services in accordance with the *Regional Tourism Development Plan: Gippsland 2004 – 2007* (Tourism Victoria 2004).

2.5 Legislation and ECC and other recommendations

Bunurong Marine National Park and Bunurong Marine Park are reserved and managed under the provisions of the National Parks Act. The Act requires the Secretary to DSE to preserve and protect the natural condition of the parks

and their natural, cultural and other features and, subject to this, to provide for the use of the parks by the public for enjoyment, recreation and education. Appropriate research activities are also provided for under the Act. The National Parks (Park) Regulations 2003 also apply to these parks.

All forms of extraction, including recreational and commercial fishing and shellfish collection, are prohibited within Bunurong Marine National Park. A Statewide Compliance Strategy and a Regional Compliance Plan have been developed in partnership with the Department of Primary Industries – Fisheries Victoria to manage fisheries compliance within the planning area (sections 6.10, 7.1 and 8.3).

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

Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve are reserved and managed under the provisions of the Crown Land (Reserves) Act. The Act establishes the purpose and framework for the management of the reserves.

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

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

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

The *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC) applies to the whole of the planning area 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.

The *Parks Victoria Act 1998* (Vic.) enables management services for the planning area 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 planning area 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 Bunurong Marine National Park as an extension of the well-known and popular sanctuary zone of Bunurong Marine Park (ECC 2000).

The ECC also made a number of recommendations that relate to the park. The recommendations included:

- Recommendation A Use of Bunurong Marine National Park (A8) in accordance with the general recommendations for Marine National Parks.
- R3 Planning and management relating to traditional interests and uses in coastal marine areas to be based on recognition and respect for the traditional relationship of Aboriginal people with the land and sea.
- R13 Further research to 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 to 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 to 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 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 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).

LCC recommendations

In its Final Recommendations for the South Gippsland District 2 Study Area, the former Land Conservation Council (LCC) recommended that the coastal area from Cape Paterson to Point Smythe, on the western side of Anderson Inlet, be designated a 'scenic coast' for the purposes of:

- informal recreation, enjoyment and understanding of nature
- protection and conservation of natural coastal landscapes, ecosystems, and archaeological, geomorphological and historic features
- conservation of both aquatic and terrestrial fauna and flora
- provision of facilities for fishing and boating and necessary navigational aids
- education and scientific study
- conservation of fossils and geological features between Cape Paterson and Inverloch.

The LCC did not specifically consider the area west of Cape Paterson but it noted that all coastal Crown land within the Borough of Wonthaggi (now the Bass Coast Shire) had particular nature conservation and recreation values (LCC 1982).

Although this had not been recommended by the LCC, the then Department of Conservation, Forests and Lands released a document proposing the establishment of the 'Bunurong Marine Reserve' to conserve both the unique and representative features of this

coast (CFL 1987). Following a period of public comment and the release of the Regulatory Impact Statement (Government of Victoria 1991), the State Government formally established the Bunurong Marine Park in December 1991.

Many of the submissions on the proposed 'Bunurong Marine Reserve' (CFL 1987) and the Regulatory Impact Statement for the Bunurong Marine Park (Government of Victoria 1991) noted that management of the adjacent terrestrial Crown land was important in creating a buffer between adjacent freehold land and the marine environment, as well as providing habitat for a diversity of plant and animal communities.

To provide for integrated management of the terrestrial and marine environments, the adjacent coastal reserve was included in the management planning process for the Bunurong Marine Park in 1992 (DCE 1992). This management plan proposed that both areas be protected by complementary reservations as the Bunurong Marine and Coastal Park. However, the finalisation of this plan was held off, pending the results of the ECC's Marine Coastal and Estuarine Investigation.

The *Melbourne District 2 Final Recommendations* (LCC 1994b) did not make a recommendation for the area. It indicated that a review on the appropriateness, boundaries and tenure of the area would be considered as part of its Marine and Coastal Investigation.

The *Marine, Coastal and Estuarine Investigation* (ECC 2000) recommended that the existing multiple-use park (Bunurong Marine Park) be retained, except where areas of the park were incorporated into the highly protected Bunurong Marine National Park, and managed for a variety of uses that do not impact on the values and objectives of the park (Recommendation D: Existing Parks) (ECC 2000).

The ECC also recommended that the coastal sections of the planning area be zoned as either a Coastal Protection or Coastal Recreation Zone (ECC 2000) as indicated in the *Victorian Coastal Strategy* (VCC 2002). Most of the Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve are zoned

Coastal Protection Zone. The sections of the planning area at Cape Paterson and near Inverloch are zoned Coastal Recreation Zone (VCC 2002).

Since 1992 and in accordance with the *Bunurong Marine and Coastal Park Proposed Management Plan* (DCE 1992), the management of the narrow strip of coastal reserve has been integrated with management of the adjacent marine protected areas.

2.6 Policies and guidelines

The planning area is also managed in accordance with Parks Victoria's operational policies and, as appropriate, consistent with other relevant policies and guidelines, including:

- *Guidelines for Working with Aboriginal Communities and Protection of Cultural Sites* (Parks Victoria 2002a)
- *Indigenous Partnership Strategy and Action Plan* (Parks Victoria 2005a)
- *National Strategy for Ecologically Sustainable Development* (COAG 1992)
- *National Strategy for the Conservation of Australia's Biological Diversity* (ANZECC 2001)
- *Heritage Management Strategy* (Parks Victoria 2003b)
- *Victoria's Biodiversity Strategy* (NRE 1997a)
- *Victoria's System of Marine National Parks and Marine Sanctuaries Management Strategy 2003–2010* (Parks Victoria 2003a).

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

- *Coastal Priorities for the Central Region — A framework for implementing the Victorian Coastal Strategy* (CCB 2003)
- *Integrated Coastal Planning for Gippsland — Coastal Action Plan* (GCB 2002a)
- *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 2002)
- *Victorian Coastal Strategy* (VCC 2002)
- *Victorian Heritage Strategy – Shipwrecks 2005* (Heritage Victoria 2000)
- *West Gippsland Regional Catchment Strategy 2004–2009* (WGCMA 2004).

3 STRATEGIC DIRECTIONS

3.1 Vision

A future visitor to Bunurong Marine National Park, Bunurong Marine Park, Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve finds a special, inspiring and unspoiled coast with an unusual combination of rugged scenery, geologically important cliffs and rock platforms, and extraordinarily rich biodiversity. Whether or not they have visited before, people realise this is a special place in its own right, as well as being part of a system of marine protected areas in Victoria. Furthermore, they realise that the local community and other visitors enjoy, value and protect the planning area.

Creative interpretation helps people appreciate the area's geology, with its petrified forests, volcanic plugs, coal seams, rock platforms and dinosaur fossils. Likewise, the present-day flora and fauna, and the rich Indigenous and European cultural heritage, are explained with respect and insight, and messages about the protection of these values into the future are readily accepted. With easily accessible opportunities to explore land and marine environments, the planning area offers a unique glimpse into the past, as well as the best of the present natural environments.

The Bunurong coast is a place where learning and enjoyment go together. By sharing the planning area with others, local and visiting school students and other groups and individuals develop a strong sense of ownership and stewardship, and become advocates for this and other Marine National Parks with the wider community. People of all ages, abilities and backgrounds have positive and memorable experiences here, from a first go at snorkelling to a quiet stroll along the beach. It is a setting that helps families and generations interact with the marine environment.

Natural processes in the area continue with minimal human interference. The Bunurong coast's diverse marine habitats are well understood and are protected through the application of results from targeted scientific research.

Local groups, neighbours and individuals are vigilant in detecting threats such as invasive species or inappropriate activities, and management responses are timely and effective. Ongoing learning, sharing and applying knowledge has ensured that the local community is actively involved in management and has a strong and growing feeling of pride in, responsibility for and stewardship of the planning area.

Appropriately located visitor facilities are complemented by low-impact tourism operations offering services to access and enjoy activities that visitors might not undertake on their own. The area's environmental, aesthetic and social values are also widely appreciated, and protected and advocated with passion and commitment.

3.2 Zoning

A park management zoning scheme is normally used to define areas where various types and levels of use are appropriate. However, the whole of the planning area has important natural values with scope for recreational and tourism opportunities, and consequently a Conservation and Recreation Zone has been applied.

This zone aims to protect natural and cultural environments, and provide for sustainable, dispersed recreational activities and small-scale recreational facilities without significant impact on natural processes.

3.3 Management directions

Major management directions for the planning area are outlined below:

Natural values conservation

- Natural processes, including competition, predation, recruitment and disturbance, will be protected to ensure an overall benefit to the biodiversity and variety of marine ecological communities and terrestrial habitat types in the planning area.
- Identified threats to the planning area will be minimised by addressing the outcomes of ongoing monitoring, risk assessment

and, where feasible, complementary adjacent, coastal and catchment management.

- Existing populations of threatened species will be maintained, and restored where appropriate, in the long term.
- In the long term, the quality of water entering the planning area will be improved in keeping with the *West Gippsland Regional Catchment Strategy* (WGCMA 2004), the *West Gippsland River Health Strategy* (WGCMA 2005), and *Gippsland's Water Quality Action Plan* (WGCMA & EGCMA 2005).
- Compliance with legislated provisions that prohibit extractive activities, including fishing and shellfish collection, in the marine national park will be ensured through education, information, community support, and improved surveillance and enforcement.
- Research and monitoring to improve the scientific basis for managing marine areas, 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 planning area and aspirations for *Country*, will be reflected in the area'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.

- Historic relics and places will be conserved by protecting them from damaging or inappropriate activities.
- Research into Indigenous and historic cultural heritage of the planning area, including places, objects and cultural lore, will be encouraged and supported as appropriate in conjunction with the Indigenous and wider communities.

The park visit

- Visitors will have opportunities to learn about the planning area and its special values.
- Visitor understanding and appreciation of the planning area's natural and cultural values will be enhanced by a range of information services and interpretation and education programs.
- Recreational activities will be managed to encourage visitors' enjoyment and understanding, while minimising impact on planning area values.
- Recreation opportunities will be provided in accordance with table 1.
- Visitors will be encouraged to adopt minimum impact techniques and to adhere to industry-developed standards appropriate to their activity.
- Licensed tour operators will be encouraged to offer a range of minimal impact recreation activities consistent with management objectives for the planning area.

Community awareness and involvement

- Friends, volunteers, educational institutions, Indigenous and other community groups will be encouraged and supported to participate in areas of park management that relate to their interests.

TABLE 1 SUMMARY OF RECREATIONAL ACTIVITIES

ACTIVITY	CONSERVATION AND RECREATION ZONE			
	MNP	MP	BCR	K-HHCR
Part of planning area				
Aircraft (landing)	N	N	N	N
Anchoring (section 6.4)	Y	Y	N/A	N/A
Bait collection (section 6.10)	N	Y	Y	Y
Bicycle riding (section 6.2)	N/A	N/A	Y	Y
Bird watching	Y	Y	Y	Y
Boat launching (Flat Rocks and Cape Paterson) (section 6.4)	N/A	Y	Y	N/A
Camping (land-based) (section 6.6)	N	N	N	N
Camping (boat-based)	Y	Y	N/A	N/A
Campfires (land-based including fires on beaches) (section 6.6)	N	N	N	N
Campfires (boat-based) (section 6.6)	Y	Y	N/A	N/A
Diving and snorkelling (section 6.5)	Y	Y	N/A	N/A
Dogs on lead (section 6.7)	N#	N#	Y*	Y
Education/guided activities (section 6.1)	Y	Y	Y	Y
Feeding wildlife	N	N	N	N
Fishing (section 6.10)	N	Y	Y	Y
Fossil collection (section 4.2)	N	N	N	N
Hang gliding (launching and landing) (section 6.9)	N	N	N	N
Horse riding (section 6.8)	N	N	N	N
Kite boarding / wind surfing	Y	Y	N/A	N/A
Licensed tours (section 6.11)	Y	Y	Y	Y
Mooring (section 6.4)	N	N	N/A	N/A
Motorised boating including personal water craft (section 6.4)	Y	Y	N/A	N/A
Nature observation (including intertidal rockpooling) (section 6.6)	Y	Y	Y	Y
Nature photography / painting	Y	Y	Y	Y
Picnicking	Y	Y	Y	Y
Prospecting, fossicking and metal detecting	N	N	N	N
Rafting / canoeing / sea kayaking (including landing and launching) (section 6.4)	Y	Y	N/A	N/A
Rock climbing/abseiling (section 4.2)	N	N	N	N
Sailing (section 6.4)	Y	Y	N/A	N/A
Shell collection (section 6.10)	N	N	N	N
Seaweed collection (section 4.5)	N	N	N	N
Scenic viewing/sightseeing	Y	Y	Y	Y
Surfing/boogie boarding (section 6.6)	Y	Y	N/A	N/A
Swimming (section 6.6)	Y	Y	N/A	N/A

Table 1 contd.

ACTIVITY	CONSERVATION AND RECREATION ZONE			
	MNP	MP	BCR	K-HHCR
Part of planning area				
Wake-boarding / Water-skiing (section 6.4)	Y	Y	N/A	N/A
Walking (sections 6.2, 6.3 & 6.6)	Y	Y	Y	Y
Whale / dolphin / seal watching (section 4.5)	Y	Y	Y	Y

Key:

Y Yes — subject to conditions prescribed by legislation, tour permits or elsewhere in the plan.

N Not permitted.

N/A Not applicable.

Except dogs confined in or on a vessel and under control.

* Dogs not permitted where adjacent to Bunurong Marine National Park.

MNP

Bunurong Marine National Park

MP

Bunurong Marine Park

BCR

Bunurong Coastal Reserve

K-HHCR

Kilcunda–Harmers Haven Coastal Reserve (only where adjacent to the Bunurong Marine Park)

- An awareness and understanding of the planning area and its management, and a sense of custodianship, will be developed among local communities and visitors.
- Strong relationships will be developed and maintained with people, groups and communities with strong connections or interests in the planning area as a basis for encouraging their appropriate participation in its management.
- A strong collaborative relationship will be developed with the relevant Indigenous communities to facilitate the reflection of the Traditional Owners' cultural lore, and interests and rights and aspirations for the area, in its planning and management.
- Collaborative partnerships will be established with relevant agencies to ensure ongoing compliance and future protection of the planning area.
- There will be ongoing opportunities for individuals, groups, communities and government agencies to discuss aspirations and issues of mutual concern relating to the planning area.

4 STRATEGIES FOR NATURAL VALUES CONSERVATION

4.1 Landscape and seascape

The Bunurong coast features rugged sandstone cliffs, rocky headlands, intertidal rock platforms and sandy coves with sweeping views of the ocean and coastline. In clear, calm conditions, water clarity is high and the shallow intertidal and subtidal rock platforms are clearly visible from a variety of vantage points. In rough weather the wild, wind-swept appeal of the coast is enhanced by the surf, salt spray, and crash of waves against rock platforms and cliffs.

The landscape between Coal Point and Cape Paterson consists of sandy beaches, intersected with rock platforms and backed by tall sand dunes and gently rolling farmland. The variation in dune topography and dense vegetation cover generally blocks views of agricultural land from the beaches. Coastal views are truncated by small headlands or, further to the west and east, by Coal Point and Cape Paterson respectively.

The area between Cape Paterson and Inverloch is particularly noted for its scenic views and is included on the register of the National Estate (section 2.2). The height of the cliffs and low vegetation cover allows sweeping vistas across the sea to the south, and to Venus Bay, Anderson Inlet and Cape Liptrap.

The Eagles Nest rock stack is a dominant landmark and attraction along this section of the coast, although views inland and across the sea are also important visual features.

Small sandy embayments intersected by rock platforms, backed by dunes or high cliffs, combine to produce a feeling of remoteness in a relatively natural landscape. Views to the north of the planning area are predominantly of farming land but are limited by a gradual rise in the land plateau, extending roughly parallel to the coast about half to one kilometre inland. Views along the coast from the beaches or intertidal rock platforms are limited either by the adjacent headlands or by Cape Paterson.

The landscape and seascape of the planning area is an intrinsic element of the *Country* of the Traditional Owners in accordance with tradition.

The *Victorian Coastal Strategy* (VCC 2002) establishes the framework for long-term ecological sustainable management of the Victorian coast. The strategy uses principles which attempt to integrate planning and management across the land–sea and public and private land interface. This involves the coordination of coastal and marine management activities of the various Commonwealth, State and local government agencies and a commitment to community consultation at all levels of planning.

The *Siting and Design Guidelines for Structures on the Victorian Coast* (VCC 1998a) and *Landscape Settings Types for the Victorian Coast* (VCC 1998b) are designed to ensure sympathetic development that complements the surrounding landscape and results in sensitive design and development along the Victorian coast. The *Siting and Design Guidelines* (VCC 1998a) define issues that should be considered in the siting, design and construction of, or improvement to, structures in coastal areas.

Landscape setting types are used to broadly characterise different landscape types (VCC 2002). The planning area occurs within Landscape Setting Type 26, ‘Cape Paterson’ (VCC 1998b) which extends from Kilcunda to Arch Rock/Morgan Beach. Landscape Setting Type 26 recommends special considerations, including:

- considerable threat from future developments in the narrow coastal area beyond the sensitive coastal edge
- appropriate planning controls to protect this significant landscape of high scenic quality.

The landscape adjacent to the planning area consists of gently undulating plateaus that have been mainly cleared of indigenous vegetation for grazing and other agricultural purposes, as well as for the coastal settlements of Harmers Haven, Cape Paterson and the township of Inverloch.

There is an increasing amount of residential development in small rural holdings along the Crown land boundary and adjoining the coastal settlements. New subdivisions for small rural

holdings or residential housing adjacent to the planning area have the potential to affect landscape values, particularly if situated on prominent bluffs, headlands and dunes where they can be easily seen from within the planning area.

The landscape between Cape Paterson and Inverloch has the lowest ability to absorb visual changes because of the narrow public land–sea interface, the low coastal vegetation cover and the gradually rising private land inland from the planning area. Development should be sensitive of the area’s values and complement the surrounding landscape in its siting, design and construction.

The *Bass Coast Shire Planning Scheme* (BCSC 2003a) sets out a statutory framework for managing proposals and developments adjoining the planning area (section 7.3).

The *Bass Coast Strategic Coastal Planning Framework* (BCSC 2004) establishes activity nodes with structure plans for the coastal settlements, sets out siting and design guidelines and identifies landscapes that require sensitive treatment (section 7.3).

Road works, signs and visitor facilities in the planning area may also impair visual quality and should remain low-key and sympathetic of their surrounds.

Aims

- Protect the landscape and seascape values of the planning area, particularly the natural character and places of high scenic quality and areas of significance to the Indigenous community.
- Minimise the impact of developments and management activities on the planning area’s landscape values.

Management strategies

- *Recommend amendment of the planning scheme to Bass Coast Shire Council to assist in the protection of landscape values by extending the Environmental Significance Overlay or applying Significant Landscape Overlay up to the ridgeline of adjacent land inland of the planning area.*
- *Liaise with Bass Coast Shire Council regarding suitable controls and issues*

relating to development adjoining the planning area.

- *Provide input into any landscape character assessments to ensure recognition of landscape and seascape values within, and associated with, the planning area.*
- *Consider the significance of landscape to the Traditional Owners in planning and implementing management activities, interpretation and education programs (sections 4.2, 5.1 and 6.1).*
- *Minimise the impact on landscape values of the planning area through sensitive design and siting of signs and visitor facilities.*

4.2 Geological and geomorphological features

Geology

The planning area is geologically complex and has a range of coastal landforms. It consists mainly of sandstone, shale and mudstone deposited in a rift valley that formed during the separation of Australia from Antarctica in the Early Cretaceous period (95–125 million years ago) (Birch 2003). These sediments are exposed in the cliffs between Undertow Bay and the Caves and on the adjacent rock platforms, and have been greatly faulted (CLS 1978). Narrow seams of black coal occur in these sediments at Cape Paterson and Coal Point. These were mined sporadically between 1845 and 1887, with 2000 tonnes being recovered (Thomas 1968).

The remainder of the planning area consists of more recent Quaternary calcareous sands, deposited during fluctuating sea levels in the Pleistocene epoch (1.5 million to 15 000 years ago) and the Holocene epoch (<15 000 years ago). Pleistocene beach and dune formations occur mainly between Coal Point and Cape Paterson and consist of several partly overlapping dune formations. These formations are separated by layers of harder limestone (calcrete) and ancient soils (paleosols) which mark the land surfaces of earlier, buried dune topographies. Along the coastline these Pleistocene sediments are capped with more recent unconsolidated Holocene dune sand (Thomas 1968).

Palaeontology

The Cretaceous rocks of the planning area between Cape Paterson and Flat Rocks are rich in plant and animal fossils (CLS 1978). The planning area also includes the locality of Australia's first dinosaur fossil: the claw of a carnivorous dinosaur. Discovered in 1903 at Eagles Nest by W. H. Ferguson while mapping coal-bearing rocks along Victoria's coastline, this was Victoria's only dinosaur record for over 70 years (Williams 2002). In the planning area, fossils are found between Cape Paterson and Flat Rocks. Discovered in 1991, the excavation site at The Caves has yielded more than 6000 bones and teeth from dinosaurs, turtles, small mammals, bony fish and lungfish, together with fossilised insects, plant spores and pollens. This location is an important study site for Monash University and Museum Victoria. Each summer a dig is conducted (in accordance with research scientific conditions, section 7.1) on the rock platform at low tide, involving the removal of sand to reach fossil-bearing rock.

Remains of dinosaurs are uncommon in Australia. The number of bones and variety of taxa make The Caves site nationally significant (T. Rich pers. comm. 2003). The discovery of a 120 million year old jawbone of a tiny placental mammal *Ausktriboshenos nyktos* in 1997, is internationally significant, as it is one of the oldest mammal fossil finds in the world (Rich et al. 1997). This find has sparked scientific debate on the evolution of mammals, particularly where they first developed and how they spread throughout the world (Wuethrich 1997).

The discoveries from the planning area and Dinosaur Cove (in the Otways) have enabled palaeontologists to piece together the physical and environmental conditions of the early Cretaceous period (Rich & Rich 1989). During the Cretaceous period (65–145 million years ago), Victoria was within the Antarctic Circle and experienced a humid, cool temperate climate alternating with cold, dark winters (three months of winter darkness). The vertebrate fauna of this period was dominated by small ornithomimid dinosaurs, which occurred along with the carnivorous *Allosaurus*, freshwater plesiosaurs, pterosaurs (flying reptiles), small theropods, testudines (turtles), birds and tiny mammals. The associated flora

was dominated by gymnosperms, lycopods and ferns (Rich & Rich 1989).

Geomorphology

The diverse coastal landforms of the planning area are a result of weathering and erosion processes, with the composition of the lithic material, faulting, and the strength and direction of waves and wind influencing their form (Bird 1993).

Exposed to the prevailing south-westerly swell of Bass Strait, the planning area experiences moderate to high wave energy, although the shallow, gradually sloping nature of the subtidal rock platform and subtidal reefs protects significant sections of the coast from very high-energy waves (Bird 1993). On easterly facing shores and in the lee of headlands, the prevailing south-westerly waves are weakened by refraction, and consequently cause less erosion on shores facing this direction (DCE 1992).

Between Cape Paterson and Inverloch in areas exposed to the south-west, the Cretaceous rocks have been eroded to form steep, high headlands and cliffs (up to 30 m), with little vegetation covering the rock faces. In the lee of headlands, small sandy beaches occur, adjacent bluffs being less steep and usually completely vegetated to the high tide mark. Where more resistant rock occurs, weathering has often created differential erosion patterns, and this sometimes results in pronounced shelving.

From Coal Creek to Cape Paterson, the more recent, less compacted calcareous Quaternary deposits are exposed to vigorous wind and wave action which has resulted in the development of parallel dunes along the coast. Inland dune topography consists of either successions of parallel dunes or older parabolic dunes, stabilised by vegetation.

No major geological studies have been undertaken of the planning area, although the fossil beds have been extensively studied (Rich et al. 1997) and the stratum types and seafloor characteristics have been mapped as part of the high-resolution marine habitat mapping of the Bunurong coast (Leach et al. 2002). The submarine topography consists largely of intertidal platforms and subtidal reefs extending several kilometres offshore as a gradually sloping rocky plain, interspersed

with small sand sheets (Leach et al. 2002). At its southern extent the Bunurong Marine National Park includes patches of low-profile reef, a mosaic complex of cobbles, pebbles and granules with sand, and beds of fine to medium sand (Leach et al. 2002).

According to Indigenous tradition, all geomorphological features of the landscape result from the activities of ancestral spirits.

Eagles Nest, because of its prominent arkose rock stack and being one of the earliest and richest Mesozoic vertebrate fossil localities in Victoria, is considered a site of national geological and geomorphological significance (Buckley 1993). Other geological features of interest in the planning area include the steep, highly faulted cliffs of Cretaceous sandstone and shale, the extensive intertidal rock platforms and shallow subtidal reefs, and a planed-off volcanic plug on the shore platform (DCE 1992). Similar features may well be present in submarine areas of the planning area.

Potential threats to the geological and geomorphological features of the planning area include trampling of vegetation, resulting in the mobilisation of sand dunes, and changes to natural erosion processes. Coastal modifications, including beach renourishment, have the potential to adversely affect the geological values of the planning area through changes to natural patterns of erosion and deposition.

The accessibility of the rock platforms and sandy beaches, the fossils embedded in the early Cretaceous rocks and the diverse coastal landforms make the planning area ideal for school and educational groups to observe geological features and processes (section 6.1) and for palaeontology studies.

Because of their geology, the Eagles Nest rock stack and the cliffs of the planning area are unstable and susceptible to erosion. Rock climbing and abseiling are therefore not permitted. Fossicking and prospecting are not permitted in the planning area, although recreational fossicking for gemstones can be undertaken in a section of nearby Cape Liptrap Coastal Park.

Aims

- Protect geological and geomorphological features of the planning area and minimise impacts from management activities and visitor use.
- Allow natural geological and geomorphological processes to continue with minimal human interference.
- Provide opportunities for appropriate research into, appreciation of, and education about the geological and geomorphological features of the planning area.

Management strategies

- *Encourage scientific research on the geology, geomorphology and palaeontology of the planning area.*
- *Identify geological and geomorphological sites sensitive to disturbance, and protect them from damaging or inappropriate activities.*
- *Provide interpretive signage at the Caves and Eagles Nest explaining the significance of the planning area for its fossil record of the Cretaceous period (section 6.1).*
- *Provide general interpretive material about the planning area's geological and geomorphological features and incorporate appropriate messages into schools' education programs to enhance their protection and visitor appreciation (section 6.1).*
- *Consider and respect the significance of landforms to the Traditional Owners in interpreting the planning area and implementing management actions (sections 5.1 and 6.1).*
- *Identify geomorphological features of special significance to the Traditional Owners and protect them from damaging or inappropriate activities (sections 5.1 and 8.2).*
- *For the protection of unstable cliff environments, particularly on the Eagles Nest rock stack, and for public safety prohibit rock climbing or abseiling activities within the planning area.*

4.3 Catchment and water quality

The planning area lies within the jurisdiction of the West Gippsland Catchment Management Authority (CMA) area and specifically within the Screw Creek, Pound Creek and Anderson Inlet sub-catchment (South Gippsland basin) of the *West Gippsland River Health Strategy* (WGCMA 2004). Direct discharges into the planning area include Coal Creek, Wreck Creek and several intermittent streams. The catchment of the planning area is relatively small, as a broad raised plateau occurs slightly north of the coast (DCE 1992). The majority of the sub-catchment is cleared farmland used for stock grazing, but it also includes the coastal settlements of Inverloch, Cape Paterson and Harmers Haven. Native vegetation is largely restricted to coastal Crown land. A number of small springs and soaks also occur along the coast where the coffee-rock horizon impedes drainage (CLS 1978).

Although no major rivers discharge directly into the planning area, the Tarwin River (which discharges into neighbouring Anderson Inlet) and Ayr Creek can influence water quality in the planning area. In addition, a number of stormwater drains discharge into the planning area from the settlements of Cape Paterson and Harmers Haven.

Impacts from land use throughout the sub-catchment is a key risk to the health of the catchment's natural values (WGCMA 2004). Changes in land use and urban development surrounding the coastal settlements of Inverloch, Cape Paterson and Harmers Haven, particularly during construction phases, poses a significant risk to the water quality in a number of creeks that discharge into the planning area. Appropriate conditions in planning permits for new developments could minimise potential impacts on water quality.

Pollution from these sources may have a significant effect on water quality and the marine environment (DCE 1992). Potential pollutants from these streams include heavy loads of silt and nutrients, fertilisers, sump oil, chemicals, plastics and other litter. In addition, pollution from a variety of marine sources including shipping, dredging, litter, and oil and other chemical spills threatens the condition of the planning area's marine environments. High nutrient levels can create eutrophic conditions,

leading to the extensive growth of some algae (such as Sea Lettuce) and a decline in other marine flora and fauna (DCE 1992). Increased turbidity can limit light and lead to increased siltation and deposition, potentially impacting on hydrodynamic processes (section 4.4) and marine flora and fauna (section 4.5).

Stormwater drains collect runoff from Harmers Haven and Cape Paterson. Pollutants such as household detergents, oils, chemicals, plastics and other litter can enter the planning area from these sources. As these drains are unfiltered, their potential to affect the planning area's values is high.

Bass Coast Shire Council has prepared an *Urban Stormwater Management Plan* (BCSC 2003b) for the municipality with the support of the Environment Protection Authority through the Victorian Stormwater Action Program. Prepared in accordance with the *Urban Stormwater Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee 1999), this plan aims to improve the environmental management of urban stormwater and protect the environmental values and beneficial uses of receiving environments (BCSC 2003b). The *Bass Coast Shire Urban Stormwater Management Plan* (BCSC 2003b) identifies stormwater pollution sources and sets out strategies for improving the environmental management of urban stormwater in these areas. The plan found that nutrients, sediment, toxicants and litter from residential and commercial sources, industry, road runoff, unstable and degraded waterways, open spaces and building and construction sites entering stormwater are pollutants of particular concern (BCSC 2003b). Strategies to address these threats include infrastructure solutions (pollutant traps, sediment and oil traps, and secondary treatment options of grass swales, filter strips, porous pavements and detention basins), planning controls, improved maintenance of stormwater and drainage infrastructure, and education and awareness programs.

The Bass Coast and South Gippsland Shire Councils have established a joint program to improve stormwater, litter and waste management practices through an education and awareness program.

South Gippsland Water operates the Inverloch wastewater treatment plant adjacent to the planning area at Eagles Nest. The plant treats domestic wastewater to secondary standard, which is discharged at Baxters Beach, four kilometres north-west of the planning area, in accordance with EPA licence conditions.

Dredging or disturbance of the seabed is not permitted in Bunurong Marine National Park, but could occur in adjacent waters for boating access, utility installation or other development (section 7.3). Dredging can cause increased turbidity and changes in sedimentation patterns. Seabed disturbance can also release previously inactive nutrients and pollutants and have a major effect on marine ecosystems.

Litter is both aesthetically displeasing and a threat to wildlife. Birds and marine mammals can mistake litter for food or become entangled, causing death. Stormwater drains, particularly from urban areas, are a possible source of litter, as are deliberate or accidental litter and human waste disposal by visitors and boat users in or adjacent to the planning area.

Oil and other chemical spills can have devastating effects on marine values, particularly on seabirds and intertidal areas. The spilt substance and the clean-up techniques used can cause damage or death to aquatic organisms, wildlife and essential habitat. Intertidal rock platforms in the planning area are particularly vulnerable to impacts from oil or chemical spills.

As manager of around 70% of Victoria's coastal areas, Parks Victoria plays a significant role in the response to marine incidents. Responses to marine incidents often require a diverse range of skills and resources, involving coordination between several agencies, including Parks Victoria and members of the community. Marine Safety Victoria has responsibility, under the *Marine Act 1988* (Vic.) and the *National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances*, to ensure that there is an effective response to marine pollution incidents in Victorian waters (AMSA 1998). The *Victorian Marine Pollution Contingency Plan (VICPLAN)* (MSV 2002a) outlines broad response arrangements. Under VICPLAN, the planning area lies in the Westernport Region, and the Port of Hastings (managed under contract by Toll Westernport)

is the delegated regional marine pollution control agency for the planning area (section 8.3). The *Westernport Region Marine Pollution Contingency Plan* (Toll Westernport n.d.) describes the arrangements made for the Westernport region to provide effective emergency response during a marine pollution incident, under VICPLAN.

All wildlife is protected under the *Wildlife Act 1975* (Vic.), and DSE has the responsibility for collecting, assessing, cleaning and rehabilitating wildlife affected by marine pollution. DSE has developed the *Wildlife Response Plan for Oil Spills* (NRE 1997b) to deal with such situations.

Environment Protection Authority (EPA) Victoria coordinates all activities that relate to the discharge of waste into the environment. EPA Victoria also has powers and enforcement provisions to restrict the pollution of State waters, and works closely with Marine Safety Victoria. Parks Victoria works with coordinating agencies to ensure that appropriate response arrangements are developed for marine pollution incidents (section 8.3).

The *Safety and Environment Management Plan (SEMP) for the Port of Anderson Inlet* (Gippsland Ports 2005) examines activities in the port and establishes appropriate controls for risks to environmental values (section 8.3). The SEM identified waste or contaminants entering the immediate environment as the key risk from port activities.

The *Integrated Coastal Planning for Gippsland – Coastal Action Plan* (GCB 2002a) emphasises the importance of an integrated approach to planning and management of the marine and coastal environment. It seeks to achieve integration between municipal planning schemes, public land policy and public land management plans in Gippsland, including the planning area. An integrated and coordinated approach to management of private and public land is essential, as many threatening processes caused by catchment influences originate outside areas managed by Parks Victoria.

West Gippsland CMA has a key role in improving stream and waterway health, minimising sediment and nutrient inputs to the planning area. The CMA's primary objectives

are to maintain the flood storage and conveyance capacities of waterways and their floodplains, enable the re-establishment of indigenous vegetation, and improve in-stream habitat, water quality, streambed and bank stability. Programs include fencing to exclude stock from waterways and regeneration of native vegetation. The *West Gippsland Regional Catchment Strategy 2004–2009* (WGCMA 2004) applies to land and water within the region administered by the West Gippsland CMA, including the planning area. The strategy sets out a management framework for the protection of natural values within the catchment, including coastal and marine environments.

West Gippsland CMA's *River Health Strategy* (WGCMA 2005) identifies the Screw Creek, Pound Creek and Anderson Inlet sub-catchment as having high social values. The purpose of the River Health Strategy is to find a balance between protection, maintenance and enhancement of the environmental value of a natural river system and the processes required to sustain river health while protecting, maintaining or enhancing additional social and economic values that are important to the local community.

Gippsland's Water Quality Action Plan (WGCMA & EGCMA 2005) aims to protect and preserve water quality throughout West and East Gippsland, by identifying water quality issues and prioritising actions across the catchments.

Waterwatch is a community-based water quality monitoring program which aims to increase awareness and understanding of water quality issues and encourage collaborative action between the community and natural resource management agencies. Ongoing monitoring of water quality by Waterwatch volunteers has occurred frequently in Ayr Creek and Screw Creek, and event monitoring in Tarwin River, Powlett River and Wreck Creek since 1997 (T. Cowell pers. comm. 2004). Monitoring results indicate that water quality is variable between waterways that discharge into the planning area, and that levels of phosphorus can be high for the waterways that are monitored.

Waterwatch also aims to increase community volunteer sampling along many of the water bodies that influence the planning area,

particularly Tarwin River and many of the small streams and drains that flow directly into the planning area. This data will go through a quality analysis process and be reported to the West Gippsland CMA, Parks Victoria and the EPA, and collated with other data under the Gippsland Regional Water Monitoring Partnership. Waterwatch will continue to educate local school and community groups about the importance of water quality on the marine environment.

The Gippsland Regional Water Monitoring Partnership is a group of agencies, authorities, local government and industries that have made a commitment to water quality and quantity monitoring in the Gippsland Region. A Regional Coordinator is employed by the partnership to coordinate monitoring by various stakeholders, and advise and assist as required.

The health of the Bunurong Marine National Park and adjacent local environments can be improved through the implementation of a Neighbourhood Environment Improvement Plan (NEIP). NEIPs are action plans developed in partnership by all parts of the community and administered by EPA 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 8.3).

Aims

- Ensure the integration of future planning and management between the planning area and the adjacent catchment.
- Maintain a high quality of water within the planning area and surrounding waters to ensure that natural biological and physical processes can occur.
- Minimise impacts of threatening processes from catchment-sourced activities.

Management strategies

- *Work collaboratively with community and government organisations, including the Central Coastal Board, Gippsland Coastal Board, West Gippsland Catchment Management Authority and South Gippsland Water, to ensure the integration of future planning and management of the*

planning area and the adjoining catchment (section 8.3).

- *Implement actions in the Integrated Coastal Planning for Gippsland – Coastal Action Plan (GCB 2002a) relating to:*
 - *liaising with Bass Coast Shire Council to ensure management of the planning area and adjacent areas consistent with coastal policy*
 - *informing Bass Coast Shire Council of proposed developments in the planning area to ensure compliance with the intent of the planning scheme provisions*
 - *assisting Bass Coast Shire Council in developing planning and environmental criteria for coast use or development in a planning scheme local policy to direct and facilitate appropriate development.*
- *Work collaboratively with West Gippsland CMA to implement key actions from the Regional Catchment Strategy (WGCMA 2004), River Health Strategy (WGCMA 2005) and Gippsland's Water Quality Action Plan (WGCMA & EGCMA 2005) which protect and improve water quality in the planning area.*
- *Liaise with Bass Coast Shire Council regarding future developments in the coastal zone, ensuring that impacts to catchment values and water quality within the planning area are given due consideration in statutory planning permits (section 7.3).*
- *Support actions of the West Gippsland River Health Strategy for the Screw Creek, Pound Creek and Anderson Inlet sub-catchment to reduce nutrient, sediment and pollutant inflows to streams discharging into the planning area.*
- *Work collaboratively with West Gippsland CMA, EPA, Waterwatch, the Gippsland Regional Water Monitoring Partnership and the community to monitor water quality and condition of the catchment, rivers and streams discharging into planning area (sections 8.2 and 8.3).*
- *Work collaboratively with Bass Coast Shire Council to improve water quality*

within the municipality, in accordance with the Urban Stormwater Management Plan (BCSC 2003b).

- *Liaise with the Gippsland Regional Water Monitoring Partnership, Waterwatch and the community to obtain regular water quality monitoring information.*
- *Work collaboratively with Marine Safety Victoria and Toll Westernport in the event of oil or chemical spills, in accordance with the Victorian Marine Pollution Contingency Plan (VICPLAN) and the Westernport Region Marine Pollution Contingency Plan (section 8.3).*
- *Work collaboratively with DSE to ensure the collection, assessment, cleaning and rehabilitation of wildlife affected by marine pollution, in accordance with the Wildlife Response Plan for Oil Spills (NRE 1997b).*
- *Work collaboratively with EPA to identify opportunities for, and support the development of, a NEIP for Bunurong coast and the adjacent catchment (section 8.3).*

4.4 Hydrodynamics

The Central Victoria Marine Bioregion is relatively exposed to swells and weather from the south-west, but less so than the Otway bioregion (Parks Victoria 2003a).

The planning area experiences moderate to high wave energy, although the extensive, gradually sloping intertidal platforms and subtidal reefs protect sections of this coast from the very high energy waves that occur in other Central Victoria Bioregion locations, such as Cape Schanck to the west and Cape Liptrap to the east (Bird 1993).

On easterly facing shores and in the lee of headlands, the prevailing south-westerly waves are weakened by refraction. Less frequent, less vigorous, mainly summer easterly winds also result in only moderate wave energy (DCE 1992).

The subtidal platform extends several kilometres from the shore in relatively shallow water mostly between six and nine metres deep, with a maximum depth of about 15 m (Plummer et al. 2003). Furthermore, the coast is partially protected from storm waves by

King Island in Bass Strait, and experiences only medium wave exposure (Plummer et al. 2003).

Water depth in Bunurong Marine Park rarely exceeds 10 m (figure 2). But as Bunurong Marine National Park extends to three nautical miles offshore, water depth reaches about 55 m towards its most southerly limit.

Surface water temperatures range from 13°C in the cooler months to 17.5°C during the warmer months.

Tidal ranges vary from 1.3 m (neap tides) to 2.1 m (spring tides). There are no major currents known to influence the planning area (Plummer et al. 2003).

Because human-induced changes to local hydrodynamic regime could have an impact within the parks, any proposals for new infrastructure, including artificial reefs, will generally be inappropriate in the planning area. 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.

Aims

- Allow natural hydrodynamic processes to continue without human interference.
- Minimise impacts on planning area values from human-induced changes to local hydrodynamic processes.

Management strategies

- *Provide advice and input to Bass Coast Shire into planning applications for developments that could affect local or planning area hydrodynamic processes, where appropriate.*
- *Encourage research into processes that may threaten the integrity of marine protected area values, including sea-level rise and altered hydrodynamic regimes.*

4.5 Marine habitats and communities

Together, Bunurong Marine National Park and Bunurong Marine Park extend along 17 km of coastline, supporting a considerable diversity of habitats and communities. These habitats

provide important substrate, food, shelter, and spawning and nursery areas for a variety of marine flora and fauna.

Six marine ecological communities are present within the parks: sandy beaches, intertidal reef platform, subtidal reef, subtidal soft sediments, seagrass and open waters (appendix 3) (Plummer et al. 2003). Intertidal and subtidal reef communities are the most common habitat type and incorporate many microhabitats (LCC 1994a).

Marine flora and fauna of the planning area consist largely of species representative of the Central Victorian Marine Bioregion, and share certain affinities with marine habitats at Port Phillip Heads and Phillip Island (ECC 2000). A total of 201 algal species, 87 fish species and 258 subtidal invertebrate species have been identified from the planning area (Wilson 1983; Campbell 1989; Edmunds et al. 2000). Bunurong Marine National Park is significant in that at least 21 species of algae, invertebrates and fish are thought to have their distributional limits in or near the park (Plummer et al. 2003). A population of the rare holothurian *Pentocnus bursatus*, a Victorian marine invertebrate of conservation concern, has also been recorded within the planning area at Cape Paterson (Ferns & Hough 2002).

Marine plants and animals in the planning area may be of particular interest or importance to the Traditional Owners.

Sandy beaches of the planning area provide important habitat for invertebrates such as amphipods, isopods, molluscs, polychaetes and crustaceans, and are also a feeding ground for fish and seabirds (Haynes & Quinn 1995; Plummer et al. 2003). The lack of appropriate substrate for attachment restricts the flora to drift macroalgae and macroalgal epiphytes.

Beach-washed materials (known as wrack) in sandy beach habitats provide a significant source of food for scavenging birds, and contribute to the detrital cycle that nourishes many of the invertebrates, such as bivalves, living in the sand. However, beach-washed litter threatens the values of sandy beach habitats, and many marine organisms can ingest litter or become entangled in it. Key threatening processes for sandy beaches include bait collection, litter and pollution (particularly oil and chemical spills). Removal

of seaweed can affect ecological processes in sandy beaches, particularly invertebrate diversity (Brown & Lachlan 2002), and is not permitted within the planning area.

Intertidal reef platforms and rocky shores of the planning area have some of the most interesting and accessible marine habitat types. Upper areas of the rock platforms support organisms that can tolerate irregular submergence, such as green, red and blue-green algae (Wilson et al. 1983; Campbell 1989; Plummer et al. 2003). In contrast, the extensive mid-intertidal communities are dominated by Neptune's Necklace and the green algae Sea Lettuce, which where they grow in small rock pools and cracks. Lower intertidal platforms are subject to regular submergence and dominated by brown algae and branching and encrusting coralline red algae (Wilson et al. 1983; Campbell 1989; Plummer et al. 2003).

The intertidal reef platforms are feeding and roosting areas for a wide range of shorebirds (section 4.7). Many small mobile fish can also be found in the rock pools of the intertidal reefs (Wilson et al. 1983).

Intertidal reef platforms are particularly susceptible to trampling (Povey & Keough 1991; Keough & Quinn 1998). Careful management will be required to ensure that impacts to natural values from trampling are minimised. Other potentially threatening processes include removal of biota for collection, bait or food, pollution (particularly oil and chemical spills) (section 4.3), and marine pests (section 4.6).

Subtidal reefs of the planning area provide habitat for fish, sessile invertebrates and sponges, as well as colonial organisms. These communities have a high diversity of red and green algae, but are dominated by two species of green algae (Wilson et al. 1983; O'Hara 2000). Epifauna from algae and turf samples from this community have revealed an important collection of isopod crustaceans, including two families (*Pseudidotheidae*, *Plakartrhiidae*) which had not been previously recorded from Australia.

Current ecological research and ongoing monitoring is targeted at collecting baseline marine biological information that will be used to understand long-term changes in population,

abundances, community structure and ecological processes during the life of this plan. The Victorian Government established a long-term subtidal reef monitoring program in 1998. Since 1999, up to 12 sites have been surveyed over eight census events (Edmunds et al. 2003). Six of these sites are in Bunurong Marine National Park and six in Bunurong Marine Park. Over 185 different species have been observed in the planning area (Edmunds et al. 2003).

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 marine habitats of the planning area to be made.

Key threatening processes for subtidal reef communities include marine pests (section 4.6), pollution (section 4.3), anchoring (section 6.4), and removal of biota for collection, bait or food.

Subtidal soft sediments within the planning area are diverse, nutrient-rich, and dominated by a number of brown algal species, and a variety of fish and invertebrates (Classon & Wilson 2002; O'Hara 2002). A 0.1m² grab sample of medium subtidal sand sediments at 40 m depth offshore of Cape Paterson showed a high diversity, with 66 species from 40 families consisting mainly of polychaetes, crustaceans and molluscs (Coleman et al. 2002).

Key threatening processes for subtidal soft sediments include mechanical disturbance, changes in sediment deposition patterns, pollution, and changes to water quality and flow (section 4.3).

Patches of the seagrasses *Amphibolis antarctica* and *Heterozostera tasmanica* are found in sheltered coves on sand substrates, interspersed by algal communities growing on rocky reefs. *Amphibolis* is known to support a diverse flora of algal ephyphytes (Ducker et al. 1977; Wilson et al. 1983) and provides habitat, nursery and feeding grounds for a wide range of organisms. Seagrass beds stabilise the sediment and remove dissolved nutrients from the water, forming the basis of the food chain.

Seagrass communities are particularly susceptible to changes in water quality and flow, pollution from catchment-derived

nutrients, oil and chemical spills, changes in sediment deposition (section 4.3) and anchoring (section 6.4).

Species characteristic of the open waters of the parks include those that are pelagic (actively swimming), and planktonic (drifting with the current). Planktonic species rely on currents for movement, nutrients and food. Some intertidal and subtidal organisms spend the early stage of their life in the pelagic environment and rely on currents to distribute recruits back to intertidal and subtidal habitats. Pelagic fish of the planning area may migrate between areas because of seasonal or breeding cycle requirements and may move between the shallow waters of the Bunurong and deeper waters offshore (DCE 1992; Plummer et al. 2003).

Bottlenose Dolphins are common visitors, and other marine mammals, including Australian Fur Seals, Leopard Seals and Southern Right Whales, are known to pass through the planning area. All whales, dolphins and seals are protected under the *Wildlife Act 1975* (Vic.) and the *Wildlife (Whale) Regulations 1998* (Vic). Recreational craft must stay a minimum of 100 m from whales and dolphins, while swimmers must stay a minimum of 30 m away and people on surfboards 50 m away. Additional conditions apply to licensed tour operators and commercial vessels (section 6.11).

Whales and dolphins passing through the planning area could become stranded, entrapped, entangled or wounded. The *Victorian Cetacean Contingency Plan* (NRE 1999c) details arrangements for incident response. A *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 Bunurong Marine National Park. Fishing is permitted within the adjacent Bunurong Marine Park, in accordance with the provisions of the *Fisheries Act* (sections 6.10 and 7.1). The feeding of animals, including fish and birds, is not permitted within the planning area. The collection of shells and other organisms, dead or alive, from the intertidal areas is prohibited, except for fish and shellfish in the Bunurong Marine Park (section 6.10).

Management of marine ecological communities within the planning area takes a habitat-based, rather than a species-based, approach. This broader focus is likely to lead to a higher level of success in protecting and enhancing 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.

Aims

- Protect marine ecological communities and indigenous flora and fauna, particularly threatened species.
- Increase knowledge of marine ecological communities, flora and fauna to aid management, protection and appreciation.
- Increase knowledge of key threatening processes to marine ecological communities, flora and fauna, to minimise impacts.

Management strategies

- *Map habitats at scales suitable for management purposes, in accordance with statewide habitat mapping programs.*
- *Implement an appropriate long-term habitat monitoring program within the Bunurong Marine Park and the Bunurong Marine National Park as part of relevant statewide marine habitat monitoring programs, including the continuation of the existing subtidal reef monitoring program.*
- *Implement priority actions from approved action statements or recovery plans to address threats to threatened species or communities listed under the Flora and Fauna Guarantee Act and Environment Protection and Biodiversity Conservation Act.*
- *Ensure that all sightings of significant marine flora and fauna are recorded on Parks Victoria's Environmental Information System.*
- *Protect planning area values from identified threatening processes, including the introduction of marine pests (section 4.6), pollution (section 4.3) and intertidal trampling (section 6.6).*

- *Manage visitor activities to minimise impacts on planning area values, particularly in relation to compliance with no-fishing provisions (section 6.10) and access and distance restrictions for the protection of marine mammals (section 6.4).*
- *Undertake regular risk assessments to assess major threats to marine ecological communities and species, and implement actions as necessary.*
- *Encourage research into the impacts of key threatening processes, including marine pests, pollution and illegal harvesting.*
- *For the protection of ecological processes in sandy beach areas, particularly the maintenance of invertebrate diversity, continue to prohibit the collection of seaweed from beaches.*
- *Encourage research into Indigenous cultural lore relating to marine flora and fauna of the planning area, and reflect outcomes in the management of the planning area in accordance with Parks Victoria's policies (sections 5.1, 6.1 and 8.2).*
- *Respond to cetacean incidents in accordance with the Victorian Cetacean Contingency Plan (section 8.3).*

4.6 Marine pests

Over 100 exotic marine species are known to have become established in Victorian marine waters (Hewitt et al. 1999). Some have become marine pests. No marine pests have been recorded to date in the planning area, although the Northern Pacific Seastar was found at neighbouring Point Norman and Anderson Inlet and may have been eradicated in a broad-based community effort in 2004–05, led by DSE.

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 the Flora and Fauna Guarantee Act. Victoria's management priorities in relation to marine pests are set out in the relevant 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. In a very limited number of cases, with specific criteria, control measures may be attempted for established pest populations generally as part of a coordinated regional or national response. However, experience elsewhere has shown that proposals to control established marine pests need to fully consider the likely effectiveness. The connectedness 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 exacerbating the pest problem, control measures will need to be part of authorised programs. In some cases, further nationally coordinated 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, including the adoption of best practice within the organisation, and education and awareness-raising in the community of prevention measures.

Vessel cleaning and maintenance guidelines to help prevent the spread of marine pests (DSE 2004a) 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 *EPA*

Victoria's 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 planning area.

Aims

- Minimise the risk of introduction of marine pests by human activities, and their subsequent establishment in the planning area.
- Establish arrangements for the detection of new incursions within the planning area in support of Victorian marine pest management arrangements.
- Implement national or Victoria-wide control arrangements as they relate to the planning area.

Management strategies

- *Support DSE in educating Parks Victoria rangers, Fisheries Victoria officers and the community to identify marine pests.*
- *Encourage community groups such as Reef Watch, researchers, licensed tour operators and contractors to integrate the identification of marine pests into their activities and 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.*
- *Manage all pest incursions in accordance with the Interim Victorian Protocol (NRE 1999b) (section 8.3).*
- *Establish an ongoing program to minimise the risk of marine pest introductions 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.*
- *Undertake authorised pest programs only where research indicates that control or*

eradication is feasible and likely to be effective or as part of a coordinated regional or national response.

- *Avoid translocation or new introductions by promoting boat-cleaning protocols for all recreational boats and contractors in accordance with the DSE brochure 'Aquatic Pests: Treat 'em mean – keep your boat clean' (section 6.4).*
- *Ensure that management vessels operating in the planning area are maintained in accordance with the Victorian boat-cleaning protocols (DSE 2004a).*
- *Include boat-cleaning protocols in contracts, licences or permits for contracted vessels, research vessels and licensed tour operator vessels operating in the planning area.*
- *Ensure that any new marine infrastructure within the parks is treated to remove any marine pests*
- *Encourage recreational divers to adopt protocols to ensure that diving equipment is clean (section 6.5).*

4.7 Terrestrial flora

The planning area contains important remnants of coastal vegetation communities that were once widespread in the area. Seven ecological vegetation classes (EVCs) have been identified within the planning area (Davies et al. 2002; Carr 2003; Oates & Taranto 2001), including coastal headland scrub, coastal dune scrub mosaic, swamp scrub, coast banksia woodland, coastal tussock grassland, brackish wetland and wet heathland, five of which are considered vulnerable within the Gippsland Plain bioregion (WGCMA 2003). These communities provide important habitat for several threatened species of fauna (section 4.8), bind the sandy soils, preventing erosion (section 4.10) and make a significant contribution to the landscape values of the Bunurong coast (section 4.1).

The distribution and composition of these communities are largely determined by exposure to salt and winds, substrate composition, water and nutrient availability and succession processes. Past land uses, including clearing and grazing, have modified many of the communities of the planning area,

which is reflected in their relatively lower species diversity. The long and narrow boundary of the planning area makes its vegetation communities particularly susceptible to disturbance from adjacent land uses (section 7.3) and weed invasion (section 4.9).

Coastal Dune Scrub Mosaic is the most common EVC, occurring on south-western facing dunes and swales from Coal Point to Cape Paterson, and in a number of coves where dunes have formed between the headlands, such as at Undertow Bay Beach and Eagles Nest Beach. On the foredunes this EVC consists of grassland dominated by Hairy Spinifex and the exotic Marram Grass. Where secondary succession has occurred, and in more protected areas, the EVC consists of wind-pruned scrub and heath dominated by Coast Wattle and Coast Tea-tree.

Coastal Headland Scrub is the dominant EVC between Cape Paterson and Inverloch, occurring on rugged coastal headlands and cliffs exposed to the stresses of strong winds and periodic salt spray. It is typically dominated by Coast Tea-tree and Drooping Sheoak, although a diverse range of other heathy shrubs may also be present.

Swamp Scrub, consisting of dense thickets of Swamp Paperbark, occurs on poorly drained sites subject to seasonal inundation, particularly along Old Boiler Road and Coal Creek.

Brackish Wetland is found only within the planning area along Coal Creek and Wreck Creek, and is dominated by Cumbungi, Common Reed and Australian Salt-grass.

Wet Heathland is restricted to low-lying, seasonally waterlogged sandy soils adjacent to Viminaria Road. It consists of dense heath dominated by Swamp Paperbark, Scented Paperbark, Scrub Sheoak, Yellow Hakea and Manuka with a ground cover dominated by Bare Twig-sedge, Coastal Saw-sedge and Spreading Rope-rush.

Small areas of Coastal Tussock Grassland dominated by Blue Tussock-grass occur on exposed windswept headlands and cliffs that are subject to strong salt-laden winds.

Coastal Banksia Woodland occurs on Tertiary dunes and areas protected from the prevailing

south-westerly winds. Significant dieback of Coast Banksia has occurred at Flat Rocks, structurally altering the community. The cause of the dieback is unknown, although disturbance from past uses and road works, soil compaction and weed invasion are likely to have contributed to the decline in condition of this EVC.

A detailed floristic study within the former Harmers Haven Flora and Fauna Reserve (now part of Kilcunda–Harmers Haven Coastal Reserve) (Carr 2003) recorded around 295 native vascular flora species, including six rare or threatened species (appendix 4). The planning area's non-vascular flora has not been surveyed.

Indigenous communities recognise vegetation as an intrinsic element of *Country*, and their cultural lore includes sophisticated knowledge of its values and uses.

Threats to native vegetation in the planning area include weed invasion (section 4.9), disturbance through uncontrolled recreational uses (section 6.6), fragmentation through clearing on surrounding land (section 7.3), banksia dieback and grazing by rabbits (section 4.9).

The historical and recent fire regime (fire frequency, intensity, season and patchiness) has a significant influence on the structure and composition of coastal vegetation in the planning area. Fire prevention measures to protect private property have resulted in fire being absent from most of the planning area for many decades, resulting in even-age classes across most EVCs. Because of this reduction in fire frequency in recent years, Coast Tea-tree and Coast Wattle (which naturally occur in Coastal Dune Scrub Mosaic EVC) are now dominating neighbouring EVCs from which they were previously absent, resulting in significant floristic and structural changes (Carr 2003). Selective application of fire for ecological purposes to restore the vigour and diversity of the planning area's floristic structure and diversity may be appropriate (section 4.11).

Coastal vegetation communities are relatively fragile, with flora species frequently being short-lived, soils poorly developed and often unstable, and erosion, colonisation and succession usually occurring rapidly (DCE

1992). Disturbance from human activities can therefore cause major disruption and changes in structure and species composition.

Aims

- Maintain the floristic structure and diversity of vegetation communities, and protect them from threatening processes.
- Increase knowledge of the planning area's vegetation communities and species, particularly its threatened species, to aid management, protection and appreciation.

Management strategies

- *Develop environmental conservation objectives for the vegetation communities within the coastal reserves that specify the desired outcomes for vegetation management.*
- *Encourage research into the distribution and management requirements of communities and species, particularly threatened species (appendix 4), and manage accordingly.*
- *Minimise disturbance to vegetation communities caused by management and visitor activities by:*
 - *encouraging visitors to keep to walking tracks through signs and Park Notes (section 6.1)*
 - *relocating walking tracks away from drainage lines (section 6.6)*
 - *closing and revegetating unauthorised access tracks (sections 6.6 and 6.10)*
 - *fencing and re-routing walking trails to protect sensitive vegetation (section 6.2).*
- *Document recovery after fire and encourage research into the effects of fire on the planning area's vegetation communities and flora species. Place particular emphasis on threatened and fire-sensitive species and communities (section 4.11).*
- *Encourage research to identify Indigenous cultural lore relating to vegetation, reflect Indigenous knowledge of vegetation in management practices as appropriate, and ensure that the significance of vegetation and flora to the Traditional Owners is*

respected in all management and visitor activities.

- *Ensure that all threatened flora sightings are recorded on Parks Victoria's Environmental Information System.*
- *Promote educational programs and incentives to adjacent landholders on the importance of remnant vegetation, its protection and management.*

4.8 Terrestrial fauna

Although only a narrow strip of coastal Crown land is within the planning area, it provides a diversity of habitats for native fauna. Clearing of adjacent freehold land and past land uses have had a detrimental impact on the abundance and diversity of native fauna. Nevertheless, the planning area supports 45 threatened fauna species, including 21 listed under the Flora and Fauna Guarantee (FFG) Act (appendix 5).

Fifteen native species of mammal are recorded for the planning area, including Eastern Grey Kangaroo, Common Wombat, Swamp Wallaby, Common Ringtail Possum, Short-beaked Echidna, Koala, Swamp Rat, Bush Rat, Southern Forest Bat and Lesser Long-eared Bat. The Swamp Antechinus, listed as near-threatened, has been recorded at several sites within the planning area, where it inhabits tussock/sedgeland behind primary sand dunes and coastal headland scrub communities dominated by Coast Beard-heath (Homan 2003). Its preferred habitats are susceptible to damage by trampling from uncontrolled recreation activities and weed invasion (section 4.9).

The Common Bent-wing Bat, listed as vulnerable in Victoria, has been recorded roosting in several coastal caves in the planning area. It is susceptible to disturbance by visitors, particularly artificial light which may lead to the abandonment of roost sites. The distribution and ecology of other significant species in the planning area, such as the nationally listed Southern Brown Bandicoot, are largely unknown.

More than 130 bird species have been recorded in the planning area. Important bird habitats are intertidal rock platforms, sandy beaches, Coast Banksia woodlands and coastal scrub communities.

The majority of shorebirds and seabirds are not permanent residents, their habitat preferences and life-cycle requirements being reflected in their different usage patterns of the planning area. Many of the seabirds are predominantly pelagic (i.e. oceanic), whereas most of the shorebirds use inshore habitats for roosting and/or feeding. The sandy embayments of the planning area are relatively narrow and steep, and offer little habitat for many shorebird species which are found in greater numbers in adjacent areas such as intertidal mudflats of Anderson Inlet or the ocean beach of Venus Bay.

Other shorebirds, including a range of waders and seasonal migrants, also occur in the planning area, feeding on the beaches and intertidal rock platforms, but are generally not found in large numbers. Both non-migratory and migratory shorebirds occur, seasonal migrants usually visiting the area for variable periods in their non-breeding season. Seabirds are frequently either vagrant or migrants, and may be predominantly pelagic. None are known to breed within the planning area.

The Hooded Plover, a nationally vulnerable species, also listed under the Flora and Fauna Guarantee Act, resides permanently within the planning area, feeding and breeding on sandy beaches. Hooded Plovers feed on all levels of the beach and nest in shallow depressions in the sand. Noted breeding sites are at Twin Reefs, The Oaks, Undertow Bay, Cape Paterson, Wreck Creek and Harmers Haven (J. & A. Whitelaw pers. comm. 2004). Hooded Plovers are particularly susceptible to disturbance by visitors and dogs (section 6.7), including the interruption of feeding and breeding, or trampling or predation of eggs or chicks. If disturbance levels are high, many chicks die from starvation (J. Whitelaw pers. comm. 2004). Unrestrained dog access poses the greatest risk, but even restrained dogs are known to disturb nesting birds (Weston 2003).

The planning area also protects feeding areas for species listed as ‘matters of national environmental significance’ under the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act. Thirteen nationally threatened species have been recorded in the planning area, and 18 species are listed under the China–Australia Migratory Bird Agreement (CAMBA) and 18

also listed under the Japan–Australia Migratory Bird Agreement (JAMBA).

A total of nine reptiles and six amphibians have been recorded in the planning area, comprising seven lizard, two snake and six frog species including the vulnerable Swamp Skink and the nationally endangered Growling Grass Frog (appendix 5).

In addition, an array of invertebrates pollinate flowers, provide a food source for reptiles, birds and mammals, decompose litter or enhance the composition of the substrate, making an important contribution to the functioning of terrestrial ecosystems.

Threats to the localised nature of the fauna populations within the planning area include competition from introduced animals, predation from foxes, feral cats and unrestrained domestic pests (sections 4.9 and 6.7), weed invasion (section 4.9), disturbance from visitor activities, mortality from roadkills, damage to habitat and impacts from adjacent land uses (section 7.3).

Weed invasion poses a significant threat to the integrity of the planning area’s faunal habitats, and weed control is a significant component of their management (section 4.9).

Fauna conservation in the planning area cannot be considered in isolation from adjacent areas. Wildlife corridors linking the planning area to other fauna populations are important for the effective conservation of species, particularly those that rely on remnant vegetation for nesting, feeding and movement. Corridors may serve to maintain genetic diversity and ensure the survival of local populations.

Additional information is required on the distribution and management requirements of threatened species and particular fauna groups such as reptiles, amphibians and invertebrates.

Aims

- Protect and preserve indigenous fauna and faunal habitats from visitor use and management activities, and maintain genetic diversity.
- Increase knowledge of the planning area’s fauna species and habitats, particularly threatened species, to aid management, protection and appreciation.

Management strategies

- *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.*
- *Encourage research into the distribution and management requirements of fauna, particularly threatened fauna (appendix 5), and manage accordingly.*
- *Ensure that all threatened fauna sightings are recorded on Parks Victoria's Environmental Information System.*
- *Seek to establish a network of wildlife corridors connecting the planning area with adjacent areas of remnant vegetation.*
- *Undertake prescribed burning for habitat management only when research considering the relative effects on all species indicates this action to be a clear requirement (section 4.11).*
- *Ensure actions are undertaken to reduce the possibility of spread of disease and disturbance of fauna species during management activities, licensed tour operations and research by including appropriate conditions in contracts, licences and permits.*
- *Protect nesting shorebirds from disturbance by visitors and dogs through community education and awareness programs (section 6.1) and, where necessary, temporary fencing of beach nesting sites.*
- *Manage and minimise, where possible, risks to native fauna associated with visitor activities, adjacent land use, the presence of pest plant and animals, and other threatening processes.*
- *Encourage research to identify Indigenous cultural lore relating to fauna and reflect Indigenous knowledge of fauna in management practices as appropriate, and ensure that the significance of fauna to the Traditional Owners is respected in all management and visitor activities.*

4.9 Terrestrial pests

Pest plants and animals represent a significant threat to the integrity of the natural values of

the planning area. The high boundary-to-area ratio, largely cleared freehold land and coastal settlements of Harmers Haven, Cape Paterson and Inverloch adjoining the planning area make it especially vulnerable to invasion by pest plants, and invasion by domestic pets and feral animals.

Pest plants have primarily invaded disturbed areas, mostly along roadsides, walking tracks and private land boundaries. Areas of intensive use such as Flat Rocks have been significantly altered by disturbance from pest plants. There are also a number of exotic trees at former shack sites (section 5.2).

More than 120 species of pest plants have been recorded in the planning area (NRE 2000b). This includes 15 regionally controlled weeds (Blackberry, Boxthorn, Cape Broom, English Broom, Fennel, Flax-leaved Broom, Hemlock, Pampas, Lily-of-the-Valley, Ragwort, Scotch Thistle, Slender Thistle, Spear Thistle, Variegated Thistle and Wild Watsonia) and one regionally prohibited weed (Bitou Bush / Boneseed), as proclaimed under the *Catchment and Land Protection Act 1994* (Vic.). Three of the planning area's pest plant species — Bitou Bush / Boneseed, Blackberry and Bridal Creeper — are classified as a Weed of National Significance by the Commonwealth of Australia and National Weeds Strategy Executive Committee (2001).

Pest plants threaten the natural values of the planning area by smothering or out-competing native vegetation and by damaging the habitat of native animals. Factors exacerbating weed invasion in the planning area include:

- the presence of large populations of weeds (particularly garden plants) on adjacent land
- disturbance caused by visitor activities, tracks, clearing, dumping of garden waste and erosion
- the spread of weeds into areas by native and introduced fauna species (particularly birds).

Introduced climbers and grasses, especially Kikuyu, can readily invade coastal vegetation communities and cliff faces, progressively making areas unsuitable as faunal habitat.

Priority environmental and noxious weeds are listed in appendix 6. Pest plant infestations are

often very difficult to eliminate entirely and require continuing intensive control programs. A range of control techniques has been used in the planning area.

Current pest plant control programs focus on areas of high conservation significance, high visitor use areas and containing the spread of invasive species. Over the past 10 years much progress has been made in pest plant control in the planning area, with community groups and volunteers playing a significant ongoing role (section 8.2). While some areas have a relatively low incidence of pest plants, a continuing effort is required to maintain this condition.

Management of the threat from pest plants is assisted by the *West Gippsland Regional Catchment Strategy* (WGCMA 2004), the *West Gippsland Weed Action Plan* (NRE 2000b), and the *South Gippsland Local Area Weed Plan* (NRE 2000a). These plans identify priority species and strategies for the management of noxious and environmental weeds within the region.

Introduced fauna recorded in the planning area include the Black Rat, House Mouse, European Rabbit, Red Fox and Feral Cat and nine birds. Pest animals threaten native wildlife through competition for resources and predation, which may lead to the decline of some species.

Feral pests and wandering domestic pets can have a devastating effect on native wildlife, particularly small native mammals and birds. Targeted education programs about responsible pet ownership may be required.

Foxes scavenge along the beach and prey on eggs and chicks of shore-nesting birds. Fox predation is listed as a potentially threatening process in Schedule 3 of the Flora and Fauna Guarantee Act, and an action statement has been prepared.

Rabbits are common throughout the planning area (Homan 2003) and may threaten remnant vegetation through browsing, digging and construction of burrows. They can also affect the success of revegetation programs.

Introduced birds such as the Common Blackbird, Common Mynah and Common Starling displace and compete with native birds for habitat and food sources. Colonies of

feral European Honey-bees and European Wasps can pose a risk to the safety of visitors and may have an adverse impact on the ecology of the planning area, particularly fauna dependent on tree hollows.

Soil pathogens can greatly reduce the vigour of some plant communities and cause the death of susceptible species. Many of the planning area's vegetation communities include species that are susceptible to dieback from *Phytophthora cinnamomi* (University of Ballarat 2002). There are no known soil pathogens or diseases present within the planning area, but road works and development on adjacent land could potentially lead to their introduction.

Aims

- Control, and where possible eradicate, non-indigenous plants, animals and diseases.
- Minimise the potential for the introduction and spread of pest plants and animals and diseases.
- Minimise the impact of control programs on native flora and fauna species.
- Restore native vegetation in areas where weeds have been controlled or eradicated.

Management strategies

- *Implement and regularly review the effectiveness of integrated programs to control pest plant and animal species and pathogens. Priority for pest plant and animal management will be given to:*
 - *the protection of areas of high conservation significance*
 - *priority weeds listed under the Catchment and Land Protection Act*
 - *the control of Kikuyu, Blackberry, Boneseed and Mirror Bush*
 - *the control of woody weeds and introduced climbers at Flat Rocks*
 - *the control of new and emerging pest plant infestations (as they are identified), and pest plants with a high potential for invasion*

- *the control of pest plant infestations around rare or threatened flora populations*
- *the control of foxes and feral cats around threatened fauna at risk*
- *weeds which adversely affect amenity values in popular visitor areas.*
- *Develop public awareness programs in conjunction with DSE and the Bass Coast Shire Council, concentrating on the impacts of domestic cats, dogs and other pets on native wildlife, and encourage responsible pet ownership (especially night-time management).*
- *Record the location of exotic trees, and remove where they present an environmental or public safety risk (section 5.2).*
- *Liaise with and coordinate pest plant and animal control efforts with neighbouring landholders and other government agencies, particularly Bass Coast Shire Council, West Gippsland Catchment Management Authority and DSE.*
- *Inform visitors and adjacent landholders about relevant control programs.*
- *Liaise with neighbours and Bass Coast Shire Council to reduce the planting of invasive species in adjacent areas and the dumping of garden waste.*
- *Work with relevant Indigenous communities to ensure that Indigenous places and sites are not adversely affected by pest plant and animal control activities (section 5.1).*
- *Destroy European Honey-bee and European Wasp colonies where they affect native species or visitor amenity, and in other areas as appropriate.*
- *Continue to support community groups in removing pest plants and improving habitat, and encourage new groups to become involved in foreshore management in the planning area.*
- *Prevent the introduction of plant pathogens when undertaking road works and construction activities, and ensure early detection of the introduction of plant pathogens and apply remedial action.*

- *Require agencies and contractors with vehicles working in the planning area to adopt wash-down procedures, and apply appropriate management to materials stockpiles.*

4.10 Soil conservation

Erosion is a minor problem along the Bunurong Coastal Drive (Cape Paterson – Inverloch Road), on walking tracks and in other areas where vegetation has been disturbed. Most erosion in the planning area is part of natural coastal processes, particularly wind-induced sand movement and cliff slumping. Uncontrolled pedestrian access along cliff tops and across sand dunes can initiate or accelerate soil erosion (section 6.6). The majority of beach access tracks are protected from soil movement by surfaced tracks, staircases or steps.

The soils of the planning area consist of calcareous dune sands and sandy podsols. An iron humus layer, commonly referred to as coffee rock, occurs at depths of 30–60 cm. This may impede drainage and cause seasonal waterlogging. The soils are deficient in phosphorus, potassium, calcium and copper (CLS 1978).

Being sandy, these soils are prone to wind and water erosion. The best protection against erosion is the maintenance of the natural vegetation cover, particularly on coastal dunes or where soils are shallow.

Recreation activities and earthworks associated with facility development, road and track maintenance can accelerate soil erosion. Soil conservation measures are considered an essential component in the design of facilities and management of recreational activities. Eagles Nest carpark and walking tracks were relocated and redesigned in 2004 to reduce water runoff and soil erosion and improve cliff stability.

Aim

- Prevent and control soil degradation, and rehabilitate areas affected by soil degradation caused by visitor and management activities.

Management strategies

- *Manage public access to beaches and rock platforms to prevent degradation of sand dunes or cliffs. Close and revegetate unauthorised access tracks and paths, and sites where degradation has occurred (sections 4.7 and 6.6).*
- *Reduce soil erosion and disturbance by encouraging visitors to stay on tracks through Park Notes, signage and fencing.*
- *Regularly observe soil erosion and rehabilitation works to determine the success of control measures.*
- *Design and manage visitor areas, roads, carparks and walking tracks to prevent water runoff and minimise soil erosion.*
- *Improve stormwater management to avoid soil erosion, in cooperation with relevant authorities (section 4.3).*
- *Design and maintain carparks and walking tracks to minimise soil erosion and interruption to natural drainage systems.*
- *Revegetate disturbed areas using indigenous species of local provenance.*

4.11 Fire management

The *Forests Act 1958* (Vic.) requires DSE to carry out proper and sufficient work for the prevention and suppression of fire in every State Forest and National Park, and on all protected public land. The National Parks Act requires the Secretary to DSE to ensure that appropriate and sufficient measures are taken to protect parks from injury by fire.

Current fire protection measures are carried out in accordance with the *Port Phillip East Fire Protection Plan* (DSE 2003a) and the *Code of Practice for Fire Management on Public Land* (DSE 2006) and Parks Victoria operational policies.

The *Code of Practice for Fire Management on Public Land* requires that fire management activities ensure that environmental values, including the vigour and diversity of the State's indigenous flora, are protected, as far as practicable, from the harmful effects of wildfire and inappropriate fire regimes.

The *Port Phillip East Fire Protection Plan* defines the fire protection objectives, strategies and practices to be adopted in the management of wildfires and prescribed burning. Two fuel management zones (Zone 4 and 5) apply to the planning area. The section of Bunurong Coastal Reserve between Cape Paterson and Inverloch is currently not zoned.

Zone 4 areas are managed specifically for flora and fauna or vegetation communities that have critical fire regime requirements. Zone 5 areas provide for the exclusion of prescribed burning from areas where there would be potential for economic, ecological or cultural loss. Most of the planning area is in Zone 5, planned not to be burnt.

Parks Victoria works closely with DSE, the Country Fire Authority (CFA) and Bass Coast Shire Council on fire management, especially in relation to cooperative wildfire control planning and suppression. Local CFA 'Community Fire Guard' groups can also assist in educating the community about fire.

The Coastal Dune Scrub and Coastal Headland Scrub communities of the planning area carry relatively low fuel loads at ground level, but the elevated nature of the vegetation (fuel) makes these areas highly flammable.

Residential areas adjoining the planning area are potentially at risk from wildfire, especially in years with low summer rainfall. The combination of the narrow coastal reserve, highly flammable vegetation and the speed at which fire moves makes it difficult to control fire by direct attack methods. The local road network and slashed fuel reduction break at Harmers Haven provide access for fire prevention and suppression.

The *Guidelines and Procedures for Ecological Burning* (Ecological Fire Working Group 2004) sets out a framework for the development of ecological burning to achieve long-term conservation objectives. Prescribed burning for vegetation or habitat management requires careful consideration, including research into the relative effects on all flora and fauna species and communities (sections 4.7 and 4.8). Some species and communities depend on fire (or its absence) for their survival. Fire management for ecological purposes must balance the needs of single plant and animal species with those of whole communities. Lack of research to determine

the appropriate fire regimes for the vegetation communities of the planning area has restricted the use of fire as an ecological management tool. An improved understanding of the relationship between fire and biodiversity would enable a prescribed burn program aimed at the conservation of flora and fauna to be developed.

Aims

- Protect planning area values from the deleterious effects of wildfire or inappropriate fire regimes.
- Cooperate with relevant agencies and land managers in the protection of human life, neighbouring properties and assets.

Management strategies

- *Liaise with DSE to update the Port Phillip East Fire Protection Plan to ensure that zoning, fire protection objectives and fire regimes are appropriate for achieving ecological objectives for the planning area's vegetation communities.*

- *Ensure the application of the Code of Practice for Fire Management in the planning and implementation of fire protection and management operations in the planning area, in particular the protection of natural and cultural values.*
- *Publicise and enforce fire regulations and restrictions within the planning area.*
- *Liaise with the CFA, Bass Coast Shire Council, private property landholders and other relevant organisations for the common purpose of fire management within the planning area and adjacent land.*
- *Encourage research into the use of fire for ecological purposes in the planning area, taking into account the requirements of threatened flora and fauna and the protection of fire-sensitive species and communities (sections 4.7 and 4.8).*
- *Research, develop and implement ecologically appropriate fire management and burning programs for the coastal reserve.*
- *Encourage research into Indigenous cultural lore relating to fire, including its use and management, in cooperation with the Traditional Owners.*

5 STRATEGIES FOR CULTURAL VALUES CONSERVATION

5.1 Indigenous cultural heritage

Throughout periods of changing sea levels, Traditional Owners have maintained a strong and continuing association with the planning area for thousands of years. This association continues today.

Indigenous tradition indicates that the planning area is part of the *Country* of the Boonwurrung Indigenous people, who are traditionally and culturally associated with the planning area and surrounding land and waters.¹ At the time of publication there were several groups asserting traditional ownership of the area.

Bunurong Marine National Park, Bunurong Marine Park and Bunurong Coastal Reserve were all named after the Traditional Owners of the area.

The great ancestor spirit, 'Bunjil', is central to the culture of Indigenous people of the Kulin Nation.² Legend suggests that the mysterious powers of the spirit called 'Lo-an' protected these lands.

Over many thousands of years, the planning area provided important areas for food collection, tool making, story telling, teaching and learning. Children were taught important techniques for hunting, collecting and preparing seasonally abundant food and other resources. These resources were found in both marine and terrestrial environments. Stories were shared, and children developed an ongoing spiritual association, understanding, and respect for the area.

The planning area and surrounds contain evidence of a range of places and objects of particular significance to Indigenous people. The abundance of food remains from marine species indicates the area was important for food collection, camping, tool making, learning and teaching. Seasonally abundant shellfish, fish, seabirds (e.g. shearwaters and

penguins) and eggs, were all important components of the diet of Indigenous people of the area, as was a variety of plant material including seasonally available vegetables, fruits and edible roots (Coutts et al. 1977). Stone axes quarried from outcrops of diorite north-west of Inverloch, at Pound Creek and McCaughins Hill, together with quartz, flint and local sandstone, also provide evidence of the importance of the area for camping, food preparation, tool making, learning and teaching (DCE 1992).

Some Indigenous places and objects within the planning area may require active management to ensure their protection, while others may be relatively secure because of their location. Degradation by erosion and pillaging of material are threats to the integrity of cultural places and objects. Monitoring and management of cultural places and objects is determined in collaboration with the relevant Indigenous communities.

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 with or endanger an Aboriginal site, place or object without prior written consent from the scheduled Aboriginal community. Issues relating to the protection of such cultural heritage and the involvement of the scheduled Aboriginal community are approached in accordance with these Acts.

In accordance with Part IIA of the Aboriginal and Torres Strait Islander Heritage Protection Act, the Minister for Aboriginal Affairs is currently recognised as the scheduled Aboriginal community for the planning area. Aboriginal Affairs Victoria is to be contacted in relation to cultural heritage matters in the planning area (section 8.3).

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

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

¹ Unless cited otherwise, information is based on oral history information provided by relevant Indigenous communities.

² The Kulin Nation is a federation of five distinct, but strongly related Indigenous communities, including the Boonwurrung people.

Aims

- Protect Indigenous cultural heritage, including places and objects, from interference or damaging activities.
- Nurture Indigenous cultural lore relating to the planning area.

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 8.3), and in accordance with:*
 - *the provisions of 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 2002a).*
- *Assess annual planning area programs to minimise the potential for impacts from management activities on Indigenous cultural heritage, in consultation with the Traditional Owners and the scheduled Aboriginal community.*
- *Maintain confidentiality in respect of Indigenous cultural lore, places, objects and aspirations, in accordance with the views of the Traditional Owners (sections 6.1 and 8.2).*
- *Ensure that all management actions are in accordance with the Native Title Act.*
- *Respect Indigenous cultural lore, and the Traditional Owners' aspirations for Country and, in collaboration with them and the scheduled Aboriginal community and in accordance with Parks Victoria's operational policies, reflect the Traditional Owners' cultural lore, interests and rights in all aspects of planning and management (sections 4.1, 4.2, 6.1 and 8.2).*
- *Encourage the identification, recording and risk assessment of Indigenous places and objects, and cultural lore relating to the planning area, in collaboration with*

the relevant Indigenous communities and in liaison with AAV (section 7.2).

- *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

The history of the planning area since European settlement is rich and diverse, involving maritime exploration, mining and recreation.

The first confirmed contact of Europeans with the Bunurong coast was in 1798, when George Bass explored the area during his epic whaleboat voyage from Port Jackson (Sydney Harbour) to Western Port (which he named).

In the early 1800s, a whaling and sealing industry developed in Bass Strait, attracting ships from as far away as Europe and America. So intensive was the exploitation that by the 1830s the industry was no longer profitable (Townrow 1997).

In 1801 James Grant was commissioned to examine Wilsons Promontory and Western Port, and named Cape Paterson. An official survey of the coastline from Cape Howe to Western Port was made by the Smythe brothers between 1841 and 1856 (Charles & Loney 1989). George Smythe surveyed from Cape Paterson to Cape Liptrap, taking in the creeks, swamps, scrubs, marshes and ranges within one day's walk of the coast. He named Eagles Nest, Petrel Rock and Point Smythe (at the entrance to Anderson Inlet) (Charles & Loney 1989).

Using the short-lived military settlement (1826 – 1828) at Corinella as a base, William Hovell explored the area overland, discovering coal seams (at Coal Point) and reporting the land as being suitable for farming. Between 1845 and 1887 five shafts were sunk and over 2000 tonnes of coal recovered from the 60 cm thick seam (Thomas 1968). Some physical evidence of this mining activity remains in the planning area, with steel spikes from a coal tramway evident in the rocks at Cape Paterson swimming bay and a mine shaft inland from Wreck Beach (Harmers Haven).

Squatters from Tasmania established grazing runs from the 1830s (Hayes 1998). Samuel Anderson explored the area, discovering the Tarwin River mouth and the Inlet that bears his name. After the larger runs were broken up in the 1870s and 1880s, smaller selections were taken up along the cliff tops (Hayes 1998).

Significant shipping traffic also passed the Bunurong coast throughout this period. Owing to the severity of Bass Strait weather, many wrecks occurred along the length of the Victorian coast (Jordan 1995). There are possibly at least four wreck sites in the planning area (appendix 7), two of which have been documented (Heritage Victoria 2004).

In 1901, the 56 m *Artisan* landed on rocks west of Cape Paterson at Wreck Beach. While most of the timber was quickly salvaged for land-based use, the large steel hull 'ribs', items of rigging and deck equipment, and portions of wooden decking remained, to be dispersed by wind and tide along the Bunurong coast as far away as Inverloch.

W. H. Ferguson discovered Australia's first dinosaur fossil at Eagles Nest in 1903 (Williams 2002) (section 4.2).

With the establishment of the State Coal Mine and the town of Wonthaggi in 1910, the coast became part of the lifestyle for many locals. Huts were built from driftwood and other scavenged materials as beach homes for working families. Huts were constructed at Cutlers Rocks (Harmers Haven), Cape Paterson, The Oaks, Shack Bay and Flat Rocks and remained in use until the 1970s. Some were quite substantial, with concrete floors, pitched roofs and windows.

These huts were important in the lives of the miners and their families as places to escape the drudgery of the mines (Hayes 1998). Fish and crayfish caught offered an income and sustenance during lockouts and strikes at the State Coal Mine (Hayes 1998).

From the 1950s, the Lands Department gradually sought the removal of these structures, in some cases compensating the owners. Some physical evidence of these huts can still be found within the planning area, including the remains of a flying fox at Shack Bay, concrete slabs at Harmers Haven (appendix 7) and exotic trees at Flat Rocks.

In July 1923, a 23 m Blue Whale was washed ashore at Wreck Beach after heavy south-west gales (Williams 2002). For a short time the carcass became a local attraction for Wonthaggi. The jawbones now form an archway on the verandah of Tabener's Hotel in Wonthaggi.

Cape Paterson swimming bay was always popular with Wonthaggi residents. The Wonthaggi Life Saving Club formed there in 1938. Significant physical evidence of this remains, in the form of a concrete diving platform, the remains of an elevated steel diving tower and a substantial swimming pool blasted out of the rock platform by zealous volunteers in the late 1950s and early 1960s (Hayes 1998).

Historic and cultural places are managed in accordance with the *Heritage Act 1995* (Vic.), the Australia ICOMOS *Charter for Places of Cultural Significance* (the 'Burra Charter'), (Australia ICOMOS 1999), and Parks Victoria's *Heritage Management Strategy* (Parks Victoria 2003a).

Heritage Victoria (DSE) has primary responsibility for ensuring compliance with the *Heritage Act* and *Historic Shipwrecks Act 1977* (Cwlth). Heritage Victoria also has responsibility for the management of shipwrecks and other maritime artefacts within the planning area. Parks Victoria has established a memorandum of understanding with Heritage Victoria that identifies respective roles and responsibilities with regard to protection, compliance and interpretation of shipwrecks and shipwreck artefacts and other archaeological sites within the planning area (appendix 7).

Aims

- Conserve places and values of historic and cultural significance within the planning area.
- Increase learning about and appreciation of the historic heritage of the planning area.

Management strategies

- *Manage places and values of historic and cultural significance in accordance with the Burra Charter of Australia ICOMOS, the provisions of the Heritage Act and the*

Historic Shipwrecks Act, and Parks Victoria's Heritage Management Strategy.

- *Document the heritage values of the planning area's historic places, including the remains of a flying fox at Shack Bay, concrete slabs at Harmers Haven, exotic trees and shrubs at Flat Rocks and remains of the tramway at Cape Paterson. Record information including their condition in Parks Victoria's Asset Management System and identify any risks to their values.*
- *Document the location of exotic trees within the planning area and remove, subject to an assessment of any significance.*
- *Prepare a heritage action statement for the planning area in consultation with community groups, to guide the management of the heritage places and values.*
- *Cooperate with and support Heritage Victoria's maritime heritage research programs.*
- *Integrate the promotion of maritime and other heritage values related to the planning area into existing information, interpretation and education programs, particularly where it relates to the key historic theme 'Shipping Along the Coast' (section 6.1).*
- *Ensure that information is readily available to the public on regulations relating to shipwrecks, associated cultural artefacts and other historic places.*
- *Support dive clubs in locating, photographing and reporting the condition of historic shipwrecks, and record the information in Parks Victoria's Asset Management System to help monitor shipwrecks.*

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 planning area's special natural and cultural values, build understanding of management activities, and help visitors to experience the planning area in a safe and appropriate manner. Parks Victoria delivers information, interpretation and education to visitors by various means, including its website, ranger patrols, Park 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 marine protected areas. At the same time as initiatives to raise awareness and understanding of the statewide system are delivered, a range of information, interpretation and education products specific to key features of the planning area will be provided.

There are excellent opportunities in the planning area for interpretation and study of marine ecosystems, geology and palaeo-environments, coastal processes, and raising awareness of the impacts that human activities may have.

Although direct appreciation and experience of the underwater environment of the planning area is not available to most people (because of the skills and equipment required for diving and boating), the planning area's many access points offer excellent opportunities to explore the intertidal zone.

For visitors entering the planning area via the Bunurong Coastal Drive or the townships of Inverloch, Cape Paterson and Harmers Haven, basic orientation information is provided by signs at the Crown land boundary and major

visitor access points. Since the proclamation of Bunurong Marine Park in 1991 and the preparation of the proposed management plan (DCE 1992), the planning area has been referred to as 'Bunurong Marine and Coastal Park'. This has created confusion over the management objectives and regulations that apply to the terrestrial sections of the planning area. Revision of boundary signage to reflect the tenure of land and waters of the planning area would assist in alleviating confusion, particularly in relation to regulations and permitted activities.

Regulatory totems provided at visitor sites and on access paths complement basic orientation information by informing visitors of permitted activities and restrictions.

The information shelter at Eagles Nest is the main site for orientation and interpretive information for Bunurong Marine National Park and Bunurong Marine Park. Additional orientation information is provided by Park Notes and on information panels at The Oaks, Twin Reefs and Shack Bay carparks.

For boat-based visitors, orientation information is provided by a Park Note, boundary markers, and information panels at the Inverloch and Cape Paterson boat ramps.

Park Notes are distributed through accredited information centres at Wonthaggi, Inverloch and Newhaven and other local outlets (e.g. Bunurong Environment Centre).

Rangers and Fisheries Officers play an important role on the shore and water in the provision of orientation and regulatory information, and in interpreting features of the marine environment.

There is a marine interpretive display in the information shelter at Eagles Nest, although this requires updating to incorporate contemporary marine conservation messages. There is scope to develop additional interpretation services for the planning area and to support marine interpretation and education programs provided through the Bunurong Environment Centre.

Ranger-led interpretive activities are run during the summer as part of DSE's Coast

Action program. There are opportunities for additional interpretive activities to be provided by licensed tour operators and the community to complement these interpretive services.

Bunurong Marine National Park and Bunurong Marine Park offer an important learning environment for students of all ages, fostering an understanding of marine protected area management and positive attitudes towards conservation of natural environments. The Bunurong Coastal Drive and the planning area's extensive intertidal platforms make the area readily accessible for marine educational purposes.

Appropriate educational visits to the planning area are encouraged, with education programs being provided by Parks Victoria on request.

An education officer employed by the South Gippsland Environmental Education and Interpretation Committee (comprising the South Gippsland Conservation Society and the Koonwarra Sustainable Communities Centre) offers education services to school groups and the wider community. The education program focuses on the dinosaur fossil site at the Caves and the intertidal marine life at Flat Rocks.

Parks Victoria's education program has curriculum-based education units for primary and secondary students. A *Marine National Parks and Marine Sanctuaries Resource Kit* has been produced to give educators, students, community and Friends groups materials for communicating the importance and values of marine national parks. It includes presentations, activities and data about Marine National Parks and Marine Sanctuaries.

Trampling has the potential to threaten sensitive intertidal communities if visitor numbers and activities are not carefully managed (section 6.6). Parks Victoria has developed Minimal Impact Guidelines (available on its website) 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 will allow teachers to obtain relevant education materials and advice on suitable sites, and Parks Victoria to monitor the number and timing of visits.

Some sectors of the community are confused about permitted activities and boundaries of

the different marine protected areas. It is therefore important that visitor information should help raise public awareness about the different management objectives and regulations for the Marine National Park and Marine Park.

There is considerable potential to raise public interest in, and awareness of, the planning area, and to promote appropriate recreational opportunities to a diverse range of Victorian, interstate and overseas visitors. Parks Victoria's information and interpretation programs complement the statewide and regional marketing strategies of Tourism Victoria (e.g. Tourism Victoria 2002a; 2002b; 2004) and services provided by licensed tour operators (section 6.11).

Aims

- Promote and encourage visitors' discovery, enjoyment and appreciation of the planning area's natural and cultural values in a safe and appropriate manner through information, interpretation and education.
- Encourage public support for parks and management practices.
- Provide opportunities to learn about and understand the cultural and spiritual significance of the planning area to the Indigenous community.

Management strategies

- *Continue to provide and maintain high-quality visitor orientation and interpretive information for the planning area through Park Notes, Parks Victoria's website, information panels and regulatory totems, ranger patrols and interpretation programs in accordance with table 2.*
- *Maintain visitor signage and interpretive and educational material appropriate for the planning area in liaison with the Bass Coast Shire Council.*
- *Work in partnership with accredited information centres and other local outlets to ensure the availability of current orientation information for the planning area.*

- *Continue to offer ranger-led interpretation programs during summer holiday periods and as required.*
- *Provide appropriate opportunities and encourage and support the Indigenous community to participate in interpretation and education programs on Indigenous cultural heritage in the planning area.*
- *Continue to support the educational programs on the marine environment provided by the South Gippsland Environmental Education and Interpretation Committee through the Bunurong Environment Centre.*
- *Encourage school groups to use the educational services provided by the South Gippsland Environmental Education and Interpretation Committee, and promote the need for schools to notify Parks Victoria (on 13 1963) of any intended school group visits.*
- *Continue to allow sustainable educational use by school and community groups. Ensure school and formal interpretative groups adopt the minimal impact guidelines and that:*
 - *students are adequately supervised while in the planning area*
 - *school group sizes do not exceed class sizes (maximum 30)*
 - *groups vary the locations used to reduce pressure, especially during high use periods.*
- *Liaise with State and regional tourism authorities to ensure that the planning area is appropriately promoted in regional visitor information centres and State and regional tourism strategies.*
- *Work in partnership with Fisheries Victoria to continue to provide appropriate information, interpretation and education material through land-based and water-based patrols to encourage compliance with regulations.*

6.2 Access

Vehicle access to Bunurong Marine National Park and Bunurong Marine Park is via the Bass Highway. Cape Paterson Road and the Cape Paterson – Inverloch Road (Bunurong Coastal Drive) lead to the planning area from Wonthaggi and Inverloch.

Owing to the linear nature of the public land along the Bunurong coast, most access roads in the planning area are relatively short. They are managed and maintained by the Bass Coast Shire Council or VicRoads, except for short access roads to the planning area's carparks (table 3). These roads are also used for bushwalking and cycling (section 6.6).

Directional signage provided by VicRoads helps to guide visitors to the planning area from Wonthaggi, Inverloch and the Bass Highway. Most visitors access the planning area via the Bunurong Coastal Drive (Cape Paterson – Inverloch Road) or from the neighbouring coastal settlements of Harmers Haven, Cape Paterson or Inverloch.

Parks Victoria aims to provide access to ensure that all visitors, including those people with limited mobility, have opportunities to participate in a wide variety of programs and activities, and have access to a range of natural environments to use recreation facilities. At Eagles Nest there are facilities and access to a lookout with spectacular views for people with limited mobility (section 6.3).

There are carparks with pedestrian access to adjacent beaches and rock platforms at Harmers Haven, Wreck Beach, Undertow Bay, The Oaks, Twin Reefs, Shack Bay, Eagles Nest and The Caves (tables 4 and 5, and figure 2).

Carparking and pedestrian access is also provided through the Cape Paterson Foreshore Reserve to the waters of The Bay, First Surf and Second Surf beaches included in the planning area (section 7.3).

TABLE 2 PROVISION OF VISITOR INFORMATION, INTERPRETATION AND EDUCATION

SITE	MAIN FOCUS	FACILITY / SERVICE / TOOL	MANAGEMENT ACTION
General	Pre-visit orientation information	Internet site ('ParkWeb') Accredited Information Centres	Maintain
Parks Victoria offices	Pre-visit orientation information	Personal (face-to-face) information, brochures, Park Notes	Update and maintain
Whole of planning area	Orientation information, promotion of marine protected area values and appropriate use	Guided tours by Licensed Tour Operators	Liaise with licensed operators
		Ranger patrols	Maintain
		Information, interpretation and education programs	Develop and maintain
	Orientation information, fishing regulations, marine introduced pests, pollution, minimal impact use	Boundary signage	Update the existing 'Bunurong Marine and Coastal Park' signs with signage referring to Bunurong Marine National Park, Bunurong Marine Park, Bunurong Coastal Reserve and/or Kilcunda-Harmers Haven Coastal Reserve
		Regulatory totems	Maintain
		Ranger and Fisheries Officer patrols	Maintain, collaborate with Fisheries Victoria
		Education programs, schools curriculum development, Marine National Park and Marine Sanctuaries Resource Kit	Encourage use by schools particularly in the local area
Bush forum to present information on annual works program, celebrate the achievement of Friends and to provide an opportunity for community input.	Community meeting (section 8.1)	Develop and host regular meetings	
Key themes: – the contribution of Bunurong Marine National Park to Victoria's system of marine national parks and marine sanctuaries	Information, interpretation and education programs, displays at Bunurong Environment Centre, ranger patrols	Develop and maintain	
– catchment management and its importance in the protection of water quality (section 4.3)	Information, interpretation and education programs, ranger patrols	Develop and maintain	
– flora and fauna management particularly for threatened species (sections 4.7 and 4.8)	Information, interpretation and education programs, ranger patrols	Develop and maintain	

Table 2 contd.

SITE	MAIN FOCUS	FACILITY / SERVICE / TOOL	MANAGEMENT ACTION
	Key themes (cont.)		
	– pest plant and animal control programs and the need to prevent the introduction and establishment of pest species (section 4.9)	Information, interpretation and education programs, ranger patrols	Develop and maintain
	– impact of visitor activities and the importance of adopting minimal impact techniques	Information, interpretation and education programs, ranger patrols	Develop and maintain
	– marine and terrestrial habitats	Information, interpretation and education programs, information panels at Eagles Nest	Develop and maintain
	– Indigenous cultural lore (section 5.1)	Information, interpretation and education programs, information panels at Eagles Nest in accordance with the views of the Traditional Owners	Involve Indigenous community in development and delivery
	– oil spills, litter marine plastics pollution, stormwater and agricultural drains, reduction and bilge discharge	Incorporate into existing information, interpretation and education programs (section 6.1) Ranger patrols	Develop and maintain
	– shipping along the coast and other European history, including shipwrecks, shacks and uses	Information, interpretation and education programs, information panels at significant sites or features	Develop and maintain
Flat Rocks	General orientation information, boat and diver safety	Information panels	Develop and maintain
The Caves	General orientation information. geology, fossils and palaeo-environments.	Information panels	Develop and maintain
Eagles Nest	Indigenous culture, fossils, marine habitats and communities	Information panels and regulatory totems	Update and maintain
Shack Bay	General orientation information, shacks and recreational uses	Information panels and regulatory totems	Maintain
Twin Reefs	General orientation information	Information panels and regulatory totems	Maintain
The Oaks	General orientation information	Information panels and regulatory totems	Maintain
Harmers Haven	General orientation information, maritime cultural heritage	Information panels	Develop and maintain
Boat ramps outside planning area			
Inverloch boat ramp, Cape Paterson boat ramp	General orientation information, maritime cultural heritage, boat and diver safety	Information panels	Maintain

Nearby boat ramps or beach launching points used for accessing the waters of the planning area are located at Cape Paterson, Inverloch, Mahers Landing and Flat Rocks (sections 6.4 and 7.3). Boating use of the planning area is largely determined by prevailing sea and weather conditions (sections 6.4 and 6.12).

Retaining roadside vegetation and improving drainage and signage on the Cape Paterson – Inverloch Road would help to protect the landscape and natural values of the planning area (section 4.1).

Aims

- Provide and maintain appropriate access to the planning area for visitor use and management purposes.
- Minimise the impact of access on natural and cultural values of the planning area.

Management strategies

- *Ensure that directional information is appropriate to enable safe and enjoyable access to the planning area (section 6.1).*
- *Work collaboratively with VicRoads to ensure that directional signage to the planning area from nearby major towns and touring routes is suitable.*
- *Manage the planning area's road and track network in accordance with table 3.*
- *Ensure that access to the planning area is integrated with facilities and access provided within the adjacent Cape Paterson Foreshore Reserve and Inverloch Foreshore Reserve.*
- *Liaise with Bass Coast Shire Council and VicRoads to ensure that there is a complementary approach to managing the roads in the planning area (table 3).*

6.3 Visitor site activities

The planning area offers a range of day visitor opportunities, including swimming, picnicking, diving, snorkelling, fishing, nature observation and walking. Popular destinations include Flat Rocks with its extensive intertidal rock platform, Eagles Nest with its spectacular rock stack and sheltered cove, The Caves with its dinosaur fossils and Harmers Haven with its extensive sandy beaches. Peak periods for

visitation are summer, Easter, and long weekends.

The diverse natural settings of the planning area are an important part of its appeal for many visitors. The Cape Paterson – Inverloch Road (Bunurong Coastal Drive) is extensively promoted as a touring route. Carparks are provided at eight locations and beach access paths and staircases allow access to, and spectacular views of, adjacent coves, rock platforms and sandy beaches. In addition, short walking tracks and lookouts at Eagles Nest, Shack Bay and The Oaks enable visitors to enjoy spectacular coastal scenery. Facilities at Harmers Haven cater for the needs of local residents.

Existing visitor facilities include carparks, lookouts, beach access paths and staircases, park information, and interpretive and regulatory signage (figure 2, and tables 4 and 5). Completion of proposed upgrades to facilities to meet contemporary standards and the needs and expectations of visitors is dependent on the availability of major works funding.

Camping and day visitor facilities, including toilets, picnic shelters, carparking, boat ramps and surf life saving services, are provided in the adjacent Inverloch and Cape Paterson Foreshore Reserves (section 7.3).

Current visitation places considerable pressure on facilities, particularly during peak visitation periods. Environmental constraints at most sites limit the ability to expand carparking and visitor facilities to meet seasonal demands. Generally only essential 'low key' facilities are provided, which enable visitors to enjoy and access key features while protecting the significant natural and cultural values of the planning area.

Aim

- Establish and maintain visitor facilities that enhance visitor enjoyment and are consistent with the protection of planning area values.

TABLE 3 MANAGEMENT OF VEHICLE ACCESS

ROAD NAME	CURRENT DEVELOPMENT AND USE	MANAGEMENT RESPONSIBILITY	ACTIONS/COMMENTS
Cape Paterson – Inverloch Road (Bunurong Coastal Drive)	5A/M2	VicRoads	Major road providing access between Inverloch and Cape Paterson. Promoted as the Bunurong Coastal Drive touring route. Liaise with VicRoads over road safety, signage, weed control, drainage and the retention of roadside vegetation.
Viminaria Road	5C/M2	Bass Coast Shire Council	Provides access to western end of planning area and Harmers Haven. Liaise with Bass Coast Shire Council over weed control and the retention of roadside vegetation.
Wilson's Road	5B/M2	Bass Coast Shire Council	Provides access between Cape Paterson and Harmers Haven. Liaise with Bass Coast Shire Council over weed control and the retention of roadside vegetation.
Old Boiler Road	5B/M2	Bass Coast Shire Council	Provides access between Cape Paterson and Harmers Haven. Liaise with Bass Coast Shire Council over weed control and the retention of roadside vegetation.

Key:**Development:**

- 5A Primary Road — all-weather, two-lane, mainly sealed road.
- B Secondary Road — all-weather, two-lane formed and gravelled, or single-lane sealed with gravel shoulders.
- 5C Minor Road — single-lane unsealed, formed road, usually lightly gravelled.

Use:

- M2 Visitors in 2WD and 4WD motor vehicles, bicycles and walkers

Management strategies

- Provide and maintain visitor facilities in accordance with tables 4 and 5, and figure 2.
- Continue to manage Eagles Nest as the main visitor destination in the planning area. Improve access and facilities for people with limited mobility in accordance with table 4.
- Upgrade the carpark at The Caves and provide car parking for vehicles with trailers at Flat Rocks.
- Obtain an engineering assessment of the staircases at Coal Point, The Caves, and Eagles Nest and the footbridge at The Caves and upgrade as required (table 5).

- Provide information and signage to direct visitors to facilities and key features of the planning area (section 6.1).

6.4 Recreational boating and associated facilities

Boating is a popular recreational activity in the planning area. Although most boat users are primarily involved in fishing (outside the Marine National Park), many share a strong interest in the marine environment and its protection. Other activities associated with boating include scuba diving and snorkelling (section 6.5), sightseeing and touring. Sea kayaking and surf skiing are becoming increasingly popular activities along the Bunurong coast.

TABLE 4 MANAGEMENT OF RECREATION FACILITIES

SITE	EXISTING/ PLANNED LEVEL OF SERVICE	CARPARK	TOILETS	PICNIC TABLE	STAIRCASE	PARK INFO.	LOOKOUT / VIEWING AREA
Coal Point	B/B	N	N	N	E	N	N
Harmers Haven	B/M	E	N	N	E	P	E
Wreck Beach	B/B	E	N	N	N	P	N
Wilson's Road	B/B	E	N	N	U	E	N
Undertow Bay	B/B	N	N	N	E	N	U
The Oaks	B/B	E	N	N	E	E	E
Twin Reefs	B/B	E	N	N	E	E	E
Shack Bay	B/M	E	N	N	E	E	E
Eagles Nest	M/M	E	P	E	U	U	U
The Caves	B/B	U	N	N	U	P	U
Flat Rocks	B/M	P	N	N	N	P	N

Key:

E	Existing facility
U	Upgrade existing facility
P	Proposed facility
N	No facility

Level of service

M	Mid – moderate level of visitor facilities and amenities provided
B	Basic – limited visitor facilities and amenities provided

Boat use of the planning area is largely determined by prevailing sea and weather conditions (section 6.12), although during the warmer months and weekends there can be large numbers of craft on the water. The majority of users come from Inverloch, Cape Paterson, Wonthaggi and surrounding areas, although some come from further away including the Latrobe Valley and Melbourne.

Boat ramps or beach launching points used for accessing the waters of the planning area are located at Flat Rocks and (outside the planning area) at Cape Paterson, Inverloch and Mahers Landing. Boats that do not require the aid of a trailer (e.g. sea kayaks and canoes) may be launched and landed at all the beaches within the planing area, provided visitors stay on designated walking tracks (table 5).

The only all-tide and all-weather access to the planning area is from Inverloch boat ramp; the use of the Cape Paterson and Flat Rocks launching areas is weather and tide dependent. The Cape Paterson and Inverloch boat ramps

are managed and maintained by Bass Coast Shire Council (section 7.3).

Flat Rocks is an informal boat launching site, which consists of a rough unsurfaced track which allows access for launching small craft from the beach. Use of the site is restricted to suitable tide and weather conditions. It serves a supplementary role to the Inverloch and Cape Paterson boat ramps. The seasonal movement of sand can make the access track impassable and the lack of carparking facilities is resulting in damage to surrounding vegetation. Access onto the Cape Paterson – Inverloch Road has limited visibility, creating a safety hazard for other road users.

Boating within the planning area is expected to increase with the rise in the permanent population of the area and the growth of Melbourne's south-eastern suburbs. The *Gippsland Boating Coastal Action Plan* (GCB 2002a) and the *Central Coastal Region – Draft Coastal Boating Action Plan* (CCB 2005) consider future demands and the provision of

recreational boating facilities for the locations that serve the Inverloch and Anderson Inlet area. The *Gippsland Boating Coastal Action Plan* noted that although the informal Flat Rocks launching site requires periodic maintenance, it should not be upgraded to a general launching ramp (GCB 2002a). The *Central Coastal Region – Draft Coastal Boating Action Plan* considered that current access requirements of a 4WD and local knowledge to be appropriate for the Flat Rocks site (CCB 2005).

The Flat Rocks boat launching site is important to the local community, allowing access to boating and fishing opportunities in the open waters of Bass Strait, without having to negotiate the often hazardous bar at the mouth of Anderson Inlet. A modest upgrade of this facility is required to address safety issues and environmental impacts from use of the site. However, such improvements will be limited to enhanced entry/exit access to the Cape Paterson – Inverloch Road, provision for trailer parking, track surfacing and safety signage. For the protection of public safety, swimming will not be permitted at Flat Rocks between signs designating the boat launching and retrieval area (section 6.6).

The exposed open waters of the planning area are hazardous for boats, particularly during rapidly changing weather and sea conditions. Neither Flat Rocks nor Cape Paterson provides all-weather all-tide access and, together with the lack of suitable shelter in case of an emergency, this makes the waters of the planning area particularly dangerous for inexperienced operators of small craft. Park Notes, signs and education programs are used to convey messages on the safety risks of boating (sections 6.1 and 6.12). The *Victorian Recreational Boating Safety Handbook* (MSV 2005) outlines safety requirements for operating a recreational vessel in Victoria.

Parks Victoria Rangers and Department of Primary Industries Fisheries Officers undertake regular boat-based patrols of the planning area. This interaction with visitors enables officers to educate boat users on the marine environment and the potential impacts of boating (section 6.1). Possible impacts include oil spills, discharge of sewage or other pollutants, introduction of marine exotics, anchor damage and disturbance to wildlife.

Personal watercraft (PWCs) are increasing in popularity and are more frequently seen on the Bunurong coast. Owing to their noise output and ability to come close to the shore, PWCs pose a safety risk to swimmers and may disturb wildlife and affect the experience of other visitors (section 6.6).

As in all Victorian coastal waters, a speed limit of 5 knots applies in specified circumstances in the planning area (MSV 2003). Parks Victoria works collaboratively with Marine Safety Victoria to ensure compliance with these speed restrictions.

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 EPA Victoria 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.

All whales and dolphins in the planning area are protected under the Wildlife Act and the Wildlife (Whale) Regulations 1998 (Vic.). Recreational vessels and PWCs must not approach within 100 metres of any whale or dolphin, while a minimum distance of 30 metres applies to swimmers and 50 metres to people on surfboards. Other conditions apply to licensed tour operators (6.11).

Aims

- Provide opportunities for recreational boating and appropriate surface water sports while protecting natural and cultural values.
- Promote safe boating and water safety within the planning area.

Management strategies

- *Permit boating and surface water sports in the planning area in accordance with table 1 and the 5 knot speed restriction within:*
 - 50 m of a swimmer
 - 100 m of a vessel or buoy with a diver below signal
 - 200 m of the shoreline
 - 300 m of a whale or dolphin.

- *Incorporate information about boating and associated activities into information, interpretation and education material (section 6.1).*
- *Encourage safe and appropriate boating practices in the planning area through information, interpretation and education programs (sections 6.1 and 6.12).*
- *Liaise with recreational boat users during boat patrols within the planning area to:*
 - *promote safe and sustainable use*
 - *raise awareness of boat cleaning protocols (section 4.6).*
- *Liaise with VicRoads to improve entry and exit access for boat launching at Flat Rocks onto the Cape Paterson – Inverloch Road (section 6.2).*
- *Continue to provide for launching of small vessels at Flat Rocks. Undertake minor improvements to access from the Cape Paterson – Inverloch Road, including the provision of trailer parking, track surfacing and appropriate safety and information signage (section 6.2).*
- *Liaise with Gippsland Ports for the installation of signage designating the vessel launching area at Flat Rocks.*
- *Ensure boating access to the planning area is integrated with facilities provided within the adjacent Cape Paterson Foreshore Reserve and neighbouring Inverloch Foreshore Reserve.*
- *Permit anchoring in the planning area, but monitor impacts on marine communities and, if necessary, take appropriate action to reduce impacts.*
- *Work collaboratively with Bass Coast Shire Council to ensure signage at the Inverloch and Cape Paterson boat ramps includes appropriate safety messages and information on the values of the planning area (section 6.1).*

6.5 Diving and snorkelling

The waters of the planning area offer a variety of outstanding locations for diving and snorkelling. They enable visitors to see species and habitats that are difficult to observe from above the surface, particularly smaller or

cryptic animals such as seahorses, pipefish, sea urchins, nudibranchs, sponges, octopus and cuttlefish. Under favourable conditions the planning area provides opportunities to dive marine communities that are not present or readily accessible elsewhere within Gippsland.

Flat Rocks, Eagles Nest, Shack Bay, Twin Reefs, Cape Paterson and Harmers Haven are all popular areas for diving. Divers can enter the sea from numerous coves or by walking to the edge of the rock platform. The planning area also provides numerous boat-based diving opportunities. There are commercial boat operators that service the planning area and scuba tank-filling facilities are available at Inverloch.

Many areas in the planning area are suitable for snorkelling, including Harmers Haven with its profusion of large rock pools, and The Caves which has a large pool opening out to sea. Owing to the planning area's shallow waters, conditions are best at low tide when the subtidal reefs are more exposed.

Divers and snorkellers need to be aware of the no-take provisions in the parks and can assist with the detection of unrecorded cultural places and objects (sections 5.1 and 5.2), the presence of introduced marine pests (sections 4.6 and 8.2), and other threatening processes. The planning area is well suited to community-based monitoring programs such as Reef Watch (section 8.2) because of its diverse marine communities and ease of access.

Seasonal factors, particularly prevailing winds and sea conditions, can limit diving and snorkelling opportunities in the planning area. Diving and snorkelling may be dangerous if not undertaken with appropriate safety considerations, training and an awareness of local conditions (section 6.12).

Current levels of diving and snorkelling are moderate. However, this is likely to increase as the planning area's marine environments become more widely known. Potential impacts from diving include damage from anchors, intertidal trampling (sections 4.5 and 6.6), wildlife disturbance (sections 4.5 and 4.8), fin and propeller disturbance to sediments (seabed) and over-harvesting (section 6.10).

Educating divers and snorkellers about minimal impact practices, particularly those new to these activities, will help minimise

impacts and lead to increased awareness and understanding of the value of the planning area (section 6.1).

Divers should refer to the Dive Industry Victoria Association (DIVA) *Code of Practice: for Commercial Providers of Recreational Snorkelling and Scuba Diving Services in Victoria* (DIVA 2004) or the Scuba Divers Federation of Victoria (SDFV) *Codes of Practice: General Operating Guidelines for Recreational Scuba Diving and Related Activities* (SDFV 2005). Snorkellers and scuba divers should refer to the *Snorkelling, Scuba Diving, and Wildlife Swims – Adventure Activity Standards* (ORC 2004 at www.orc.org.au).

Aim

- Provide opportunities for diving and snorkelling in the planning area while protecting natural and cultural values.

Management strategies

- *Continue to encourage visitors to explore the planning area by diving and snorkelling.*
- *Encourage the use of clean diving equipment to prevent translocation of marine pests (section 4.6).*
- *Integrate minimal impact messages into existing information, interpretation and education programs (section 6.1).*
- *Promote compliance of snorkellers and recreational scuba divers with relevant codes of practice and Adventure Activity Standards.*
- *Provide park information to visitors describing potential dive sites and marine life occurring within the planning area (section 6.1).*
- *Encourage divers and snorkellers to participate in Reef Watch and community-based marine monitoring programs (section 8.2).*
- *Liaise with dive clubs to ensure that information about suitable dive sites and marine life in the planning area is appropriate and accurate.*

6.6 Swimming, surfing and shore-based activities

The beaches and intertidal rock platforms of the planning area have long been popular for shore-based activities. The sheltered coves and sandy beaches are popular for swimming, relaxing, playing, picnicking, walking and nature observation. In addition, the short walking tracks and lookouts at the planning area's many carparks enable people to enjoy scenic coastal views.

The largely natural setting is an important part of the appeal of the area for many of these activities.

The Cape Paterson Surf Life Saving Club and the Wonthaggi Royal Life Saving Club provide beach patrol services to swimmers and surfers at The Bay and First Surf beach (outside the planning area) on public holidays and weekends from December to Easter (section 6.12). The majority of the planning area's beaches are considered potentially hazardous for swimming and surfing because of high waves, rocks, strong rips and currents (Short 1996). For the protection of visitor safety, swimming is prohibited between the signs designating the vessel launch area at Flat Rocks (figure 2 and section 6.4).

The planning area offers many opportunities for surfing. Popular sites include First Surf, Second Surf and The Oaks, and the reef breaks at Twin Reefs and Eagles Nest. Surfing has minimal impact on environmental values; however, the activities of some surfers could have indirect impacts through litter, loss of vegetation or damage to facilities.

Shore-based diving and snorkelling (section 6.5) and rock and beach fishing (in Bunurong Marine Park) (section 6.10) are popular activities in the planning area. Potential conflicts between uses can occur when recreational activities are concentrated in the same area (sections 6.5, 6.7 and 6.8).

The beaches, intertidal rock platforms and waters of the planning area present inherent dangers and risks to visitors. The presence of slippery rocks, unstable cliffs, venomous fauna, gutters, large unpredictable waves, rips and strong currents all pose potential dangers for visitors (section 6.12).

The broad intertidal rock platforms that occur along the Bunurong coast are rare in Victoria and are widely recognised for their accessible and diverse marine communities. Visitors frequently use these areas for rockpool rambles, general nature observation and fishing (within Bunurong Marine Park). Students and scientists visit the area to study marine biology and geology, particularly the intertidal rock platform at Flat Rocks (section 6.1).

The most likely threat to marine communities from shore-based activities is the removal of, or disturbance to, algae and animals and their habitats. Trampling and disturbance of species may occur either deliberately or incidentally. The accessibility of the intertidal rock platforms of the planning area makes them particularly susceptible to trampling (Keogh & Quinn 1998).

The intertidal collection of living or dead organisms, shells and driftwood is prohibited within Bunurong Marine National Park and Bunurong Marine Park (section 4.5). However, both recreational and commercial fishing is permitted in Bunurong Marine Park and adjacent waters, subject to the requirements of the Mollusc No Take Zone and Fisheries Act and Regulations (section 6.10).

When required, accumulated rubbish will be removed from the accessible intertidal areas of the planning area.

A number of unauthorised pedestrian access tracks have been constructed from neighbouring properties at Harmers Haven to provide access to the planning area's beaches. These tracks have led to accelerated erosion of the sand dunes (section 4.10) and resulted in fragmentation of the coastal reserve's sensitive vegetation communities (section 4.7). A program to close and revegetate these unauthorised tracks, in consultation with the Harmers Haven community is required.

Camping has not been permitted within the planning area for many years as opportunities are available within the adjacent Inverloch and Cape Paterson Foreshore Reserves. Lighting of fires within the planning area is also not

permitted, except on board a vessel that is seaward of the mean high water mark.

For the adventurous it is possible to walk along most of the coastline within the planning area, although tides, gutters within the intertidal rock platform, and headlands can make walking difficult, particularly between The Oaks and Undertow Bay, and between Eagles Nest and The Caves. The walk along the beach from Cape Paterson to Coal Point and westward to Kilcunda is quite easy, with links being provided by beach access tracks at Harmers Haven, Baxters, Williamsons Beach and the Wonthaggi Heathland Nature Conservation Reserve.

The planning area therefore provides an opportunity for an extended coastal walk using the beaches and intertidal rock platforms and existing beach access tracks. Such a walk could encompass the planning area's diverse natural attractions, including its rugged cliffs, coves, spectacular coastal views and interesting geology. Bushwalkers could utilise the camping areas within neighbouring Cape Paterson and Inverloch Foreshore Reserves or commercial accommodation in the neighbouring townships. However, the establishment and promotion of such walking opportunities within the planning area could increase impacts to sensitive natural values, including impacts associated with trampling on intertidal rock platforms (section 4.5).

Some visitor activities may have an indirect or unknown impact on the marine environment. Unless adequately managed, trampling by visitors and other potentially damaging shore-based activities could threaten the natural and cultural values of intertidal areas (sections 4.5, 5.1 and 5.2). It is therefore essential that effective monitoring programs are developed to assist in determining the impacts of human use and developing appropriate management regimes.

Aim

- Provide opportunities for appropriate shore-based recreation within the planning area, while minimising impacts on the natural and cultural values.

TABLE 5 MANAGEMENT OF WALKING TRACKS

TRACK	LENGTH (APPROX METRES)	GRADE CURRENT	GRADE PLANNED	MANAGEMENT ACTIONS/COMMENTS
Coal Point Beach Access Track	200	3	2	Resurface track and obtain an engineering assessment of the staircase.
Harmers Haven Beach Access Track	50	2	2	Widen track and resurface.
Wreck Beach Access Track	100	3	2	Surface some sections to prevent erosion.
Wilson Road Beach Access Track	250	2	2	
Undertow Bay Beach Access Track	50	2	2	Improve drainage and resurface.
The Oaks Beach Access Track	400	2	2	
Twins Reefs Beach Access Track	75	2	2	
Shack Bay Beach Access Track	100	2	2	Majority of track is a staircase from the carpark to the beach.
Shack Bay Lookout Track	75	2	2	Resurface.
Eagles Nest Beach Access Track	120	3	2	Improve drainage and resurface. Majority of track is a staircase from the carpark to the beach.
Eagles Nest Lookout Access Track	150	3	2	Improve drainage and resurface.
The Caves Beach Access Track	50	3	2	Realign away from the unstable cliff between the footbridge and the carpark. Obtain engineering assessment for footbridge and staircase.
Flat Rocks Beach Access Tracks	50	4	3	Review the location of walking trails as part of the establishment of formal carparking areas at Flat Rocks.

Key:

Australian Standards Classification for walking tracks (AS 2156.1—2001)

Grade 1 Large number of visitors with high level of interpretation facilities.

Grade 2 Opportunity for large number of visitors to walk easily in a natural environment with moderate level of interpretation and facilities.

Grade 3 For visitors to walk in slightly disturbed natural environments, requiring moderate levels of fitness with occasional encounters and perhaps signage – interpretation and facilities are not common.

Grade 4 For visitors to explore and discover relatively undisturbed natural environments along defined and distinct tracks with few encounters and no interpretive signage.

Management strategies

- *Permit shore-based recreational activities in accordance with table 1.*
- *Maintain and improve the planning area's walking track network in accordance with table 5.*
- *Close and revegetate unauthorised access tracks within the Kilcunda – Harmers Haven Coastal Reserve in consultation with the Harmers Haven community.*
- *Inform and educate local residents of the impacts of unauthorised access tracks on the natural values of the planning area.*
- *Integrate minimal impact messages for intertidal areas into existing information, interpretation and education programs to enable a greater appreciation of intertidal marine organisms (section 6.1).*
- *Prohibit swimming between the signs designating the vessel launching area at Flat Rocks (section 6.4).*

- *Continue to prohibit camping within the planning area. Promote alternative camping opportunities provided within the Cape Paterson Foreshore Reserve and Inverloch Foreshore Reserve to visitors.*
- *Permit liquid fuel stoves and BBQs only where in accordance with fire regulations. Prohibit solid fuel fires in the planning area, except on board a vessel.*
- *Encourage and support educational excursions to the intertidal rock platforms at Flat Rocks.*
- *Minimise impacts of shore-based activities on cultural heritage sites within the planning area (section 5.1).*
- *Continue to prohibit the collection of driftwood, dead shells or other intertidal organisms, except as permitted under the Fisheries Act and Regulations in Bunurong Marine Park (section 6.10).*
- *Manage shore-based activities to reduce impacts on the natural values and minimise damage associated with trampling, through:*
 - *promoting use of Parks Victoria's Minimal Impact Guidelines including avoiding unnecessary trampling, replacing rocks in their original location and not disturbing or damaging flora or fauna*
 - *conditions placed on tour operator permits*
 - *regular patrols during popular periods and times to encourage and affirm appropriate visitor use.*
- *Undertake regular observation of impacts of trampling on high-use intertidal rock platforms with a view to determining appropriate carrying capacities.*
- *Review management of intertidal reef areas subject to the results of long-term monitoring. If necessary, consider controlling public access during certain periods, especially over peak periods, to allow recovery of marine communities.*
- *Investigate promoting extended walking opportunities within the planning area, using the beaches, existing access tracks and rock platforms, providing such*

opportunities do not detrimentally affect sensitive natural values, including intertidal rock platforms.

- *Ensure that Park Notes and other information encourage minimal impact walking and promote safety (location of walking routes and the need for tidal information).*

6.7 Dog walking

The beaches and foreshore of the planning area have been popular with local residents for walking dogs. Visitors engaged in other activities sometimes also bring dogs with them. The most popular locations are the beaches immediately adjacent to the Inverloch, Cape Paterson and Harmers Haven townships. Demand for this use is expected to increase as the populations in neighbouring coastal towns rise.

Within the planning area, dogs on leads have been permitted at Harmers Haven and, in accordance with the Proposed Management Plan (DCE 1992), between Second Surf and Undertow Bay, and the eastern marine park boundary and the eastern edge of the Flat Rock intertidal platform, except between 10 am and 5 pm from November to April. However, these restrictions have not been enforced in the past pending approval of the proposed plan.

Dogs are not compatible with the management objectives of, and are generally not permitted in areas managed under the National Parks Act, including Bunurong Marine National Park (except when confined to a vessel) and Bunurong Marine Park).

Dogs can have negative impacts on bird colonies and other wildlife through trampling, predation, disturbance and faecal pollution. 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 1975* (Vic.). The sight or sound of restrained dogs can disturb wildlife and threaten the survival of certain species of shorebirds. Ground-dwelling species such as the Hooded Plover are particularly at risk (section 4.8).

Dogs and dog excrement can be a source of annoyance and distress to some visitors, and many people with dogs do not abide by the regulation requiring dogs to be kept on a lead.

Dogs on leads are permitted on beaches in Inverloch Foreshore Reserve at all times, and in Cape Paterson Foreshore Reserve except between 9 am and 6 pm from 1 December to 14 April. Dogs are not permitted off-lead in any areas within Bass Coast Shire.

Restrictions on dogs are intended to achieve a balance between local community expectations and the protection of natural values, while providing opportunities for dog walking that will not conflict with other uses.

Aim

- Provide opportunities for dog walking in appropriate areas of the planning area, while protecting park and reserve values and the experience of visitors.

Management strategies

- *Permit dogs on leads on walking tracks, visitor sites and the following beach areas of the planning area (figure 2):*
 - *at Harmers Haven between Coal Point and the eastern end of Wreck Beach*
 - *at Cape Paterson between Wilson Road and the western boundary of the Marine National Park at Undertow Bay*
 - *at Inverloch between the eastern boundary of Bunurong Marine Park at Wreck Creek, and the eastern boundary of Bunurong Marine National Park at the headland west of The Caves carpark*
 - *from 1 December to 14 April, allow dogs on leads in the above areas only between 6 pm and 9 am.*
- *Permit dogs in Bunurong Marine National Park and Bunurong Marine Park only if confined to a vessel.*
- *Require dog owners to remove their dogs' excrement to prevent nuisance to other visitors or wildlife.*
- *Ensure that adequate information is provided to visitors describing dog regulations and the importance of the planning area for Hooded Plover conservation, through Park Notes, information signs and ranger patrols.*

- *Regularly observe the impact of dogs in the planning area on wildlife and other visitors. Erect fences and/or temporarily close sections of the beach where necessary to protect nesting Hooded Plovers and other shorebirds and chicks (section 4.8).*

6.8 Horse riding

In the past, the beach at Flat Rocks and a section of the adjacent Inverloch Foreshore Reserve to Point Norman have been used by recreational riders and racehorse trainers. Access to the beach has been via a signposted entry point at Flat Rocks, in the planning area.

This activity often crosses the boundary between public land managed by Parks Victoria and Bass Coast Shire Council. Horse-riding regulations, posted at both the Flat Rocks beach access track and the mouth of Wreck Creek, have regularly been disregarded, leading to conflict with other beach users.

Some horse riders have accessed the beach at Harmers Haven off Old Boiler Road, using the western section of the planning area to complete a round trip via routes that include Williamsons Beach.

Flat Rocks and Harmers Haven are popular venues for many other shore-based recreational activities. Training racehorses at speed along the beach has created concerns about public safety and liability. Beach users who are not educated in horse behaviour often find the presence of horses threatening. It has been reported that tethered horses have occasionally broken free and run uncontrolled among other beach users.

Although the present signage at Flat Rocks informs riders that they must stay on or below the high tide mark, this condition has often been ignored. At Harmers Haven, horses often travel above the high tide mark because of the sometimes rocky nature of the lower sections of beach. This conflicts with the protection of the shorebird nesting areas and could accelerate dune erosion.

The area adjacent to the access track at Flat Rocks where horse floats are parked and horses tethered has no fencing or railing to limit access to adjacent vegetation. The lack of controlled access could disturb additional

areas, which would in turn promote weed invasion.

Because of the expansion of nearby residential areas, visitor numbers in the western section of the planning area is likely to continue to increase and more conflicts between horses and other users are likely, particularly if riders used tracks where horses are not permitted.

Trampling of vegetation and disturbance to ground-nesting birds and their chicks and eggs are the main impacts associated with horses in beach areas. Damage to vegetation can lead to erosion. The beaches of the planning area are important nesting and feeding areas for the Hooded Plover, a species listed as threatened under the Flora and Fauna Guarantee Act (section 4.8). These birds nest on the beach just above the high tide mark and chicks forage across the beach. When threatened, chicks freeze and rely on camouflage to avoid detection (Weston 2003). This behaviour makes them highly susceptible to trampling by horses.

Horses and horse dung can also cause annoyance and distress to other park visitors. Some visitors object to seeing horses in parks because they are not part of the natural environment and make wildlife more difficult to observe.

Like dogs, horses are generally not permitted in areas managed under the National Parks Act including Marine National Parks and Marine Parks. Opportunities for horse riding are available on beaches outside of the planning area.

Because of the likely increase in conflict with other users and the potential effects of horses on visitor safety and natural values, horse riding will no longer be permitted in the planning area.

Aim

- Minimise conflicts with recreational activities, threats to visitor safety and natural values within the planning area.

Management strategies

- *Prohibit horse riding within the planning area.*
- *Encourage and direct horse riders to use alternative riding areas within the region.*

6.9 Hang gliding

Hang gliding and paragliding have occurred infrequently under south easterly wind conditions from an undeveloped site near Eagles Nest. This area is away from defined walking tracks and has been progressively rehabilitated over the years to restore sensitive coastal vegetation.

Eagles Nest is the most popular visitor site within the planning area, receiving over 200 000 visitors per year. The hang gliding launch area is unlicensed and presents a risk to public safety. The launch area, on the verge of the Bunurong Coastal Drive, creates potentially hazardous driving conditions for users of the narrow and busy Cape Paterson – Inverloch Road. Hang gliding and paragliding in the area has been observed to encourage road users to pull over on a dangerous section of road with double white lines.

Landings from the cliff top launch area are limited to the beaches below or a small area near the carpark and busy Cape Paterson – Inverloch Road and are risky. Visitors on the popular Eagles Nest beach are potentially at some risk from landing hang-gliders and paragliders.

Hang gliding and paragliding are regulated by the *Civil Aviation Act 1988* (Cwlth) and regulations, and by guidelines and regulations established by the Hang-gliding Federation of Australia.

Parks Victoria has a licence agreement with the Hang-gliding Federation of Australia governing hang gliding and paragliding activities, including sites that can be used in parks and reserves. The Eagles Nest launch area is not included on this agreement due to public safety risks for drivers on the Cape Paterson – Inverloch Road, risks to visitors on the popular Eagles Nest beach, and concerns about the protection of coastal vegetation.

Other sites on public land nearby either licensed or available for hang gliding and/or paragliding are Cape Liptrap (Cape Liptrap Coastal Park) and Kilcunda (Kilcunda – Harmers Haven Foreshore Reserve).

Aim

- Protect visitors and values in the planning area from impacts of hang gliding and paragliding within the planning area.

Management strategies

- *Prohibit hang gliding and paragliding in the planning area to protect environmental values and public safety.*
- *In conjunction with the VHPA promote alternative coastal launch sites licensed to the Victorian Hang-gliding and Paragliding Association for hang gliding and paragliding activities (e.g. Cape Liptrap).*

6.10 Recreational fishing

The proclamation of Bunurong Marine National Park on 16 November 2002 saw the seaward extension of the existing 'no take zone' (the former Sanctuary Zone of Bunurong Marine Park) to the limit of Victorian waters (5.5 km or 3 nautical miles). Severe penalties apply under the National Parks Act for all forms of fishing in, as well as the taking or damaging of animals, plants or objects from, Bunurong Marine National Park.

Fishing has been prohibited in the former Sanctuary Zone of the Bunurong Marine Park, between the southernmost headland west of The Oaks beach and the headland at the eastern end of Eagles Nest beach, and offshore for 1 km, since December 1991.

Both recreational and commercial fishing (section 7.1) are permitted in Bunurong Marine Park and adjacent waters, subject to relevant legislation. Fishing (including spear fishing and shellfish collection) is managed in accordance with the Fisheries Act and the Fisheries Regulations.

Since July 1999, a Recreational Fishing Licence has been required for all forms of recreational fishing (including line, net, yabby and spear-fishing, and bait and shellfish collection) in all Victorian marine, estuarine and freshwaters. The *Victorian Recreational Fishing Guide* (DPI 2005) specifies size and bag limits, and seasons for different fish.

A Mollusc No Take Zone (formerly known as a Shellfish Protection Zone) applies from the high water mark to 2 metres depth within the Bunurong Marine Park. In this zone Bass Yabby, crab, sandworm, pipi, rock lobster, sand fleas, squinker, squid, octopus and cuttlefish may be taken by approved methods only, but the collection of all other mollusc species is prohibited. Size, collection method

and catch limits apply to some species. The collection of dead shells is also prohibited in accordance with the National Parks Act and Regulations.

The *Bunurong Marine and Coastal Park Proposed Management Plan* (DCE 1992) proposed establishing bag limits for fin fish and shellfish within the conservation zone of the Marine Park. These proposed restrictions have since partly been addressed by amendments to bag and size limits, season and equipment restrictions through subsequent changes to the Fisheries Act and Fisheries regulations over the last 10 years, and therefore are not proposed in this plan.

Recreational fishing occurs from both the shore and vessels in Bunurong Marine Park, mostly targeted at fin fish species. Surf fishing from the beaches offers catches of whiting, pike, flathead, salmon, sharks, parrot-fish, snapper and trevally, while the rock platforms offer snapper, salmon, ruff and leatherjacket. Spear fishing occurs with the Bunurong Marine Park. Divers also target Blacklip and Greenlip Abalone and Southern Rock Lobster.

The majority of anglers access the planning area from one of the six carparks and staircases along the Cape Paterson – Inverloch Road. Boat-based anglers use the boat ramps at Cape Paterson and Inverloch or by launching from the beach at Flat Rocks (section 6.4).

Prior to the proclamation of Bunurong Marine Park in 1991, the area was occasionally a venue for organised fishing competitions. Owing to the high potential for detrimental impacts on sensitive natural values and in accordance with the proposed plan (DCE 1992), fishing competitions were not permitted in Bunurong Marine Park from 1992.

Angling competitions are generally considered incompatible with the aims and objectives of areas managed under the National Parks Act. Bunurong Marine Park is not an ideal location for angling competitions; however, proposals for such events may be considered. Organisers of angling fishing competitions in Bunurong Marine Park require a permit issued under the National Parks Act with specified conditions to minimise impacts on natural and cultural values, and recreational opportunities (section 7.2).

Spear fishing competitions, especially where intensive fishing of reef-dependent species occurs, may remove local populations of adult fish and have irreversible effects on recruitment rates (Nevill 2005). Spear fishing competitions will therefore continue to be prohibited from the planning area.

New or emerging fisheries within Bunurong Marine Park also have the potential to impact on sensitive species, particularly reef-dependent species. Compliance with legislation is essential to ensure that natural processes in the planning area can continue with minimal human interference, and to ensure that particular species are not exploited in Bunurong Marine Park.

Parks Victoria works collaboratively with the Fisheries Victoria (Department of Primary Industries) to ensure compliance with relevant legislation (section 8.3). Parks Victoria Rangers and Fisheries Victoria Fisheries Officers seek to achieve voluntary compliance with regulations, and, where necessary, enforcement, through the *Statewide Compliance Strategy* (Parks Victoria 2002b) and *East Region Compliance Plan* (Parks Victoria 2005).

Fishcare is a program of community education and participation to promote sustainable fishing and care for fishing environments. Parks Victoria works collaboratively with Fishcare to promote responsible fishing behaviour and sustainable fishing practices.

Aim

- Provide opportunities for sustainable recreational fishing while minimising impacts to natural and cultural values.

Management strategies

- *Ensure compliance with the prohibition of all forms of fishing and resource harvesting within Bunurong Marine National Park.*
- *Work collaboratively with Fisheries Victoria to manage fishing in Bunurong Marine Park in accordance with the Fisheries Act 1995 and regulations (section 8.3).*
- *Ensure that information, interpretation and education programs incorporate information relating to recreational*

fishing provisions, including boundaries between the Marine National Park 'no-fishing' area and Marine Park (section 6.1).

- *Raise public awareness of legal requirements regarding the collection of bait, bag limits, seasons and licence requirements.*
- *Work with angling clubs and interest groups to maintain recreational fishing opportunities while minimising impacts on the planning area's values and minimising risks to visitors.*
- *Support the Fishcare program to promote responsible fishing behaviour and sustainable fishing practices.*
- *Support the objectives of Fisheries Victoria in the ecologically sustainable management of fishing activities.*
- *Consider applications for angling competitions, on a case-by-case basis, and manage such events to minimise impacts to marine ecological communities, ecological processes, and individual species (section 7.2).*
- *Liaise with Fisheries Victoria in the regulation and management of any angling completions and new or emerging fisheries that might affect the marine park, particularly as they relate to reef-dependent species.*
- *Continue to prohibit spear fishing competitions in the planning area.*
- *Encourage collection of bait from outside the Bunurong Marine Park through visitor information and ranger patrols.*

6.11 Tourism services

The planning area's natural and cultural values, together with its diverse recreational opportunities, make it an important area for tourism.

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. Well-organised tour groups offer opportunities to interpret park and reserve values and encourage minimum impact practices.

Licensed tour operators currently permitted to use Bunurong Marine National Park and Bunurong Marine Park offer bus tours, sea kayaking, surfing and bushwalking.

There is a growing trend towards nature-based tours, and the planning area's diverse marine flora and fauna, geology and dinosaur fossils could appeal for these types of tours.

There are opportunities for relevant Indigenous communities to add to the tourism experience in the planning area by developing and delivering interpretive and educational tours on Indigenous cultural heritage and values.

Activities by tour operators are managed by permit conditions that detail access, permitted activities and site-specific restrictions.

Licensed tour operators are also required to adhere to industry-developed Adventure Activity Standards (section 6.12).

Tourism Alliance Victoria is a membership-based industry association with 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 planning area.

Aim

- Provide opportunities for and encourage provision of external tourism services while minimising impacts on natural and cultural values of the planning area.

Management strategies

- *Ensure all tour operators using the park are licensed and promote awareness of Adventure Activity Standards and Minimal Impact Guidelines.*
- *Encourage and assist licensed tour operators to provide a range of appropriate activities and group sizes compatible with the protection of the values of the planning area (sections 6.4, 6.5 and 6.6).*
- *Work with licensed tour operators to ensure that the provision of information provided to the public by licensed tour operators is correct and appropriate, and includes messages that enhance and*

support the values and benefits of the planning area.

- *Continue to work with licensed tour operators and the tourism industry to assist with the delivery of appropriate park information.*
- *Monitor licensed tour activities to ensure that the planning area's values are not compromised, and amend licence conditions if necessary.*
- *Encourage and support Indigenous communities to provide licensed tour operator services.*

6.12 Public safety

The beaches, intertidal rock platforms and waters of the planning area present inherent dangers and risks to visitors. Most of these risks are common to all coastal areas and are not peculiar to the planning area. Although some sites in the planning area may appear inviting for water-based recreational activities, the presence of slippery rocks, unstable cliffs, venomous fauna, gutters, large unpredictable waves, rips and strong currents pose potential dangers for visitors. Recreational activities may also be dangerous if not undertaken with appropriate safety considerations and an awareness of local conditions.

The exposed open waters of the planning area are hazardous for boats, particularly during rapidly changing weather and sea conditions. Although there are boat launching areas at Flat Rocks and Cape Paterson, neither provides all-weather all-tide access. This, together with the lack of suitable shelter in case of an emergency, makes the waters particularly dangerous for inexperienced operators of small craft. The *Victorian Recreational Boating Safety Handbook* (MSV 2005) contains necessary safety information and outlines the requirements for operating a recreational vessel in Victoria (section 6.4).

Other hazards include wildfire, falling trees, unstable cliffs and falling rocks. Visitors need to be aware of safety risks and familiarise themselves with the specific dangers associated with their chosen activity in the planning area, prior to arrival.

Adventure Activity Standards are being developed by the outdoor recreation industry

for all adventure activities, including diving and snorkelling (section 6.5). The Outdoor Recreation Centre will facilitate the development and update of these standards. Visitors are encouraged to comply with these standards, or other standards relevant to their activity, and undertake the required training and accreditation before undertaking their chosen activity within the planning area.

Surf Lifesaving Australia prepared a risk rating for all Victorian beaches in 1996 (Short 1996). The planning area's beaches are considered Low Safety and Least Safe and unsuitable for swimming and potentially hazardous for surfing and fishing due to the presence of high waves, rocks, strong rips and currents. However, Cape Paterson Surf Life Saving Club and Wonthaggi Royal Life Saving Club provide beach patrol services to swimmers and surfers at the Bay and First Surf beaches (outside the planning area).

A number of emergency incidents have occurred within the planning area, including stranded vessels, diving incidents and near-drownings.

Parks Victoria guidelines set out procedures for accessing risks, developing strategies and implementing remedial actions. Parks Victoria has a responsibility to ensure that visitors are aware of safety issues and risks.

Public information and education programs are one of the most effective ways of promoting safety (section 6.1). Park Notes, information panels and signs are used to convey messages about safety risks to visitors. They are supported by routine patrols with an education and prevention emphasis (section 6.1). Consistency in the style and messages used in signs in the planning area and on adjacent land is important to ensure that visitors are adequately informed of the risks to public safety.

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 Victoria Police, the State Emergency Service and DSE and Country Fire Authority, in emergency incidents where required.

The *Bass Coast Municipal Emergency Response Plan* (BCSC 2001) and the *Bass Coast Parks and Reserves Emergency Management Plan* (Parks Victoria 2004) define emergency response arrangements for all potential incidents within the planning area.

A *Safety and Environment Management Plan (SEMP) for the Port of Anderson Inlet* has been prepared by Gippsland Ports (Gippsland Ports 2005). The plan is a management tool to assist Gippsland Ports in systematically examining the full scope of activities in the port to ensure that all significant risks are identified and controlled (sections 4.3 and 8.3)

Aims

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

Management strategies

- *Manage the planning area in accordance with Parks Victoria operational guidelines and encourage visitors to adopt safe operating practices for their activities.*
- *Use Park Notes, Parks Victoria's website and information signs to increase visitor awareness of safety issues and potential hazards in the planning area, highlighting the hazards associated with coastal environments and water-based recreational activities.*
- *As part of an integrated sign plan with Bass Coast Shire Council, install warning and regulatory signage where appropriate to advise of risks to public safety (section 6.1).*
- *Maintain safety standards of visitor facilities in accordance with the risk assessment of public facilities.*
- *Cooperate with the police and emergency services in search and rescue activities, and contribute to emergency management planning for search and rescue within the planning area.*
- *Ensure that Parks Victoria staff are appropriately trained in first aid, boat handling and search and rescue*

techniques, and are available to assist with emergency operations.

- *Maintain an Emergency Management Plan for the planning area, outlining emergency procedures and responsible authorities, and ensure that staff and licensed tour operators are aware of the plan.*
- *Liaise with Gippsland Ports to provide input into the planning and implementation of marine safety initiatives within the planning area and adjacent*

waters, including the implementation of the Port SEMP for the Port of Anderson Inlet (Gippsland Ports 2005).

- *Ensure that the Bass Coast municipal emergency response plan makes adequate provision for incidents likely to occur within the planning area.*

7 STRATEGIES FOR AUTHORISED AND ADJACENT USES

7.1 Authorised uses

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

There are a number of utilities in the planning area managed by public authorities and service providers. These include powerlines and underground cables (TRU Energy), stormwater drains (Bass Coast Shire Council), and a small section of the sewer main for the Inverloch wastewater treatment plant (South Gippsland Water).

The operation of public utilities in planning area is subject to a consent issued under the provisions of the National Parks Act or a lease issued under the provisions the Crown Land (Reserves) Act. Consents and leases include conditions to minimise effects on the planning area, visitors and other uses. Currently none of the public utilities within the planning area is licensed.

Commercial fishing is permitted within Bunurong Marine Park subject to a licence and the provisions of the Fisheries Act. Fishing is predominantly boat-based and includes the harvesting of Southern Rock Lobster, abalone, pelagic fish and reef fish. Fisheries Victoria has the primary role for ensuring sustainable fisheries (section 8.3).

Petroleum extraction, exploratory drilling, mineral exploration and mining, and invasive searching for or extraction of stone and other materials, are prohibited in the parks 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 planning area 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 for petroleum exploration. There is no petroleum exploration permit over the planning area.

The construction of pipelines or seafloor cables may be permitted in marine areas with the consent of the Minister in some circumstances.

All research and monitoring in a Marine National Park or Marine Sanctuary by external organisations or individuals requires a research permit under the National Parks Act, issued by DSE.

Aim

- Manage authorised uses in accordance with relevant legislation, and minimise their impact on the planning area's values.

Management strategies

- *Manage authorised uses in accordance with the requirements of legislation and Parks Victoria's operational policies.*
- *Seek relevant consents or permits for all existing public utility installations and services, including conditions to ensure that their construction, operation and maintenance are consistent with protection of the planning area's natural and cultural values and amenity of visitors.*
- *Seek relevant consents or permits with appropriate conditions for any new public utilities or services.*
- *Monitor authorised activities to ensure that conditions of authorisations are met. Assess the effectiveness of conditions of authorisations in protecting the planning area, and seek review of authorisations if necessary, to arrest impacts.*
- *Work collaboratively with Fisheries Victoria to implement the fishing prohibition in the Marine National Park, the fishing regulations in the Bunurong Marine Park and the Regional Compliance Plan.*
- *Liaise with Fisheries Victoria and commercial fishers to ensure that impacts to planning area values from commercial fishing activities are minimised.*
- *Support Fisheries Victoria in its management of commercial fishing within Bunurong Marine Park in accordance with the provisions of the Fisheries Act and regulations.*

7.2 Occasional uses

Weddings, small-scale events and other activities are conducted in the planning area from time to time. Large-scale organised events are not appropriate because of space, access and facility limitations and potential impacts on other users and natural values.

Fishing competitions are generally considered incompatible with the aims and objectives of areas managed under the National Parks Act (section 6.10). An event permit is required to ensure that the impact of these activities on the planning area's values is minimised.

The spectacular coastal scenery of the planning area, and in particular features such as Eagles Nest and the Bunurong Coastal Drive, are often used for commercial filming and photography.

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 their activities, seeks to ensure protection of the natural and cultural values of the planning area. 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.

Protected areas are generally avoided for Defence Force training exercises, although they occasionally host search and rescue, field navigation and incident response activities. 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 uses and permitted activities in accordance with relevant legislation, and minimise their impacts on the planning area's values.

Management strategies

- *Permit events and functions that:*
 - *do not impact on the natural and cultural values of the planning area, particularly marine ecological*

communities and species such as reef-dependent species (section 6.10)

- *do not unduly disturb and disadvantage other visitors*
- *do not unduly increase liability risk exposure*
- *can be appropriately managed with available resources.*
- *Support events and functions that provide community benefits or complement the planning area's values.*
- *Ensure that relevant Indigenous communities are consulted and involved in planning and participating in relevant events.*
- *Manage commercial filming and photography in accordance with Parks Victoria's operational guidelines.*
- *Permit Defence Force adventure training or field navigation exercises in the planning area in accordance with Parks Victoria's operational guidelines and relevant permit conditions.*

7.3 Boundaries and adjacent uses

Boundaries

Bunurong Marine National Park extends from the mean high water mark along 5 kilometres of coastline between the most southern headland west of The Oaks Beach and the headland at the eastern end of Eagles Nest Beach, and offshore for approximately three nautical miles (5.5 km) to the limit of Victorian waters (figure 2). The vertical boundary of the Marine National Park extends to 200 metres below the seabed.

Bunurong Marine Park comprises two separate areas along 12 kilometres of coastline adjoining the Bunurong Marine National Park. It extends from the mean high water mark to 1 kilometre offshore, between Coal Point and the southernmost headland west of The Oaks Beach; and the eastern end of Eagles Nest Beach to Wreck Creek (figure 2).

The Bunurong Coastal Reserve (92.8 ha) includes the narrow strip of public land (above the mean high water mark) adjacent to the Bunurong Marine Park and Bunurong Marine National Park between the eastern boundary of

the Cape Paterson Foreshore Reserve at Undertow Bay and Wreck Creek (figure 2).

The section of the Kilcunda – Harmers Haven Coastal Reserve (80 ha) included in the planning area consists of the public land (above the mean high water mark) adjacent to the Bunurong Marine Park from Coal Point to the western boundary of the Cape Paterson Foreshore Reserve at Wilson Road.

The boundaries of Bunurong Marine National Park are marked and are generally visible from the sea (section 1.1 and figure 2). The on-shore boundary markers at the western and eastern boundaries of the Marine National Park are yellow triangular signs pointing towards the Marine National Park. Boundary coordinates are published on Parks Victoria's website and in Park Notes. Information signs and regulatory totems have also been placed at the main access points in the adjacent coastal reserve.

As fishing is prohibited in Bunurong Marine National Park but permitted in the adjacent Bunurong Marine Park, clear boundary identification is paramount. Together with yellow on-shore markers, significant and easily identified landforms are used in literature to communicate the boundaries of the Marine National Park to visitors. Owing to difficulties and costs associated with installation and maintenance, in-water boundary markers are not provided.

The landward boundary of the Bunurong Coastal Reserve and Kilcunda–Harmers Haven Coastal Reserve is poorly defined, particularly along the Cape Paterson – Inverloch Road and neighbouring Harmers Haven. In some areas boundary deviations have resulted in significant areas of Crown land being incorporated by fences into freehold land, or freehold land being fenced into adjacent areas of Crown land. Backyards encroaching into the coastal reserve is a particular problem at Harmers Haven.

Adjacent uses

The majority of the adjacent freehold land is cleared, used principally for stock grazing. The planning area adjoins the coastal settlements of Harmers Haven, Cape Paterson (pop. 700) and the south-western corner of the township of Inverloch (pop. 2900). Significant population

growth is predicted for these settlements over the next five years (GCB 2002b).

South Gippsland Water operates a wastewater treatment plant adjacent to the planning area at Eagles Nest. The plant services Inverloch and discharges secondary treated wastewater at Baxters Beach, four kilometres north-west of the planning area, in accordance with EPA licence requirements.

At its western boundary, the planning area adjoins the Wonthaggi Heathland Nature Conservation Reserve which extends inland towards the Wonthaggi township, and the remainder of the Kilcunda – Harmers Haven Coastal Reserve which extends along the coast to the Powlett River and Kilcunda. Set aside primarily for conservation purposes, particularly for its heathland and coastal environments, the Wonthaggi Heathland Nature Conservation Reserve is an important biological link to the planning area.

Cape Paterson Foreshore Reserve is adjacent to the planning area between Second Surf Beach and Undertow Bay. Permanently reserved under the Crown Land (Reserves) Act, this area is managed for recreation and conservation purposes by Bass Coast Shire Council as Committee of Management.

Cape Paterson Foreshore Reserve provides access to the waters of the planning area off Cape Paterson, and also has visitor facilities such as toilets, picnic facilities, a boat ramp (section 6.4) and carparking. The reserve contains significant remnant vegetation, linking with the Coastal Headland Scrub and Coastal Dune Scrub communities in the planning area (section 4.7).

Occupancies of the foreshore reserve include the Orana, Kywong and Illawong Caravan Parks, Wonthaggi Royal Surf Lifesaving Club and Cape Paterson Life Saving Club. The Wonthaggi Royal Surf Lifesaving Club and Cape Paterson Surf Lifesaving Club provide beach patrol services at The Bay and First Surf Beach respectively during the summer holiday season. Collectively, the three adjacent caravan parks have 250 serviced campsites catering for up to 1000 visitors.

At its eastern boundary at Wreck Creek, the planning area adjoins the Inverloch Foreshore Reserve. Managed by the Bass Coast Shire Council as Committee of Management, this

reserve is set aside for public purposes and caters for high visitor usage with day visitor facilities including toilets, barbecues, picnic shelters, carparking and beach access tracks. The reserve includes the Inverloch Foreshore Caravan Park and Camp Ground with 180 serviced camp sites. Inverloch Boat Ramp, a regional boat facility used to access the waters of the planning area, is also in the reserve (section 6.4). The *Inverloch Foreshore Reserve and Anderson Inlet Management Plan* (NRE 1998) specifies directions and management objectives for the reserve.

Part of the designated Port of Andersons Inlet from Petrel Rock to Wreck Creek is within Bunurong Marine Park. The Port of Andersons Inlet is administered by Gippsland Ports under the Marine Act, *Port Services Act 1995* (Vic.) and *Port Services (Local Ports) Regulations 2004* (Vic.) (sections 6.12 and 8.3).

Cooperation with all adjacent managers is desirable to facilitate a coordinated approach to management, especially operational matters.

State waters and the underlying sea bed adjoining the planning area are currently unreserved Crown land. These waters are used for commercial fishing, recreational fishing, recreational boating and commercial shipping. As a result of the Government's acceptance of the Environment Conservation Council's recommendations (Government of Victoria 2002), these areas will be reserved as Coastal Waters Reserve under the Crown Land (Reserves) Act to provide for a diverse range of activities that are compatible with long-term sustainable development.

Dredging or disturbance of the seabed is not permitted in Bunurong Marine National Park, but could occur in adjacent waters (including the Bunurong Marine Park) for boating access, utility installation or other development (section 4.3). Dredging on the Victorian coast requires the consent of the Minister for Environment under the Coastal Management Act and must be conducted in accordance with the *Best Practice Environmental Management Guidelines for Dredging* (EPA 2001). Although there are no current proposals, developments which involve dredging or disturbance to the seabed could threaten the natural values of the planning area through increased turbidity, changes in sedimentation

patterns and the release of previously inactive nutrients from the seabed (section 4.3).

The *Bass Coast Shire Planning Scheme* (BCSC 2003a) sets out the statutory framework for managing proposals and developments adjoining the planning area. Administered by the Bass Coast Shire Council, the scheme extends to 600 m offshore. Under the scheme, most of the planning area is zoned Public Conservation and Resource Zone (PCRZ). A small section of the planning area near Wreck Creek is zoned Public Park and Recreation Zone. The majority of the Marine National Park is currently not zoned. These areas, consistent with the State Planning Policy Framework (DSE 2003b), should be zoned Public Conservation and Resource Zone (PCRZ).

All adjacent private land is overlaid with two Environmental Significance Overlays (ESO 1 Coastal Areas and ESO 5 Residential Areas without reticulated sewerage) which specify local objectives and requirements that must be met by a development application. The purpose of ESO 1 is to protect the natural beauty of coastal landscapes and ensure that development is compatible with the environmentally sensitive coastal areas (section 4.1). ESO 5 is used to protect the natural environment, particularly groundwater and water quality, from contamination.

The majority of land adjacent to the planning area is zoned Rural Zone (RUZ). The Harmers Haven settlement is zoned as either Residential 1 Zone (R1Z) or Low Density Residential Zone (LDRZ) and the adjacent area of the Inverloch and Cape Paterson is zoned Residential 1 Zone (R1Z). A Design and Development Overlay (DDO1) is used to protect views to and from the coast from adjacent residential areas and to minimise the visual impact of development on the landscape of coastal areas. It applies to parts of Inverloch, Harmers Haven and Cape Paterson townships.

DSE is a referral authority under the *Planning and Environment Act 1987* (Vic.). Parks Victoria provides advice to DSE to ensure that the protection of the planning area's values is considered in the assessment of all planning applications.

There is an increasing amount of residential development in small rural holdings along the planning area boundary and neighbouring the settlements of Harmers Haven and Cape Paterson, and the township of Inverloch. This development, together with a rise in the permanent population in the neighbouring coastal towns, will place increasing pressures on the planning area (section 4.3). Potential impacts include loss of landscape values (section 4.1), pest plant invasion (section 4.9), uncontrolled access and encroachments (section 6.6).

In accordance with the recommendations of the *Bass Coast Strategic Coastal Planning Framework* (BCSC 2004) there is an opportunity to further strengthen the planning scheme to specify strategic objectives for the development of the local area and provide further protection for the area's significant landscape values.

Aims

- Minimise impacts on planning area values from adjacent uses and developments.
- Ensure the integration of management with adjoining land and waters in accordance with principles for ecologically sustainable development.
- Effectively communicate the location of Marine National Park and other planning area boundaries.

Management strategies

- *Maintain boundary markers, signs and information to ensure that the boundaries of the Marine National Park are clearly identifiable from the land and the sea.*
- *Liaise with DSE with respect to the purpose, boundaries and regulations of the reserves.*
- *Recommend to Bass Coast Shire Council an amendment of the planning scheme, as soon as practicable, to recognise the Marine National Park and to zone the whole planning area as Public Conservation and Resource Zone and strengthen the protection of landscape values (section 4.1).*
- *Continue the arrangement by which DSE, as a referral authority, assesses planning*

permit applications that are relevant to the management of the planning area in consultation with Parks Victoria.

- *Liaise with adjacent land managers and water managers to minimise impacts from management actions on the natural and cultural values of the planning area, and to ensure that the area's values are given due consideration in future developments.*
- *Undertake a desktop survey of aerial photographs and cadastral information to identify incorrect fence lines on the planning area boundary.*
- *With the support of the planning area's neighbours, progressively implement a program to remove intrusions and repair impacts from boundary encroachments through community education, letters, site visits, surveys and follow-up inspections, where necessary.*
- *Encourage the application of the Good Neighbour Policy to manage issues on or near the boundary of the planning area, particularly in coordinating pest plant and animal control programs with adjoining land owners.*
- *Encourage nearby landowners to protect existing indigenous vegetation adjoining the planning area through mechanisms such as the placement of conservation covenants on title, agreements under section 173 of the Planning and Environment Act, and the Land for Wildlife scheme.*
- *Encourage sound conservation and land management practices on private land adjoining the planning area.*
- *Work with Bass Coast Shire Council on complementary management of the Cape Paterson and Inverloch Foreshore Reserve, particularly to achieve consistent management of recreational activities and to protect the planning area from adverse impacts of adjacent uses.*
- *Ensure that dredging activities in adjacent waters are in accordance with the Environment Protection Authority's draft Best Practice Environmental Guidelines for dredging so that they will not have an impact on the values of the planning area.*

8 STRATEGIES FOR COMMUNITY AWARENESS AND INVOLVEMENT

8.1 Community awareness

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

Increasing awareness among the community on the key threatening processes to the area's values can assist in minimising the potential for further impacts. Management issues that would benefit from greater community awareness include:

- the importance of catchment management in the protection of water quality (section 4.3)
- flora and fauna management, particularly for management of threatened species (sections 4.7 and 4.8)
- pest plant and animal control programs and the need to prevent the introduction and establishment of pest species (sections 4.6 and 4.9)
- impact of visitor activities and the importance of adopting minimal impact techniques and adhering to codes of conduct appropriate to the activity.

Information, interpretation and education programs play an integral role in raising community awareness of these issues (section 6.1). 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.

DSE's Coast Action/Coastcare programs work with a variety of volunteer groups and coastal

community organisations to build broader community awareness and understanding of marine and coastal issues and to achieve on-ground works. There are opportunities for all sectors of the community to participate in such facilitated activities, including interpretation and education programs (section 6.1).

Through information, interpretation and education programs, there are also opportunities to build broader community awareness of the significance of the planning area to Indigenous communities (section 6.1). This will aid in the development of greater recognition of, and respect for, Indigenous culture in the broader community.

Aims

- Increase community awareness and understanding of the values and management activities of the planning area.
- Build a sense of shared ownership and custodianship for the planning area among community groups and individuals.

Management strategies

- *Promote opportunities for community members to improve park management through taking shared responsibilities and becoming directly involved.*
- *Host a regular 'Park Information' session to inform interested groups from the local community on annual work programs, and progress in implementing the management plan, and to celebrate the achievements of Friends, volunteers and other groups participating in the planning area's management.*
- *Communicate the work of volunteers and community groups to the broader community.*
- *Increase public awareness and understanding of key management activities, including catchment management (section 4.3), threatened species management (sections 4.7 and 4.8), pest plant and animal control*

programs (section 4.9) and the management of visitor activities through information, interpretation and education programs (section 6.1).

- *Liaise with the local community and Bass Coast Shire Council to enhance community understanding of responsible pet ownership, planting of indigenous vegetation and problems associated with environmental weeds.*

8.2 Community participation

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

Volunteers and community groups make valuable contributions to management projects. They bring diverse and valuable information, knowledge, skills and experience that may not otherwise be available to the planning area's managers. Volunteers also bring great enthusiasm and can add valuable resources to assist with the care of the planning area.

The interests of community groups in the planning area often overlap and may not always be complementary. There can be considerable mutual benefits where such groups work together and with Parks Victoria to achieve common goals.

The Traditional Owners have considerable interest in and aspirations for the planning area as part of *Country*. They are also 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 planning and management and the reconciliation of their interests and aspirations with those of other members of the community.

Community involvement in monitoring the planning area is valuable in developing awareness of natural and cultural values, as well as building community custodianship (section 8.1). Such information collection and sharing is also likely to benefit management by leading to more rapid detection of unexpected or unusual natural events and marine pest introductions.

Reef Watch is a non-profit project developed by the Australian Marine Conservation Society and funded by the Federal and State Government through Coast Action/Coastcare. The project calls on the voluntary assistance of Victorian divers (both scuba and snorkel) to help describe and monitor marine life in a variety of habitats. Parks Victoria endorses the Reef Watch program as a mechanism for the involvement of the community in marine Sea

Sea Search is a community-based monitoring program where volunteers can undertake systematic surveys in the park, including subtidal rocky reef flora and fauna monitoring. Such programs aim to involve community members and existing volunteer groups such as Friends in monitoring programs that increase knowledge of the park's cultural and natural values. Currently no *Sea Search* activities occur in the park.

South Gippsland Waterwatch is a community-based water-quality monitoring program. There are currently no water-quality monitoring programs in the catchment of the planning area. However, there is scope to expand the Waterwatch program to creeks which discharge directly into the planning area (section 4.3).

A wealth of information in the form of knowledge, marine natural history and underwater photography is contained among members of the Scuba Divers Federation of Victoria (SDFV), including members of the Latrobe Valley Scuba Club who have been diving the area for many years, and also among local dive clubs and other interested divers (section 6.5).

The South Gippsland Conservation Society is active in preserving natural resources from environmentally damaging development through undertaking on-ground activities and education. The Inverloch and Wonthaggi Branches of the Society pursue local issues and activities relevant to the planning area, operate the Bunurong Environment Centre and employ an Education Officer (section 6.1).

The Friends of Dinosaur Dreaming work in conjunction with Monash University and Museum Victoria on the excavation site at Flat Rocks (section 4.2). The Friends assist with the fossil dig and host an annual Dinosaur

Dreaming Day where guided tours of the excavation and surrounding area are provided.

Other volunteer organisations and tertiary and work experience students have assisted with or are interested in various projects to benefit the planning area.

Parks Victoria and researchers work together to undertake applied research to improve park management and ecological understanding. Tertiary student research into the planning area can be undertaken as part of the Research Partners Panel which incorporates marine research priorities.

Aims

- Support and encourage community groups and volunteers to assist actively in the area's management by participating and by contributing their knowledge and skills.
- Encourage tertiary students to undertake volunteer work experience and research that is consistent with aims for the planning area.
- Inform, enrich and strengthen the planning area's management with the community's traditions and customs, especially Traditional Owner's cultural lore.

Management strategies

- *Continue to encourage and support dive clubs, naturalists, community and volunteer groups in the planning area, including activities such as marine flora and fauna monitoring using standard methods, marine photography and community education. Encourage and support such groups to work together with each other and Parks Victoria to achieve shared goals for the planning area.*
- *Provide opportunities for, and encourage, tertiary students to undertake volunteer work experience and research that is consistent with management directions for the planning area.*
- *Continue to build, 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.*

- *Encourage the establishment of a Friends group for the planning area.*
- *Support volunteer and community groups to work together to pursue funding for appropriate community projects to benefit the planning area.*
- *Encourage community involvement in Reef Watch and Sea Search monitoring and recording programs and other programs using standard methods.*
- *Encourage water quality monitoring programs by South Gippsland Waterwatch in the catchment of the planning area, including Wreck Creek, Coal Creek, Ayr Creek, Screw Creek and other streams that discharge into the planning area (section 4.3).*
- *Encourage and support interest groups and volunteers to develop an understanding and appreciation of the planning area's values and the rich and diverse cultural lore, and aspirations of the Traditional Owners.*
- *Maintain liaison with volunteer groups, individuals and tertiary students to guide and support them and ensure that they have opportunities to use their skills and knowledge.*

8.3 Agency partnerships

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

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

DSE establishes parks and provides strategic direction and policy advice for the management of the planning area, including marine flora and fauna values and threatening processes, and oversees management of Victorian coastal Crown land and waters. Parks Victoria is a support agency for

responses to oiled wildlife and cetacean stranding or entanglement (section 4.5) and fire management (section 4.11), operating at the direction of DSE.

As part of agreed service delivery arrangements, Fisheries Victoria (Department of Primary Industries) has primary responsibility for fisheries enforcement to ensure compliance with the fishing prohibitions under the National Parks Act. Parks Victoria will continue to collaborate with Fisheries Victoria in activities such as cooperative Ranger and Fisheries Officer patrols and support arrangements in accordance with the *Statewide Compliance Strategy* (Parks Victoria 2002b) and the *East Region Compliance Plan* (Parks Victoria 2005).

The Central Coastal Board provides direction and policy advice to facilitate sustainable development of Western Port, Port Phillip Bay and the open coastline of Victoria between Breamlea and Inverloch, through the implementation of the *Victorian Coastal Strategy* (VCC 2002) and preparation of Coastal Action Plans (section 4.3).

West Gippsland Catchment Management Authority is 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 4.3)

The Environment Protection Authority (EPA) Victoria has the primary responsibility for environment protection of all waters in Victoria and is responsible for administering and enforcing the Environment Protection Act, including all activities relating to the discharge of litter and waste to the environment (section 4.3). EPA Victoria also develops State Environment Protection Policies (SEPPs) for State waters and facilitates the development of Neighbourhood Environment Improvement Plans (NEIPs) which enable communities to work towards achieving local environmental improvements (section 4.3).

Bass Coast Shire Council has a key role in administering the planning scheme for land near the planning area, including assessment of developments with the potential to impact on

planning area values. Parks Victoria provides input into planning applications to ensure the protection of planning area values (sections 4.1 and 7.3).

The Bass Coast Shire Council manages urban stormwater through drainage infrastructure, drain maintenance and education and awareness programs in accordance with the *Bass Coast Shire Stormwater Management Plan* (BCSC 2003b).

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. Marine Safety Victoria is responsible for administering the Marine Act, including the planning and implementation of pollution response and marine safety initiatives (sections 4.3 and 6.12) and compliance with boating speed restrictions under the Marine Act (section 6.4). Port of Hastings (managed under contract by Toll Western Port) is the delegated regional marine pollution control agency for the waters of the planning area.

Gippsland Ports is the local authority for the designated Port of Anderson Inlet which includes waters of the Bunurong Marine Park from Wreck Creek to Petrel Rock. Gippsland Ports is responsible for administering the Marine Act, *Port Services Act 1995* (Vic.) and Port Services (Local Ports) Regulations 2004 within the designated Port, including boating zones, implementation of marine safety initiatives, and the preparation and implementation of the Port Safety and Environment Management Plan (sections 6.12 and 7.3). Parks Victoria works collaboratively with Gippsland Ports to ensure boating safety within the planning area.

The planning area is within Tourism Victoria's Gippsland marketing and promotion region, with Prom Country Tourism being the Regional Tourism Authority. Parks Victoria actively works with State and regional tourism authorities to ensure that the planning area is appropriately promoted in regional visitor information centres and in regional tourism strategies.

Through Aboriginal Affairs Victoria (AAV), the Department for Victorian Communities (DVC) has responsibility for administering the

legislation protecting cultural heritage (sections 2.5 and 5.1). AAV advise Parks Victoria on Indigenous matters.

The Minister for Aboriginal Affairs currently has responsibility for ensuring compliance with the provisions of the Archaeological and Aboriginal Relics Preservation Act and the Aboriginal and Torres Strait Islander Heritage Protection Act, seeking and considering input from the relevant Indigenous communities (section 5.1).

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 (section 5.2). A Memorandum of Understanding between Parks Victoria and Heritage Victoria provides for cooperation between both parties to achieve mutual objectives for heritage conservation.

VicRoads is responsible for the management of Cape Paterson – Inverloch Road (Bunurong Coastal Drive) which passes through the Bunurong Coastal Reserve and Inverloch Foreshore Reserve (section 6.2).

Minerals and Petroleum Victoria (Department of Primary Industries) is responsible for the sustainable development of the extractive, oil and gas, pipelines, geothermal energy, minerals exploration and mining industries in Victoria through the provision of policy advice, regulation and promotion.

Victorian agencies work cooperatively with the Commonwealth Department of the Environment and Heritage on the management of regional ecosystem conservation issues.

Aim

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

Management strategies

- *Work collaboratively with all agencies to implement the vision and directions of the plan. In particular work with:*
 - *DSE to seek relevant advice for future planning and management, including protection of flora and fauna from potentially threatening processes, fire management, reserve boundaries and consistent regulations for the coastal reserve areas*
 - *Fisheries Victoria to implement the fishing prohibition and the Regional Compliance Plan*
 - *the Central Coastal Board on any future plans and strategies that relate to the planning area*
 - *West Gippsland CMA to reduce the impacts of land use and management of the catchment on the planning area and development of appropriate actions in the Regional Catchment Strategy*
 - *South Gippsland Water to minimise impacts associated with the management of sewer main and Inverloch treatment plant*
 - *EPA Victoria to minimise impacts associated with discharge of waste into the environment, particularly those from litter, stormwater, boating and shipping, and assist local communities to develop a Neighbourhood Environment Improvement Plan if deemed appropriate for the planning area (section 4.3)*
 - *VicRoads to minimise impacts associated with the management of Bunurong Coastal Drive, particularly from road works and signage*
 - *Aboriginal Affairs Victoria on issues relating to Indigenous matters*
 - *Heritage Victoria on heritage management and compliance with the Heritage Act*
 - *the Country Fire Authority and DSE to ensure safety and protection of the planning area's values in managing*

fire within and around the planning area

- *Marine Safety Victoria and the Port of Hastings (Toll Westernport) in response to marine pollution incidents*
- *Marine Safety Victoria to help maximise visitor safety and compliance with boating and other regulations (section 6.4)*
- *State and regional tourism authorities to promote the planning area appropriately in regional visitor information centres and in regional tourism strategies*
- *Gippsland Ports on input into the planning and implementation of marine safety initiatives within the designated Port of Anderson Inlet, including the preparation and implementation of the port Safety and Environment Management Plan*
- *Commonwealth Department of the Environment and Heritage on the*

management of regional ecosystem conservation issues

- *Bass Coast Shire Council on administration of the planning scheme, including input into adjacent or nearby developments that may impact on the planning area and complementary management of the Inverloch and Cape Paterson Foreshore Reserves, particularly recreation activities.*
- *Maintain communications with Minerals and Petroleum Victoria, the petroleum industry and other agencies with respect to petroleum activities near the planning area.*
- *Provide information for 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 the annual reports on the National Parks Act and Parks Victoria.

During implementation of the plan, Parks Victoria will work in partnership with the 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 planning area 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 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 is 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 Management Strategy (Parks Victoria 2003a) and State of the Parks reports, which will be available on the Parks Victoria's website will also include information on management performance in the planning area.

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 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 a significant boundary change).

A 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 all 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 improvement in biodiversity.
- Compliance with no-fishing provisions and park regulations.
- Timely management intervention to minimise threats.
- Minimal impact of permitted uses.

Protecting cultural values

- Timely management intervention to minimise damaging activities and threats.
- Progress towards working in partnership with Traditional Owners in managing the planning area.

Managing recreation and visitor use

- Maintaining the levels of information and interpretation (section 6.1).
- Meeting and maintaining the levels of service for facilities (table 4).
- Facilities meet public safety standards and the majority of facilities with more than five years' life expectancy.
- Managing impact from visitors, including individuals and school and tour groups.
- Maintain visitor satisfaction with recreational opportunities.
- Meeting community expectations in relation to Parks Victoria's management of the planning area.

Providing for research and promoting understanding

- Improving understanding of the composition and distribution of habitats and ecological processes.
- Improving understanding of the management requirements of threatened flora and fauna.
- Ongoing community and agency partnerships in management.

The way the benefits of the plan are evaluated is likely to be refined over time. Parks Victoria partners with external research agencies to enhance knowledge and understanding of the values and threats, inform management decisions, particularly in relation to pest and fire management, and establish benchmarks and indicators for major marine communities and habitats. By using 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

Algae (seaweed) – plant-like organisms that use light energy to create food. Unlike plants, algae are not differentiated into roots, stems and leaves.

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

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.

Biodiversity – the natural diversity of all life: the sum of all 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 unique underlying environmental and ecological features.

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

Bryozoan (lace coral) – common small colonial marine animal, flat or upright, occurring in many colours.

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

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

Coast – in broad terms, the sea and the seabed to the State limit (3 nautical miles or 5.5 kilometres offshore) and the land and inland waters within the coastal catchment.

Coastline – generally, the line along which 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.

Coralline algae – algae that contain calcified components. Can take a variety of forms.

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

Crown land – land belonging to the State.

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

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

Delta – The flat area at the mouth of some rivers where the main stream splits up into several branches.

Diatom – A microscopic unicellular alga.

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.

Ecologically sustainable use – the use of a species or ecosystem at a level that enables it to recover naturally.

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.

Environmental flow – minimum flows of water (by volume and season) necessary to maintain aquatic life.

Estuary – an inlet or river mouth that is influenced by tides and freshwater inputs from the catchment.

Exotic marine organism – see Pest.

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.

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

Freehold land – land in private ownership.

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

Habitat – the preferred location or 'home' of an organism.

Heritage – a place, activity, cultural way of life, structure or group of structures that has 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 – 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. See also Endemic.

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

Integrated coastal zone management – a framework that attempts to integrate planning and management in a region (e.g. Victoria) across the land and sea interface and the private and public land interface, to treat the coastal zone as one biophysical entity.

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).

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.

Levels of Service Framework – a strategic framework for visitor and asset management that is used to support resource allocation decision-making to best provide appropriate recreational infrastructure in a consistent manner.

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 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.

Matters of National Environmental Significance – defined by the Environment Protection and Biodiversity Conservation Act to include: World Heritage Properties; Ramsar wetlands; nationally threatened species and communities; migratory species protected under international agreements; the Commonwealth marine environment; and, nuclear actions.

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

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

Pelagic – relating to the surface waters of the marine environment.

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.

Relevant Indigenous communities – include the Traditional Owners and the scheduled Aboriginal Community for the area included in the planning area.

Scheduled Aboriginal community – body/s scheduled as the Local Aboriginal Community under the Aboriginal and Torres Strait Islander heritage Protection Act relating to the planning area.

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

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

Sewerage – the system that facilitates the collection, transport, treatment and discharge of sewage.

Soft coral – coral without a solid calcareous case 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.

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

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

Traditional Owners – the Boonwurrung people that reasonably assert an association with the planning 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.

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.

Whip coral (sea whip) – specialised whip-like type of coral. Commonly lives in deep water on hard or soft surfaces.

Wrack – organic matter washed up on beaches.

Abbreviations

AAV – Aboriginal Affairs Victoria.

ADF – Australian Defence Force

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

BCSC – Bass Coast Shire Council

CFA – Country Fire Authority

CRIMP – Centre for Research on Introduced Marine Pests.

CSIRO – Commonwealth Scientific and Industrial Research Organisation.

DSE – Department of Sustainability and Environment.

ECC – former Environment Conservation Council (see VEAC).

EPA – Environment Protection Authority (Victoria).

EPBC – Environment Protection and Biodiversity Conservation (Act)

FFG – Flora and Fauna Guarantee (Act)

GCB – Gippsland Coastal Board

GG – Government Gazette

MSV – Marine Safety Victoria

NRSMPA – National Representative System of Marine Protected Areas.

SGW – South Gippsland Water

VCC – Victorian Coastal Council

VEAC – Victorian Environmental Assessment Council

WGCMA – West Gippsland Catchment Management Authority

APPENDIX 1 MANAGEMENT OBJECTIVES FOR THE PLANNING AREA

Bunurong Marine National Park

Management objectives of the National Parks Act for marine national parks included on Schedule 7 of the Act, are in Sections 4 and 17D of the Act and are listed below.

For an up-to-date copy of the National Parks Act, refer to Victorian Acts on the Victorian Legislation and Parliamentary Documents website www.dms.dpc.vic.gov.au.

4. Objects of the 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.

Bunurong Marine Park

Management objectives for the Bunurong Marine Park included on Schedule 4 of the National Parks Act, are in Sections 4 and 18 of the Act and are listed below.

4. Objects of the Act are –

4(b) to make provision, insofar as is appropriate to each such park, for the protection and preservation of indigenous flora and fauna and of features of scenic or archaeological, ecological, historic or other scientific interest; and subject to such provision as is made under subparagraph (i), to make provision for the public to observe, experience or otherwise become acquainted in those parks with the countryside and rural skills activities and pursuits and for carrying on, in those parks and for those purposes, agricultural, horticultural, or other agrarian projects and botanical, biological, ecological, geological, zoological, or other scientific studies or projects; and

4(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.

Section 18 Other Parks of the National Parks Act provides that the Secretary, subject to this Act

–ensure that the park or reserve is controlled and managed in accordance with the objects (above) in a manner that will–

- (a) ensure that each park referred to in Schedule Three is controlled and managed in accordance with the objects of the Act in a manner that will, insofar as is appropriate to the park –
 - (i) preserve, protect and re-establish indigenous flora and fauna in the park;
 - (ii) preserve and protect features in the park of scenic, archaeological, ecological, geological, historic or other scientific interest;
 - (iii) enable the park to be used by the public for the enjoyment, observation and study of the countryside and its pursuits, its flora and fauna, its ecology and geology and other features; and
 - (iv) control exotic flora and fauna in the park;
- (b) ensure that proper and sufficient measures are taken to protect each park referred to Schedule Three from injury by fire;
- (c) promote and encourage the use and enjoyment of parks referred to in Schedule 3 by the public; and
- (d) prepare a plan of management in respect of each park referred to in Schedule 3.

APPENDIX 2 SUBMISSIONS ON THE DRAFT MANAGEMENT PLAN

A total of 24 submissions were received on the draft plan (September – December 2005), from the following organisations and individuals.

Note: no submissions were marked confidential.

ORGANISATION	SUBMISSION No.	INDIVIDUAL	SUBMISSION No.
SUBMISSIONS FROM GROUPS	TOTAL: 15	SUBMISSIONS FROM INDIVIDUALS	TOTAL: 9
Australian Maritime Safety Authority	14	Terri Allen	9
Bass Coast Shire Council	23	Tom and Lyn Butcher	11
Department of Defence	10	Andrew and Marion Chapman	19
Department of Primary Industries – Fisheries Victoria	6	Ian Harrison	8
Department of Sustainability and Environment	12	Marion Kavanagh	22
Department of Victorian Communities (Aboriginal Affairs Victoria).	4	Natasha McLean	15
East and West Gippsland Catchment Management Authorities	7	Amaryll Perlesz	17
Friends of Wonthaggi Heathland and Coastal Reserve	20	Margaret Rowe	16
Gippsland Ports	1	Jim Whitelaw	24
Scuba Divers Federation of Victoria Inc.	18		
Skyhigh Paragliding Club	21		
South Gippsland Water	13		
Tourism Victoria	2		
Victorian Sea Kayak Club	3		
West Gippsland Catchment Management Authority	5		

APPENDIX 3 MARINE ECOLOGICAL COMMUNITIES

MARINE ECOLOGICAL COMMUNITY	MARINE NATIONAL PARK	MARINE PARK	LOCATION	SUMMARY DESCRIPTION
Sandy beaches	Yes	Yes	Sandy beaches along majority of the coastline from Coal Point to Cape Paterson and in coves between headlands from Cape Paterson to Inverloch.	Important habitat for invertebrates such as amphipods, isopods, molluscs, polychaetes and crustaceans, and are also a feeding ground for fish and seabirds. The most common infauna species is the dipteran <i>Chaetocoelopa sydneyensis</i> .
Intertidal reef platforms	Yes	Yes	All rocky shore areas between the mean high and low water marks.	Intertidal rock platforms dominated by the green algae <i>Enteromorpha intestinalis</i> , the red alga <i>Porphyra</i> sp. and blue-green alga <i>Rivularia firma</i> (upper areas); Neptune's Necklace (<i>Hormosira banksii</i>) and the green alga <i>Ulva lactuca</i> (mid areas), brown algae and branching and encrusting coralline red algae (low areas). Contains a wide range of habitats such as under stable boulders, rock pools on shaded vertical surfaces and in channels open to the sea even at low water. Invertebrate fauna includes mussels, barnacles, top shells, anemones, brittle worms, sipunculid worm, gastropods, variegated and pulmonate limpets, the common sea centipede, the red rock crab, the masking crab, the hairy stone crab and sea stars. Provide feeding and roosting areas for a wide range of shorebirds.
Subtidal reef	Yes	Yes	All reef areas below the mean low water mark.	Provide habitat for an abundance of fish, sessile invertebrates, sponges, as well as colonial organisms. Dominated by green algae <i>Caulerpa brownii</i> and <i>Caulerpa flexilis</i> typically with an understory cover of fleshy red algae, small brown species and corallines.
Seagrass	Yes	Yes	Found in sheltered coves on sand substrate, interspersed by algal communities growing on rocky reefs.	Invertebrates include Blacklip and Greenlip Abalone, the gastropod <i>Turbo undulatus</i> , the common sea urchin, a variety of sea stars, the dogwhelk <i>Thais orbita</i> , and the feather star <i>Cenolia trichoptera</i> . Provides a variety of protective niches and abundance of food resulting in considerable fish diversity including Blue Throat Wrasse, sweep, Scalyfin, Magpie Perch and Herring Cale.
Subtidal soft sediments	Yes	Yes	All sub-tidal surface areas not comprised of seagrass or subtidal reef.	Patches of the seagrasses <i>Amphibolis antarctica</i> and <i>Heterozostera tasmanica</i> . Species-rich communities of hydroid and bryozoan epizoans inhabit the seagrass with the fauna dominated by the crabs <i>Halicarcinus ovatus</i> and <i>Pilumnus acer</i> , the shrimp <i>Hippolyte australiensis</i> , various ostracods, holothurians and ophiuroids. Also provides habitat for a variety of fish species including Goatfish, Silverbelly, Pipefishes, Blue Throat Wrasse, weedfishes and leatherjackets.
Open water	Yes	Yes	All areas submerged by water and throughout the water column.	Consists of a variety of brown algae on soft sand substrate supporting a high diversity of polychaetes, crustaceans and molluscs. Common fish include mullet, pike, flathead and snapper, tailor, King George Whiting and barracouta.

Sources: Wilson et al. 1990; Roob et al. 1999; Edmunds et al. 2003; Parks Victoria 2003b; Plummer et al. 2003.

APPENDIX 4 TERRESTRIAL RARE OR THREATENED FLORA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		FLORA & FAUNA GUARANTEE ACT
		VICTORIA	AUSTRALIA	STATUS
<i>Exocarpos syrticola</i>	Coast Ballart	r	-	-
<i>Lotus australis</i>	Austral Trefoil	k	-	-
<i>Oxalis rubens</i>	Dune Wood-sorrel	r	-	-
<i>Poa poiformis</i> var. <i>ramifer</i>	Dune Poa	r	-	-
<i>Poa</i> sp.aff. <i>tenera</i>	Tussock-grass	r	-	-
<i>Pomaderris oraria</i> ssp. <i>oraria</i>	Bassian Pomaderris	r	-	-
<i>Sarcocornia quinqueflora</i> ssp. <i>tasmanica</i>	Beaded Glasswort	k	-	-

Source: DSE 2005b; Carr 2003

Victorian status:

r rare

k species poorly known

APPENDIX 5 TERRESTRIAL THREATENED FAUNA

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		FLORA & FAUNA GUARANTEE ACT	INTERNATIONAL AGREEMENTS, CONVENTIONS & TREATIES
		VICTORIA	AUSTRALIA		
BIRDS					
<i>Anas rhynchotis</i>	Australasian Shoveller	Vul			
<i>Apus pacificus</i>	Fork-tailed Swift				CJ
<i>Ardea alba</i>	Great Egret	Vul		L	CJ
<i>Ardea ibis</i>	Cattle Egret				CJ
<i>Ardea intermedia</i>	Intermediate Egret	Cen		L	
<i>Arenaria interpres</i>	Ruddy Turnstone				CJ
<i>Aythya australis</i>	Hardhead	Vul			
<i>Biziura lobata</i>	Musk Duck	Vul			
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper				CJ
<i>Calidris alba</i>	Sanderling	NT			CJ
<i>Calidris ferruginea</i>	Curlew Sandpiper				CJ
<i>Calidris ruficollis</i>	Red-necked Stint				CJ
<i>Charadrius mongolus</i>	Lesser Sand Plover	Vul			CJ
<i>Circus assimilis</i>	Spotted Harrier	NT			
<i>Coturnix ypsilophora australis</i>	Brown Quail	NT			
<i>Diomedea cauta</i>	Shy Albatross	Vul	V	L	
<i>Diomedea chlororhynchus</i>	Yellow-nosed Albatross	Vul	V	L (in part)	
<i>Diomedea exulans</i>	Wandering Albatross	End	V	L	
<i>Diomedea melanophris</i>	Black-browed Albatross	End			
<i>Falco subniger</i>	Black Falcon	Vul			
<i>Haematopus fuliginosus</i>	Sooty Oystercatcher	NT			
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Vul		L	C
<i>Halobaena caerulea</i>	Blue Petrel		V		
<i>Hirundapus caudacutus</i>	White-throated Needletail				C
<i>Larus pacificus</i>	Pacific Gull	NT			
<i>Macronectes giganteus</i>	Southern Giant-Petrel	Vul	E	L	
<i>Macronectes halli</i>	Northern Giant-Petrel	NT	V	L	
<i>Numenius madagascariensis</i>	Eastern Curlew	NT			CJ
<i>Oxyura australis</i>	Blue-billed Duck	End		L	
<i>Pachyptila turtur</i>	Fairy Prion	Vul	V		
<i>Pelagodroma marina</i>	White-faced Storm-Petrel	NT			
<i>Pelecanoides urinatrix</i>	Common Diving-Petrel	NT			
<i>Phalacrocorax fuscescens</i>	Black-faced Cormorant	NT			

Appendix 5 contd.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS		FLORA & FAUNA GUARANTEE ACT	INTERNATIONAL AGREEMENTS
		VICTORIA	AUSTRALIA		
BIRDS (CONT.)					
<i>Phalacrocorax varius</i>	Pied Cormorant	NT			
<i>Phoebastria palpebrata</i>	Light-mantled Sooty Albatross	Vul		L	
<i>Platalea regia</i>	Royal Spoonbill	Vul			
<i>Pluvialis squatarola</i>	Grey Plover	NT			CJ
<i>Puffinus griseus</i>	Sooty Shearwater				CJ
<i>Puffinus tenuirostris</i>	Short-tailed Shearwater				J
<i>Rallus pectoralis</i>	Lewin's Rail	Vul		L	
<i>Stercorarius parasiticus</i>	Arctic Jaeger				J
<i>Stercorarius pomarinus</i>	Pomarine Jaeger				CJ
<i>Sterna albifrons</i>	Little Tern	Vul		L	CJ
<i>Sterna bergii</i>	Crested Tern				J
<i>Sterna caspia</i>	Caspian Tern	NT		L	C
<i>Sterna hirundo</i>	Common Tern				CJ
<i>Sterna nilotica</i>	Gull-billed Tern	End		L	
<i>Sterna striata</i>	White-fronted Tern	NT			
<i>Thinornis rubricollis</i>	Hooded Plover	Vul		L	
MAMMALS					
<i>Arctocephalus tropicalis</i>	Subantarctic Fur Seal		V		-
<i>Balaenoptera musculus</i>	Blue Whale	CEn	E	L	-
<i>Antechinus minimus</i>	Swamp Antechinus	NT		L	-
<i>Eubalaena australis</i>	Southern Right Whale	CEn	E	L	-
<i>Isodon obesulus obesulus</i>	Southern Brown Bandicoot	NT	E		-
<i>Miniopterus schreibersii (grp)</i>	Common Bent-wing Bat	End	CD	L	-
REPTILES					
<i>Egernia coventryi</i>	Swamp Skink	Vul		L	-
<i>Varanus varius</i>	Lace Monitor	Vul			-
AMPHIBIAN					
<i>Litoria raniformis</i>	Growling Grass Frog	End	V	L	-

Source: DSE 2005a; Homan 2003; J & A Whitelaw 2004 pers. comm.

Victorian status:	National status:	Flora and Fauna Guarantee Act 1988 (Vic.) status:	International agreements:
CEn critically endangered	E Endangered	L listed under the Flora and Fauna Guarantee Act	J Japan – Australia Migratory Bird Agreement
End endangered	V Vulnerable		C China – Australia Migratory Bird Agreement
Vul vulnerable	CD Conservation Dependent		
NT near threatened			

APPENDIX 6 PRIORITY PEST PLANTS

SCIENTIFIC NAME	COMMON NAME	ENVIRONMENTAL RISK RATING	CATEGORY	DISTRIBUTION/COMMENT
<i>Allium triquetrum</i>	Angled Onion	V	N	BCR
<i>Chrysanthemoides monilifera</i> <i>ssp. monilifera</i>	African Boneseed	V	N	BCR K-HHCR
<i>Coprosma repens</i>	New Zealand Mirror Bush	V	E	BCR K-HHCR
<i>Crocoshia x crocosmiiflora</i>	Montbretia	V	E	K-HHCR
<i>Delairea odorata</i>	Cape Ivy	V	E	BCR K-HHCR
<i>Dipogon lignosus</i>	Dolichos Pea	V	E	BCR K-HHCR
<i>Ehrharta erecta</i>	Veldt Grass	V		BCR K-HHCR
<i>Genista monpessulana</i>	Cape Broom	V	N	BCR
<i>Hedera helix</i>	English Ivy	V	E	BCR K-HHCR
<i>Lonicera japonica</i>	Japanese Honeysuckle	V	E	K-HHCR
<i>Lycium ferocissimum</i>	African Box-thorn	V	N	BCR K-HHCR
<i>Myrsiphyllum scandens</i>	Asparagus Fern	V	E	BCR K-HHCR
<i>Paraserianthes lophantha</i>	Cape Wattle	V	N	BCR
<i>Pennisetum clandestinum</i>	Kilkuyu Grass	V	E	BCR K-HHCR
<i>Pittosporum undulatum</i>	Sweet Pittosporum	V	E	K-HHCR
<i>Polygala myrtifolia</i>	Myrtle-leaf Milkweed	V	E	K-HHCR
<i>Psoralea pinnata</i>	Blue Butterfly Bush	V	E	BCR
<i>Rubus fruticosus</i>	Blackberry	V	N	BCR K-HHCR
<i>Senecio angulatus</i>	Climbing Groundsel	V	E	K-HHCR
<i>Sollya heterophylla</i>	Bluebell Creeper	V	E	BCR
<i>Vinca major</i>	Blue Periwinkle	V	E	BCR K-HHCR
<i>Watsonia meriana</i> var. <i>bulbillifera</i>	Wild Watsonia	V	N	BCR
<i>Agapanthus praecox</i> ssp. <i>orientalis</i>	Agapanthus	S	E	BCR K-HHCR
<i>Arctotheca calendula</i>	Cape Weed	S	E	BCR K-HHCR
<i>Cirsium vulgare</i>	Spear Thistle	S	N	BCR K-HHCR
<i>Conyza albida</i>	Tall Fleabane	S	E	BCR
<i>Cortaderia selloana</i>	Pampas Grass	S	E	BCR K-HHCR
<i>Euphorbia paralias</i>	Sea Spurge	S	E	BCR K-HHCR
<i>Foeniculum vulgare</i>	Fennel	S	N	BCR
<i>Leucanthemum x superbum</i>	Shasta Daisy	S		K-HHCR
<i>Stenotaphrum secundatum</i>	Buffalo Grass	S	E	BCR K-HHCR
<i>Zantedeschia aethiopica</i>	White Arum Lily	S	E	BCR K-HHCR

Appendices

Appendix 6 contd.

SCIENTIFIC NAME	COMMON NAME	ENVIRONMENTAL RISK RATING	CATEGORY	DISTRIBUTION/COMMENT
<i>Asparagus asparagoides</i>	Bridal Creeper	P	E	BCR
<i>Senecio jacobaea</i>	Ragwort	P	N	BCR K-HHCR

Source: DSE 2005b, Carr et al. 1992

Environmental Risk Rating

V	Very serious threat
S	Serious threat
P	Potential threat
N	Not a threat (but may have negative visual impact)

Category

E	Environmental weeds Identified by their ability to progressively out-compete and eliminate existing native species. There are several types of environmental weeds; species introduced from overseas, Australian species from outside Victoria, Victorian species outside their pre European distribution.
N	Noxious weeds Plants that have or have the potential to become a threat to primary production, the environment or community health in Victoria and are declared under the <i>Catchment and Land Protection Act 1994</i> (Vic).

APPENDIX 7 SHIPWRECKS AND OTHER CULTURAL HERITAGE SITES

SITE NAME	LOCATION	COMMENTS
Shipwrecks — Location Known		
<i>Amazon</i>	Flat Rocks	1863 — Driven ashore on beach near Flat Rocks in south westerly gale. Parts of hull still occasionally visible on beach.
<i>Artisan</i>	Wreck Beach	1901 — Blown ashore in gale at Wreck Beach. Iron knees, hawser pipe and wooden hull occasionally visible on beach.
Shipwrecks - Location Unknown		
<i>Levan Lass</i>		1853 — Lost. Suspected of being at Cape Paterson (some wreckage washed ashore).
<i>Templar Lass</i>		1890 — Lost. Suspected of being at Cape Paterson.
Infrastructure		
Shacks	Shack Bay	Includes remains of flying fox and concrete slab of huts.
Shacks	Flat Rocks	Includes concrete slab of hut and exotic trees.
Coal mining	Cape Paterson	Evidence of tramway and landing infrastructure.
Coal mining	Harmers Haven	Site of shafts sunk to extract coal from the coal seams.

Sources: Heritage Victoria 2004; Loney 1982; Hayes 1998; Terri Allen 2004 pers. comm.



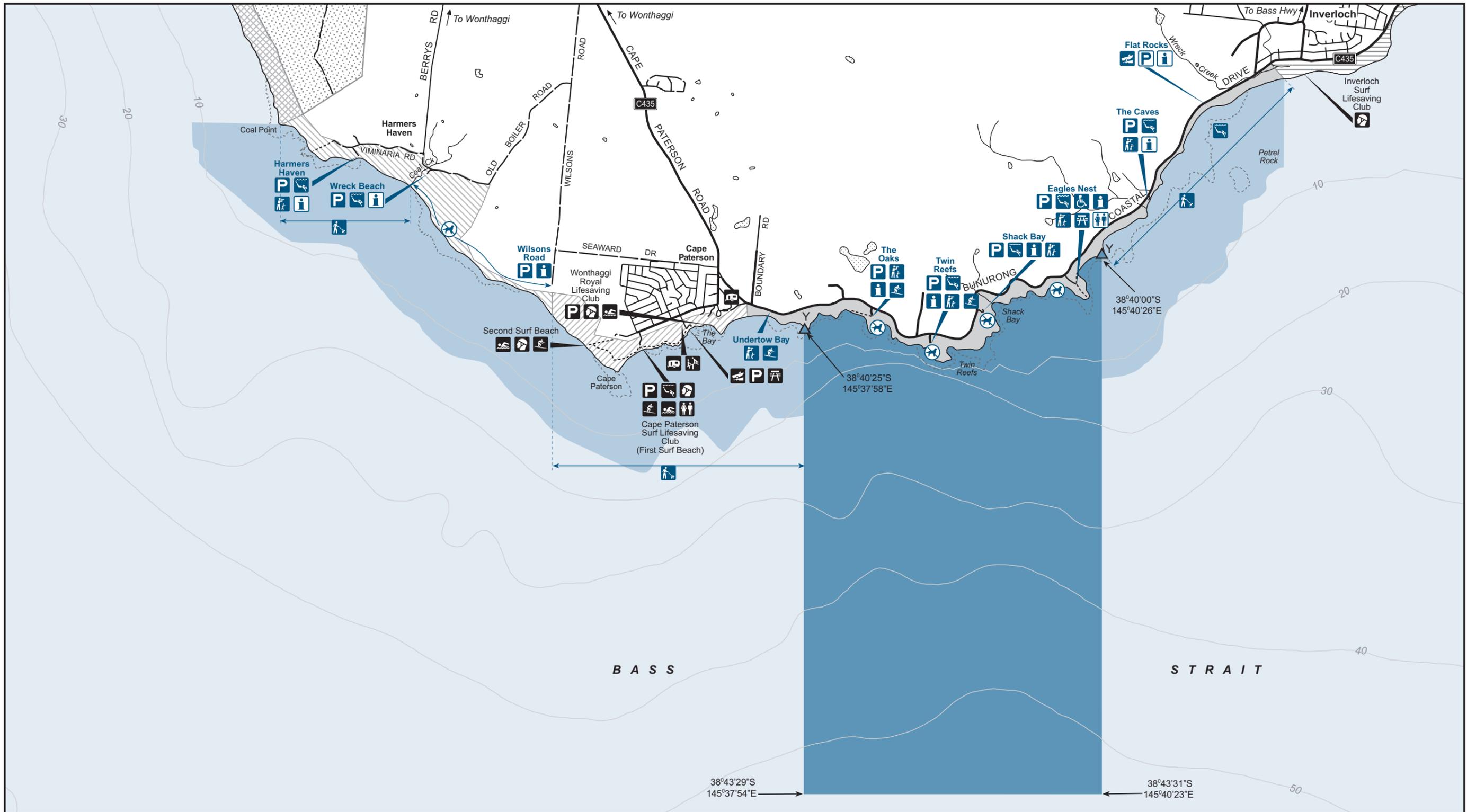
Figure 1 LOCATION
BUNURONG MARINE NATIONAL PARK,
BUNURONG MARINE PARK,
BUNURONG COASTAL RESERVE &
KILCUNDA - HARMERS HAVEN
COASTAL RESERVE

-  Freeway/Highway
-  Major sealed road
-  Marine National Park & Marine Sanctuary
-  Marine Parks & Reserves
-  Other Parks and Reserves
-  Waterbody



Cartography by Spatial Vision 2005
M/7364





<ul style="list-style-type: none"> Major sealed road Minor sealed road Unsealed road Walking track Shore boundary marker (Colour indicated by letter) Waterbody Depth contour Reef / Rock Platform 	<p>Planning Area</p> <ul style="list-style-type: none"> Bunurong Marine National Park Bunurong Marine Park Bunurong Coastal Reserve Kilcunda-Harmers Haven Coastal Reserve <p>Other Reserves (outside the Planning Area)</p> <ul style="list-style-type: none"> Cape Paterson Foreshore Reserve Inverloch Foreshore Reserve Wonthaggi Heathland Nature Conservation Reserve Kilcunda-Harmers Haven Coastal Reserve 	<p>Recreation Facilities (Black symbols shown are outside the Planning Area)</p> <table border="0"> <tr> <td></td> <td>Boat ramp</td> <td></td> <td>Information</td> <td></td> <td>Proposed Information</td> </tr> <tr> <td></td> <td>Caravan park</td> <td></td> <td>Lookout</td> <td></td> <td>Proposed Toilets</td> </tr> <tr> <td></td> <td>Carpark</td> <td></td> <td>Patrolled swimming beach</td> <td></td> <td>Proposed Carpark</td> </tr> <tr> <td></td> <td>Diving location</td> <td></td> <td>Picnic area</td> <td></td> <td>No Dogs Permitted</td> </tr> <tr> <td></td> <td>Dogs on leash <i>*Dogs permitted on board vessels (section 6.7)</i></td> <td></td> <td>Playground</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Facilities for people with disabilities</td> <td></td> <td>Surf Lifesaving Club</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>Surfing beach</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>Toilets</td> <td></td> <td></td> </tr> </table>		Boat ramp		Information		Proposed Information		Caravan park		Lookout		Proposed Toilets		Carpark		Patrolled swimming beach		Proposed Carpark		Diving location		Picnic area		No Dogs Permitted		Dogs on leash <i>*Dogs permitted on board vessels (section 6.7)</i>		Playground				Facilities for people with disabilities		Surf Lifesaving Club						Surfing beach						Toilets		
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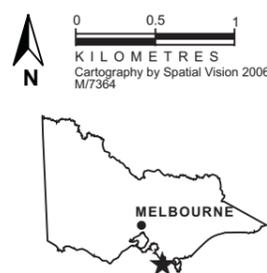


Figure 2 VISITOR FACILITIES & ACCESS

BUNURONG MARINE NATIONAL PARK, BUNURONG MARINE PARK, BUNURONG COASTAL RESERVE & KILCUNDA - HARMERS HAVEN COASTAL RESERVE