

DRAFT

VICTORIAN

COASTAL

STRATEGY

2013



Victorian Coastal Council

SEPTEMBER 2013

# YOUR OPPORTUNITY TO COMMENT

The draft Strategy outlines the proposed approach for how we plan and manage the coast and marine environment. Your experience, ideas and input are an important part of developing the final Strategy.

The Victorian Coastal Council welcomes your comments to help shape this Strategy. Full details on the consultation and feedback process are available on the Victorian Coastal Council website at [vcc.vic.gov.au](http://vcc.vic.gov.au)

Submissions can be made by post or email to:

Victorian Coastal Council  
PO Box 500  
East Melbourne VIC 3002  
Email: [submissions@vcc.vic.gov.au](mailto:submissions@vcc.vic.gov.au)

Please provide submissions by 5pm, 4 December 2013

Published by the Victorian Government Department of Environment and Primary Industries  
Melbourne, September 2013

© The State of Victoria Department of Environment and Primary Industries 2013

This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the *Copyright Act 1968*.

Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

ISBN 978-1-74287-924-6 (Print)  
ISBN 978-1-74287-925-3 (pdf)

For more information contact the DEPI Customer Service Centre 136 186

## Disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

## Accessibility

If you would like to receive this publication in an accessible format, such as large print or audio, please telephone 136 186, or email [customer.service@dse.vic.gov.au](mailto:customer.service@dse.vic.gov.au)

Deaf, hearing impaired or speech impaired? Call us via the National Relay Service on 133 677 or visit [www.relayservice.com.au](http://www.relayservice.com.au)

This document is also available in PDF format on the internet at [www.vcc.vic.gov.au](http://www.vcc.vic.gov.au)

## Acknowledgment of Country and Indigenous Australians

The Victorian Coastal Council respectfully acknowledges the original custodians of what is now known as Victoria; their rich culture, deep affinity with the land and sea and spiritual connection to it.





# FOREWORD

This Draft Victorian Coastal Strategy 2013 has been prepared for the purpose of stimulating input to the version of the Victorian Coastal Strategy that the Victorian Coastal Council will propose to the Minister for Environment and Climate Change, the Hon. Ryan Smith, for his consideration and endorsement in accordance with Section 17 of the *Coastal Management Act 1995*.

This Draft has been prepared with contributions from a number of organisations and individuals with professional and personal interest in our coast. The Council has also had the benefit of a review of the 2008 Victorian Coastal Strategy and has taken advice from a number of members of Regional Coastal Boards, from Council's Executive Officer Elizabeth Patterson and VCC staff, and from staff of the Department of Environment and Primary Industries and other Departments.

Members of the Council have also contributed their knowledge and experience to the preparation of the Draft and I take this opportunity to thank them for their individual contributions. Whilst many have contributed to the Draft, the Council collectively takes responsibility for the form and content of this document. It has been prepared for the most important phase of information collection and to gain the input of the broader Victorian community.

The vision for Victoria's coast that we have identified in this Draft will, the Council hopes, reflect the aspirations of the broader community. We expect the six issues that are identified in the Strategy will provide a basis for constructive discussion as to how we can better manage the coast, but there may well be other issues that the Strategy should also address. Council would like to hear of those and of other ideas that people feel should be considered in planning for the future of our coast.

Much has been achieved through previous iterations of the Victorian Coastal Strategy, but much remains to be done if we are to achieve the vision articulated in this document in the face of the dynamic and changing nature of the coast, increased visitation pressures, and the growing cost of providing and maintaining infrastructure. Achieving our vision will require the participation of the broader community, and its representatives, in identifying how the coast can be best managed so we can continue to enjoy its recreational, lifestyle and economic benefits into the future.

Please read this Draft Victorian Coastal Strategy 2013 carefully and contribute to its evolution. The Council will consider your views as we prepare our further draft for the Minister's consideration.

**Jon Hickman**



Chair  
Victorian Coastal Council

# CONTENTS

## FOREWORD

## VISION

## INTRODUCTION

- Historical Context
- The 2013 Review
- Working with Regional Coastal Boards
- Purpose of the Strategy
- Guiding Concept – ICZM
- Coastal Planning and Management Framework

## THE IMPORTANCE OF THE COAST

- Environmental values
- Social and cultural values
- Economic values

## KEY ISSUES

- Adapting to a changing climate and increased coastal hazards
- Managing population growth
- Understanding the value of natural resources
- Integrated approach to marine management
- Financing coastal infrastructure and management
- Balancing decision-making

## HIERARCHY OF PRINCIPLES

## VALUE AND PROTECT

- Appreciating and valuing the coast
- Cultural heritage
- Marine environments
- Wetlands and estuaries
- Onshore environments
- Catchments and water quality

## PLAN AND ACT

- Supporting community participation
- Sustainable coastal settlements
- Coastal hazards and natural coastal processes
- Balancing decision-making
- Research and knowledge sharing
- Emergency management

<b>I</b>	<b>USE AND ENJOY</b>	<b>53</b>
<b>3</b>	Siting and design of buildings and infrastructure on the coast	<b>53</b>
<b>5</b>	Visitation and tourism	<b>56</b>
<b>6</b>	Access on the coast	<b>58</b>
<b>6</b>	Boating and water-based activities	<b>59</b>
<b>7</b>	Sustainable ports	<b>60</b>
<b>7</b>	Fishing and aquaculture	<b>61</b>
<b>8</b>	Coastal energy resources	<b>63</b>
<b>9</b>	<b>IMPLEMENTATION</b>	<b>65</b>
<b>11</b>	Implementation Coordinating Committee	<b>65</b>
<b>11</b>	Building capacity and supporting coastal managers	<b>65</b>
<b>11</b>	Financing coastal management	<b>65</b>
<b>11</b>	Efficient and effective regulation	<b>66</b>
	Monitoring, Evaluating and Reporting (MER)	<b>66</b>
<b>15</b>	Priority Actions	<b>67</b>
<b>15</b>	<b>APPENDICES</b>	<b>72</b>
<b>17</b>	Glossary	<b>73</b>
<b>19</b>	Acronyms	<b>76</b>
<b>20</b>	Appendices A–G	<b>77</b>
<b>21</b>	References	<b>85</b>
<b>22</b>	Maps 1–5	<b>86</b>

25

29

29

30

32

34

36

38

41

41

42

45

48

49

50

# STRUCTURE

## VISION

### WHY WE CARE

#### VICTORIA'S COAST

- IMPORTANCE OF THE COAST
- KEY ISSUES

### WHAT WE ARE DOING

#### HIERARCHY OF PRINCIPLES

##### VALUE AND PROTECT



APPRECIATING AND VALUING THE COAST  
CULTURAL HERITAGE  
MARINE ENVIRONMENTS  
WETLANDS AND ESTUARIES  
ONSHORE ENVIRONMENTS  
CATCHMENTS AND WATER QUALITY

##### PLAN AND ACT



SUPPORTING COMMUNITY PARTICIPATION  
SUSTAINABLE COASTAL SETTLEMENTS  
COASTAL HAZARDS AND NATURAL COASTAL PROCESSES  
BALANCING DECISION-MAKING  
RESEARCH AND KNOWLEDGE SHARING  
EMERGENCY MANAGEMENT

##### USE AND ENJOY



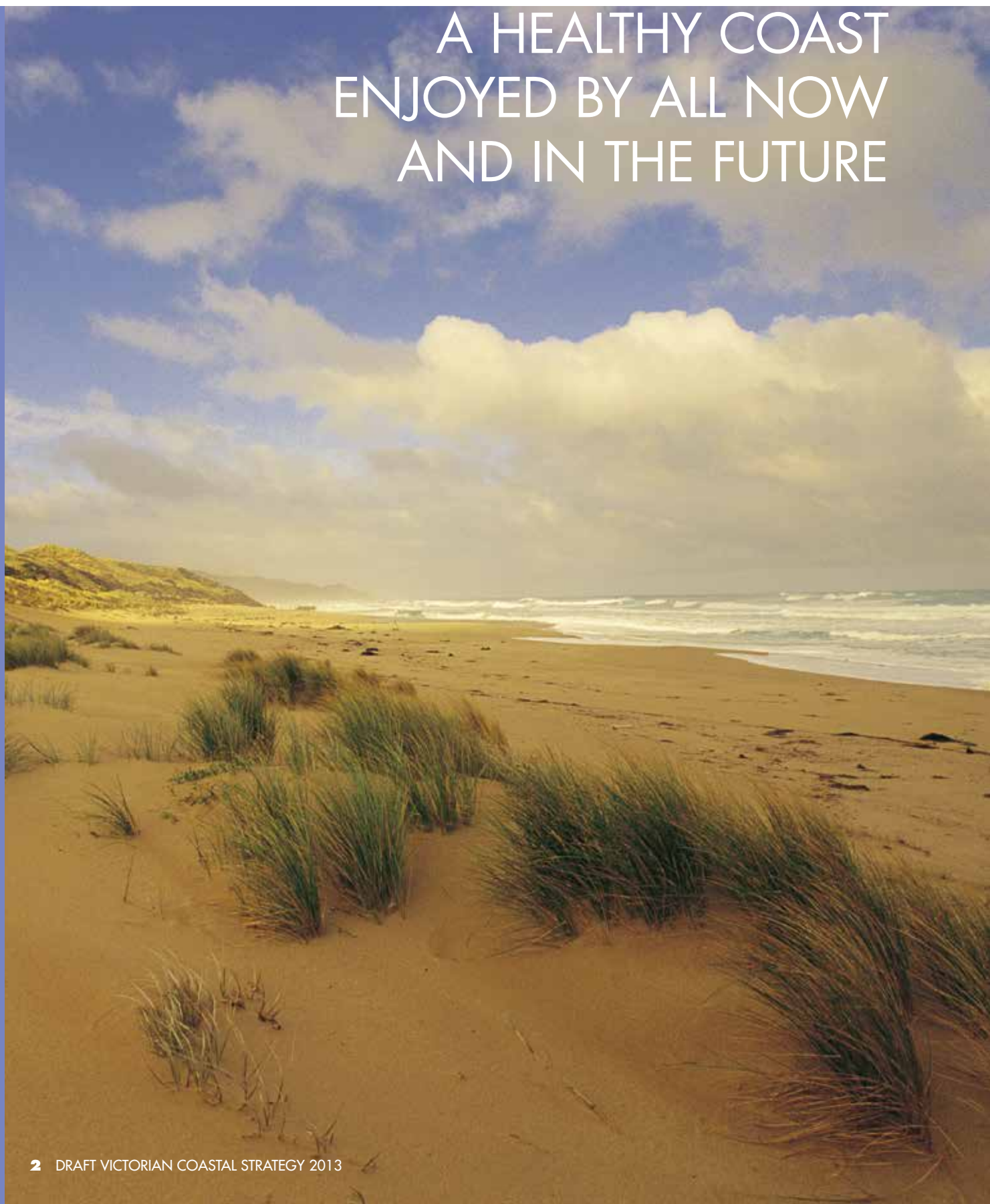
SITING AND DESIGN OF BUILDINGS AND  
INFRASTRUCTURE ON THE COAST  
VISITATION AND TOURISM  
ACCESS ON THE COAST  
BOATING AND WATER-BASED ACTIVITIES  
SUSTAINABLE PORTS  
FISHING AND AQUACULTURE  
COASTAL ENERGY RESOURCES

### HOW WE DO IT

#### IMPLEMENTATION

- SUPPORTING COASTAL MANAGERS
- FINANCING THE COAST
- PRIORITY ACTIONS

# A HEALTHY COAST ENJOYED BY ALL NOW AND IN THE FUTURE



# VISION

## A HEALTHY COAST ENJOYED BY ALL NOW AND IN THE FUTURE

### A healthy coast

- The natural processes and features of the coast support the quality of life for Victorians
- Areas of significant environmental, cultural, geological and landscape features are protected
- Beaches, estuarine and marine waters are clean and healthy
- There is a diversity of indigenous Victorian plants and animals including resilient communities of seagrass, mangroves, saltmarsh, fish and mammals
- Engineering for the coast takes into account the natural shifts and changes of the coastline

### A coast enjoyed by all

- Victorians value, are proud of, and feel a sense of ownership for, healthy coastal and marine environments, and participate in planning and caring for the coast
- There is respect for the Traditional Owners and the aspirations of Aboriginal people in the use of the coast
- There is a wide range of experiences from vibrant beaches to remote wilderness areas where people can enjoy the coast – e.g. watching a sunset, walking, swimming, surfing, fishing and boating
- Victorians are able to access and enjoy the coast as the majority of it is in public ownership. Some areas are easily accessible with high quality facilities and other areas have minimal or no access to maintain environmental and cultural values
- Facilities that support coastal and marine recreation such as life-saving clubs and yacht clubs are well located, attractive and managed to meet community needs
- Buildings and infrastructure are exemplary in siting, design and environmental standards, and are able to adapt to natural coastal processes
- Coastal cities, towns and settlements have distinctive characters and are separated by natural or rural landscapes

### For now and the future

- Best available science and expertise informs coastal and marine planning, management and decision-making
- Aboriginal groups contribute to decision-making and are actively involved in managing the coast
- Coastal resources are utilised for economic activity (tourism, ports, fishing, renewable energy) provided this use is consistent with sustaining a healthy and productive coast over the long term
- Planning and management has a long-term outlook, is holistic and integrated across government agencies (Commonwealth, State and Local), industry sectors and the community
- Adaptation of communities, settlements and ecosystems is considered in all aspects of planning and management on the coast







# INTRODUCTION

The Victorian Coastal Strategy 2013 sets the framework for how we plan and manage the coast. The *Coastal Management Act 1995* requires the Strategy to provide for the long-term planning of the Victorian coast, in order to:

- ensure the protection of significant environmental features
- provide clear direction for the future use of the coast, including the marine environment
- identify suitable development areas and development opportunities
- ensure the sustainable use of natural coastal resources.

Victorians have a strong connection with the coast. It is a special place for us to visit, holiday and live. We enjoy the varied recreational and lifestyle opportunities it provides and appreciate the diverse landscapes and seascapes. We highly value clean and healthy beaches and water, which is integral to our use and enjoyment. We appreciate that we all stand to benefit from coastal economic activity such as tourism, fisheries, energy resources and ports and shipping. Coastal commercial activities in Victoria contribute \$9.8 billion per annum to the economy, and the value provided by the natural coastal environment is estimated at \$8.4 billion per annum.

Looking after the coast is a shared responsibility: the community, government and business all have a role to play. In Victoria we are fortunate to have a longstanding legacy of communities and individuals being involved in caring for the coast. Around 9,000 Victorians are members of coastal groups, from Coastcare to Committees of Management to Regional Coastal Boards. They champion, conserve, and manage the coast on our behalf.

The dynamic and changing nature of the coast and the climate, increased visitation pressures, and the growing cost of providing and maintaining infrastructure all present challenges for the continued use and enjoyment of the coast.

The Strategy sets out a long-term vision, identifies key issues to be addressed, and principles, policies and actions to guide decision-making. As well as the suite of topics that address the wide range of issues on the coast, the Victorian Coastal Council has identified six key issues that require specific attention and priority for implementation over the next five years, they include:

1. Building our capacity to adapt to coastal hazards and to work with communities across all levels of government, on longer-term adaptation planning.
2. Financing coastal infrastructure, and ensuring effective governance of the coast in the face of pressures, such as a growing population and aging infrastructure.
3. Managing population growth on the metropolitan and regional coast, and the impact of increased use and visitation and sustaining coastal township character.
4. Better understanding the real value of natural assets on the coast, and explicitly considering this value when assessing development proposals.
5. A more integrated and holistic approach for planning and managing the marine environment.
6. Ensuring a balance between local community, regional and state-wide decision-making authority, reflecting that historical settings may not be appropriate for the future.



**Hooded Plover on a nest at Rye ocean beach** Glenn Ehmke, Birdlife Australia

## HISTORICAL CONTEXT

In his second reading speech introducing the Coastal Management Bill on 21 March 1995 former Minister for Conservation and Environment, the Hon Mark Birrell MLC, said:

*“Our coasts are coming under increasing pressure for a variety of uses, which can result in land use conflicts and the degradation of coastal habitat. The challenge is to ensure that its many attributes are managed in a sustainable fashion and that decisions about competing uses are balanced in the interests of all Victorians”.*

This continues to be the primary objective of the Victorian Coastal Strategy.

The *Coastal Management Act 1995* requires the Victorian Coastal Council to review the Strategy every five years. This enables emerging coastal issues to be dealt with within the context of the Act requirements.

An important achievement of previous reviews was the introduction of a hierarchy of principles based on the requirements of the Act. The hierarchy of principles for decision-making on the coast include:

1. *Provide for the protection of significant environmental and cultural features*
2. *Undertake integrated planning and provide clear direction for the future*
3. *Ensure the sustainable use of natural coastal resources*

When the above principles have been considered and addressed

4. *Ensure suitable development on the coast*

## THE 2013 REVIEW

### People

The 2013 Review has a particular focus on people and people's attitude toward and use of the coast. Latest research from the Victorian Coastal Council shows that over 84% of Victorians made at least one day trip to the coast in the last twelve months. Overall people were very satisfied with their experience rating it either *excellent* or *very good*. Their accounts suggest the most enjoyable aspects of their coastal experience involved the *atmosphere/scenery*, followed by *spending time with family/friends walking and hiking*.

The top things people thought contributed to good coastal management were *clean water*, *lack of rubbish* and an *unspoilt/undeveloped/natural environment*. Nonetheless, people were concerned about pollution, the pressure of recreational use and wanting towns to retain their sense of character.

The key issues, policies and actions in the Strategy aim to address these concerns.

### Integration and coordination

The 2013 Review has been undertaken in the context of other initiatives that directly or indirectly affect the coast, these include:

- *Coastal Action Plans* prepared by Regional Coastal Boards
- *Reforms to Planning Zones*
- *Victorian Coastal Hazard Guide (2012)* – developed to improve the understanding of coastal hazards, the effects that a changing climate may have on these hazards and



**Half Moon Bay** Ingrid Novosel, Indented Head Community Association



approaches that may be used to manage the effects of these hazards

- *A Cleaner Yarra and Port Phillip Bay (2012)* – addressing threats to water quality in Port Phillip Bay and supporting Victorians to actively care for it
- *Regional Catchment Strategies (2013)* – prepared by the five catchment management authorities on the coast that consider coastal values when determining catchment management priorities
- *Coastcare Victoria Strategy 2011–2015* – to support community stewardship of Victoria's coasts
- *Environmental Partnerships (2012)* – achieving integrated multiple outcomes for land, water and biodiversity, being a responsible public land manager, facilitating adaptation to a changing climate and removing barriers to action, supporting community participation in coastal management.

The Council is seeking feedback from those who are knowledgeable about these initiatives as to the extent which the Strategy supports their endeavours.

The Council has also commissioned a number of reports to inform the development of the 2013 Review. The range of material reflects the complexity of coastal issues and the challenge of integration across different planning and management sectors.

These reports which include; '*Assessing the Value of the Coast to Victoria*', '*Derivation of Victorian Sea Level Planning Allowances*', and '*Population and Settlement along the Victorian Coast*', are available on the Victorian Coastal Council website ([www.vcc.vic.gov.au](http://www.vcc.vic.gov.au)).

## WORKING WITH REGIONAL COASTAL BOARDS

Whilst the Victorian Coastal Council works with many partners, our partnerships with Regional Coastal Boards are paramount. Regional Coastal Boards have a critical role in implementing the Strategy, and while the Strategy will establish principles and policies these will need to be applied locally with the benefit of local knowledge and in the context of local situations.

The Minister for Environment and Climate Change, the Hon Ryan Smith, has directed each Regional Coastal Board to prepare an integrated Coastal Action Plan for its Region. These instruments will sit alongside this Strategy in guiding decision makers in coastal Committees of Management, local government and other bodies.

## PURPOSE OF THE STRATEGY

The purpose of the Strategy is to:

- provide *guidance* for agencies and statutory decision-making along the coast and in marine and estuarine environments
- provide a *framework* for the development and implementation of other plans such as Coastal Action Plans and Coastal Management Plans and a coastal context for the development of related strategies like Regional Catchment Strategies, planning schemes and Regional Waterway Strategies
- *engage* the community to value the coast and marine environment and to participate in its planning and management.



Jan Juc Surf Beach James Lauritz



## What do we mean by the 'coast'

Throughout the Strategy, references to 'the coast' encompass coastal, estuarine and marine environments. It applies to:

- the marine environment – nearshore marine environment, the seabed, and waters out to the State limit of three nautical miles (5.5 kilometres)
- foreshores – or coastal Crown land up to 200 metres seaward from the high water mark
- coastal hinterland – land directly influenced by the sea or directly influencing the coastline, and with critical impacts on the foreshore and nearshore environment (these influences range from visual to drainage impacts, as illustrated in Figure 1)
- catchments – rivers and drainage systems that affect the coastal zone, including estuaries
- private and public land and all systems that impact on the coast and marine environment.

## GUIDING CONCEPT – INTEGRATED COASTAL ZONE MANAGEMENT

Underpinning this Strategy and influencing the way we manage the coast is the concept of 'Integrated Coastal Zone Management'.

Coastal processes are not bounded by land tenure, land management, jurisdictional or policy boundaries. Integrated Coastal Zone Management (ICZM) is about working across a geographic area (land to sea), across different land tenures (public and private), and across organisational and jurisdictions (national, State, regional & local).

ICZM is the basis for coastal planning and management in Victoria and is achieved through formal and informal collaboration and coordination between all the different groups who use and manage the coast.

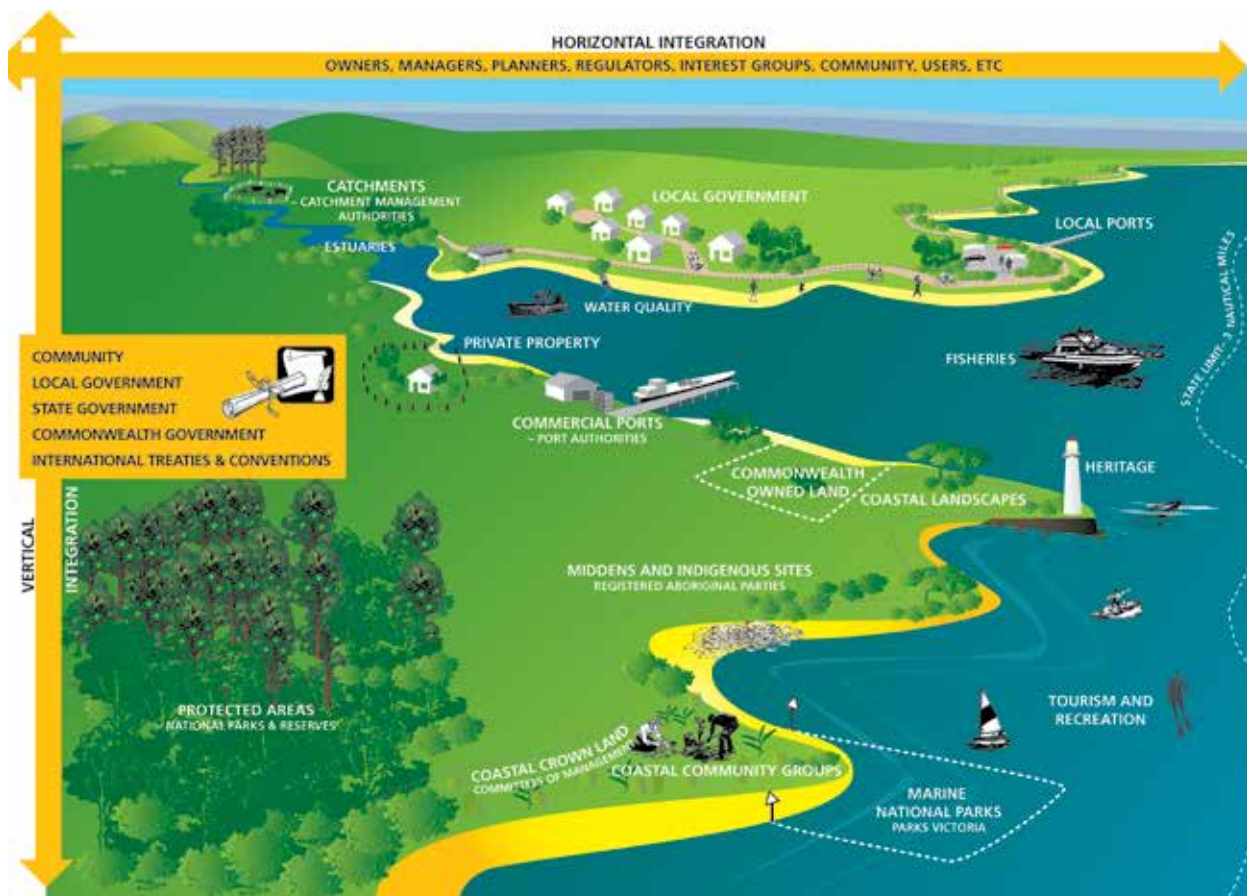


Figure 1: Integrated coastal zone management in Victoria.

## COASTAL PLANNING AND MANAGEMENT FRAMEWORK

The *Coastal Management Act 1995* (the Act) establishes the legislative framework for planning and managing the coast of Victoria. The Act enables a four-tiered approach with policies, plans and tools at a state, regional, local and site level.

The broader land use planning system is also important for the implementation of the Strategy, Coastal Action Plans and Coastal Management Plans. The relationship between these policies and plans is through:

- *State Planning Policy Framework* which requires coastal planning to be consistent with the Strategy and any relevant Coastal Action Plans
- Sections of local planning schemes through *Municipal Strategic Statements and Local Planning Policy Frameworks*
- Approvals for land use and development on private and Crown land on the coast being required under the *Planning and Environment Act 1987*.

There are a number of other Acts, strategies and plans used to ensure that the coast remains in a healthy state. Appendix A sets out the list of relevant legislation and documents, and Appendix B details the range of groups involved in coastal management and planning in Victoria.







# THE IMPORTANCE OF THE COAST

The coast provides great social, cultural, economic and environment benefits for all Victorians. Understanding these benefits and the different values is essential for effective decision-making.

## ENVIRONMENTAL VALUES

Victoria's coast supports a diverse range of environments along its 2,000 kilometre length. Reef systems, seagrass beds, kelp forests, sponge gardens, intertidal rock platforms and other habitats support the world's largest diversity of red and brown seaweeds, sea mosses, crabs, shrimps and sea squirts. Recent marine mapping has discovered previously unexplored seascapes and communities of organisms new to science.

There are about 123 bays, inlets and estuaries, varying in water area from around one square kilometre to 2,000 square kilometres. Estuaries are important sites for fish spawning or as nursery grounds. Saltmarshes, mangroves and wetlands are important nesting and feeding grounds for a broad range of significant waterbirds and waders, including migratory species.

Ecosystems on the foreshore and hinterland vary greatly. Beaches, large and small, give way to dune systems. Woodlands and scrublands occupy swales behind the dunes, with some small pockets of threatened coastal Moonah woodland still surviving. In other parts, dry forests can be found down to the beach edge, and coastal heath occupies cliffs and rocky coasts.

## SOCIAL AND CULTURAL VALUES

Over the past decade our desire to experience and enjoy the coast has grown significantly. Eighty-five per cent of the country's population lives within 50 kilometres of the coast, and approximately four out of five Victorians visit the coast every year (Ipsos, 2012). Most Victorians living close to the coast visit regularly, largely to enjoy a clean, healthy, natural environment.

In Victoria, the coast is largely accessible and provides a wide range of experiences from busy city beaches to smaller seaside settlements and remote wilderness areas.

Healthy coastal and marine ecosystems provide significant social and cultural value for Victorians. The coast's natural aesthetics, cultural heritage, and range of recreational pursuits make it attractive and valuable for residents, visitors and tourists. Research has demonstrated that there is a

strong and important link between the quality of the coastal environment and the quality of life for many Victorians.

Coastal heritage values play an important role in creating our sense of place and defining who we are. There are past and present Aboriginal traditions, places created by early and recent settlers, and customs, celebrations and special characteristics that build community pride and enhance social cohesion.

## ECONOMIC VALUES

A diverse range of economic activity occurs on the Victorian coast.

Commercial uses include recreation, coastal tourism, shipping, petroleum extraction and commercial fishing, each of which has direct and indirect benefits to local, regional and national economies.

The value of coastal commercial activities is around \$9.8 billion per annum (Worley Parsons, 2013). Of the industries examined, petroleum, tourism and commercial ports are the largest, each contributing more than \$3 billion annually to the economy. The tourism industry is by far the largest contributor to employment, with an estimated 23,000 jobs created directly.

Victoria's ports consist of four main commercial trading ports – Melbourne, Geelong, Portland and Hastings, which handle the bulk of commercial trade, and fourteen local ports that primarily serve as commercial fishing and recreational boating hubs.

Victoria's commercial fisheries occur within State waters (to three nautical miles), or in some cases beyond and in bays, inlets and estuaries. The most valuable wild-caught fishery sectors are abalone (\$24 million) and rock lobster (\$15.8 million). Aquaculture production provides a further \$11.8 million (Worley Parsons, 2013).

The petroleum sector encompasses the exploration, appraisal, development, construction and production of natural gas and petroleum liquid resources. While much of the production occurs beyond the three nautical mile limit of State waters, the product is brought onshore in Victoria for refining, storage and distribution.

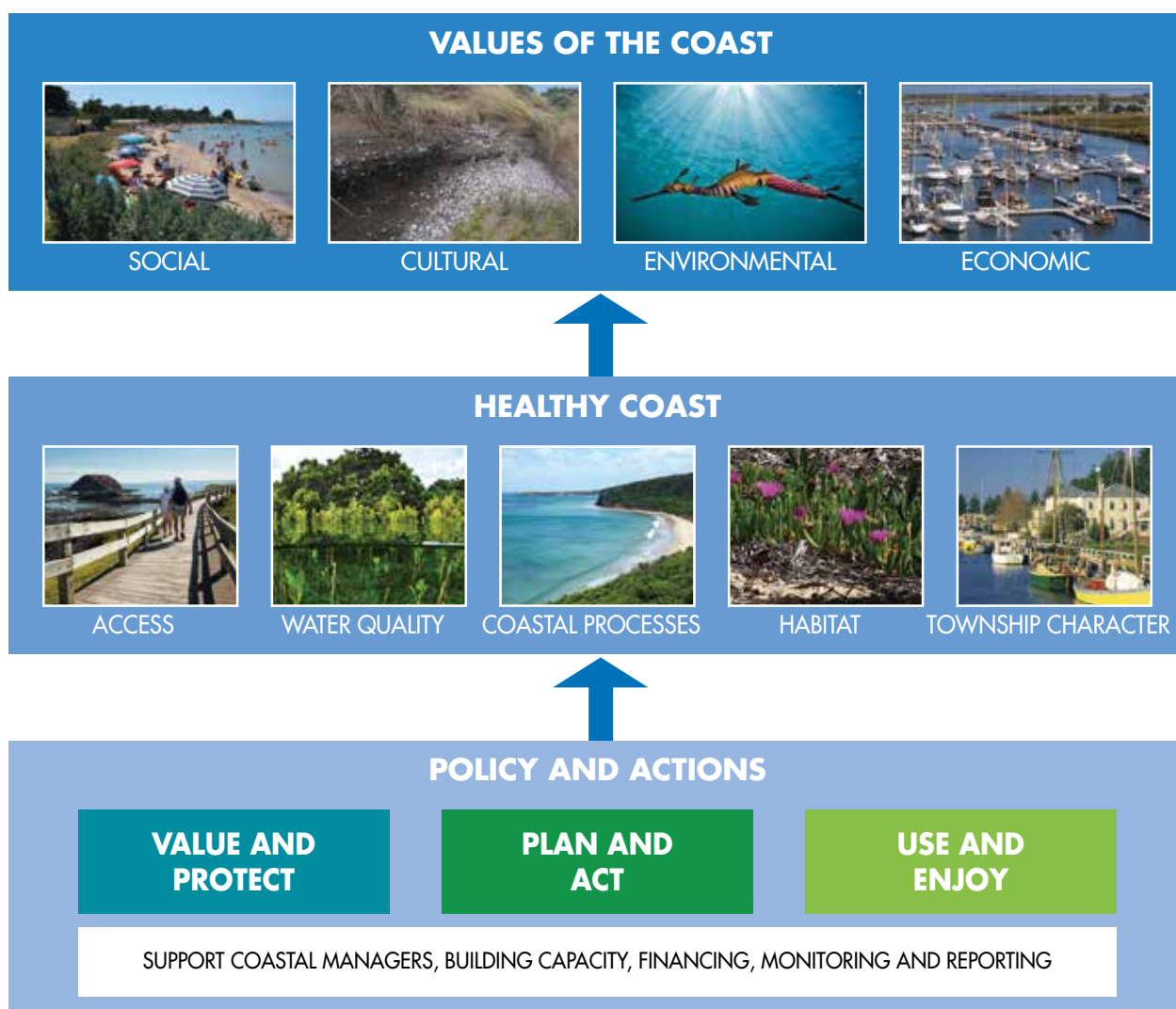
Non-commercial coastal uses include storm and flood protection, erosion buffers and nutrient cycling, which provide significant benefit to the community. The total value of Victoria's non-commercial coastal uses, including storm

protection, flood and disease control, habitat, biodiversity, recreation and passive enjoyment is \$8.4 billion per year (Worley Parsons, 2013).

Estuaries/rivers are a valuable habitat type at \$2.5 billion per annum, while seagrass habitats are valued at around \$1.8 billion per annum (Worley Parsons, 2013). Recent work shows that seagrass, mangroves and saltmarsh are potentially larger sinks for carbon than tropical rainforests.

Coastal recreation is valued at \$2.4 billion per annum. This represents the willingness of people to pay for coastal recreation opportunities over and above what they actually spend on tourism.

At present, the non-commercial value of coastal services is given limited if any explicit consideration in planning and management decision-making on the coast. Consideration of both commercial and non-commercial values on a comparable basis will enhance decision making and sustainable use of coastal resources.

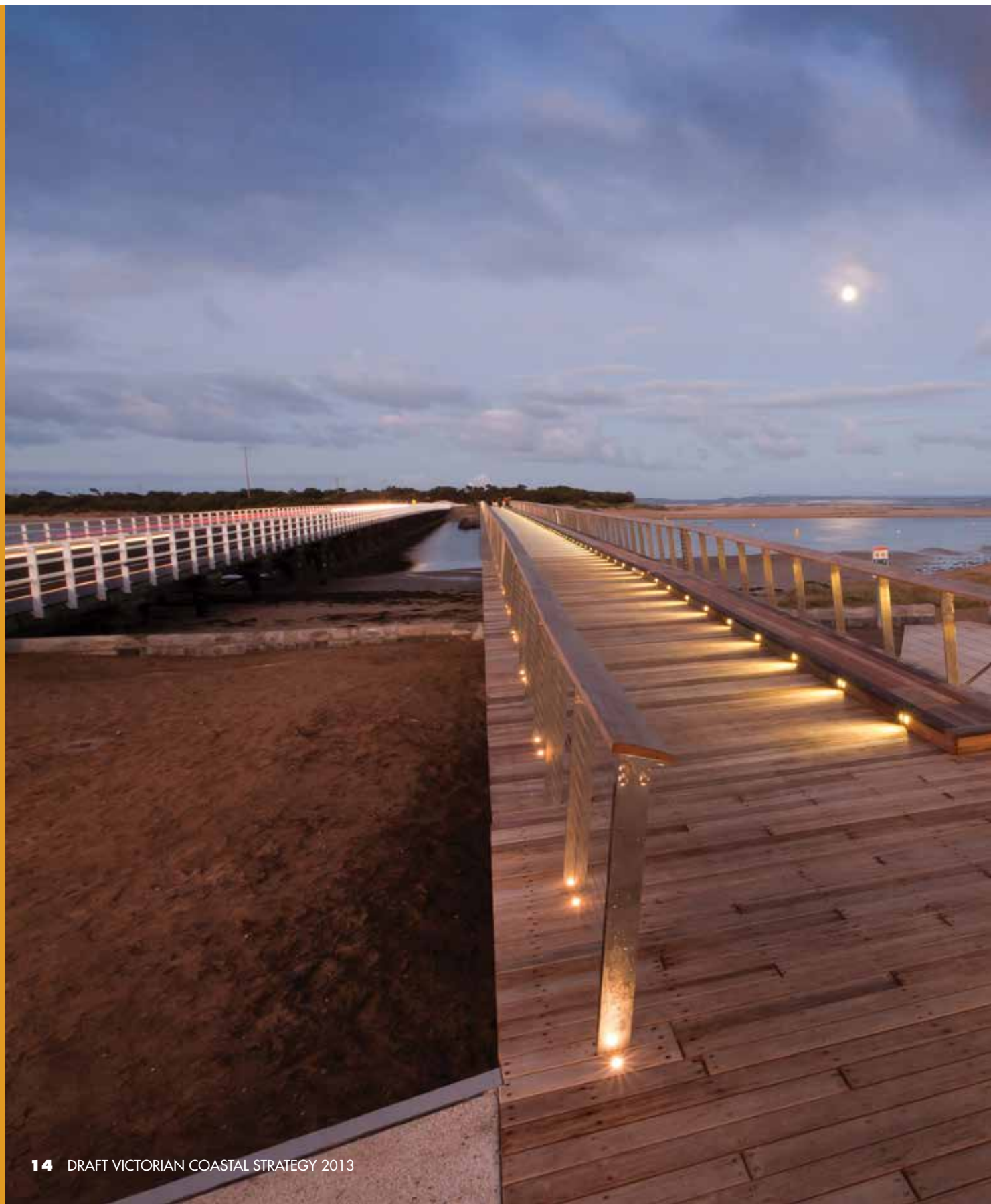


**Figure 2: The health of the coast supports a range of community values. Policies and actions are set out in the Strategy to protect and improve the health of the coast.**



**Aerial photo of Port Melbourne and Albert Park foreshore** Port Phillip City Council





# KEY ISSUES

Both the built and the natural environments are under pressure from population increase, resource extraction, a changing climate and coastal hazards, ageing infrastructure and competing demands for the use of the coast.

The Strategy provides policies and actions for managing these pressures so the coast remains in healthy condition so we can continue to enjoy it now and in the future.

This section provides a summary of six key issues that cut across the wide range of different coastal activities that require specific attention over the next five years. Policies and actions relating to these key issues are detailed in the main part of the Strategy.

## ADAPTING TO A CHANGING CLIMATE AND INCREASED COASTAL HAZARDS

The coast is not static. The coast moves with the influence of tides, wind, waves and weather systems. Interactions between these coastal processes and different landforms (sandy beaches, rocky headlands, low-lying mud flats and estuaries) create complex and dynamic systems. The sea is also dynamic and through its very nature physical, chemical and biological processes are connected.

A changing climate brings with it significant changes of the coast and marine environment. During this century it is possible that the Victorian coast will be impacted by sea level rise, changing sea temperatures, altered rainfall and ocean acidification. This in turn will impact on how we use and enjoy the coast.

The impacts of a changing climate are summarised in Table 1 and further information can be found in Appendix C.

**Table 1: Summary of the impacts a changing climate can have on the coast**

<b>Sea level rise</b>	<ul style="list-style-type: none"> <li>More frequent and extensive inundation of low lying areas</li> <li>Cliff, beach and foreshore erosion</li> <li>Altered saltmarsh and mangrove habitats</li> <li>Damaged infrastructure e.g. seawalls, jetties, roads, walking tracks</li> <li>Loss of and damage to private property</li> </ul>
<b>More frequent and extreme storm events</b>	<ul style="list-style-type: none"> <li>Intense and destructive flooding of land and buildings</li> <li>Loss of and damage to private property</li> <li>Beach, foreshore and cliff erosion</li> <li>Pollution from sewer overflows</li> </ul>
<b>Changing sea temperatures</b>	<ul style="list-style-type: none"> <li>Species distribution shifts</li> <li>Spread of invasive species and diseases</li> <li>Increased sea surface temperatures and altered currents</li> <li>Changes in phenology e.g. phytoplankton blooms</li> </ul>
<b>Altered patterns of wet and dry periods</b>	<ul style="list-style-type: none"> <li>Changed salinity, nutrient and sediment flows</li> <li>Changed estuaries, greater extremes of high and low freshwater input</li> <li>Reduced water clarity</li> <li>Increased frequency and intensity of fires on land, with impacts beyond</li> </ul>
<b>Ocean acidification</b>	<ul style="list-style-type: none"> <li>Declining shellfish and other species</li> <li>Impacts on early life stages of species</li> <li>Loss of plankton base for food webs, affecting fisheries</li> </ul>

## Sea level rise planning benchmarks

While there are instances of sea level rise around the globe, recorded increases vary widely due to factors such as prevailing winds, changing ocean currents and the gravitational pull of the polar ice sheets. Monitoring stations at Lorne and Stony Point have recorded rises of 2.8 mm/year and 2.4mm/year respectively since 1991 (DSE 2011).

Sea level rise will inundate some coastal foreshores and coastlines are expected to retreat. Sea level rise will also increase the risk of private land and property being flooded or eroded.

A sea level rise planning benchmark reduces these risks for new developments, provides consistency for decision-making and reduces the level of uncertainty for businesses, communities and individuals in managing coastal hazards.

The Victorian Coastal Council commissioned a report, *Derivation of Victorian Sea Level Planning Allowances, May 2013*, to provide an update of sea level rise projections as they relate to the coast of Victoria. This uses a model that takes into consideration:

- the latest projections of regional sea level rise by the IPCC Fourth Assessment Report
- additional contributions to account for vertical land motion caused by past and ongoing changes in land ice melt
- present statistics of storm tides (combination of tides and storm surges), which have been derived from tide gauge observations in Victoria and storm modelling for Australia
- a time period starting at 2010.

The report set out three suggestions for sea level rise planning benchmarks in Victoria:

- to plan for not less than 0.2 metres by 2040
- to plan for not less than 0.4 metres by 2070
- to plan for not less than 0.8 metres by 2100.

These are consistent with the sea level rise planning benchmarks in the current State Planning Policy Framework.

## Adaptation

Adapting to changes means acting to reduce risks, increase resilience, and taking advantage of any new opportunities. It applies to all aspects of the coast including biodiversity, settlements, land use activity and industry.

The Victorian Government's *Climate Change Adaptation Plan 2013*, outlines six key strategies for considering adaptation:

1. Managing risks to public assets and services

2. Managing risks to natural assets and natural resource-based industries
3. Building disaster resilience and integrated emergency management
4. Improving access to research and information for decision making
5. Supporting private sector adaptation
6. Strengthening partnerships with local government and communities.

To assist in planning for sea level rise and coastal hazards, the Victorian Government has also created a package of tools to support decision-making, including inundation maps (Victorian coastal inundation dataset), planning notes and guidelines (*Victorian Coastal Hazard Guide*). A summary of the tools is in Appendix D. There have also been a number of additional tools developed, such as the *Pathways for Decision-making* by the Australian Government, and adaptation plans developed at a local government level.

The majority of these tools are focused on considering impacts of a changing climate, such as inundation and erosion, at individual sites as part of the statutory planning system. More attention will be needed in the future to address impacts of a changing climate on existing buildings and structures, migration of natural systems, and longer term settlement planning.

To assist with longer-term adaptation at a local and regional level, the Victorian Government is working with local councils to produce *local coastal hazard assessments*. Four pilot projects are underway in, Port Fairy, Corio Bay/Bellarine Peninsula, Western Port Bay and the Gippsland Lakes/Ninety Mile Beach. Once these projects are complete the outcomes can guide application of this approach in other locations.

Managing for the impacts of a changing climate in the short and long term is a responsibility shared by all levels of government, industry, business and the people of Victoria. Everyone needs to play a part in understanding the impacts and acting to manage the risks.

### In addressing this issue, the desired outcomes of this Strategy are:

- Natural coastal processes are adopted as the preferred form of defence against possible impacts of a changing climate
- New development (and alterations to existing development) avoids areas subject to coastal hazards and does not interfere with natural coastal processes



## MANAGING POPULATION GROWTH

The population on the Victorian coast has continued to grow over the past decade although growth rates have fluctuated. In the early 2000s population growth was rapid, particularly in areas within about two hours drive of Melbourne. In the second half of the decade, growth rates along the Victorian coast slowed (Table 2).

Some coastal areas retain strong growth, including areas such as Surf Coast, Bellarine Peninsula and Bass Coast. The close proximity of the Bellarine and Surf Coasts to Geelong and Melbourne enhances their popularity as commuter locations, as well as traditional beach holiday destinations. As a result, this area has become one of the main concentrations of coastal population in the State (Figure 3).

Coastal settlements also continue to experience annual population fluctuations through part-time residents and

holiday visitors. Peak seasonal populations can be as many as four or five times higher than the base resident population. The 2011 census counted a total of 35,800 unoccupied dwellings along Victoria's coastal settlements (excluding Melbourne and Geelong). This represents an average winter vacancy rate of around 37 per cent.

Over the past two decades, the population in our coastal towns has 'aged', with an increase in the proportion of the population aged 75 years or more. Of the 56 settlements along the coast (excluding Melbourne), 41 have above-average proportions aged 75 years or more, when compared with the State average.

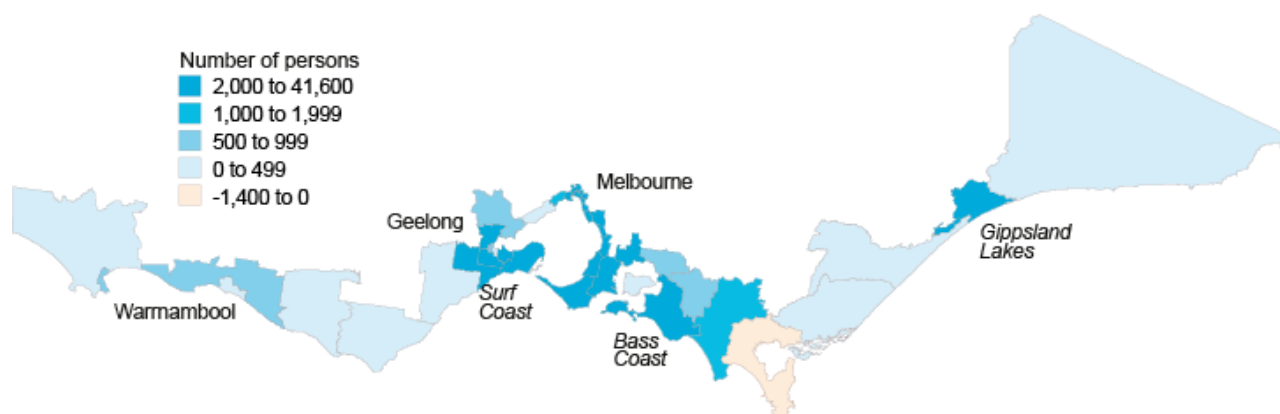
This demographic change highlights the importance of directing the location of new infrastructure according to the coastal settlement framework (Map 1), which consolidates major infrastructure into key coastal settlements.

**Table 2: Population change, coastal and non-coastal Victoria, 2001 to 2011**

	Population			Average Annual Population Change (%)		
	2001	2006	2011	2001–06	2006–11	2001–11
Coastal Victoria*	733,467	774,717	837,362	1.10	1.57	1.33
Non Coastal Victoria	3,911,483	4,140,626	4,513,846	1.15	1.74	1.44
Total Victoria	4,644,950	4,915,346	5,531,222	1.14	1.71	1.43
Coastal population as % of Victoria's population	15.79	15.76	15.65			

\* As measured using ABS Statistical Areas (SA2). Source: ABS Census 2011 Time Series Profile Table T01.

**Figure 3: Population concentration along the Victorian coast, 2011.**



Source: ABS Regional Population Growth Australia, cat. no. 3218.0

### Impacts linked to changing coastal communities

Growth in the number of visitors to the coast creates valuable local jobs and increased local economic activity. There are substantial private and public benefits in meeting this increased demand from population growth.

However, meeting the needs of seasonal visitors during peak holiday periods can create significant challenges. Infrastructure such as roads, water supply and sewerage and power need to be built to meet these peak demand periods, adding to the costs of these services.

Our desire to be near and visit the coast creates pressure on the very aesthetic, cultural, and environmental values which attract us. Careful planning is required to meet these growing demands in a way that preserves the significant natural values and ecosystems of the coast.

Over the last five years, Victoria has focussed on managing population and growth by implementing significant landscape overlays and defining settlement boundaries. The successes of this will be built on over the next five years to allow growth to occur in designated areas while maintaining settlement character, and protecting landscape and environmental values that draw people to the coast.

Planning for increases in visitor use may require different solutions in the future, such as people management strategies.

#### In addressing this issue, the desired outcomes of this Strategy are:

- Sustainable coastal settlements are planned to support a healthy environment, a sustainable economy, and strong social and cultural values
- Green breaks are used between coastal settlements to preserve the character of the coastline



Queenscliff Marina and Swan Bay Tony Cavanagh

## UNDERSTANDING THE VALUE OF NATURAL RESOURCES

The Victorian coast is made up of different ecosystems associated with beaches, estuaries, wetlands, coastal vegetation, seagrass meadows and rocky reefs. These ecosystems provide benefits termed 'ecosystem goods and services' that support commercial and non-commercial uses of the coast.

Ecosystem services can be grouped in four broad categories (Millennium Ecosystem Assessment, 2005):

### Provisioning services

Products from nature such as food  
(e.g. pharmaceuticals, fisheries, shells, sand and lime, gas/oil)

### Cultural services

Non-material benefits  
(e.g. recreation opportunities, aesthetics, spiritual values, amenity)

### Regulating services

Regulation of ecosystem processes  
(e.g. storm protection, erosion buffers, flood and disease control)

### Supporting services

Necessary for the production of all other ecosystem services  
(e.g. habitat, biodiversity, nutrient cycling, biogeochemical services)

Provisioning and cultural services are dependent upon regulating and supporting services. This has important implications for decision-making about use and management of coastal and marine ecosystems particularly when there are competing demands.

The connection between commercial and non-commercial values is important and can be illustrated by considering fisheries and ports. Fisheries provide an estimated \$68

million value to the Victorian economy (Worley Parsons 2013). In order to run such industries efficiently and competitively, coastal infrastructure is required, such as jetties, ports, and navigational aids.

The provision of coastal infrastructure may affect coastal ecosystems (e.g. seagrass meadows and mangroves) and the ecosystem services they provide. If these ecosystems provide services as fish breeding grounds or storm protection barriers, then their value (and the cost of losing them) is a critical component of maintaining a sustainable fishery industry and protecting the investment in coastal infrastructure.

Decision-making frameworks need to encompass such interdependent interactions, and allow for an understanding of the trade-offs that are inherent in the use of ecosystem services for commercial and community benefit. A barrier to evaluating trade-offs is the lack of a common currency for comparing value. Economic valuation is one way to address this barrier.

The report commissioned by the Victorian Coastal Council, '*Assessing the Value of the Coast to Victoria*', is a first step in estimating coastal and marine ecosystems services in Victoria. In the future we can refine these estimates and develop appropriate processes and methods for considering trade-offs in both complex and more straightforward proposals.

### In addressing this issue, the desired outcomes of this Strategy are:

- Improved methods for valuing ecosystem services are used to allow the balance between competing coastal and marine values to be negotiated transparently and systematically



## INTEGRATED APPROACH TO MARINE MANAGEMENT

Coastal and marine systems are dynamic by nature; they involve complex physical, chemical and biological processes. These processes occur both within the water and across the interface between land and water. Healthy coastal waters are dependent on how we manage the whole coast – and all of its systems.

Marine environments support a diverse range of goods and services that deliver benefits to all Victorians including fisheries, aquaculture, tourism, recreation, natural coastal defences, and carbon storage.

Threats to the values of marine environments are numerous; they arise from biophysical factors such as a changing climate, and from human activities such as increasing demand for marine uses and activities, marine pollution, catchment impacts on water quality, and invasion of marine pests.

These impacts can be heightened by the cumulative (over time) or combined (simultaneous) changes in threats. Many of these cumulative impacts are difficult to anticipate or predict, as thresholds and tipping points for species and systems are poorly understood.

Managing these impacts is crucial to the health of marine environments and the activities they support. The current approach to marine planning and management in Victoria is issue-activity-or-‘sector’-focused. Fisheries, marine parks, resource extraction, ports and shipping, tourism, and catchment management are generally considered individually, particularly on the open coast.

This approach limits our capacity to address the overlapping and cumulative impacts from combined threats and can reduce the efficiency and effectiveness of marine planning and management.

Going forward, to achieve our Vision, it is important that all marine sectors work together to sustain the health of Victoria's marine environments. Within Port Phillip Bay, the *Cleaner Yarra River and Port Phillip Bay Plan of Action 2012* is fostering integration across sectors and could be a model for other areas of the coast. An integrated approach would:

- consider marine environments at a ‘whole of ecosystem’ level
- provide shared objectives that reflect the aspirations of Victorians
- use guiding principles for integrated management across sectors (Appendix E)
- provide a shared spatial basis for decision-making
- identify areas of environmental, cultural, social and economic significance
- identify areas for new uses and for the co-location of existing uses
- increase certainty for environmental managers and development/resource use managers by streamlining and consolidating approval and consent processes.

### **In addressing this issue, the desired outcomes of this Strategy are:**

- An integrated and holistic approach is used for the management and planning of the marine environment
- Coastal waters, estuaries, wetlands and the terrestrial environment are managed to promote healthy marine ecosystems that support connectivity and adaptation

## FINANCING COASTAL INFRASTRUCTURE AND MANAGEMENT

The medium and longer-term impacts of a changing climate will see increasing pressure on coastal managers to protect Crown land, private land and infrastructure on the coast. It will also see increasing pressure to renew and replace assets that are lost through increased erosion, inundation or old age.

New public buildings and facilities, and planning for new private developments including roads and drainage systems will take account of increased coastal hazards, but the replacement and upgrade of existing infrastructure and public facilities will be a more complex and expensive task. There will also inevitably be pressure on coastal managers to undertake works to protect privately owned land and buildings threatened by coastal processes.

There is a long-standing policy that the expenditure of public funds on protection works will be for state-wide public benefit only (and very limited funding is available for this purpose).

By their nature some coastal protection works will provide local benefits and private benefits by protecting private property. Consistent with the beneficiary pays principle local government and private landholders are expected to contribute to the capital and maintenance costs of such protection works.

Council Special Rates are a potential mechanism to generate revenue from landholders and from local communities

benefiting from protection works. Implementing special rates for coastal protection works will be complex; potentially each instance would involve a number of agencies. The process would best be undertaken within a set of broadly endorsed 'principles' to ensure a consistent approach.

Presently the cost of maintaining facilities on the coast rests with a range of state authorities and other entity bodies like Committees of Management, Port Authorities, Parks Victoria, the Department of Environment and Primary Industries and local government. Under current arrangements some coastal managers generate significant revenue for reinvestment on their reserves, whilst adjoining reserves have relative little revenue but may have a greater need for investment in coastal protection or new facilities.

In the next five years research on the capacity of entities to fund coastal management actions and future adaptation requirements is needed. This research could identify measures to facilitate the alignment of funding capacity with coastal management responsibilities.

### In addressing this issue, the desired outcomes of this Strategy are:

- Financing arrangements for the protection and use of coastal land, and the provision and maintenance of coastal infrastructure, are adequate to address the impacts of a changing climate and population growth pressures



St Kilda Promenade Port Phillip City Council

## BALANCING DECISION-MAKING

Effective coastal management relies on the capacity and capability of our coastal land managers and planners. Currently there are over 20 local government authorities, and 38 volunteer committees managing the foreshore along the Victorian coast. Coastcare volunteer groups support coastal managers and Coastcare estimate an in-kind contribution from volunteers working on coastal Crown land at \$12 million each year. Their involvement needs to be encouraged and supported.

Place based management provides the building blocks for managing the coast. Community groups, Committees of Management, local government, and Parks Victoria have the primary responsibility for delivering services to the public. However, the management of a small local part of the coast needs to have regard to wider regional and state-wide strategic directions. This is the primary task of the Victorian Coastal Strategy and regional Coastal Action Plans.

Many coastal management activities are best undertaken by local groups because they:

- have better knowledge of local conditions
- can better match local expenditure to the benefits to the local community

- can find more innovative solutions than centralized bureaucracies
- better involve local communities in the decisions that affect them.

A recent review by the Department of Environment and Primary Industries identified the huge variance in the capability and capacity of coastal managers across the state to deal with current and future coastal management challenges. The review recommended developing business models based on sustainable revenue streams for managers. It also recommended that larger groupings of reserves under the one manager should be investigated – the aim here would be to distribute the gathered funds across a wider area thereby improving the ability to target available resources to key priorities.

### In addressing this issue, the desired outcomes of this Strategy are:

- Local communities actively participate in coastal and marine management and planning
- Integrated Coastal Action Plans balancing state-wide policies with regional and local priorities



People participating in coastal conservation Grainne Maguire, Birdlife Australia



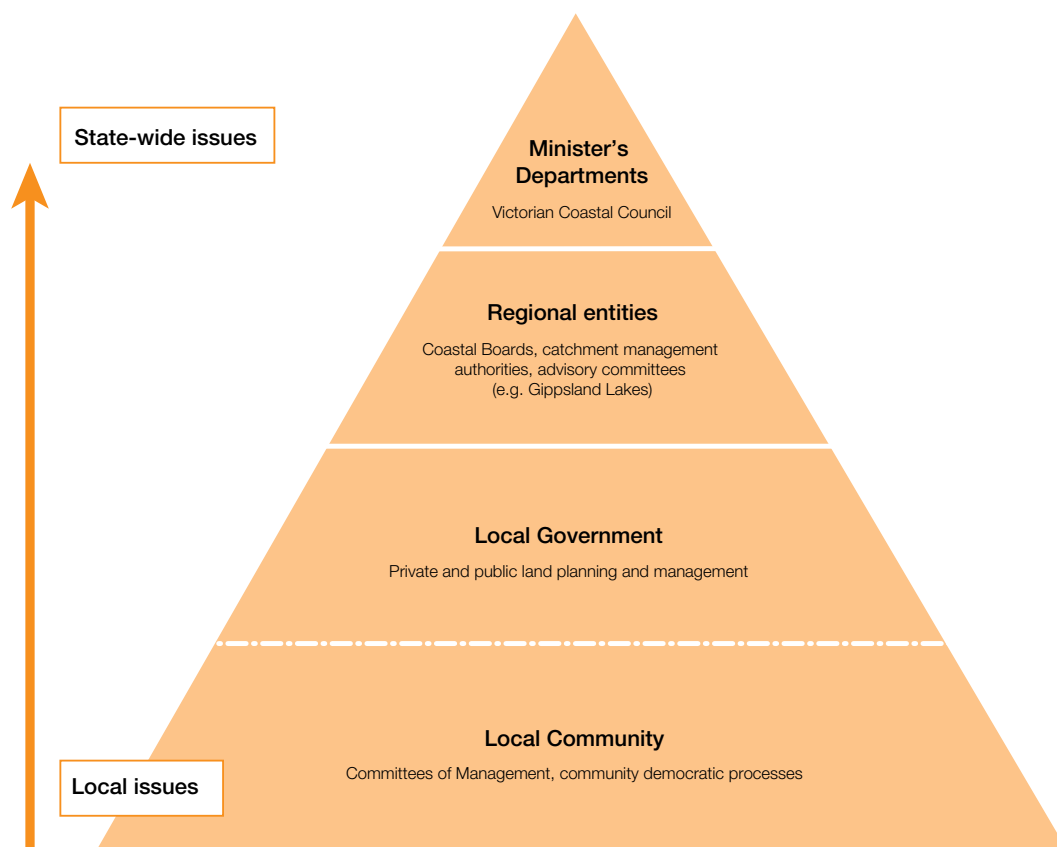


Figure 4: Most coastal management activities and decisions are local

...PLANNING AND  
DECISION-MAKING  
SHOULD BE CONSISTENT  
WITH THE HIERARCHY  
OF PRINCIPLES

# HIERARCHY OF PRINCIPLES

Managing the coast for the future will require responses to the many ongoing pressures we face. To assist with this previous Strategies have introduced a hierarchy of principles. This concept recognises that the foundation of coastal planning and management is a healthy coastal and marine environment.

- The first principle is the protection of significant environmental features.
- The second principle is to provide clear direction and integrated planning for the future.
- The third principle is to ensure that coastal resources are used sustainably.
- The fourth principle is to provide guidance for suitable development on the coast.

The hierarchy of principles give effect to the directions in the *Coastal Management Act 1995* and are included in the State Planning Policy Framework in planning schemes across Victoria.

Planning and decision-making on the coast needs to be consistent with the hierarchy of principles.

The policies and actions in the Strategy have been grouped to align with the hierarchy of principles.

## (PRINCIPLE 1) VALUE AND PROTECT

Recognising and protecting significant environmental and cultural features of the coast

## (PRINCIPLE 2) PLAN AND ACT

Enabling stakeholder participation in developing clear directions for future use of the coast

## (PRINCIPLE 3 AND 4) USE AND ENJOY

Ensuring sustainable use of natural coastal resources and suitable development on the coast

<b>VALUE &amp; PROTECT</b>	<p><b>1 PROVIDE FOR THE PROTECTION OF SIGNIFICANT ENVIRONMENTAL AND CULTURAL VALUES</b></p> <p>The starting point is protection of what we value on the coast, based on identification and sound understanding of coastal and marine features and processes, vulnerabilities and risks</p>
<b>PLAN &amp; ACT</b>	<p><b>2 UNDERTAKE INTEGRATED PLANNING AND PROVIDE CLEAR DIRECTION FOR THE FUTURE</b></p> <p>This highlights the importance of having integrated policies, plans and strategies which respond to the major issues affecting coastal and marine environments and provide clear direction for protection, management and sustainable development and use</p>
<b>USE &amp; ENJOY</b>	<p><b>3 ENSURE THE SUSTAINABLE USE OF NATURAL COASTAL RESOURCES</b></p> <p>This emphasises that natural coastal resources are to be used in ways which are sustainable so that the benefits of resources remain available to future generations</p> <p>Only when the above principles have been considered and addressed:</p>
	<p><b>4 ENSURE DEVELOPMENT ON THE COAST IS LOCATED WITHIN EXISTING MODIFIED AND RESILIENT ENVIRONMENTS WHERE THE DEMAND FOR DEVELOPMENT IS EVIDENT AND THE IMPACT CAN BE MANAGED</b></p> <p>This aims to ensure that development on and adjacent to the coast is of high quality design and is sensitively sited</p>





## LEAD AND PARTNER AGENTS

The primary agency (lead agent) accountable for each action is listed first, in bold, followed by the major stakeholders (partner agents) who will assist the lead agency in completing or implementing that action: e.g. (**DEPI**, CMA, PV).

Not all organisations or groups who will be involved or consulted can be listed as there are so many, but we acknowledge the vital role that other groups will play in informing and achieving these actions.

<b>AAV</b>	<b>Aboriginal Affairs Victoria</b>
<b>CMA</b>	<b>Catchment Management Authorities</b>  This refers to all or one of the five catchment management authorities that border the coast.
<b>CoM</b>	<b>Committees of Management</b>  This refers to bodies delegated under the <i>Crown Land (Reserves) Act 1978</i> to manage defined parcels of Crown land, and includes appointed volunteer committees, Local Government (where they are Committee of Management), and other delegated bodies under the Act.
<b>DEPI</b>	<b>Department of Environment and Primary Industries</b>
<b>DTF</b>	<b>Department of Treasury and Finance</b>
<b>DTPLI</b>	<b>Department of Transport Planning and Local Infrastructure</b>
<b>EPA</b>	<b>Environment Protection Authority</b>
<b>HV</b>	<b>Heritage Victoria</b>
<b>LG</b>	<b>Local Government</b>  This refers to Local Government in their capacity as planners and providers of significant infrastructure and services across both private and public land, local by-law regulators, and as the level of Government representing the local community. See also CoM.
<b>MW</b>	<b>Melbourne Water</b>  This refers to Melbourne Water in their capacity as manager of Melbourne's water supply catchments, sewage treatment, rivers, creeks and major drainage systems throughout the Port Phillip and Westernport region.
<b>PV</b>	<b>Parks Victoria</b>  This refers to Parks Victoria in their role as the custodian of a diverse estate of significant parks on the coast in Victoria and of the recreational management of Port Phillip Bay and Western Port. These parks include National Parks and coastal parks, as well as Marine National Parks and Marine Sanctuaries.
<b>RCB</b>	<b>Regional Coastal Boards</b>  Includes the Western Coastal Board (WCB), Central Coastal Board (CCB) and Gippsland Coastal Board (GCB).
<b>VCC</b>	<b>Victorian Coastal Council</b>



# **PRINCIPLE 1** ...RECOGNISING AND PROTECTING SIGNIFICANT ENVIRONMENTAL AND CULTURAL FEATURES OF THE COAST



# VALUE AND PROTECT

## APPRECIATING AND VALUING THE COAST

### Desired outcomes

- Improved methods for valuing ecosystem services are used to allow the balance between competing coastal and marine values to be negotiated transparently and systematically

### Valuing coastal and marine ecosystems

Just as in a business, services being provided by coastal and marine ecosystems need to be described and explained in terms that the community, as potential users of the services, can identify with. Examples of the ways that marine and coastal ecosystems provide goods and services include:

- *Mangroves* offer physical protection from erosion caused by storm surges, by dissipating wave energy
- *Seagrass* stabilises the seabed and is a nursery ground for supporting commercial fish populations
- *Marine and coastal organisms* in the sediments associated with seagrasses, saltmarshes and mangroves that sequester and store biological carbon (sometimes called 'Blue Carbon') at high rates. Rates of carbon storage may equal or exceed sequestration capacity of tropical forests.

### Trade-offs in decision-making

One of the most difficult aspects of decision-making for coastal and marine environments is to make trade-offs regarding the use and development of habitats that deliver both commercial and non-commercial benefits. For example, if a particular area of mangrove forest provides a community benefit in the form of natural storm protection we may be making a decision about the trade-off between these public, non-commercial benefits with the potential commercial private and economic benefits from a proposed development (e.g. a new harbour facility).

Decision-making and trade-offs will occur at different levels (state, regional, local). Whatever the level, decision makers need to consider the trade-offs between maintaining the public benefits of healthy functioning ecosystems and the economic benefits of expanding human use and development.

Economists have devised a range of methods for estimating the dollar value of ecosystem services that can assist decision makers to consider different values in a common currency and better incorporate non-market ecosystem services into trade-off decisions.

### Policy for decision-making

1. Consider ecosystem service values of coastal and marine environments in decision making. This will require a description and adequate assessment of the link between the function of natural systems and the goods or services it provides

### Actions

1. Develop and implement environmental value measurement systems and environmental accounts that are consistent with international systems to:
  - a. establish clear standards for reporting on the condition and value (natural, social, cultural and economic) of coastal and marine assets and identifying and explaining changes over time (DEPI, DTF)
  - b. assist in prioritising the allocation of resources to coastal and marine environmental activities (DEPI, DTF)

## CULTURAL HERITAGE

### Desired outcomes

- Significant Aboriginal and Non-Aboriginal cultural heritage places are identified and protected, where appropriate
- Victorians work in partnership to take account of local knowledge and to care for cultural heritage on the coast

### Aboriginal Heritage

The Victorian coast is of great significance to Aboriginal people. Thousands of Aboriginal cultural heritage places are recorded along the coast and we continue to find more.

Recognition of Aboriginal knowledge of, and aspirations for, country is an essential part of coastal natural resource management (e.g. Land Management Agreements, and involvement in fisheries management via the Aboriginal Fishing Strategy 2012).

Map 2 identifies known Aboriginal cultural heritage places in Victoria.

Traditional Owners do not distinguish between land and sea; they see their traditional rights and responsibilities for 'country' extending across terrestrial, coastal and marine environments. Aboriginal cultural heritage in Victoria is a living culture based on the laws and customs of Traditional Owners; it is not solely of archaeological significance. Therefore, it is vital to give Traditional Owners a key role in protecting Aboriginal cultural heritage.

The *Aboriginal Heritage Act 2006* (the AH Act) recognises Traditional Owners as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage. In addition, the Victorian *Traditional Owner Settlement Act 2010* (TOS Act) provides a framework to recognise Traditional Owners (based on their traditional and cultural associations) for certain Crown land, and to advance reconciliation and promote good relations between the State and Traditional Owners. There is alignment between native title legislation, the TOS Act and the AH Act.

Traditional Owners of Victoria's coast formally recognised under the AH Act as Registered Aboriginal Parties (RAPs),

some of whom have native title determinations and/or Recognition and Settlement Agreements under the TOS Act, are shown on Map 2.

As well as those groups that have been formally recognised, there is a range of other Traditional Owner groups that assert interests over the Victorian coast. They include:

- Eastern Maar peoples (including Kirrae Wurrung, Peek Whurrong, Chap Whurrong, KuurnKopanNoot and YarroWaetch peoples)
- Gadubanud peoples
- Woiwurrung peoples\*
- Bunurong/Boon Wurrung peoples
- Nindi-NgujarnNgarigoMonero peoples
- Bidwell-Maap peoples
- Gunaikurnai peoples\*

\* for additional areas beyond their formally recognised areas

### Non-Aboriginal Heritage

The Victorian Heritage Register lists all non-Aboriginal cultural heritage resources that are of State significance. The Heritage Council and Heritage Victoria are responsible for maintaining this register and issuing permits for their development. Heritage Victoria also maintains a register of non-Aboriginal archaeological sites in the Heritage Inventory.

Heritage places of Local significance are identified in Heritage Overlays in the local section of coastal planning schemes. The *Historic Shipwrecks Act 1976* (Commonwealth) provides protection for significant shipwrecks in waters outside Port Phillip and Westernport Bays.

### Managing Heritage Places

A range of impacts can threaten heritage places. For example, visitation to heritage sites (known or unknown) can result in physical damage, degradation or loss. Erosion and inundation are also significant natural process that can put heritage places at risk. The rates of erosion and inundation are likely to increase with a changing climate.

Decisions are needed when heritage places are at risk. Depending on the nature of the risk, the heritage value and the movability of heritage objects, the management options include avoidance, removal, relocation or protection.

### Policy for decision-making

1. Significant Aboriginal and non-Aboriginal cultural heritage places and landscapes will be identified and where appropriate protected
2. Traditional knowledge will be integrated into coastal planning and management in partnership with Aboriginal communities (particularly through the use of Coastal Action Plans and Coastal Management Plans)
3. Where applicable, coastal Crown land parks and reserves will be co-managed with Traditional Owners
4. While maintaining the heritage and character values encourage the re-use and interpretation of built heritage places for community use and coastal tourism

### Actions

1. Progressively update asset and heritage registers and local planning schemes following comprehensive identification, documentation and assessment of sites on the coast and underwater. In particular, undertake assessment of vulnerability of heritage places to impacts of a changing climate (**LG**, AAV, PV, HV)
2. Pilot three indigenous knowledge hubs, to be maintained by Traditional Owners/RAPs involved in the co-management of public land, for the recording and sharing of local/regional traditional knowledge (**DEPI**, AAV)



Aboriginal midden at Point Roadknight Great Ocean Road Coast Committee



## MARINE ENVIRONMENTS

### Desired outcomes

- An integrated and holistic approach is used for the management and planning of the marine environment
- Coastal waters, estuaries, wetlands and the terrestrial environment are managed to promote healthy marine ecosystems that support connectivity and adaptation

Victoria's marine environments cover more than 10,000 square kilometres, extending three nautical miles from the coastline. They include bays, inlets and estuaries, as well as the exposed waters of Bass Strait and the open ocean. Most waters are shallow, but some areas reach depths of more than 100 metres.

Marine national parks and sanctuaries, which are primarily established to provide added protection to examples of biological diversity, cover around five per cent of the State's coastal waters. The remaining 95 per cent of marine areas also provide significant intrinsic and community values.

Marine environments support a diversity of goods and services that deliver benefits to the Victorian community (including fisheries, aquaculture, tourism, recreation, natural coastal defences, and carbon storage). These benefits depend on healthy and resilient marine ecosystems.

Significant, broad-scale impacts on the health and productivity of marine environments are likely to occur across Victoria. They include:

- a changing climate
- high demand for, and diversification of, marine uses and activities

- marine pollution and catchment impacts on water quality
- invasion of marine pests and diseases due to altered ocean currents or introduction by shipping and boating movements

### A changing climate

A changing climate could have a range of impacts including sea level rise as well as changes in ocean currents, temperature, salinity, pH and freshwater inputs. Each of these has the potential to affect ecological processes and marine biodiversity.

Victoria's unique cold-temperate water species are considered particularly vulnerable to changes in currents and warmer waters, given the lack of continental shelf habitat further south for migration. Barriers to migration of marine habitats may already exist (e.g. seawalls, coastal development, land use, artificially renourished beaches) or may result from development or adaptation decisions. This could lead to the loss of marine species that are endemic to Victorian waters. It might also lead to the emergence of species not currently found along our coast. This has the potential to affect state and regional communities that depend on industries such as fisheries, aquaculture and tourism.

### High demand for, and diversification of, marine resource use and activities

As the population of Victoria grows, the demand for fishing, aquaculture, tourism and marine energy will continue to grow. This demand must be managed in ways that protect the health of the marine environment while also minimising or avoiding conflict between different users.

**Table 3: Impacts of a changing climate on the marine environment**

Threatening effect	Potential Impact
Sea level rise and storm surge	Loss of and damage to habitats, particularly in near shore and intertidal areas
Warming sea temperatures/ changes in ocean currents and upwellings	Changes in salinity, and distribution and abundance of marine habitats, plants and animals, including pests Potential alteration in nutrient availability from upwellings
Ocean acidification	Some marine animals will be unable to produce shells and skeletons, resulting in disrupted/changed food chains
Changes to rainfall patterns	Changes in delivery of nutrients from catchment runoff Loss of connection between essential climate/ weather/ seasonal events affecting marine plants and animals

### Marine pollution and catchment impacts

Most marine pollution is generated from land-based activities. Stormwater runoff, industrial and household discharges, and land management practices not making use of best practices can all result in diffuse or point sources of pollution.

Pollution generated in the marine environment is from activities such as shipping, boating, oil and gas exploration, fishing, and aquaculture.

Depending upon the types and volumes of chemicals involved, this can result in: reduced water quality; habitat loss and degradation; changes to the distribution, abundance and health of species; incorporation of toxic chemicals into marine animals; and bioaccumulation and consumption by humans.

### Dredging

Dredging activities can disturb seabed and associated communities, reduce water quality if contaminated sediments are disturbed and released, and suspend sediment in the water column that may cause turbidity and smother seabed communities.

### Marine pests and diseases

Marine pests can attach themselves to boat hulls and equipment, fishing gear and other equipment. Pests can also be transported in seawater systems of boats, including in bilge and ballast water.

Once established, removal is rarely viable and the pest can spread to new locations. The introduction of marine pests and diseases can lead to: changes in or loss of habitat; changes to marine communities (e.g. consuming or competing with native species) and food chains; and new aquatic diseases, pathogens and parasites. While protocols and approaches exist for addressing marine pests, their effectiveness under future climatic conditions is unclear.

### Integrated marine management

Managing these impacts is crucial to the health of marine environments and the activities they support. It is important that marine sectors work together to sustain the health of Victoria's marine environments.

### Policy for decision-making

1. Those features of marine areas that provide significant environmental, social, cultural and economic value will be protected
2. The threats (including cumulative and combined) to marine environments will be assessed and addressed at the scale most appropriate for system-wide management
3. All dredging will meet best practice requirements
4. A comprehensive, adequate and representative system of well-managed Marine National Parks and Sanctuaries will be maintained and monitored

### Actions

1. Develop a framework for an integrated management approach to Victoria's marine environments. This would include developing agreed objectives for the health and use of marine environments across all involved agencies and spatial maps that identify important environmental, social, cultural and economic features of marine environments (**DEPI, PV**)
2. As part of the development of the integrated Coastal Action Plans identify and map: marine areas with significant environmental, social, cultural and economic values. Also map marine ecological and oceanographic processes, and potential threats (**RCB, DEPI, PV**)
3. Implement agreed responses to the VEAC Marine Investigation into the performance and management of Victoria's marine protected areas and ongoing threats or challenges to their effective management (**DEPI, PV**)
4. Update key policies and guidelines including:
  - a. best practice environmental guidelines for dredging to reflect new benchmarks in environmental controls for dredging activities and relevant national guidelines (**EPA, DEPI, PV**)
  - b. protocols for detecting, reporting and responding to marine pest incursions (**DEPI, PV, EPA**)
5. Develop improved understanding about the amount of carbon stored in Victoria's marine and coastal ecosystems (**DEPI**)

## WETLANDS AND ESTUARIES

### Desired outcomes

- The ecological condition of coastal wetlands and estuaries, including Ramsar sites is protected and improved
- Coastal waters, estuaries, wetlands are managed in ways that support their natural connectivity thereby ensuring the future health and resilience of wetlands and estuaries

There are more than 100 estuaries in Victoria, varying greatly in area, from large (e.g. Gippsland Lakes) to medium (e.g. Barwon River) and small (e.g. Wye and Balcombe Rivers). Some of the most important wetlands in Victoria are located on the coast, including five that are of international importance (Ramsar sites) and eighteen of national importance.

Wetlands and estuaries provide an important range of ecosystem services, like fish nurseries and protection from wave action. They also support recreational and commercial activities like tourism and ports.

Townships and farmlands often surround wetlands and estuaries. Land use activities can affect the health and capacity of wetlands to provide benefits to the community (Table 4).

Periodic closure of estuaries to the sea is a natural process for some Victorian estuaries. Closures can be problematic for human use of the estuary, and artificial openings may be required to provide access to harbours for boats, or alleviate flooding of adjacent land. Artificial opening needs to be carefully managed to avoid degrading the ecological health of the estuary.

A changing climate will have an effect on the functioning and health of wetland and estuaries. For example, greater erosion can lead to loss of saltmarsh, reduced freshwater flows into estuaries can change salinity regimes and more intense storms can break through estuary entrances.

Wetlands and estuaries need to be able to adapt as the environment changes if they are to continue to provide community benefits. Their potential to adapt may be diminished by barriers such as built infrastructure (e.g. roads, buildings, levees), natural topography (e.g. hills), and people's understandable desire to maintain existing uses on areas of cleared land. If wetlands and estuaries are unable to migrate and are therefore reduced across Victoria, fishing, tourism and infrastructure will all be affected.

**Table 4: Land use activity impacts on wetlands and estuaries**

Activity	Impact
Artificial estuary entrance opening	Fish death events, reduced water quality, interference with lifecycles
Habitat modification (e.g. removal of mangroves)	Loss of plants, animals and ecosystem services, invasion by weeds and pests
Infrastructure (e.g. concrete banks, sandbanks, channels, levees) and catchment development	Barriers to habitat connectivity and species migration; pollutants, toxicants, sediments, nutrients entering wetlands, estuarine and marine waters through stormwater runoff; changes to salinity and inflow water regimes



### Policy for decision-making

1. The integrated management of wetland, rivers and estuaries will be guided by the *Victorian Waterway Management Strategy 2013*
2. The impact of catchment pressures on priority wetlands and estuaries will be reduced by:
  - a. providing adequate freshwater flows to protect, and where possible improve, the health of wetlands and estuaries
  - b. minimising or avoiding pollution from new developments
  - c. reducing nutrient and sediment loads from existing developments
3. Planning decisions should consider the impact of development on significant wetlands and estuaries in particular, linkages across land tenure, the potential to fragment connected habitats, and impact on their future adaption requirements
4. Management of wetlands and estuaries will be encouraged by providing best practice guidelines, promoting the best available science and when necessary using regulations. This will include using:
  - a. *Estuary Entrance Management System* to guide decision-making about the artificial opening of an estuary mouth
  - b. *Environmental Water Quality Guidelines for Victorian Riverine Estuaries 2010* to identify management actions to improve estuary health
  - c. *Estuary Environmental Flows Assessment Methodology* to improve our understanding of the environmental flow requirements of estuaries and the operational management of environmental water allocations fishing regulations and education to support sustainable harvesting

### Actions

1. Regional Coastal Action Plans will identify significant wetlands and estuaries that are vulnerable to the potential impacts of a changing climate (**RCB**, **DEPI**, **CMA**, **PV**)



White mangrove (*Avicennia marina*) Hobsons Bay City Council

## ONSHORE ENVIRONMENTS

### Desired outcomes

- Improved health, resilience and connectivity of onshore coastal environments across land tenures
- A well-managed, comprehensive, adequate and representative system of coastal parks and reserves is complemented by off-reserve conservation actions

Victoria's onshore coastal environments contain a wide range of habitats including beaches, dune systems, woodlands, windswept cliff tops, heathlands and dry forests.

Population growth, increasing use, development pressures, and a changing climate each individually and collectively increase the risk that natural habitats will be fragmented or lost. Unless it is managed, that risk could result in the loss of diversity of plants and animals.

Barriers created by natural topography, roads, buildings, other infrastructure, and cleared land mean that the natural horizontal or vertical migration of ecological communities such as saltmarsh or mangroves may be hindered or prevented.

While the scale of the challenge may be significant, the impacts of a changing climate may also create opportunities for positive land use change and enhanced habitat linkages to support biodiversity migration and adaptation strategies.

NaturePrint is an approach developed by the Department of Environment and Primary Industries to integrate and analyse the best state-wide information about biodiversity values at the landscape scale. *Strategic Natural Values* maps created from NaturePrint capture information about biodiversity values, habitat condition and connectivity. These maps can provide an initial indication of which onshore coastal areas make a high contribution to biodiversity values refer to Map 3.

The Department of Environment and Primary Industries has also developed a methodology for identifying natural coastal assets. This methodology is currently being trialled and could potentially be used as the basis for identifying onshore environments most at risk from the impacts of a changing climate and increased use and development.



Red-necked Stints (*Calidris ruficollis*), a small migratory wader Dean Ingwersen



### Policy for decision-making

1. The natural capital (ecosystem services) provided by onshore environments will be considered in assessing development proposals for coastal Crown land; it will also be considered in decision-making about adaptation to a changing climate
2. Land owners will be encouraged to revegetate and landscape using species of local provenance, and to eradicate environmental weeds on their property
3. Illegal foreshore vegetation removal and vandalism, illegal access and encroachment of private property and gardens onto coastal Crown land will be addressed through education and enforcement programs

### Actions

1. Coastal Action Plans and park management plans will identify coastal areas of ecological significance at regional levels that require management (**RCB**, **DEPI**, **PV**)
2. Make use of existing methodologies (developed by **DEPI**) to determine natural coastal assets across the state. Incorporate this knowledge into preparation of the state coastal risk plan (**DEPI**)
3. Decision-making tools and market-based instruments, such as a coastal tender program, will be developed in partnership with landowners to protect existing habitats and to establish habitat linkages between Crown land and private land (**DEPI**)



*Carpobrotus rossii*, commonly known as karkalla or pig face Fritz Balkau



## CATCHMENTS AND WATER QUALITY

### Desired outcomes

- Strategic planning for catchment, coastal and marine management, and the prioritisation of on-ground works is integrated through improved collaboration between relevant agencies
- The quality of water entering wetlands, estuaries and marine waters is improved on a priority basis through:
  - improved wastewater and stormwater treatment and re-use, with a focus on urban growth areas in coastal catchments
  - promotion of changes in land use and farming practices to reduce the impact of catchment discharges which have adverse effects on the health of coastal and marine ecosystems

Catchments are connected from top to bottom and what happens throughout the catchment has a strong influence on water quality in coastal wetlands, estuaries and marine waters.

Healthy coastal wetlands, estuaries and marine environments provide important social, environmental, cultural and economic benefits – including such things as safe and clean swimming, recreational and commercial fishing, aquaculture, and tourism potential. The health and amenity value of these environments is affected by water quality. Many potential activities can affect water quality (Table 5).

The *National Water Quality Management Strategy* provides the context for water quality standards and planning at the state level. The State Environmental Protection Policy (Waters of Victoria), referred to as the SEPP (Waters of Victoria), applies to all surface waters of Victoria and establishes uses and values to be protected. The SEPP (Waters of Victoria) aims to provide a co-ordinated approach for the protection and, where necessary, rehabilitation of the health of aquatic environments. Specific schedules contain more detailed requirements that apply within individual catchments.

The Victorian Waterway Management Strategy and regional waterway strategies contain actions to reduce catchment impacts on downstream environments. Regional catchment strategies demonstrate the connections between land, water and biodiversity, and the human and natural activities occurring there. The strategies also outline what needs to be done to plan, manage, conserve and use natural assets (including marine and coastal natural assets). Regional waterway and catchment strategies are prepared by Catchment Management Authorities (CMAs); five CMAs border the Victorian coast.

Regional catchment strategies, regional waterway strategies and regional Coastal Action Plans need to recognise the physical interactions between catchment and coastal processes and align management objectives and priorities for improving estuarine and waterway health.

**Table 5: Affect of activities on water quality**

Activity	Impact
Agricultural practices	Excess nutrients can cause excessive algal blooms that result in fish deaths, loss of other native water plants, reduction in public amenity, and public health implications; chemicals including pesticides, herbicides, fungicides may result in loss of plants and animals
Disturbance of Coastal Acid Sulfate Soils	Release of acid and heavy metals may result in loss of plants and animals, corrosion of concrete and steel structures and impacts on human health
Changes to land use and habitat removal	Changes to land use and vegetation cover can increase turbidity; tree planting for carbon storage can reduce water inflow to catchments
Urbanisation and Infrastructure	Stormwater runoff (input suspended solids organic pollutants, heavy metals and pathogens) can degrade marine habitats, cause a loss of plants and animals, or make swimming unpleasant and unhealthy; flooding or reduced freshwater inflows can affect natural biological processes (e.g. fish reproduction)
Sewage and wastewater discharge	High levels of nutrients, bacteria and other pollutants, heated water, highly saline water, may result in loss of plants and animals, public safety concerns

A *Cleaner Yarra River and Port Phillip Bay Plan of Action, 2012* has been established to address the issue of water quality in Port Phillip Bay. Partnerships between government, community and industry, and integration across sectors, are being strengthened through this Action Plan.

Although Port Phillip Bay, Western Port and the Gippsland Lakes will continue to be a focus for actions to improve water quality, the challenges need to be addressed adequately across all areas, including areas of the open coast. Regional Coastal Action Plans can provide support to do this by identifying specific water quality hotspots for priority action.

### Policy for decision-making

1. Regional catchment strategies, regional waterway health strategies, and Regional Coastal Action Plans will have regard to the physical interactions between catchment and coastal processes and align management objectives and priorities for improving marine, estuarine and waterway health
2. New and renewal urban developments will be planned and designed to reduce the effects of wastewater and stormwater discharge on marine and estuarine environments

### Actions

1. Update guidelines and requirements including:
  - a. urban stormwater management for new urban development, and facilitate and support best practice
  - b. on-site wastewater management in sensitive areas of the coast
  - c. State Environment Protection Policy (Waters of Victoria)
  - d. Environmental Management Plan for Port Phillip Bay (**DEPI**, EPA, DTPLI, LG)
2. Review and revise regional response plans for events (such as mass fish deaths and algal blooms) in bays and estuaries and on the open coast (**DEPI**, CMA, PV, MW, EPA, DTPLI)
3. Implement the Port Phillip Bay marine algal bloom response protocol from *A Cleaner Yarra River and Port Phillip Bay Plan of Action* (**DEPI**)
4. Expand the scope of water way health strategies to include water quality from catchment inputs into bays and inlets (**DEPI**, CMA)



**Adult Snapper in Port Phillip Bay** Paul Hamer, Fisheries Victoria, DEPI

## PRINCIPLE 2

...ENABLING STAKEHOLDER  
PARTICIPATION IN DEVELOPING  
CLEAR DIRECTIONS FOR FUTURE  
USE OF THE COAST





# PLAN AND ACT

## SUPPORTING COMMUNITY PARTICIPATION

### Desired outcomes

- Local communities actively participate in coastal and marine management and planning
- Local communities groups and volunteers are adequately supported and recognised for their involvement in caring for and managing the marine and coastal environment

Local action and involvement in the management of our coasts is critical.

There are more than 200 coastal community conservation organisations including Coastcare, and ‘friends’ groups. There are also many community-based Committees of Management, large and small, where people give thousands of hours of their time to managing hundreds of parcels of coastal Crown land.

Volunteers give generously of their time, knowledge and energy to deliver on-ground projects that contribute to our knowledge, improve environmental outcomes and make a difference to local communities. The coastal volunteer movement has also grown and matured over time with today’s groups successfully delivering on large and complex projects. Groups are also involved in more technical matters contributing to policy and planning development.

Challenges that our volunteer groups and Committees of Management face include:

- time consuming administrative and bureaucratic requirements
- ill-defined operating boundaries and discretions
- complex management issues
- the changing nature of volunteering to accommodate our busy lifestyles e.g. people seeking one-off (episodic) volunteering opportunities rather than ongoing roles.

Active community involvement in coastal management is fundamental if our coastal and marine environments are to be maintained in a healthy condition. Community involvement in ‘hands-on’ management (e. g. as part of a Coastcare group) and in planning and decision-making (e. g. as a member of a Committee of Management) will be supported by strengthening, and building on, existing community programs.

The *Coastcare Victoria Strategy 2011–2015* sets out directions for engaging volunteers, building their capacity, and supporting their participation. The recently announced Coastal Environment Program continues to provide support to the Coastcare Victoria program.

### Policy for decision-making

1. Participation of individuals and community groups in the care, protection and management of the marine and coastal environment will be encouraged and supported

### Actions

1. Implement the *Coastcare Victoria Strategy 2011–2015* and develop new pathways for coastal volunteers to continue their work and improve the coast for the benefit of all Victorians (**DEPI**, PV)
2. Provide opportunities for networking and knowledge exchange between state, regional and local coastal communities, planners, managers and other stakeholders (**RCB**, VCC, CoM, LG)
3. Recognise and reward community leadership and innovation through annual coastal awards of excellence (**VCC**, RCB)
4. Undertake longitudinal social research on community attitudes to Victorian coastal and marine environments, conservation and management, with an expanded emphasis on the extent and nature of community valuation of the coast (**VCC**, DEPI)

## SUSTAINABLE COASTAL SETTLEMENTS

### Desired outcomes

- Sustainable coastal settlements are planned to support a sustainable economy, a healthy environment, and strong social and cultural values
- Green breaks are used between coastal settlements to preserve the character of the coastline

Victoria's coastal settlements play a variety of roles and functions from urban and regional centres (like Geelong and the Bellarine Peninsula) to smaller scenic towns (like Queenscliff and Port Fairy). Other towns have grown around commercial fishing or agriculture, such as Port Welshpool, while others are known for their surrounding landscapes, such as Wye River and Mallacoota.

### Green breaks, settlement boundaries and coastal character

As a coastal location remains a strong lifestyle choice for many people, growth creates a challenge in meeting infrastructure and employment needs in the future. Achieving this balance means coastal settlements need to be planned according to regional strengths and relationships, with hinterland townships or larger regional towns forming

hubs for employment and services like health and higher education.

The framework of coastal settlements is stated in the Regional Growth Plans that are being prepared for Victoria (Map 1). Regional Growth Plans focus on planning for an adequate supply of residential and employment land for the next 30-40 years. They will have an important role in ensuring clear settlement boundaries, green breaks between settlements, and relationships between settlements. It is important that Regional Growth Plans identify coastal values and address sensitive coastal areas in growth planning.

There is rich diversity in the landscapes that form the green breaks between settlements along the Victorian coast. Green breaks between coastal settlements are characterised by natural or rural landscapes that help shape both settlements and communities.

Some settlements will continue to face strong growth. The demand for new housing and infrastructure makes it challenging to maintain local environmental values and coastal character. Coastal settlement characteristics may include: architectural styles, patterns of subdivision, amounts of vegetation and spaces between buildings. Coastal



**Port Fairy** Robert Blackburn

communities need to identify the characteristics of their towns that they wish to protect.

Economic opportunities arising from coastal resources should be supported. The introduction of new rural zones will support new land use and development opportunities for tourism in regional coastal areas.

### Activity nodes and recreation nodes

In coastal settlements, recreation and tourism developments are focused around activity and recreation nodes. These create efficient relationships between buildings and infrastructure and they minimise development impacts on the coast.

Activity nodes provide for community recreation facilities and tourism activities. They are within settlements and are adjacent to the activity centres identified in planning schemes. They include public and private land (Figure 5).

Recreation nodes are located on coastal Crown land, outside activity nodes. They provide access and infrastructure for recreation and water-related activities (see figure 5).

### Environmental considerations

It is policy to identify and avoid development in areas susceptible to flooding, landslip, erosion, bushfire or geotechnical risk and avoid disturbing coastal acid sulfate soils (CASS). It is also policy to prohibit the development of new canal estates to ensure the protection of coastal and estuarine environments. Canal estates can have major adverse impacts on the host estuary, causing loss of habitat, polluting estuarine waters by urban runoff and boating activities and disturbing coastal acid sulphate soils.

The *Victorian Coastal Acid Sulfate Soils Strategy* and the *Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils* are resources developed by the Department of Environment and Primary Industries to assist landowners and land and water managers to identify where disturbance of CASS is best avoided.

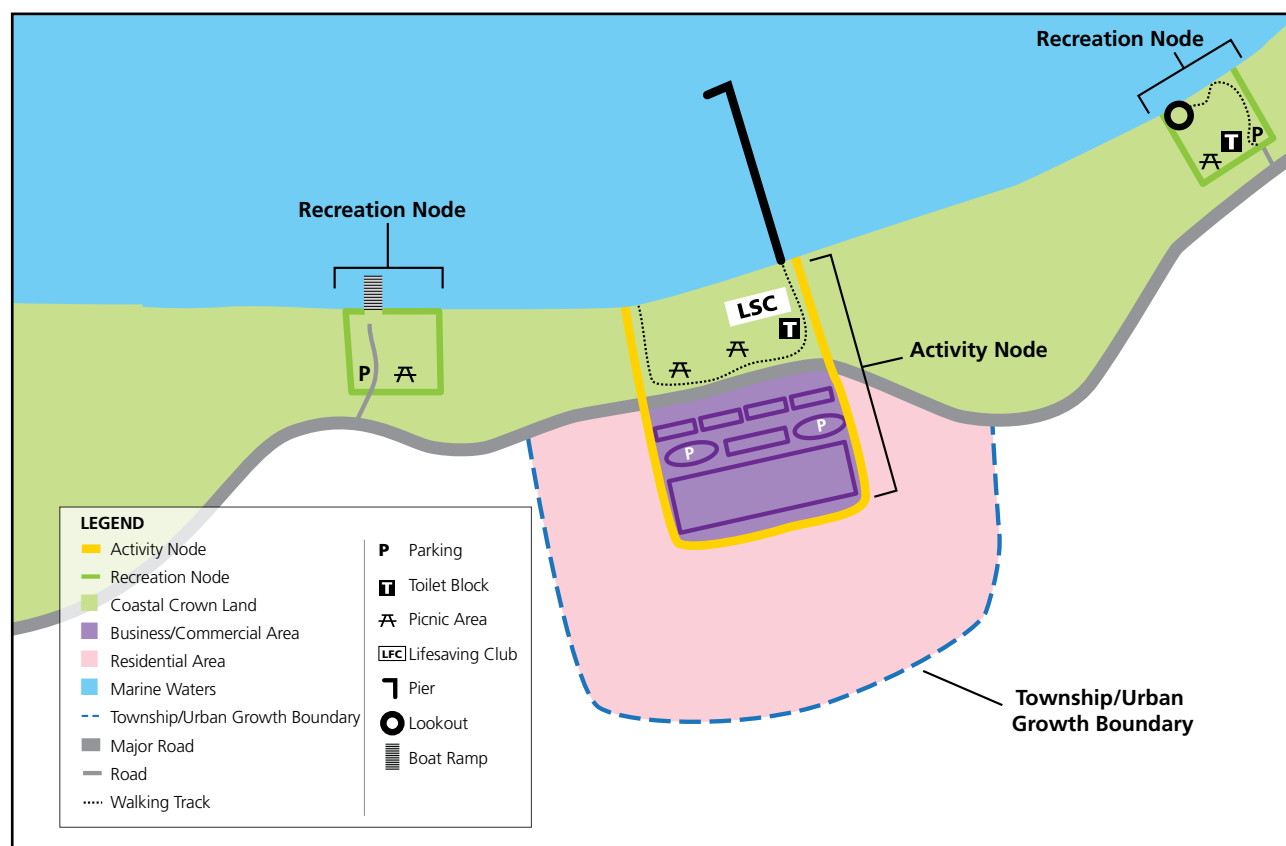


Figure 5: Diagrammatic representation of the spatial location and possible features of activity nodes and recreation nodes



### Policy for decision-making

1. Clear settlement boundaries will be identified around coastal settlements to ensure that growth in coastal areas is planned and coastal values protected. Where no settlement boundary is identified, the extent of a settlement will be defined by the extent of existing urban zoned land and any land identified on a plan in the planning scheme for future urban settlement
2. Coastal settlements and growth will be appropriately planned and managed by:
  - supporting a network of diverse settlements as outlined within the Regional Growth Plans to provide for a broad range of opportunities and diversity
  - implementing and reviewing coastal settlement boundaries as part of the settlement planning process, having regard to the best available information on sea-level rise and the risks and impacts of a changing climate
  - facilitating growth into areas that will not threaten wetlands and estuaries
  - directing residential, other urban development and infrastructure within defined settlement boundaries of existing settlements that are capable of accommodating growth
  - encouraging urban renewal and redevelopment opportunities within existing settlements to reduce the need to expand settlements
4. Elements such as topography, estuaries, wetlands, native vegetation, areas of environmental or landscape significance and sensitivity and areas susceptible to flooding (both river and coastal inundation), landslip, erosion, coastal acid sulfate soils, salinity, wildfire or geotechnical risk must be considered when defining coastal settlement boundaries
5. Existing non-urban breaks between all coastal settlements will be maintained to support community identity, inspire a sense of place and limit urban growth
6. Linear development along the coastal edge and major transport routes and within rural landscapes will be avoided in order to preserve the areas between settlements for non-urban use
7. Non-urban uses between coastal settlements will be retained and visually significant landscapes, views and vistas will be protected
8. Coastal acid sulfate soils (CASS) will not be deliberately disturbed and any development proposed near or on potential CASS must demonstrate that it will take all steps to avoid any disturbance by applying the best practice guidelines for managing CASS
9. The development of new canal estates will be prohibited in order to protect coastal and estuarine environments

### Actions

1. Revise the State Planning Policy Framework (SPPF) in the Victorian Planning Provisions (VPP) to include the coastal policy statements contained in the *Victorian Coastal Strategy 2013* (DTPLI)

## COASTAL HAZARDS AND NATURAL COASTAL PROCESSES

### Desired outcomes

- Natural coastal processes are adopted as the preferred form of defence against possible impacts of a changing climate
- New development (and alterations to existing development) avoids areas subject to coastal hazards and does not interfere with natural coastal processes

The coast is not static. It changes and moves with the influence of tides, wind, waves and weather systems. Interactions between these coastal processes and different landforms (sandy beaches, rocky headlands, low-lying mud flats and estuaries) create complex and dynamic systems. When any of these systems has a negative impact on life, property or other assets it represents a hazard.

Hazards such as erosion and inundation have always been present, and require consideration in planning and managing the coast.

To reduce the risk of coastal hazards Victoria has had a longstanding policy to 'avoid development within sand dunes and in low lying coastal areas'. This is a sensible, cost effective approach to the changing nature of the coastline.

A changing climate has the potential to make existing coastal hazards more severe and to bring about increased rates of erosion and more extensive inundation and flooding, in turn posing greater risks to life and property.

An increase in coastal hazards would see significant pressure on authorities and land managers to make wise land use

decisions which balance current use and development opportunities and the long-term health of the coast.

A sea level rise planning benchmark provides consistency for decision-making and reduces the level of uncertainty for businesses, communities and individuals in managing coastal hazards. The report *Derivation of Victorian Sea Level Planning Allowances* sets out three suggestions for planning benchmarks in Victoria:

- to plan for not less than 0.2 metres by 2040
- to plan for not less than 0.4 metres by 2070
- to plan for not less than 0.8 metres by 2100.

As this is consistent with the State Planning Policy Framework, the planning benchmarks for sea level for Victoria will remain as:

*'Plan for possible sea level rise of 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology when assessing risks and coastal impacts associated with climate change'.*

*'In planning for possible sea level rise, an increase of 0.2 metres over current 1 in 100 year flood levels by 2040 may be used for new development in close proximity to existing development (urban infill)'.*

This will be reviewed and updated as new scientific data becomes available.

Further investigation into coastal hazards and adaptation options for particular coastal areas will help inform strategic planning for settlements and natural systems, and avoid increased risk exposure for future coastal development.



Beach along the Great Ocean Walk Mark Watson

**Table 6: Summary of impacts from coastal hazards**

<b>Loss of coastal Crown land</b>	The coastal foreshore serves a number of purposes and is valued for its recreational and community use, and as natural protection for property and assets. In some areas, rising sea levels and more severe storm events will cause the coastline to move inland, and coastal Crown land may be lost.
<b>Damage to public buildings and structures</b>	A wide range of public buildings and structures on the coast provide access and amenity, and improve safety for users (e.g. Life Saving Clubs, boat ramps, jetties, toilet blocks, boardwalks and seawalls). Increased erosion and inundation can accelerate damage and failure of these buildings and structures, which in turn can compromise user safety and increase costs for maintenance and replacement.
<b>Infrastructure damage</b>	Increased erosion and inundation can damage roads, undermine power lines, compromise sewerage and storm water systems, and make car parks, roads and property inaccessible.
<b>Loss of private land and damage to private property</b>	<p>Private land and public land are both affected by the same coastal processes. Some private property owners are investigating installation of protection works to mitigate erosion and inundation impacts on their land and property. Public bodies will be pressured to protect private land.</p> <p>Hard structures (e.g. a groyne or seawall) to mitigate erosion in a particular area will commonly interfere with natural coastal processes elsewhere, which can result in the loss of beaches and foreshore areas. This can have a significant impact on access to and use of the foreshore by visitors and local communities.</p> <p>At present, structures for the protection of private property must be located on private land (not coastal Crown land) and these structures are discouraged if they will have an impact on the surrounding coastline. Given the dynamic nature of the coastal processes any proposal for protective works (on private or public land) should be considered and designed as part of a larger 'whole of coastal cell system' e. g. headland to headland, not just for an individual site. Additional issues arising from protection structures include responsibility for maintenance, and liability.</p>
<b>Damage to cultural heritage places and values</b>	In some areas, places or structures with significant heritage value are likely to be at risk from increased erosion or inundation. This applies to a wide range of places, from shoreline geological formations and fossil sites through to historic port facilities.
<b>Settlement scale coastal hazards impacts</b>	Across Victoria, coastal settlements located in low-lying areas are already experiencing occasional inundation. The National Report <i>Climate Change Risks to Australia's Coast</i> (DCC 2009) suggests that between 27,600 and 44,600 residential buildings in Victoria may face risk of inundation from sea level rise. The current value of the residential buildings considered to be at risk is between \$6.5 and \$10.3 billion. Other towns, particularly those that were historically built on old sand dunes, are experiencing erosion of local beaches and soft sediment cliffs. For example, Dutton Way in Portland has been subject to long-term erosion, with a 4.5km informal sea wall being built over the years to protect a road and residential properties.
<b>Threats to human health and safety</b>	<p>Severe flooding may lead to landslips and cliff collapses, drowning, exposure, or water-borne disease outbreaks. Significant damage to shelter and transport systems may lead to extended isolation of individuals or communities.</p> <p>These threats have significant potential to disrupt residents, visitors, tourists and industry, as well as ecosystem services.</p>



### Policy for decision-making

1. Plan for possible sea level rise of 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology when assessing risks and coastal impacts associated with climate change
2. In planning for possible sea level rise, an increase of 0.2 metres over current 1 in 100 year flood levels by 2040 may be used for new development in close proximity to existing development (urban infill)
3. For new greenfield development outside of town boundaries, plan for not less than 0.8metre sea level rise by 2100
4. Consider the risks associated with climate change in planning and management decision-making processes
5. Ensure that development or protective works seeking to respond to coastal hazard risks avoids detrimental impacts on coastal processes
6. Avoid development in sand dunes, in low lying coastal areas and in identified coastal hazard areas susceptible to inundation (both river and coastal), erosion, landslip/ landslide, coastal acid sulfate soils, bushfire and geotechnical risk
7. Use of the coast and the placement and life of assets, both public and private, will respect the natural dynamics of the coast
8. The Crown does not have an obligation to reduce the impacts of coastal hazards, sea level rise and other natural processes on private property
9. All protective works will aim to minimise detrimental impacts on coastal processes and neighbouring properties
10. Regional and local adaptation plans will enable the strategic management of coastal hazards to private property
11. Investment in coastal infrastructure, will be based on a life cycle planning approach that takes account of:
  - a. projected future erosion and inundation patterns – this planning will incorporate scope for the removal and replacement of structures as may be necessary
  - b. cost benefit analysis that takes into account social, environmental and economic values
  - c. future operating and maintenance costs and accountabilities

### Actions

1. Share the findings and learning from the local hazards assessment pilot projects and identify further areas across Victoria where this process can be used (**DEPI**, LG, CoM)
2. Identify areas of coastal land at risk of loss from erosion and inundation in Regional Coastal Action Plans and consider adaptation responses (**RCB**, **DEPI**, LG, CoM)
3. Develop a State Coastal Risk Plan to strategically and consistently identify and prioritise coastal hazards and manage risks to key state coastal assets (**DEPI**, PV)
4. Explore management options for Crown land that may be eroded away – thereby limiting public access to the coast (**DEPI**, PV, CoM)

## BALANCING DECISION-MAKING

### Desired outcomes

- Local communities actively participate in coastal and marine management and planning
- Integrated Coastal Action Plans balancing state-wide policies with regional and local priorities

Place based management provides the building blocks for managing the coast. Community groups, Committees of Management, local government, and Parks Victoria have the primary responsibility for delivering services to the public. However, the management of a small local part of the coast needs to have regard to wider regional and state-wide strategic directions. This is the primary task of the Victorian Coastal Strategy and Regional Coastal Action Plans.

A recent review by the Department of Environment and Primary Industries identified the huge variance in the capability and capacity of coastal managers across the state to deal with current and future coastal management challenges. The review recommended developing business models based on sustainable revenue streams for managers. It also recommended that larger groupings of reserves under the one manager should be investigated – the aim here would be to distribute the gathered funds across a wider area thereby improving the ability to target available resources to key priorities.

### Regional Coastal Action Plans

A Coastal Action Plan (CAP) is a strategic plan that translates the principles and priorities of the Strategy at a regional level. The Minister for Environment and Climate Change, the Hon Ryan Smith, has directed each Regional Coastal Board to prepare an integrated Coastal Action Plan for its Region.

The Regional Coastal Boards are taking a coordinated approach and have prepared a, *'Framework for the development of Regional Coastal Plans – Priorities for Action'*. The framework emphasises:

- Regional Coastal Boards will lead the development of the Plans through an interagency partnership with other key agencies and local councils. The partnership will seek to agree on regional priorities for action.
- Plans should be succinct, visual, practical and evidence-based spatial plans.
- The Plans will have a focus on regional values, issues and priorities.
- The Plans will build on work in existing plans and strategies, seeking to synthesize regional work and adding value by addressing the gaps that fall between the boundaries of existing agencies and are not being addressed.
- Stakeholder and community engagement and consultation will be critical to a good outcome.

Potentially the first output of the process will be a paper highlighting issues and priorities for the different coastal regions that will guide discussions with stakeholders in determining the focus and priorities for the Plans.

### Policy for decision making

1. Local communities, managers and planners will be involved in the preparation of regional and local strategic plans, that set the aspirations and priorities for specific areas

### Actions

1. Develop business models based on sustainable revenue streams with coastal managers (DEPI, CoM)

## RESEARCH AND KNOWLEDGE SHARING

### Desired outcomes

- Increased understanding and identification of coastal and marine issues through research and monitoring including through community programs
- Scientists, policymakers and decision makers exchange knowledge in ways that ensure our efforts on the coast are targeted, strategic and efficient

Timely and good decision-making on the coast requires authoritative information based on science and evidence. It also requires the collection of information, research and monitoring in an integrated and multidisciplinary way. Citizen science programs contribute to information collection and monitoring of the coast; they also enable community participation.

Improved scientific information on coastal, estuarine and marine ecosystems and their underpinning ecological processes is required to:

- establish better baselines for actual changes and local variability in sea level rise, climate and non-climate drivers (to target further observation and monitoring)
- better understand and predict future change to natural and human systems (e.g. inventory of assets at risk), especially thresholds under multiple drivers of change
- inform decisions about adaptation actions

Information, research and monitoring needs to be drawn from a range of disciplines including natural resource management, planning, water management, law, economics, sociology, earth sciences, tourism and others. However, often the sharing of information between planners, managers, industry and the broader Victorian community is difficult due to the number of different systems and research programs in place.

The Victorian Coastal Council's expert science panel is one mechanism that has been used to draw together information about the coast and marine environments from a range of technical disciplines. The science panel also provides independent advice about emerging scientific issues and information gaps relating to the coast.

Strengthened coordination of data collection, improved information sharing, improved knowledge transfer and better-integrated communication can help to provide government, the community and industry with the best available information quickly and simply.

### Policy for decision-making

1. Independent technical advice will be sourced from a diverse network of experts to monitor emerging issues and assist with effective coastal, estuarine and marine management in Victoria
2. Support the operation of the Victorian Coastal Council science panel in providing advice from a 'whole of coast' perspective
3. Promote on-going regional coordination and communication mechanisms to maximise knowledge transfer and practice around coastal and marine management and planning

### Actions

1. Develop or promote the use of existing central platforms and databases for coastal planners and managers that brings together relevant marine, coastal and administrative data (**VCC**, **DEPI**)
2. Encourage collaboration between researchers and managers to review research needs for coastal, estuarine and marine ecosystems and key ecological processes (**VCC**, **PV**)



## EMERGENCY MANAGEMENT

### Desired outcomes

- Coastal and marine planners and managers are well prepared for emergency events and are capable of preventing, minimising, preparing for, responding to and recovering from these events

A range of emergency events may challenge the coast and the marine environment, for example: oil spills, bushfires, marine pest outbreak, flooding, coastal acid events (from exposure of coastal acid sulfate soils) and algal blooms.

With a changing climate, population growth and development pressures, there is a risk that some of these events will occur more often and with more severe consequences.

Preventing, preparing for, responding to and recovering effectively from emergency events requires communities, industries and government agencies (commonwealth, state and local) to work together to identify and minimise the likelihood and consequences of emergencies.

Guided by the principles of community, collaboration and capability in the *Victorian Emergency Management Reform White Paper* (Victorian Government 2012), the strategic priorities for emergency management in Victoria are to:

- Build community resilience and safety
- Streamline governance arrangements
- Implement effective response and control arrangements
- Strengthen emergency management planning processes
- Build capacity and capability of the emergency management sector.

### Policy for decision-making

1. With an increased focus on risk, coastal and marine planners and managers will collaborate with stakeholders to facilitate an all-hazards all-agencies approach to emergency management planning on the coast
2. Responsible parties will support community-based planning to consider a range of coastal risk factors and vulnerabilities and identify how to mitigate those risks



Aerial view of Sorrento Murray Adams



**Surf Coast beach** A Norman



# **PRINCIPLES 3 AND 4**

## **...ENSURING THE SUSTAINABLE USE OF NATURAL COASTAL RESOURCES AND SUITABLE DEVELOPMENT ON THE COAST**





# USE AND ENJOY

## SITING AND DESIGN OF BUILDINGS AND INFRASTRUCTURE ON THE COAST

### Desired outcomes

- New buildings and infrastructure exhibit excellence in siting and design which complement, or integrates with, the coastal landscape and setting, while also avoiding environmental impacts
- The built environment on coastal Crown land is confined to structures providing significant community benefit and to those whose functionality depends on them being near the water

### Private Land

Buildings and infrastructure on private land generally support the functioning of settlements. They include houses, cafés, retail outlets, public halls and facilities for education, health and industry.

While most coastal land is reserved in public ownership and largely managed for its recreational values, development on adjacent private land can impact on the coast. Specific challenges include:

- identifying and considering important environmental and social values associated with the coast
- promoting excellence in siting and design of facilities so that they are sensitive to their coastal environment and the surrounding coastal character.

### Coastal Crown Land

Coastal Crown land reserves provide important public space. They are owned by all Victorians, and they provide for access to and use of the coast by the community. However, the coastal public estate is limited in size, and it may be reduced over time as sea levels rise and the coastline retreats.

Seasonal and residential population increases in towns on and near the coast will lead to increased visitation. This in turn will create demand for additional and improved facilities on coastal Crown land. However, expansion of facilities and infrastructure to meet peak demand can impact on important social and environmental values that attract people there in the first place.

Because coastal Crown land is a precious and limited resource, only buildings and infrastructure that functionally need to be located near the water, or which significantly contribute to the social values of the area (e.g. the public enjoyment and appreciation of the coast) should be located on coastal Crown land. For example:

Would need to be located on coastal Crown land because of direct support of coastal activities	Jetty, marina, mooring, boat ramp, boathouse, port, harbour, lookout towers of Life Saving Clubs, marine rescue facility
Do not need to be on coastal Crown land, but provide some support to the functioning of coastal activities and may be appropriate	Toilet block, pathways, car parking, boating/ yacht club, BBQ and play equipment, and (in urban settings) kiosk/cafe
Do not need a coastal location and does not support coastal activity, to be relocated as the opportunity arises	Function centre, community hall, non-maritime industrial plant and storage, non-water-based sporting facility e.g. bowling green, sports field

As coastal Crown land is there for all Victorians, a set of criteria is available to assist planners and managers in balancing the needs of the greater Victorian community with local decision-making. Planners and managers need to consider:

- whether building or infrastructure should be located on coastal Crown land
- impact on the surrounding environment and users
- how it will be managed in the future.

## Criteria for use and development on coastal Crown land (including reuse and redevelopment)

The following steps provide guidance for assessing development proposals on coastal Crown land.

1. An important step in applying these criteria is to understand the local context and values of the site. In some locations, such as Wilsons Promontory, the environmental values of the land are highly significant, and any use and development must carefully consider the impact on these environmental values. In other locations, such as St Kilda beach in Melbourne, the social and cultural values may be more pronounced and may support a wider range of potential use and development.
2. Use and development on coastal Crown land should meet the following criteria:

### Use of coastal Crown land

- Demonstrates need to be sited on the coast, based on support for, and direct linkage to, coastal activities
- Demonstrates that the use and development cannot be feasibly located elsewhere
- Demonstrates responsiveness to the site values and that net community benefit results from the use and development being located on coastal Crown land (net community benefit will be determined by considering the likely environmental, social and economic outcomes of the proposal)
- Facilitates improvement of sites or developments which have poor environmental performance and/or which have limited benefit for the community
- Is responsive to environmental, social, cultural and economic values of the location
- Enables equitable public access to the coast
- Is located in an Activity or Recreation node – Refer to Figure 5
- Involves consultation with the local and broader community

### Siting and design

- Exhibits excellence in siting and design which complements, or integrates with, the coastal landscape and setting
- Is consistent with local planning scheme requirements and *Siting and Design Guidelines for Structures on*

*the Victorian Coast* and *Good Design on the Coast* available at [www.vcc.vic.gov.au](http://www.vcc.vic.gov.au)

- Incorporates ecologically sustainable design principles
- Maintains important public views, vistas and sightlines
- Avoids coastal hazards, and is set back as far as practicable from the coast and low lying areas
- Facilitates and does not impede access to and along the shoreline and where appropriate consolidates building footprint to use Crown land efficiently and sparingly
- Contribute to the coastal environment through rejuvenation and adaptive re-use of heritage places

### Access and use

- Makes efficient use of the site and facilitates multiple use and/or sharing of sites and infrastructure, including car parks
- Enhances public access to the coast and minimises loss of public open space
- Provides well designed, safe and convenient pedestrian access
- Encourages access by transport modes other than private vehicle
- Anticipates implications for the surrounding community of demand likely to be generated by the use and development

### Environmental impacts

- Responds to risk of a changing climate including inundation and erosion based on current scientific knowledge
- Ensures that off-site impacts of the use or development do not detrimentally affect coastal and marine natural and cultural values
- Does not disturb coastal acid sulfate soils
- Utilises local provenance indigenous species in landscaping and revegetation to enhance built environments, provide habitat, and support the resilience of the coast
- Incorporates environmentally sensitive design which minimises development impact and footprint, and incorporates energy and materials efficiency and water sensitive design

### Policy for decision-making

1. Ensure the provision of buildings and infrastructure on coastal Crown land is confined to structures providing significant community benefit and to those whose functionality depends on them being near the water
2. In considering proposals the 'Criteria for Use and Development on coastal Crown land' be applied as appropriate
3. Buildings and infrastructure on coastal Crown land will be located in activity nodes and recreation nodes, consistent with any relevant master plan. Existing buildings and infrastructure that do not need to be located on the coast will, to the extent practical, be relocated away from coastal Crown land when suitable opportunities arise
4. Leasing and licensing agreements on coastal Crown land (including renewals) must consider how they can contribute to achieving the outcomes and policies of the Victorian Coastal Strategy
5. Clear leasing and licensing agreements will be established for commercial uses of coastal Crown land. Associated rentals, fees, rates and taxes will be competitively neutral to discourage the use of coastal Crown land as a cheap alternative to private land. The revenue raised will be directed towards protecting, developing and maintaining the environment and infrastructure in accordance with approved management plans
6. The approvals processes for new developments on private land in coastal areas will:
  - Ensure the materials, colours and finishes of new built form responds to coastal character using the guidelines contained in *Siting and Design Guidelines for Structures on the Victorian Coast* 1998
  - Ensure new development is landscaped to be consistent with the surrounding landscape character and results in no net loss of onsite vegetation
  - Ensure adequate permeable site area is maintained in keeping with the character of the settlement to maintain coastal character and minimize stormwater run-off
  - Ensure new development does not impede access to coastal Crown land.

### Actions

1. Revise the *Siting and Design Guidelines for Structures on the Victorian Coast* to provide contemporary criteria and improved design guidance for coastal development (VCC, LG, DTPLI, PV)



## VISITATION AND TOURISM

### Desired outcomes

- A diverse range of visitor and tourist experiences is made available
- Visitor and tourism developments exhibit exemplary design standards and reflect the surrounding landscape's environmental and heritage values

Many of Victoria's popular visitor and tourist destinations are on the coast, including the Great Ocean Road, Phillip Island Penguin Parade, Wilsons Promontory, the Gippsland Lakes, and Bells Beach. All these attractions draw significant numbers of visitors seeking nature-based and water-themed activities.

Visitation and tourism is a key economic driver for Victoria and plays an important role in regional communities along the coast. Visitation and tourism encompasses a highly diverse range of experiences, from passive to very active, from urban to regional. These experiences go beyond

good beaches and views and connect visitors to the place, environment and culture.

Recent changes proposed to rural planning zones may increase discretion and flexibility for development in rural and farming areas. As a result, uses that were previously prohibited, such as tourism accommodation and some retail development, may now be considered. This creates opportunities for additional nature-based, heritage-based or agricultural-based tourism, and 'eco' type hotel accommodation.

In coastal locations, these opportunities for quality visitor and tourist developments will need to be balanced with policies which protect significant coastal features and landscapes from the environmental impacts that can come with high visitor numbers. Councils and regional bodies are encouraged to undertake strategic planning to identify opportunities and preferred locations for visitor and tourist facilities and infrastructure.



**Boardwalk at the Nobbies, Phillip Island** Phillip Island Nature Parks

The Government recently released guidelines for tourism opportunities in National Parks (*Tourism Investment Opportunities of Significance in National Parks Guidelines 2013*). The Guidelines reflect the understanding that the provision of appropriate and environmentally sensitive tourism infrastructure can complement natural values, enhance visitor experiences, and encourage visitors to stay longer.

#### Crown land caravan parks and camping grounds

Caravan parks provide an affordable opportunity for many Victorians to visit the coast. Some 84 caravan parks and camping grounds on coastal Crown land along the Victorian coast offer safe and affordable holiday experiences.

The policy *Improving Equity of Access to Crown Land Caravan and Camping Parks 2010* produced by the Victorian Government aims to protect fair and equitable access to caravan and camping parks, promote better environmental outcomes, and assist in better management of demand for sites in peak holiday periods. The policy also discourages exclusive long-term occupancy, permanent residency, and individual profiteering.

Coastal management generates significant revenue from caravan parks and camping parks. Maintenance requirements and demand for higher quality facilities continue to grow. Expenditure needs to be balanced with other priorities, such as environmental management, emergency management, and wastewater management.

The Department of Environment and Primary Industries is currently preparing best practice guidelines for caravan and camping park managers.

#### Policy for decision-making

1. Strategically plan for and deliver sustainable and equitable coastal recreation and tourism opportunities that respond to an identified demand
2. Private land will be the preferred location for new tourism developments, Crown land in coastal hinterlands will only be considered for tourism developments where no suitable private land is available
3. Preference will be given to improving and upgrading existing visitor and tourist facilities in suitable locations, rather than developing new facilities on Crown land
4. Plans for visitor and tourist developments outside settlements will take into account:
  - significant landscapes, ensuring that developments do not compromise the broader 'open space' characteristics of the coast
  - protection of non-urban areas between settlements and their significant values including areas of environmental and heritage sensitivity
  - tourism developments do not become new settlements or create linear coastal development
  - the impact on agricultural productivity of the area
  - best practice ecologically sustainable design standards

#### Actions

1. Suitable areas for sustainable visitor and tourist development along the coast will be identified through Regional Coastal Action Plans and local planning schemes (LG, RCB, DTPLI)

## ACCESS ON THE COAST

### Desired outcomes

- Communities access the coast in ways that, minimise the risks to public safety and protect coastal and marine environments
- Community-based clubs such as lifesaving, angling, yachting and boating clubs are supported in their use of the coast in ways that provide access to and use of the coastal environment by the broader community

Many parts of the coast are very accessible with high quality facilities. Other areas can only support minimal or no access to maintain a healthy environment. Some areas may require seasonal closure to enable protection of threatened species. Community based clubs play an important role in facilitating access and enjoyment of the coast.

A key challenge for land managers is to provide appropriate access in a way that minimises risk to public safety, can be maintained in the long-term, and protect the health of the surrounding environment.

It is neither possible, nor desirable, to provide a uniformly high level of access to all parts of the coast. A long-term strategic approach is needed to provide appropriate access that protects the coastal and marine environments and provides for increased visitation.

Management of car parking facilities and other infrastructure including demand for new facilities will need to be managed carefully in popular destinations to ensure that built infrastructure and parking does not impact on the environmental, social and cultural values of coastal and marine areas.

### Policy for decision-making

1. Planning for access to the coast will recognise that:
  - some areas of the Victorian coast are vulnerable to erosion, inundation, landslip and as a result, not all areas of the coast can or should be accessible
  - access points shall be sustainable in the long term and those that are not sustainable (such as aging infrastructure that is a public safety risk) should be identified as such and their removal or refurbishment should be planned for over time
  - access shall be designed in accordance with the *Siting and Design Guidelines for Structures on the Victorian Coast* and should have minimal impact on the coastal environment
2. Public safety considerations will be addressed within a risk management framework
3. Off-road access to coastal Crown land and beaches by private vehicles is prohibited
4. Poorly used and poorly sited roads will be identified and categorised for redesign, removal or relocation – as required to achieve improved environmental, aesthetic and safety outcomes

### Actions

1. Establish priority areas for all mobility access needs (**PV**, **DEPI**)
2. Implement programs that address risk from ageing infrastructure, aquatic safety, access and emergency events (**DEPI**, **DTPLI**, **LG**, **PV**, **CoM**)



## BOATING AND WATER-BASED ACTIVITIES

### Desired outcomes

- A network of recreational boating and water-based activity facilities that respond to demand, safety considerations, coastal processes and the natural environment

The variety of coastal waters in Victoria including sheltered inlets, expansive bays (Port Phillip and Western Port) and the open coast, provide diverse boating experiences.

It is estimated that there are about 200,000 recreational vessels in Victoria. There were 166,709 boats with engines registered in 2011, and more than half of these were based in the central coastal region. Non-powered boats comprise approximately 25 per cent of boats. About 98 per cent of recreational boats can be transported by trailer, with the vast majority being power boats. Direct expenditure on boating for 2007 was approximately \$1.4 billion for powerboats (GCB 2012).

As coastal populations and visitation to the coast continues to increase, there will be demand for additional boating facilities. This places pressure on funding the upgrade and maintenance of existing boating facilities.

It is also important to balance the needs of recreational boaters with those of other coastal user groups particularly in sharing limited coastal Crown land and the water. While it is important that some boating facilities, such as boat ramps and jetties, are located on the coast, supporting facilities, such as toilets, car parks, and clubhouses, may be suitably located further inland and away from areas subject to coastal hazards.

In all recreational boating activities the safety of boat users is paramount. Using boat ramps on the open coast usually requires extensive knowledge of, and experience with, local conditions. Inexperienced users being exposed to dangerous open water conditions is a risk. This risk should be considered when assessing proposals for upgrading or developing facilities.

Boating Coastal Action Plans (BCAPs) are useful in providing guidance for the planning, management and funding of recreational boating facilities (including new investment). They are also useful a framework in which to consider the water quality, environmental, safety and shared-access issues associated with boating.

There are three BCAPs currently in place across Victoria (Gippsland, Central and West). Together the BCAPs provide a 'whole of coast picture' for the management and improvement of boating facilities. The development of new integrated Regional Coastal Action Plans will need to incorporate this Boating CAP information.

The boating section of the Regional Coastal Action Plans will need to consider:

- matching boating demand with strategically and safely located facilities
- balancing boater and other users needs both on land and in the water
- providing access to the water for a range of boating users in accordance with the Recreational Boating Facility Hierarchy 2030 (Map 4)
- minimising the impact of boating use and facilities on the environment.

### Policy for decision-making

1. Strategically located boating and water-based activity facilities will be provided in line with the Recreational Boating Facility Hierarchy (Map 4) in ways that respond to demand assessments, protect natural coastal values, and consider other coastal users needs
2. Effluent disposal facilities will be provided at strategic boating locations to address illegal sewage discharge from boats on a user pays basis

### Actions

1. Include Boating Coastal Action Plan information in the preparation of the new Regional Coastal Action Plans (RCB, LG, PV)

## SUSTAINABLE PORTS

### Desired outcomes

- Local and commercial ports are managed in ways that add to the character, amenity and sustainability of the coast

Both local and commercial ports play an important role in supporting the Victorian and Australian economies.

#### Local ports

Local ports include facilities and activities such as wharfs, piers, jetties, marinas, pump-out and refuelling, navigation, emergency response, maritime security, marine pollution response, vessel salvage, slipways, boat-lifting and boat repairs.

Local ports have also become tourist destinations, with thousands of people each year walking along or throwing a fishing line from piers and breakwaters in local port areas. Some historic ports, such as Port Fairy, are places with significant heritage value and these attract valuable heritage-based tourism.

Current local port and waterway management responsibilities extend over municipal boundaries and also include areas where other agencies have management responsibilities, such as Committees of Management and Parks Victoria.

Local ports can affect the amenity, use and enjoyment of nearby residential and other private land uses, as well as coastal uses. Consultation, collaboration and integration among the various stakeholders are critical to balancing the diverse needs of user groups.

#### Commercial ports

The efficient operation of commercial ports is essential at both state and national levels, with the Port of Melbourne being the largest and the busiest container port in Australia. Other commercial ports are located at Hastings, Geelong and Portland.

These ports are Victoria's trading gateway to the world, providing access for exporters to more than 300 markets. Commercial ports are focused on shipping activities including docking, berthing, and cargo transfer activities.

Over the last five years, development in commercial ports has included the deepening of shipping channels in Port

Phillip Bay and expanded docking/storage/handling areas in the Port of Melbourne. In the coming years, the Government is looking to expand the Port of Hastings as a world-class container port, with landside transport connection to Hastings.

### Safety and Management Plan and Environmental Management Plan

Under the *Port Management Act 1995*, all local and commercial port managers must prepare a Safety and Management Plan and Environmental Management Plan, known as a SEMP. These plans cover risks such as interactions between different uses (boaters, swimmers, fishers), channel depths, oil spills, boat/ship litter, wash-down/cleaning activities, dredging, marine pests and amenity).

SEMPs are an important tool in promoting best safety and environmental performance across all aspects of port activity.

### Impacts of a changing climate

A changing climate, which can lead to increased inundation and erosion, is likely to affect the facilities and activities at local and commercial ports. In the future, the agencies responsible for managing both local and commercial ports will need to understand the likely impacts of a changing climate and develop adaptation responses.

### Policy for decision-making

1. All local ports to be operated efficiently and effectively, and to contribute positively to local character, amenity, recreation, economy, and environmental values
2. All commercial ports should actively explore opportunities to contribute positively to community amenity, economic and environmental values
3. Development, maintenance and management of local and commercial port infrastructure to address safety and environmental risks and vulnerability to a changing climate

### Actions

1. Monitor risk mitigation strategies adopted by the local and commercial ports for port infrastructure identified as vulnerable to extreme climate events (DTPLI)

## FISHING AND AQUACULTURE

### Desired outcomes

- Commercial and recreational fisheries are managed in a holistic, ecosystem-based management framework
- An ecologically sustainable and viable aquaculture industry uses low environmental impact production systems and implements best practice aquaculture and environmental management

As wild fishery stocks approach the limits of sustainable seafood supply, wise consumer choice is becoming important and the Victorian aquaculture industry is playing an important role in meeting local and global demand for seafood products.

The most valuable wild-caught fishery sectors per annum are abalone (\$24 million) and rock lobster (\$15.8 million). Aquaculture is worth an additional \$11.8 million per annum (Worley Parsons, 2013). Victoria exports abalone, rock lobster, eel, giant crab, scallop, urchin and jellyfish.

Recreational fishing is one of Victoria's favourite pastimes. The significance of recreational fishing to the community is

demonstrated by the participation of an estimated 721,000 Victorians (Ernest & Young 2009). Popular recreational fishing areas include Port Phillip Bay and Western Port.

Artificial recreational fishing reefs have been established or proposed for a number of marine, coastal and estuarine environments. The deployment of artificial reefs is intended to provide improved recreational fishing opportunities for people of all abilities, both boat-and land-based.

History shows that without effective management and control, fisheries can become overfished, leading to significant ecological impacts, declining catches, the collapse of fishing industries and economic hardship for the communities they support. Ecological impacts of fishing can include direct impacts on fish stocks and non-target species (e.g. discards, birds and mammals), and general ecosystem effects.

Fisheries are dependent on good water quality and functioning marine ecosystems. Maintaining a healthy marine environment is one of the most effective ways of ensuring healthy fish populations and of supporting productive fisheries.



Fisherman at Werribee beach Jon Hickman



While not all aquaculture is directly dependent on healthy marine ecosystems (i.e. those located on land), good water quality is required. Aquaculture has the potential to pose risks to the Victorian fishing industry and marine environments in general. Water exchange, and with it the potential for disease transfer, between aquaculture farms and the marine environment needs to be managed, particularly with the spread of ganglioneuritis virus, affecting both aquacultural and wild populations of abalone.

The effects of a changing climate like increased water temperatures and changes in ocean currents will have an impact on recreational and commercial fisheries. Some current target species will be no longer available while other new fisheries or aquaculture may evolve due to increased habitat range and populations.

#### Considerations for management of fishing and aquaculture

As stated in the *Fisheries Act 1995* fisheries management and monitoring is to be aligned with the principles of ecosystem-based management. Fisheries should also be part of a holistic framework that considers multiple species and marine uses. Management actions need to accommodate inherent differences between recreational and commercial fishers – such as the difference between being focused on enjoying the experience of fishing rather than being focused on generating a business return.

Management also needs to be informed by an understanding of monitoring data about the marine ecosystems that support different fisheries. Recreational fisheries are generally data poor. For some fish species, the catch from recreational fisheries can be equivalent to, or exceed, that of comparable commercial fisheries. For instance, in 1999–2000 the estimated catch in Victoria of recreationally caught snapper was 332 tonnes (compared with 47 tonnes caught commercially) and King George Whiting was 215 tonnes (compared with 213 tonnes) (Ford & Gilmour, 2013).

#### Policy for decision-making

1. Strategic directions and priorities will be established for the management of significant risks to fisheries and aquaculture (including those risks resulting from a changing climate)
2. Biosecurity practices will be developed to address the issues of water exchange and disease transfer between aquaculture farms and the marine environment
3. Fishing stocks will be comprehensively assessed and managed by:
  - identifying and managing important fish habitats
  - support for research
  - developing harvest strategies
  - increasing focus on ecosystem impacts of recreational fishing
4. Safe and sustainable recreational fishing will be supported through the provision of suitable facilities, the enforcement of regulations and the encouragement of recreational fishing stewardship, monitoring, and behaviour change initiatives (e.g. TanglerBin, Seal the Loop, Anglers Diary) and the inclusion of information (such as details of biodegradable hooks and line, catch and release techniques which maximise survival of returned fish) in the *Victorian Recreational Fishing Guide*
5. The consumption of seafood from well-managed fisheries and aquaculture operations will be encouraged by supporting industry access to fisheries accreditation programs, partnerships between industry and retailers, consumer labelling and awareness raising programs

#### Actions

1. Undertake research to identify threats to key habitats supporting fisheries resources and develop priority actions to address these (DEPI, PV)
2. Assess fish stocks, measure fish catches and conduct targeted biological research for key commercial and recreational species (DEPI)
3. Implement the *Victorian Climate Change Strategy for Fisheries and Aquaculture 2008–2018* to facilitate adaptation to the risks and impacts of a changing climate in both the commercial and recreational fishing sectors (DEPI)
4. Undertake research into the long-term ecological sustainability and value of artificial reefs (DEPI)

## COASTAL ENERGY RESOURCES

### Desired outcomes

- The full suite of community and ecosystem service values is considered when making decisions regarding the planning and management or development of coastal Crown land for energy resources

### Renewable energy

Ongoing natural processes provide opportunities to generate renewable energy. Victoria's coast has potential to provide renewable marine energy; wave energy is highest in the western half of the state and tidal energy is greatest at the entrances to large bays and estuaries. Prototype trials of both wave-energy and tidal-power capture technologies have been established in Victoria. Wave-energy capture mechanisms are emerging technologies and it is not clear when, or at what scale, these resources could be tapped in the future.

### Petroleum and gas

Victoria's petroleum exploration and production industries are located mainly in the Gippsland and Otway Basins. Victoria has the second largest share of national petroleum sales, accounting for around \$3.6 billion per year (Worley Parson, 2013). While much of the production occurs in Commonwealth waters beyond Victoria's three-nautical-mile limit, the product is brought onshore into Victoria for refining, storage and distribution.

Victoria's gas production is increasing. In 2008 its annual production was worth over \$1.1 billion (DPI 2010), with the large majority coming from offshore and coastal areas.

### Policy for decision-making

- In planning and decision-making about the use of coastal Crown land for energy resources, the full suite of ecosystem services and community values provided by marine and coastal environments will be considered
- When considering the use and development of coastal Crown land for the purpose of harvesting marine energy, the following principles will be used to assist in decision-making
  - leasing and licencing arrangements should maximise the public benefits derived from private use of coastal Crown land
  - negative impacts on environmental, social, cultural and economic values should be minimised

### Actions

- Outline the process for assessment, approval and tenure allocation of Crown land for marine energy activities (**DEPI**, **DTPLI**)



**Twelve Apostles** Mark Cuthell, Corangamite Shire Council



...MANY ORGANISATIONS HAVE  
A ROLE IN CARING FOR AND  
MANAGEMENT OF THE COAST





# IMPLEMENTATION

Many organisations have a role in caring for and managing the coast. These include volunteer groups, Committees of Management, local councils, catchment management authorities, regional coastal boards, government agencies and industries.

Key elements for the effective implementation of the Strategy include:

- lead agencies collaborating and working in partnership
- building the capacity and supporting coastal managers
- long-term financing for managing the coast
- effective and efficient regulation
- monitoring and reporting to understand if we are achieving the vision
- a shared understanding of priority actions.

## IMPLEMENTATION COORDINATING COMMITTEE

In 2008 16 organisations were identified with leadership or partnership responsibilities for implementing actions in the Victorian Coastal Strategy. Consequently, a Coordinating Committee was established to provide a 'whole of Strategy' implementation approach. The Committee developed an Implementation Plan that set out priority actions and identified gaps in resources and capacity to deliver on the Strategy.

The Coordinating Committee proved to be a useful vehicle for agencies to share ideas and coordinate the implementation of actions – especially in times of reduced funding and staff capacity. To build on this the Implementation Coordinating Committee will continue to operate and drive the implementation of the 2013 Strategy.

Table 8 sets out each agency's responsibilities for actions in this Strategy.

### Action

1. Reconvene and support the operation of the Victorian Coastal Strategy Implementation Coordinating Committee (**DEPI, VCC**)

## BUILDING CAPACITY AND SUPPORTING COASTAL MANAGERS

Within the many organisations involved in coastal management are scientists, policy officers, planners, infrastructure managers, engineers and facilitators who work with each other and the community. For Victoria to remain at the forefront of delivering effective ICZM we need to ensure there is a skilled and knowledgeable workforce. This requires opportunities for learning (through degrees, diplomas and certificates) and opportunities to share experiences and hear the latest science.

### Actions

1. Identify demand and encourage educational and like institutions to offer training and development opportunities for the coastal workforce (**VCC**)
2. Coordinate the delivery of a Victorian Coastal Conference and support existing regional coastal forums and networks (**VCC, RCB, DEPI, PV**)

## FINANCING COASTAL MANAGEMENT

Currently over 60 organisations have responsibility for managing coastal land. These range across large entities such as Parks Victoria, Port Authorities and the Department of Environment and Primary Industries, relatively well resourced inner-urban councils in established areas, councils in growth areas, rural councils, Committees of Management that generate significant revenue and employ their own staff, and Committees of Management that rely totally on volunteer effort. There is a wide range of relationships between councils and coastal land managers, with some local governments playing an active role in funding and managing coastal land and facilities, and others taking a more 'hands-off' approach.

The Department of Environment and Primary Industries coastal management review identified the huge variance in the capability and capacity of coastal managers across the state to deal with current and future coastal management

challenges. The review recommended developing business models based on sustainable revenue streams for managers. It also recommended that larger groupings of reserves under the one manager should be investigated – the aim here would be to distribute the gathered funds across a wider area thereby improving the ability to target available resources to key priorities.

#### Action

1. Undertake a review of the coastal management system to assess whether current governance and financing arrangements are optimal to address the impacts of a changing climate and population growth (**VCC**, DEPI, DTF)

## EFFICIENT AND EFFECTIVE REGULATION

There is a range of regulation involved in managing the coast. The Department of Environment and Primary Industries has a key role authorising activities and development on the coast. The Department is currently involved in a number of programs aimed at achieving more efficient and effective regulation.

## MONITORING, EVALUATING AND REPORTING (MER)

MER involves *Monitoring* (collection of data), *Evaluation* (assessment of the effectiveness of policies and actions), and *Reporting* (documentation of the monitoring and evaluation).

MER is about being clear on: what is to be achieved over a period of time (*vision and desired outcomes*); what will be measured (*indicators*); and who is responsible for delivery and measurement (*lead agency*).

While a degree of Monitoring, Evaluation and Reporting (MER) has occurred over the life of the three previous Strategies, incorporation of strategic MER into the 2013 Strategy may assist in understanding and communicating how we are progressing towards achieving our long-term vision for the coast.

This Strategy establishes a platform for consistent and cooperative coastal and marine planning, management and decision-making across a range of lead agencies. Accountability for actions, adherence to policy directions, and progress towards outcomes, rests not with the Strategy but with those lead agencies.

Reflecting this, coastal MER for Victoria will need to occur at three levels through:

- Victorian Coastal Strategy (state)
- Coastal Action Plans (regional)
- Coastal Management Plans (local)

When supported by standards and criteria for the collection of marine and coastal data at local and regional scales, the framework can be used to provide a 'whole-of-coast, state-wide picture' of the health of Victoria's coastal and marine environments.

Successful monitoring will also require linkages to data associated with other planning and management documents such as regional catchment strategies, regional growth plans and planning schemes.

This Strategy describes some elements for MER, including the vision, desired outcomes, and policy directions. Appendix F and Appendix G provide the first steps in developing a MER framework by setting out desired outcomes and criteria for developing indicators.

#### Action

1. Develop a MER framework reporting on the Strategy (**VCC**, DEPI, PV, CoM, RCB)

## PRIORITY ACTIONS

Delivering on actions in the Strategy will progress our knowledge, capacity and effectiveness for maintaining a healthy coastal and marine environment. Some of these actions are already part of organisational business plans, while others are more aspirational and will require opportunistic funding and a more concerted effort.

While all the actions are to be implemented by lead and partner agencies, priority actions are those critical to addressing the six key issues identified in this Strategy. These are set out in the Table 7.

**Table 7: Priority actions for implementation**

Coastal hazards and natural coastal processes	<ol style="list-style-type: none"> <li>1. Share the findings and learning from the local hazards assessment pilot projects and identify further areas across Victoria where this process can be used</li> <li>2. Identify areas of coastal land at risk of loss from erosion and inundation in Regional Coastal Action Plans and consider adaptation responses</li> </ol>
Managing population growth	<ol style="list-style-type: none"> <li>3. Undertake regional strategic planning to identify suitable areas for sustainable visitor and tourist development along the coast</li> </ol>
Understanding the value of natural resources	<ol style="list-style-type: none"> <li>4. Develop and implement environmental value measurement systems and environmental accounts that are consistent with international systems to:               <ol style="list-style-type: none"> <li>a. establish clear standards for reporting on the condition and value (natural, social, cultural and economic) of coastal and marine assets and identifying and explaining changes over time</li> <li>b. assist in prioritising the allocation of resources to coastal and marine environmental activities</li> </ol> </li> </ol>
Integrated approach to marine management	<ol style="list-style-type: none"> <li>5. Develop a framework for an integrated management approach to Victoria's marine environments. This would include developing agreed objectives for the health and use of marine environments across all involved agencies and spatial maps that identify important environmental, social, cultural and economic features of marine environments</li> </ol>
Financing coastal infrastructure and management	<ol style="list-style-type: none"> <li>6. Undertake a review of the coastal management system to assess whether current governance and financing arrangements are optimal to address the impacts of a changing climate and population growth</li> </ol>
Balancing decision making	<ol style="list-style-type: none"> <li>7. Develop business models based on sustainable revenue streams with coastal managers</li> </ol>



**Keast Park Community Pavillion** Frankston City Council



**Table 8: Actions with lead and partner agents**

VALUE AND PROTECT		Page Number	Lead Agent	Partner Agents
Action				
<b>Appreciating and valuing the coast</b>				
1	Develop and implement environmental value measurement systems and environmental accounts that are consistent with international systems to: <ul style="list-style-type: none"> <li>a. establish clear standards for reporting on the condition and value (natural, social, cultural and economic) of coastal and marine assets and identifying and explaining changes over time</li> <li>b. assist in prioritising the allocation of resources to coastal and marine environmental activities</li> </ul>	29	DEPI	DTF
<b>Cultural heritage</b>				
1	Progressively update asset and heritage registers and local planning schemes following comprehensive identification, documentation and assessment of sites on the coast and underwater. In particular, undertake assessment of vulnerability of heritage places to impacts of a changing climate	31	LG	AAV, PV, HV
2	Pilot three indigenous knowledge hubs, to be maintained by Traditional Owners/ RAPs involved in the co-management of public land, for the recording and sharing of local/regional traditional knowledge	31	DEPI	AAV
<b>Marine environments</b>				
1	Develop a framework for an integrated management approach to Victoria's marine environments. This would include developing agreed objectives for the health and use of marine environments across all involved agencies and spatial maps that identify important environmental, social, cultural and economic features of marine environments	33	DEPI	PV
2	As part of the development of the integrated Coastal Action Plans identify and map: marine areas with significant environmental, social, cultural and economic values. Also map marine ecological and oceanographic processes, and potential threats	33	RCB	DEPI, PV
3	Implement agreed responses to the VEAC Marine Investigation into the performance and management of Victoria's marine protected areas and ongoing threats or challenges to their effective management	33	DEPI	PV
4	Update key policies and guidelines including: <ul style="list-style-type: none"> <li>a. best practice environmental guidelines for dredging to reflect new benchmarks in environmental controls for dredging activities and relevant national guidelines</li> <li>b. protocols for detecting, reporting and responding to marine pest incursions</li> </ul>	33	EPA	DEPI, PV
5	Develop improved understanding about the amount of carbon stored in Victoria's marine and coastal ecosystems	33	DEPI	
<b>Wetlands and estuaries</b>				
1	Regional Coastal Action Plans will identify significant wetlands and estuaries which are vulnerable to the potential impacts of a changing climate	35	RCB	DEPI, CMA, PV)

VALUE AND PROTECT		Page Number	Lead Agent	Partner Agents
Action				
<b>Onshore environments</b>				
1	Coastal Action Plans and park management plans will identify coastal areas of ecological significance at regional levels that require management	37	RCB	DEPI, PV
2	Make use of existing methodologies (developed by DEPI) to determine natural coastal assets across the state. Incorporate this knowledge into preparation of the state coastal risk plan	37	DEPI	
3	Decision-making tools and market-based instruments, such as a coastal tender program, will be developed in partnership with landowners to protect existing habitats and to establish habitat linkages between Crown land and private land	37	DEPI	
<b>Catchments and water quality</b>				
1	Update guidelines and requirements including: a. urban stormwater management for new urban development, and facilitate and support best practice b. on-site wastewater management in sensitive areas of the coast c. State Environment Protection Policy (Waters of Victoria) d. Environmental Management Plan for Port Phillip Bay	39	DEPI	EPA, Water authorities, DTPLI, LG
2	Review and revise regional response plans for events (such as mass fish deaths and algal blooms) in bays and estuaries and on the open coast	39	DEPI	CMA, PV, MW, EPA, DTPLI
3	Implement the Port Phillip Bay Marine algal bloom response protocol from A Cleaner Yarra River and Port Phillip Bay	39	DEPI	
4	Expand the scope of water way health strategies to include water quality from catchment inputs into bays and inlets	39	DEPI	CMA
<b>PLAN AND ACT</b>		Page Number	Lead Agent	Partner Agents
Action				
<b>Supporting community participation</b>				
1	Implement the Coastcare Victoria Strategy 2011-2015 and develop new pathways for coastal volunteers to continue their work and improve the coast for the benefit of all Victorians	41	DEPI	PV
2	Provide opportunities for networking and knowledge exchange between State, regional and local coastal communities, planners, managers and other stakeholders	41	RCB	VCC, CoM, LG
3	Recognise and reward community leadership and innovation through annual coastal awards of excellence	41	VCC	RCB
4	Undertake longitudinal social research on community attitudes to Victorian coastal and marine environments, conservation and management, with an expanded emphasis on the extent and nature of community valuation of the coast	41	VCC	DEPI
<b>Sustainable community settlements</b>				
1	Revise the State Planning Policy Framework (SPPF) in the Victorian Planning Provisions (VPP) to include the coastal policy statements contained in the Victorian Coastal Strategy 2013	44	DTPLI	

PLAN AND ACT		Page Number	Lead Agent	Partner Agents
Action				
<b>Coastal hazards and natural coastal processes</b>				
1	Share the findings and learning from the local hazards assessment pilot projects and identify further areas across Victoria where this process can be used	47	DEPI	LG, CoM
2	Identify areas of coastal land at risk of loss from erosion and inundation in Regional Coastal Action Plans and consider adaptation responses	47	RCB	DEPI, LG, CoM
3	Develop a State Coastal Risk Plan to strategically and consistently identify and prioritise coastal hazards and manage risks to key state coastal assets	47	DEPI	PV
4	Explore management options for Crown land that may be eroded away – thereby limiting public access to the coast	47	DEPI	PV, CoM
<b>Balancing decision making</b>				
1	Develop business models based on sustainable revenue streams with coastal managers	48	DEPI	CoM
<b>Research and knowledge sharing</b>				
1	Develop or promote the use of existing central platforms and databases for coastal planners and managers that brings together relevant marine, coastal and administrative data	49	VCC	DEPI
2	Encourage collaboration between researchers and managers to review research needs for coastal, estuarine and marine ecosystems and key ecological processes	49	VCC	PV
<b>Emergency Management: no actions</b>				
USE AND ENJOY		Page Number	Lead Agent	Partner Agents
Action				
<b>Siting and design of buildings and infrastructure on the coast</b>				
1	Revise the Siting and Design Guidelines for Structures on the Victorian Coast to provide contemporary criteria and improved design guidance for coastal development	55	VCC	LG, DTPLI, PV
<b>Visitation and tourism</b>				
1	Suitable areas for sustainable visitor and tourist development along the coast will be identified through Regional Coastal Action Plans and local planning schemes	57	LG	RCB, DTPLI
<b>Access on the coast</b>				
1	Establish priority areas for all mobility access needs	58	PV	DEPI
2	Implement programs that address risk from ageing infrastructure, aquatic safety, access and emergency events	58	DEPI	DTPLI, LG, PV, CoM
<b>Boating and water based activities</b>				
1	Include Boating Coastal Action Plans information in the preparation of the new Regional Coastal Action Plans	59	RCB,	LG, PV)



USE AND ENJOY		Page Number	Lead Agent	Partner Agents
Action				
<b>Sustainable Ports</b>				
1	Monitor risk mitigation strategies adopted by the local and commercial ports for port infrastructure identified as vulnerable to extreme climate events	60	DTPLI	
<b>Fishing and Aquaculture</b>				
1	Undertake research to identify threats to key habitats supporting fisheries resources and develop priority actions to address these	62	DEPI	PV
2	Assess fish stocks, measure fish catches and conduct targeted biological research for key commercial and recreational species	62	DEPI	
3	Implement the Victorian Climate Change Strategy for Fisheries and Aquaculture 2008–2018 to facilitate adaptation to the risks and impacts of a changing climate in both the commercial and recreational fishing sectors	62	DEPI	
3	Undertake research into the long-term ecological sustainability and value of artificial reefs	62	DEPI	
<b>Coastal energy resources</b>				
1	Outline the process for assessment, approval and tenure allocation of Crown land for marine energy activities	63	DEPI	DTPLI

IMPLEMENTATION		Page Number	Lead Agent	Partner Agents
Action				
<b>Implementation Coordinating Committee</b>				
1	Reconvene and support the operation of the Victorian Coastal Strategy Implementation Coordinating Committee	65	DEPI	VCC
<b>Building capacity and supporting coastal managers</b>				
1	Identify demand and encourage educational and like institutions to offer training and development opportunities for the coastal workforce	65	VCC	
2	Coordinate the delivery of a Victorian Coastal Conference and support existing regional coastal forums and networks	65	VCC	RCB, DEPI, PV
<b>Financing coastal management</b>				
1	Undertake a review of the coastal management system to assess whether current governance and financing arrangements are optimal to address the impacts of a changing climate and population growth	66	VCC	DEPI, DTF)
<b>Monitoring, evaluation and reporting (MER)</b>				
1	Develop a MER framework reporting on the Strategy	66	VCC	DEPI, PV, CoM, RCB

# APPENDICES





## GLOSSARY

### Activity nodes

Activity nodes are within existing coastal settlements and correlate with existing activity centres under Melbourne 2030 which provide a focus area for access to the coast, services, and social interaction within coastal settlements and coastal urban areas, and link and integrate the public and private realms within this area.

### Aquaculture

cultivation of fish, molluscs and other aquatic organisms in fresh or salt water for human use.

### Biological diversity

the variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem diversity.

### Canal estate

any development that requires a constructed waterway, canal or water body that is then inundated by or drains to a natural water body.

### Carbon sinks

natural or man-made systems that absorb and store carbon dioxide from the atmosphere, such as trees, plants and the oceans.

### Catchment

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

### Coast (Victorian)

broadly defined in this strategy to include: the sea and the seabed to the state limit three nautical miles or 5.5 km; land and inland waters in the coastal catchment.

### Coastal acid sulfate soils

found in low-lying coastal areas these contain high concentrations of iron sulfates. Relatively harmless in their undisturbed (submerged) state, these soils produce and release large quantities of sulphuric acid when exposed to oxygen through excavation, dredging or drainage, detrimentally impacting coastal and marine environs.

### Coastal Action Plan (CAP)

identifies strategic directions and objectives for use and development in a region or part of a region to facilitate recreational use and tourism, and to provide for protection and enhancement of significant features coast, including the marine environment.

### Coastal-dependent use

uses, and associated infrastructure, which depend on the coasts' natural assets and could not take place at any other location.

### Coastline

generally where the land meets the sea.

### Committee of Management (CoM)

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, such as Parks Victoria, Local Government, or community volunteers appointed through an expression of interest process.

### Crown land

public land not vested in a public authority, including land temporarily or permanently reserved under the *Crown Land (Reserves) Act 1978*.

### Cultural heritage

qualities and attributes possessed by places and objects that have aesthetic, historic, scientific or social value for past, present or future generations.

### Eco-based tourism

a form of tourism that involves visiting natural areas

### Ecosystem

all the organisms in a community, together with the associated physical environmental factors (living and non-living) with which they interact.

### Ecosystem based management

an approach that seeks to manage human impacts in an ecosystem, at any scale from an ocean, to a bioregion, to a local estuary.

### Ecosystem good and services

ecosystem goods (such as food) and services (such as waste assimilation) are the benefits people obtain, directly or indirectly from ecosystems. The services are classified into four different categories (regulating, supporting, provisioning and cultural services).

### Effluent

a liquid, partially or completely treated or in its natural state, flowing from a water or sewage treatment plant.

### Environmental weed

exotic or Australian native flora growing beyond their natural range that have, or have the potential to have, a detrimental effect on natural values.

### Estuary

the zone where a river meets the sea, influenced by river flows and tides and characterised by a gradient from fresh to salt water.



**Foreshore**

the coastal fringe; generally the land between the coastal road and the low water mark.

**Freehold land**

refer to 'private land'.

**Geomorphology**

science of the evolution of landforms and geological formations and the processes that shape them.

**Habitat**

the area occupied by an organism or group of organisms.

**Historic place**

site, building or group of buildings with aesthetic, historic, scientific or social value for present or future generations.

**Indigenous species**

an organism which is native to a given region or ecosystem.

**Infrastructure**

physical structures which facilitate use of the coast, such as roads, paths, piers, toilet blocks.

**Integrated coastal zone management (ICZM)**

a framework that attempts to integrate planning and management in a region, such as the State of Victoria, across the land and sea interface and the private and public land interface, to treat the coastal zone (which includes the catchment) as one biophysical entity.

**Intertidal zone**

area between low and high tide which is subject to daily changes in physical and biological conditions from tide movement (also known as littoral zone).

**Invasive species**

an animal pest, weed or disease that can adversely affect indigenous species and ecosystems.

**Marine National Park**

highly protected areas reserved and managed under the *National Parks Act 1975* that represent the range of marine environments in Victoria, and in which no fishing, extractive or damaging activities are allowed.

**Marine pest**

refer to 'invasive species'.

**Marine Sanctuary**

small, highly protected areas reserved and managed under the *National Parks Act 1975* to protect special values, and in which no fishing, extractive or damaging activities are allowed.

**Nature-based tourism**

tourism that relies on experiences directly related to natural attractions.

**Planning scheme**

is a legal document prepared by the local council or the Minister for Planning and approved by the Minister under the *Planning and Environment Act 1987*. A planning scheme sets out policy and requirements for use, development and protection of land. It consists of a written document and any maps and plans it refers to.

**Private land**

land under freehold tenure (privately owned).

**Public land**

unalienated land of the Crown (refer to Crown land) or land vested in a public authority.

**Recreation nodes**

areas located on coastal Crown land, outside of activity nodes and existing settlements which exhibit a high level of use and visitation for recreation and water-related activities.

**Registered Aboriginal Parties (RAPs)**

determined by the Aboriginal heritage Council with important roles and functions in managing and protecting Aboriginal cultural heritage in Victoria under the *Aboriginal Heritage Act 2006*.

**Remnant vegetation**

indigenous vegetation that has not been cleared, modified or replanted.

**Sediment**

insoluble material suspended in water that contains mainly particles derived from rock, soil and organic material.

**Settlement**

reference to a settlement in this strategy can include a regional city, regional centre, district town, town, hinterland town, small town, small settlement, rural centre or settlement.

**Settlement boundary**

the dividing line between areas where urban development is expected (the settlement) and areas where non-urban or rural expectations exist.

**Sewage**

household and commercial wastewater containing human or trade waste.

**Sewerage**

the system which facilitates the collection, transport, treatment and discharge of sewage.

**Social cohesion**

the degree to which participants in social systems feel committed to the system and the wellbeing of other participants.

**Stakeholders**

individual or group with a vested interest in or affected by a project or process.

**Stormwater**

rainwater that runs off streets and gutters, enters drains and waterways and is eventually discharged to the sea; in Victoria, stormwater is mostly untreated but may be filtered by traps or wetlands.

**Structure plans**

planning tools that set out an integrated vision for the desired future development of a place, and establish a planning and management framework to guide development and land-use change in order to achieve stated environmental, social and economic objectives. Also known as township plans and urban design frameworks.

**Subdivision**

division of land into two or more parts which can be separately sold.

**Sustainable use**

the use of resources in a way and at a rate that does not lead to the long term decline of biological diversity, thereby maintaining their potential to meet the needs and aspirations of present and future generations.

**Traditional owners**

people who, through membership in a descent group or clan, have responsibility for caring for particular Country. A Traditional Owner is authorised to speak for Country and its heritage as a senior Traditional Owner, an Elder or, in more recent times, as a registered native title claimant.

**Urban growth boundary**

a management tool used to contain urban areas and limit their expansion. It divides land that is urban – to be used for housing, shops, factories – from land that is non-urban and to be used for purposes such as conservation, agriculture, mineral extraction, airports and the like. An urban growth boundary encourages urban consolidation and protects valued non-urban areas from urban development.

**Wetland**

areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.



Walking at Surf Beach, Phillip Island David Hannah

## ACRONYMS

<b>AAV</b>	<b>Aboriginal Affairs Victoria</b> – Central point of advice on all aspects of Aboriginal affairs in Victoria.	<b>IPCC</b>	<b>Intergovernmental Panel on Climate Change</b>
<b>CAP</b>	<b>Coastal Action Plan</b>	<b>LG</b>	<b>Local government</b> – Significant influence over coastal planning and management through planning controls on private and public land, local by-law regulations and many are appointed committees of management over foreshore areas. There are 22 coastal municipalities in Victoria.
<b>CASS</b>	<b>Coastal Acid Sulfate Soils</b>	<b>LPPF</b>	<b>Local Planning Policy Framework</b>
<b>CCB</b>	<b>Central Coastal Board</b> – See ‘regional coastal board’. Region extends from Breamlea to Venus Bay.	<b>MW</b>	<b>Melbourne Water</b> – Manages Melbourne’s water supply catchments, sewage treatment, rivers, creeks and major drainage systems throughout the Port Phillip and Westernport region.
<b>CMA</b>	<b>Catchment Management Authority</b> – Established under the <i>Catchment and Land Protection Act 1994</i> to achieve integrated and sustainable catchment management. There are five coastal CMAs in Victoria.	<b>PV</b>	<b>Parks Victoria</b> – Established under the <i>Parks Victoria Act 1998</i> to provide services to the State for the management of parks, reserves, and other land.
<b>CoM</b>	<b>Committee of Management</b> – Appointed to manage, maintain, improve and control coastal Crown land reserves.	<b>RAP</b>	<b>Registered Aboriginal Party</b>
<b>CSIRO</b>	<b>Commonwealth Scientific and Industrial Research Organisation</b> – Australia’s peak research organisation which provides scientific solutions to industry, governments and communities around the world.	<b>RCB</b>	<b>Regional Coastal Board</b> – The Western, Central and Gippsland Regional Coastal Boards are established under the <i>Coastal Management Act 1995</i> as strategic coastal planning advisory bodies. Their main focus is advising the Minister and implementing the Victorian Coastal Strategy at the regional level through Coastal Action Plans.
<b>DEPI</b>	<b>Department Environment and Primary Industries</b> – Responsible for the sustainable management of public land, water resources, climate change, bushfires, forests and ecosystems. Promotes the sustainable development of primary industries including fisheries, agriculture, forests, petroleum, minerals and energy	<b>SEPP</b>	<b>State Environment Protection Policies</b> Prepared under the <i>Environment Protection Act 1970</i> to provide the leadership, legal and statutory basis for improving water quality in the marine environment.
<b>DTF</b>	<b>Department of Treasury and Finance</b> – Responsible for providing economic, financial and resource management advice to assist the Victorian Government deliver its policies	<b>SPPF</b>	<b>State Planning Policy Framework</b>
<b>DTPLI</b>	<b>Department of Transport, Planning and Local Infrastructure</b> – Responsible for land use planning and environmental assessment. Main provider of essential infrastructure in Victoria, including commercial ports, channels, rail and roads.	<b>TV</b>	<b>Tourism Victoria</b> – Develops and markets Victoria as a premium tourist destination for Australian and international travellers.
<b>EBM</b>	<b>Ecosystem-based management</b>	<b>VEAC</b>	<b>Victorian Environmental Assessment Council</b>
<b>EPA</b>	<b>Environment Protection Authority</b> – An independent statutory authority set up to prevent and control pollution on land, in water and air, and industrial noise.	<b>VCC</b>	<b>Victorian Coastal Council</b> The Victorian Coastal Council is appointed under the <i>Coastal Management Act 1995</i> as the peak body for the strategic planning and management of the Victorian coast, and to provide advice to the Minister for Environment and Climate Change. They have a number of responsibilities under the Act, including to prepare and submit to the Minister a draft Victorian Coastal Strategy. They are also responsible for the coordination and implementation of the Victorian Coastal Strategy.
<b>GCB</b>	<b>Gippsland Coastal Board</b> – See ‘regional coastal board’. Region extends from the New South Wales border to Venus Bay.	<b>VPP</b>	<b>Victoria planning provisions</b>
<b>HV</b>	<b>Heritage Victoria</b> – Manage historic shipwrecks and relics and recommend places and objects for inclusion on the Victorian heritage Register.	<b>WCB</b>	<b>Western Coastal Board</b> – See ‘regional coastal board’. Region extends from Breamlea to the South Australian.
<b>ICZM</b>	<b>Integrated coastal zone management</b>		



## APPENDIX A LEGISLATION, PLANS, STRATEGIES, GUIDELINES

There are many federal and state Acts and regulations, and ongoing local, regional and state-wide policies, strategies and programs that have outcomes which are important to the health, enjoyment and sustainable use of our coastal, estuarine and marine environments. These include, but are not limited to:

### Acts

- Aboriginal Heritage Act 2006
- Australian Maritime Safety Authority Act 1990 (Cwth)
- Catchment and land Protection Act 1994
- Coastal Management Act 1995
- Crown Land (Reserves) Act 1978
- Environment Effects Act 1978
- Environment Protection Act 1970
- Environmental Protection and Biodiversity Conservation Act 1999 (Cwth)
- Fisheries Act 1995
- Fisheries Management Act 1991 (Cwth)
- Flora and Fauna Guarantee Act 1988
- Heritage Act 1985
- Historic Shipwrecks Act 1976 (Cwth)
- Land Act 1958
- Marine Act 1988
- National Parks Act 1975
- Native Title Act 1993 (Cwth)
- Planning and Environment Act 1987
- Pollution of Waters by Oil and Noxious Substances Act 1986
- Port Services Act 1995
- Victorian Livestock Disease Control Act 1994

### Regulations

- Aboriginal Heritage Regulations 2007
- Environment Protection (Ships' Ballast Water) Regulations 2006
- Fisheries Regulations 1998
- Marine Regulations 1999
- National Parks (Park) Regulations 2003
- Pollution of Waters by Oil and Noxious Substances Regulations 2002
- Port Services (Local Ports) Regulations 2004

### Policy and strategies

- Aboriginal Fishing Strategy 2012
- Coastcare Victoria Strategy 2011 – 2015 (DSE (now DEPI), 2011)
- Commercial port land-use strategies (port authorities)
- Draft Metropolitan Planning Strategy (DTPLI, 2013)
- Draft Victorian Waterway Management Strategy (DSE (now DEPI), 2012) and Regional Waterway Strategies (CMAs)
- Great Ocean Road Regional Strategy (DSE (now DEPI), 2004)
- National Cooperative Approach to Integrated Coastal Zone Management – Framework and Implementation Plan (DEH (now DSEWPaC), 2006)
- Regional Catchment Strategies (CMAs)
- Regional Growth Plans (DTPLI)
- Strategy for Coastal Acid Sulfate Soils (DSE (now DEPI), 2008)
- State Environment Protection Policies (EPA)
- Victoria's Biodiversity Strategy (DSE (now DEPI), 1997)
- Victoria's Native Vegetation Management – A Framework for Action (DSE (now DEPI), 2002)
- Victoria's System of Marine National Parks and Marine Sanctuaries – Management Strategy 2003-2010 (PV) (this will be updated once the VEAC marine investigation is complete)
- Victorian Aquaculture Strategy (DPI (now DEPI), 2008)
- Victoria Planning Provisions, including the State Planning Policy Framework and the Local Planning Policy Framework

### Plans

- Coastal Action Plans under the Coastal Management Act 1995 (RCBs)
- Management Plans under the Coastal Management Act 1995 (CoMs), Fisheries Act 1995 (DEPI), and the National Parks Act 1975 (PV).
- Port Phillip Bay Environmental Management Plan
- Port safety and environmental management plans (commercial and local port authorities)
- Stormwater management plans (LG)
- Structure plans/township plans/urban design frameworks (LG)

### Guidelines

- Best practice environmental management: guidelines for dredging (EPA)
- Urban stormwater best practice environmental management guidelines (EPA)
- Committee of Management Responsibilities and Good Practice Guidelines (DSE (now DEPI), 2003)
- Siting and Design Guidelines for Structures on the Victorian Coast (VCC, 1998)
- Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils

In addition, Australia is party to many international treaties which influence the use and management of coastal, estuarine and marine environments.

## APPENDIX B WHO DOES WHAT

Many people and agencies have responsibility for, or interest in, coastal planning and management.

### Owners

In Victoria the Minister for Environment and Climate Change has responsibility for all coastal Crown land on behalf of all Victorians. Some 96 per cent of the coastline is in public ownership, while 4 per cent is privately owned (with land titles extending to the water's edge).

### Communities

Coastal communities and coastal-based groups play crucial roles in coastal planning and management by contributing their time and efforts, local knowledge and expertise. Aboriginal people and communities also play particular roles in planning and managing the coast, and making decisions about coastal resources.

### Planners

A large number of agencies undertake planning which affects the coast, either directly or indirectly. Key legislation includes the *Coastal Management Act 1995*, *Planning and Environment Act 1987* and the *Catchment and Land Protection Act 1994*.

Local government has a role in considering and approving planning permits on coastal Crown land and private land, and in the nearshore environment, and preparing changes to the planning scheme.

The Department of Environment and Primary Industries has a role in considering and approving Coastal Management Act consents on coastal Crown land.

Government departments, regional coastal boards, local councils, catchment management authorities and committees of management are involved in strategic planning be this at a state, regional or local level.

### Public Land Managers

More than two-thirds of coastal Crown land is reserved as national park, coastal park, marine national park or marine sanctuary under the *National Parks Act 1975*. Parks Victoria manages this land.

The remaining coastal Crown land is reserved under the *Crown Land (Reserves) Act 1978* for various public purposes. Committees of Management are appointed by the Minister to manage this land. A Committee of Management can be a voluntary community group, or an agency such as Parks Victoria or a local government body.

The Department of Environment and Primary Industries manages small areas of 'unreserved' Crown land along the foreshore, and most of the seabed.

### Regulators

Other legislation stipulates how specific coastal uses and areas are managed, particularly where these have a significant effect on matters of environmental and cultural significance along the coast. This includes the *Heritage Act 1995*, the *Flora and Fauna Guarantee Act 1988*, the *Aboriginal Heritage Act 2006*, the *Environment Protection Act 1970*, the *Fisheries Act 1995*, the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*, the *Native Title Act 1993* and the *Historic Shipwrecks Act 1976*.

The Environment Protection Authority regulates marine and catchment based water quality. Port authorities, Parks Victoria and Victoria Police regulate port and recreational boating use. The Department of Environment and Primary Industries and a number of Commonwealth departments play a role in regulating environmental, cultural and fishing legislation.

### Researchers

Non-government organisations and tertiary institutions play an important role in research, in association with government. This advances our knowledge and understanding of coastal and marine environments, and informs policy development and decision-making.

### Business and Industry

Many businesses and industries are dependent on coastal location and resources, and have a critical interest in their coastal and marine environment. They provide employment and economic activity to the benefit of coastal and broader communities.

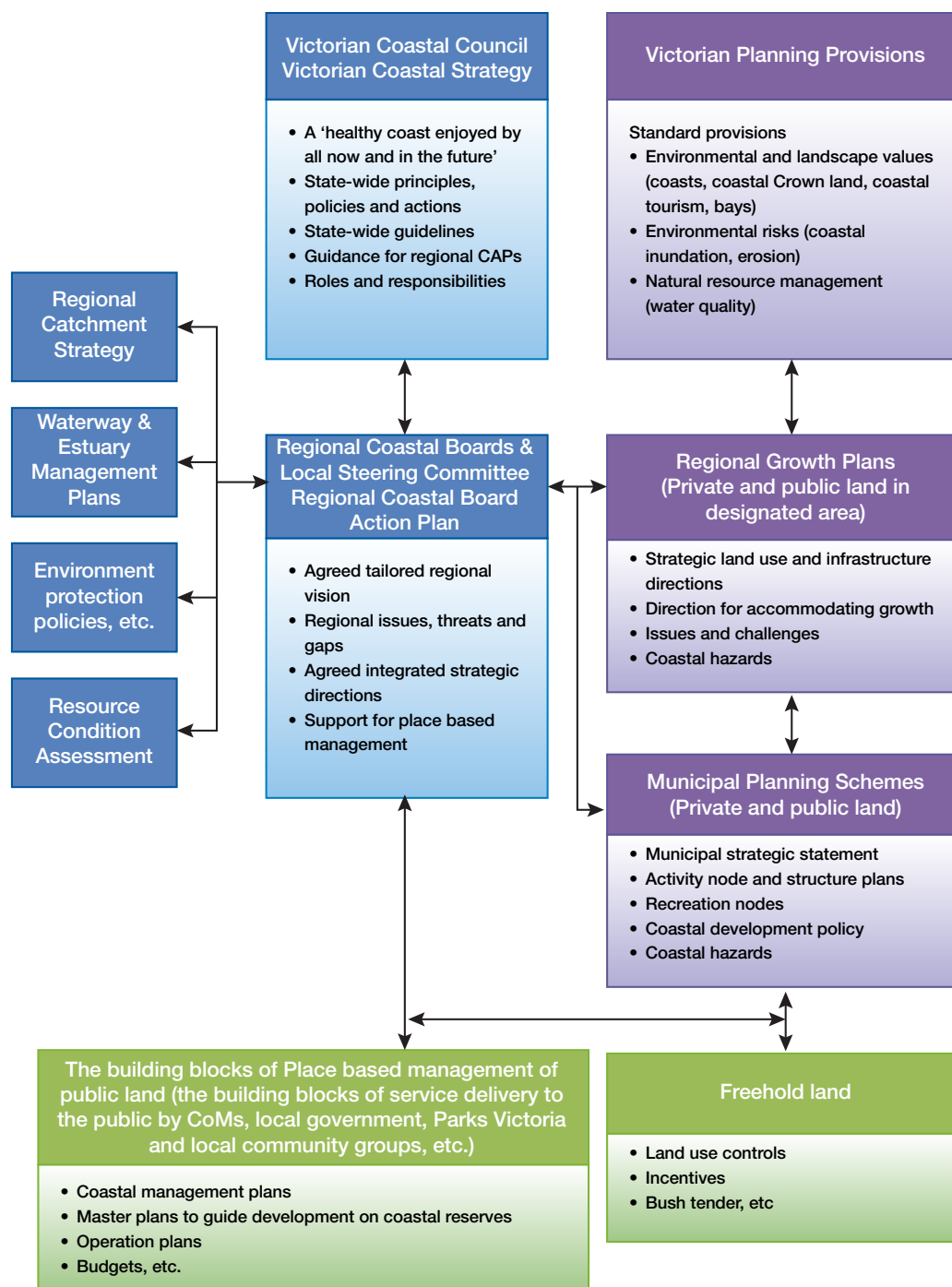


Figure 6: Coastal management and planning connections in Victoria



## APPENDIX C BACKGROUND INFORMATION ON A CHANGING CLIMATE

### Storm events and storm surge

Sea level rise may cause some areas on the coast to be permanently flooded by the sea, and other areas to be temporarily flooded during storm events.

Areas on the coast which are currently flooded during a storm tide may be flooded more often, and to a greater depth.

Storm surge is a temporarily higher sea level created from a low pressure weather system and intense winds. A storm surge will have maximum impact when combined with a high or king tide (known as a storm tide).

Flooding of the land by the sea due to storm tides can also be accompanied by flooding from rainfall. This can be particularly intense when large amounts of water from inland waterways are unable to drain to the sea because of an elevated sea level.

### Sea surface temperature

There has been a recorded increase in sea surface temperatures around Australia since the early 20th century. The increase has been recorded as an average rise of 0.7°C per decade (comparing 1910-1929 with 1989-2008). This rate of warming is similar to the global average.

Although there is seasonal and spatial variation around Australia, the greatest warming is occurring in the south-west and south-east coasts.

Changes in sea surface temperature affect the strength of ocean currents, such as the East Australian Current, and this in turn affects cold water upwellings.

### Ocean Acidification (decreased pH levels)

The natural biological processes of the ocean's carbon cycle result in net absorption of carbon dioxide from the atmosphere.

The ocean is a weak alkaline solution, with a pH of around 8.1. Adding increased amounts of carbon dioxide lowers the pH and makes the ocean more acidic. The pH of the oceans has been lowered by 0.1 pH unit from pre-industrial times. By the end of the century, the ocean's pH has the potential to drop to 0.2-0.3 units below pre-industrial levels (Australian Government, 2011).

Ocean acidification reduces availability of the carbonate ions on which many marine organisms rely to make shells and skeletons from calcium carbonate. Many types of organisms may be impacted by this, including zooplankton, coralline algae, crustaceans, echinoderms, fish and molluscs.

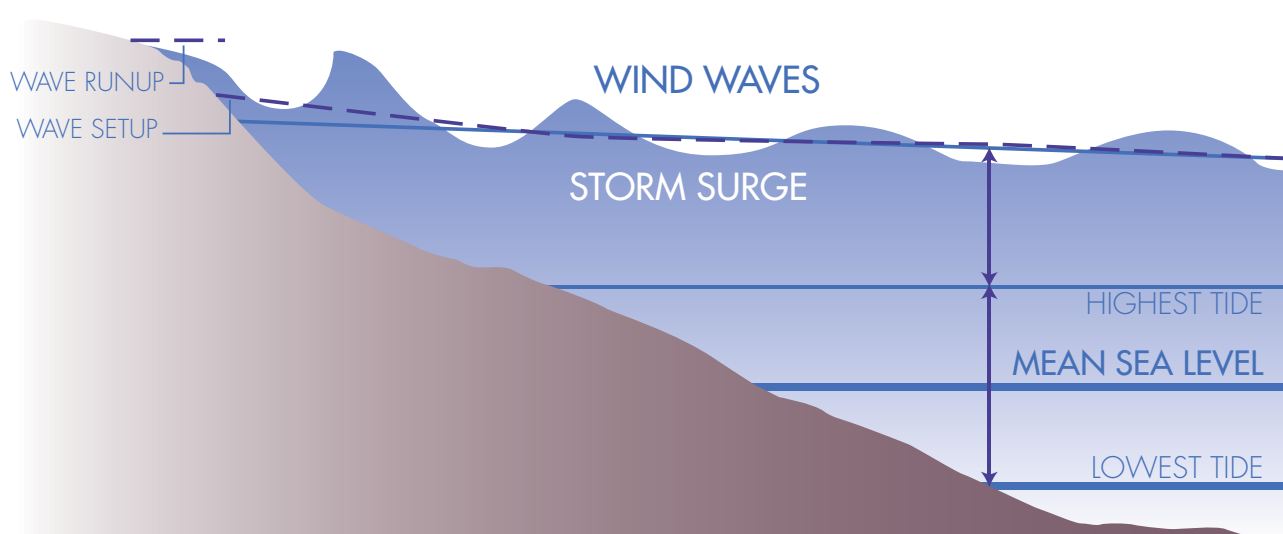


Figure 7: Impacts of tides, storm surge and waves on sea level rise (source: CSIRO, 2007)

## APPENDIX D COASTAL CLIMATE DECISION-MAKING TOOLS

Type	Tool	Description/Applications
Mapping and information	Victorian coastal inundation dataset	<i>Strategic planning</i> Projection of land area which will be inundated in different timeframes (present, 2040, 2070, 2100). For state and regional strategic planning.
Planning	General Practice Planning Note – <i>Managing coastal hazards and the coastal impacts of climate change</i>	<i>Statutory and strategic planning</i> Guidance on managing coastal hazards, the decision-making process for assessing coastal hazard risk, planning for development in coastal areas.
	Direction No 13 – <i>Managing coastal hazards and the coastal impacts of climate change</i>	<i>Statutory planning</i> Requirements for the consideration of the impacts of climate change on the coastal areas for amendments which would have the effect of allowing non-urban land to be used for an urban use and development.
	Government's response to Coastal Climate Change Advisory Committee – Changes to State Planning Policy Framework	<i>Statutory and strategic planning.</i> Revision of the State Planning Policy Framework for an interim planning benchmark of 0.2m for sea level rise by 2040 for infill development.
Guides	<i>Victorian Coastal Hazard Guide</i>	Best practice guidance on factors that need to be considered when assessing risks associated with coastal hazards.
	<i>Guidelines for Coastal Catchment Management Authorities – assessing development in relation to sea level rise</i>	<i>Statutory planning</i> Criteria for assessing development proposals that may potentially be affected by sea level rise (they do not apply to Melbourne Water).
	<i>Planning for sea level rise – assessing development in areas prone to tidal inundation from sea level rise in the Port Philip and Western Port Region</i>	<i>Statutory planning</i> To assist Melbourne Water Services Planners in assessing development proposals.

## APPENDIX E ECOSYSTEM BASED MANAGEMENT GUIDING PRINCIPLES

- 1. Ecosystem conservation:** All planning and management arrangements give priority to conservation of ecosystem structure and functioning in order to maintain ecosystem services
- 2. Adaptive management:** The management of human activities is modified in response to: feedback from monitoring, changes in knowledge about marine ecosystems, changes in societal values, and technological development
- 3. Uncertainty and precaution:** The uncertainty which characterises our knowledge of marine ecosystems and our understanding of human interactions with marine ecosystems is recognised during decision-making, and the precautionary principle is applied in decision-making
- 4. Comprehensive recognition of human uses and values:** Planning and management take into account all human uses and values in an ecosystem, including the cumulative effect of human uses. All relevant sectors are involved in decision-making.
- 5. Cooperation and integration of management arrangements:** Planning and management arrangements embody inter-agency cooperation and integration across jurisdictional boundaries.

## APPENDIX F MONITORING AND REPORTING

	Theme	Desired outcome	Indicator	Who
VALUE & PROTECT	<b>Appreciating and valuing the coast</b>	Improved methods for valuing ecosystem services are used to allow the balance between competing coastal and marine values to be negotiated transparently and systematically		
	<b>Cultural heritage</b>	Significant Aboriginal and Non-Aboriginal cultural heritage places are identified and protected, where appropriate		
		Victorians work in partnership to take account of local knowledge and to care for cultural heritage on the coast		
	<b>Marine environments</b>	An integrated and holistic approach is used for the management and planning of the marine environment		
		Coastal waters, estuaries, wetlands and the terrestrial environment are managed to promote healthy ecosystems that support connectivity and adaptation		
	<b>Wetlands and estuaries</b>	The ecological condition of coastal wetlands and estuaries, including Ramsar sites is protected and improved		
		Coastal waters, estuaries, wetlands are managed in ways that support their natural connectivity thereby ensuring the future health and resilience of wetlands and estuaries		
	<b>Onshore environments</b>	Improved health, resilience and connectivity of onshore coastal environments across land tenures		
		A well-managed, comprehensive, adequate and representative system of coastal parks and reserves is complemented by off-reserve conservation actions		
	<b>Catchments and water quality</b>	Strategic planning for catchment, coastal and marine management, and the prioritisation of on-ground works is integrated through improved collaboration between relevant agencies		
		The quality of water entering wetlands, estuaries and marine waters is improved on a priority basis through: <ul style="list-style-type: none"> <li>improved wastewater and stormwater treatment and re-use, with a priority focus on urban growth areas in coastal catchments</li> <li>promotion of changes in land use and farming practices to reduce the impact of catchment discharges which have adverse effects on the health of coastal and marine ecosystems</li> </ul>		

	Theme	Desired outcome	Indicator	Who
PLAN & ACT	<b>Supporting community participation</b>	Local communities actively participate in coastal and marine management and planning		
		Local communities groups and volunteers are adequately supported and recognised for their involvement in caring for and managing the marine and coastal environment		
	<b>Sustainable coastal settlements</b>	Sustainable coastal settlements are planned to support a sustainable economy, a healthy environment, and strong social and cultural values		
		Green breaks are used between coastal settlements to preserve the character of the coastline		



	Theme	Desired outcome	Indicator	Who
PLAN & ACT	Coastal hazards and natural coastal processes	Natural coastal processes are adopted as the preferred form of defence against possible impacts of a changing climate		
		New development (and alterations to existing development) avoids areas subject to coastal hazards and does not interfere with natural coastal processes		
	Balancing decision making	Local communities actively participate in coastal and marine management and planning		
		Integrated Coastal Action Plans balancing state-wide policies with regional and local priorities		
	Research and knowledge sharing	Increased understanding and identification of coastal and marine issues through research and monitoring including through community programs		
		Scientists, policymakers and decision makers exchange knowledge in ways that ensure our efforts on the coast are targeted, strategic and efficient		
	Emergency management	Coastal and marine planners and managers are well prepared for emergency events and are capable of preventing, preparing for, responding to and recovering from these events		

	Theme	Desired outcome	Indicator	Who
USE & ENJOY	Siting and design of buildings and infrastructure on the coast	New buildings and infrastructure exhibit excellence in siting and design which complement, or integrates with, the coastal landscape and setting, while also avoiding environmental impacts		
		The built environment on coastal Crown land is confined to structures providing significant community benefit and to those whose functionality depends on them being near the water		
	Visitation and tourism	A diverse range of visitor and tourist experiences is made available		
		Visitor and tourism developments exhibit exemplary design standards and reflect the surrounding landscape's environmental and heritage values		
	Access on the coast	Communities access the coast in ways that, minimise the risks to public safety and protect coastal and marine environments		
		Community-based clubs such as lifesaving, angling, yachting and boating clubs are supported in their use of the coast in ways that provide access to and use of the coastal environment by the broader community		
	Boating and water-based activities	A network of recreational boating and water-based activity facilities that respond to demand, safety considerations, coastal processes and the natural environment		
	Sustainable Ports	Local and commercial ports are managed in ways that add to the character, amenity and sustainability of the coast		
	Fishing and aquaculture	Commercial and recreational fisheries are managed in a holistic, ecosystem-based management framework		
		An ecologically sustainable and viable aquaculture industry uses low environmental impact production systems and implements best practice aquaculture and environmental management		
	Coastal energy resources	The full suite of community and ecosystem service values is considered when making decisions regarding the planning and management or development of coastal Crown land for energy resources		

## APPENDIX G EVALUATION

Evaluation assesses a number of aspects of a program or strategy, documenting for each aspect the answer to the question ‘why’ or ‘why not?’:

Evaluation aspects	Potential sources of data
<b>Appropriateness</b> <ul style="list-style-type: none"> <li>The extent to which the program is aligned with needs of intended beneficiaries</li> <li>The extent to which the program complies with recognised best practice</li> </ul>	Needs analysis Expert review Participatory planning Social or environmental impact assessment Internal reflection on processes and outcomes Periodic independent evaluation
<b>Impact</b> <ul style="list-style-type: none"> <li>How and to what extent the program has contributed to changing resource condition, practices, attitudes and behaviours.</li> <li>Any unanticipated changes (positive or negative) which have resulted</li> <li>The extent to which changes were directly or indirectly produced by the program</li> </ul>	Monitoring condition of resources Expert review Internal reflection on processes and outcomes Periodic independent evaluation
<b>Effectiveness</b> <ul style="list-style-type: none"> <li>The extent to which planned actions and outputs were achieved</li> <li>Whether the actions were the best way to maximise impact or whether alternative options may have been more effective</li> <li>The extent to which the program achieved, or expected to achieve, its desired outcomes efficiently and in a sustainable way.</li> </ul>	Review of logical relationships and causal links Research and large-scale data sources Expert review Internal reflection on processes and outcomes Periodic independent evaluation
<b>Efficiency</b> <ul style="list-style-type: none"> <li>The extent to which the program attained the highest value from available resources.</li> <li>Ways in which resources may be used more productively and efficiently</li> <li>What could be done differently to improve implementation and maximise impact, at an acceptable and sustainable cost.</li> </ul>	Auditing and financial analysis Internal reflection on processes and outcomes Periodic independent evaluation
<b>Legacy</b> <ul style="list-style-type: none"> <li>Whether the impacts of the program will continue over time, and after the program ceases</li> <li>How the legacy should be managed and by whom</li> </ul>	Participatory planning and monitoring Internal reflection on processes and outcomes Periodic independent evaluation

## REFERENCES

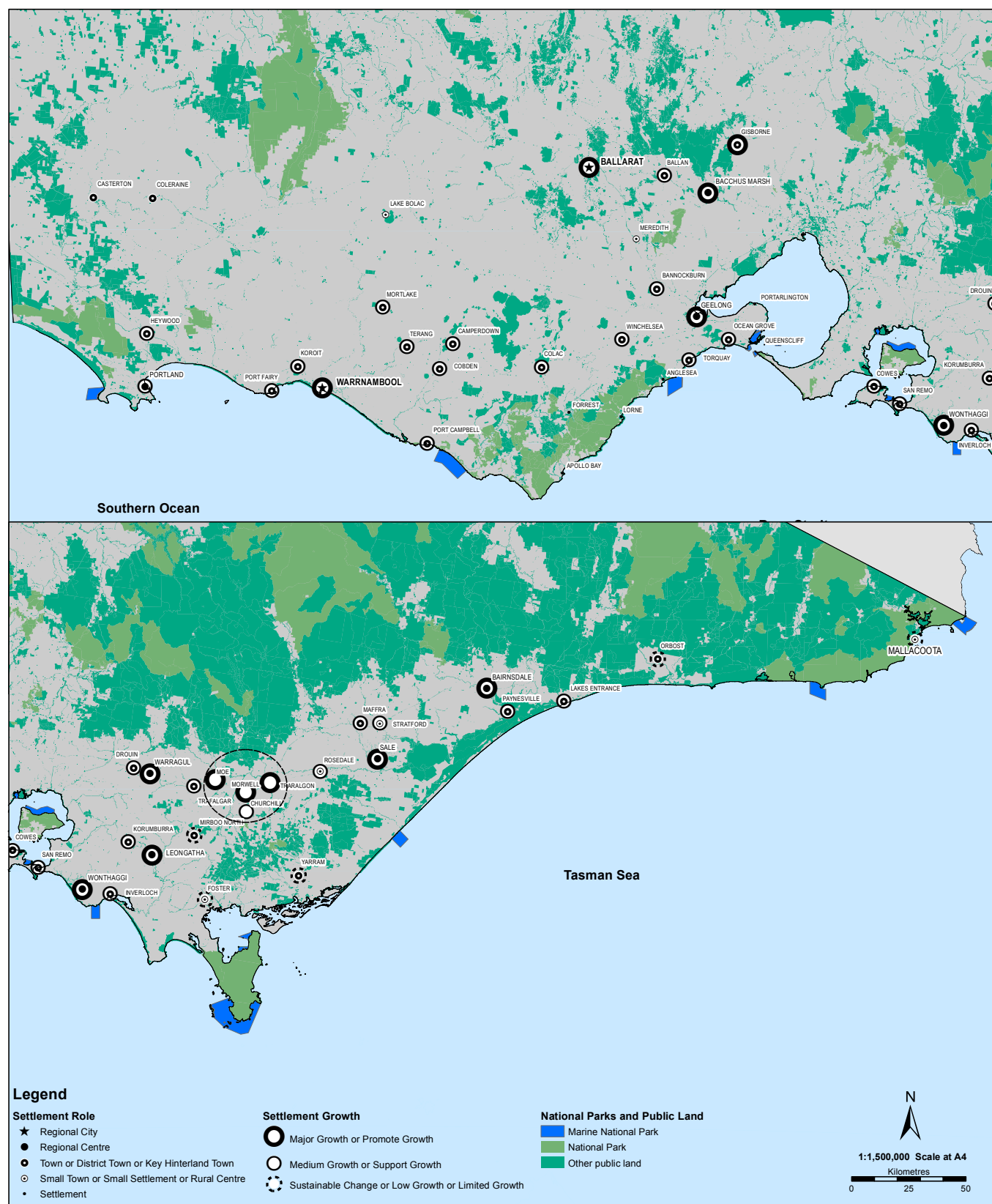
- Australian Government, Department of Climate Change, 2009. *Climate change risks to Australia's coast – a first pass national assessment*
- Australian Government, 2011. *State of the Environment 2011*, Independent report to the Australian Government Minister for Sustainability, Environment, Water, Population and Communities.
- Central Coastal Board, 2007. *Boating Coastal Action Plan*
- CSIRO, 2007. *Climate Change in Australia – Technical Report*. Australian Government, Canberra. [www.climatechangeinaustralia.gov.au](http://www.climatechangeinaustralia.gov.au)
- Department of Environment and Primary Industries, 2013. *Victorian Recreational Fishing Guide*
- Department of Primary Industries, 2012. *Aboriginal Fishing Strategy*
- Department of Primary Industries, 2010. Victoria's Petroleum Industry: An overview <http://www.dpi.vic.gov.au/earth-resources/oil-gas/victorias-petroleum-industry-an-overview>. Viewed on 22 July 2013.
- Department of Primary Industries, 2008. *Victorian Climate Change Strategy for Fisheries and Aquaculture 2008–2018*
- Department of Sustainability and Environment, 2009. *Victorian Coastal Acid Sulfate Soils Strategy*
- Department of Sustainability and Environment, 2010. *Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils*
- Department of Sustainability and Environment, 2010. *Improving Equity of Access to Crown Land Caravan and Camping Parks*
- Department of Sustainability and Environment, 2011. *Understanding sea level rise and climate change*
- Department of Sustainability and Environment, 2011. *Victorian Coastal Hazard Guide*
- Department of Sustainability and Environment, 2011. *Coastcare Victoria Strategy 2011–2015*
- Department of Sustainability and Environment, 2012. *Cleaner Yarra River and Port Phillip Bay Plan of Action*
- Department of Sustainability and Environment, 2012. *Draft Victorian Waterway Management Strategy*
- Department of Sustainability and Environment, 2012. *Environmental Partnerships*
- Department of Sustainability and Environment, 2013. *Victorian Climate Change Adaptation Plan*
- Department of Sustainability and Environment, 2013. *Tourism Investment Opportunities of Significance in National Parks Guidelines 2013*
- Department of Transport, Planning and Local Infrastructure, 2013. *Population and Settlement along the Victorian coast*
- Ernst and Young, 2009. *Economic Study of Recreational Fishing in Victoria*
- Ford, J. and Gilmour, P., 2013. *The state of recreational fishing in Victoria: a review of ecological sustainability management options*, a report to the Victorian National Parks Association, Melbourne
- Gippsland Coastal Board, 2012. *Draft Gippsland Coastal Action Plan*
- Hunter, J., 2013. *Derivation of Victorian Sea Level Planning Allowances*
- IPCC, 2007. *Intergovernmental Panel on Climate Change Fourth Assessment Report. Summary for Policy Makers*
- IPSOS-Eureka Social Research Institute, 2012. *Coastal and Marine Environment Community Attitudes & Behaviour (Wave Four) Report*
- Millennium Ecosystem Assessment, 2005. *Ecosystems and Human Well-Being: Synthesis*. Island Press, Washington, DC.
- Victorian Coastal Council, 1998. *Siting Design Guidelines for Structures on the Victorian Coast* available at [www.vcc.vic.gov.au](http://www.vcc.vic.gov.au)
- Victorian Coastal Council, 1998. *Good Design on the Coast* available at [www.vcc.vic.gov.au](http://www.vcc.vic.gov.au)
- Victorian Government, 2012. *Victorian Emergency Management Reform White Paper*
- Western Coastal Board, 2010. *Western Victorian Coastal Boating Action Plan*
- Worley Parsons, 2013. *Assessing the Value of Coast Resources in Victoria*



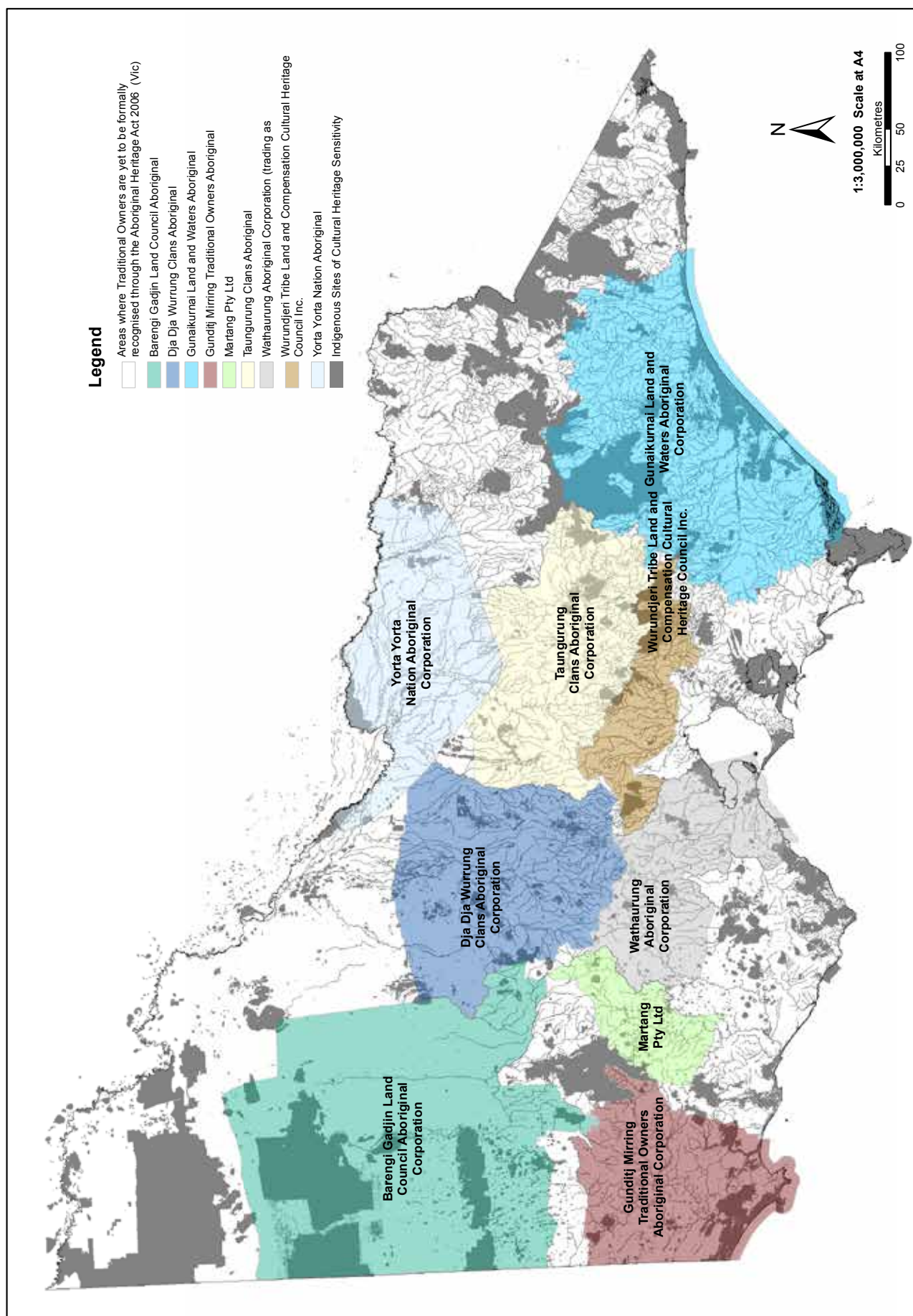
## MAPS

**MAP 1** COASTAL SETTLEMENT FRAMEWORK – WEST & EAST VICTORIA

Note: The Coastal Settlement Framework will be confirmed in the final Regional Growth Plans.

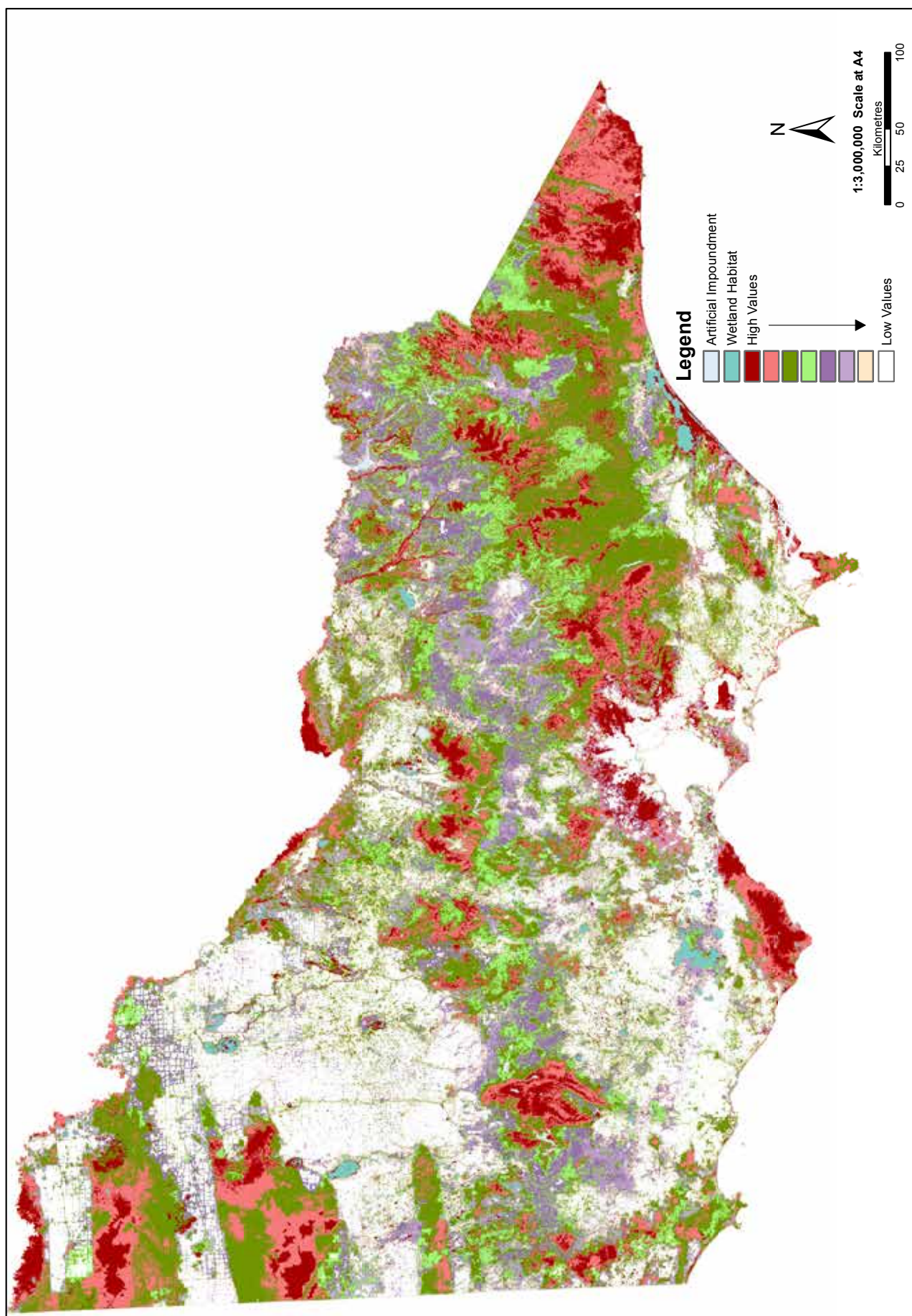


# MAP 2 ABORIGINAL CULTURAL HERITAGE AND TRADITIONAL OWNERSHIP



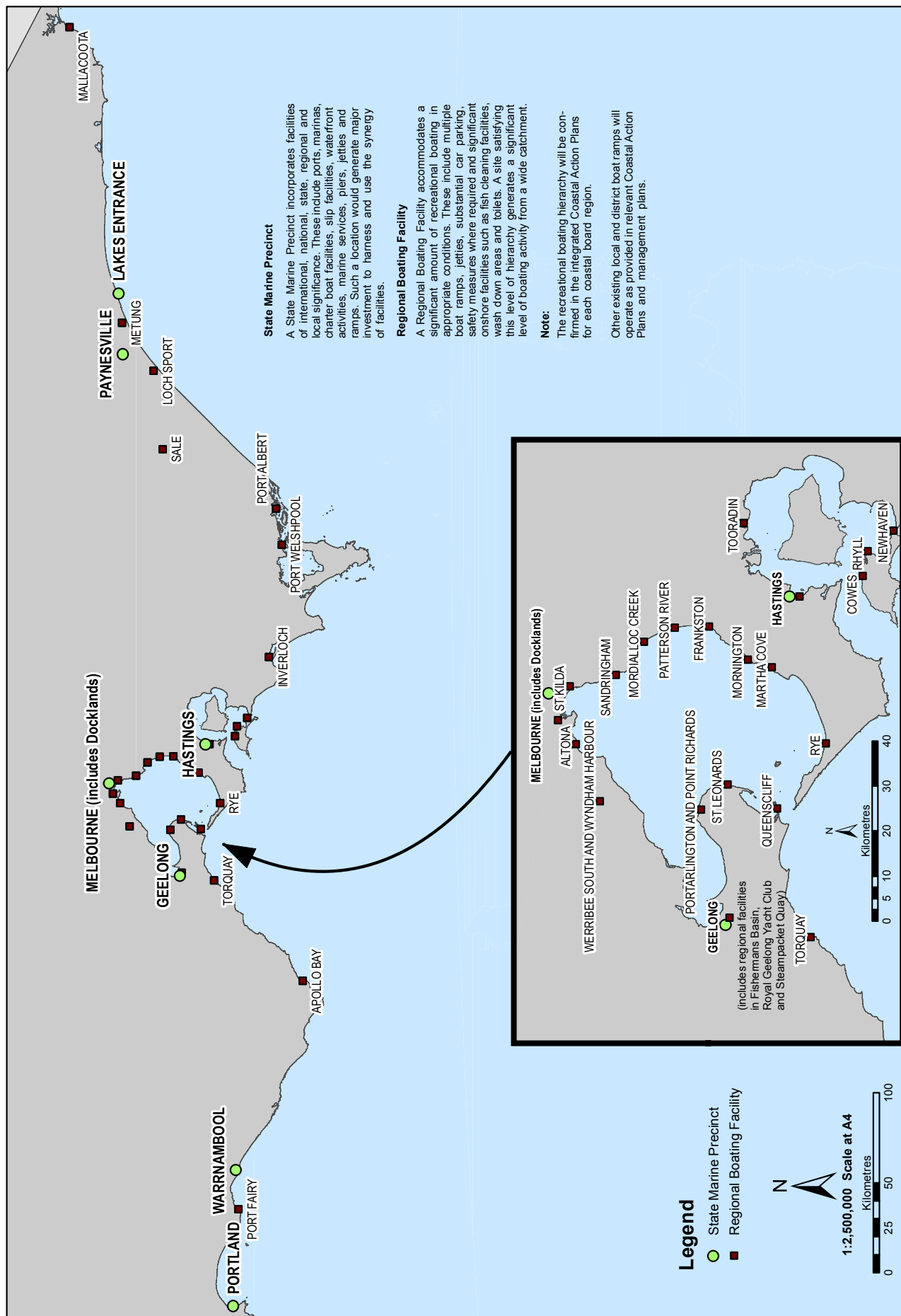


# **MAP 3** NATUREPRINT STRATEGIC NATURAL VALUES





# MAP 4 RECREATIONAL BOATING FACILITIES HIERARCHY 2030



**MAP 5** NATURAL COASTAL AND MARINE VALUES – WEST & EAST VICTORIA

