Foreword

Victorian's love their coast. We visit the coast every year, holiday at a favourite beach and in increasing numbers we are choosing to live near the coast. The very essence of who we are as Victorians is connected to the coastline. We value most the experience of a clean, healthy environment and a place where we can unwind and relax.

Many individuals and organisations have a role in caring for our coast and so no single department or agency manages the Victorian coast entirely. Therefore every action on the coast and in the marine environment must occur within a partnership approach. In fact, effective coastal planning and management is all about people working with people. Our quality of life depends on the health of our environments and this depends on effective collaboration.

In Victoria we are privileged that, in addition to the many passionate professionals who spend their working life managing the coast, hours upon hours of volunteer time contributes to both significant environmental outcomes and to building a sense of community. This important work is all about connecting people with place.

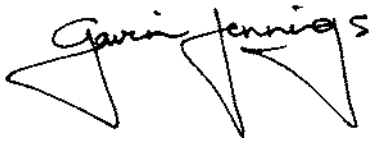
The Victorian Government and the Victorian Coastal Council in partnership with the Regional Coastal Boards, have provided for the strategic planning and management of the Victorian coast since 1995. This approach has provided a sustainable and resilient management arrangement and an effective platform for long-term statewide policy development and regional implementation.

The Victorian Coastal Strategy 2008, the third iteration of the Victorian Coastal Strategy, sets a long term vision for the coast and provides policies and actions to guide decisions about its management over the next five years. This Strategy responds to three key issues identified facing our coast:

- Climate change which will result in impacts on the coast, including rising sea levels;
- Rapid population growth in coastal areas; and,
- The health of our unique and valued marine environment.

We know Victorians love their coast and want it to be protected. The Victorian Coastal Strategy, 2008 is built on extensive community consultation and its implementation will involve governments, business and the many organisations, and community groups with a passionate interest in our coast.

We all have a stake in managing and protecting our coast. This Strategy sets the direction and provides the framework to ensure a positive future.



Gavin Jennings MLC
Minister for Environment, Climate Change
and Innovation

Libby Mears
Chair
Victorian Coastal Council

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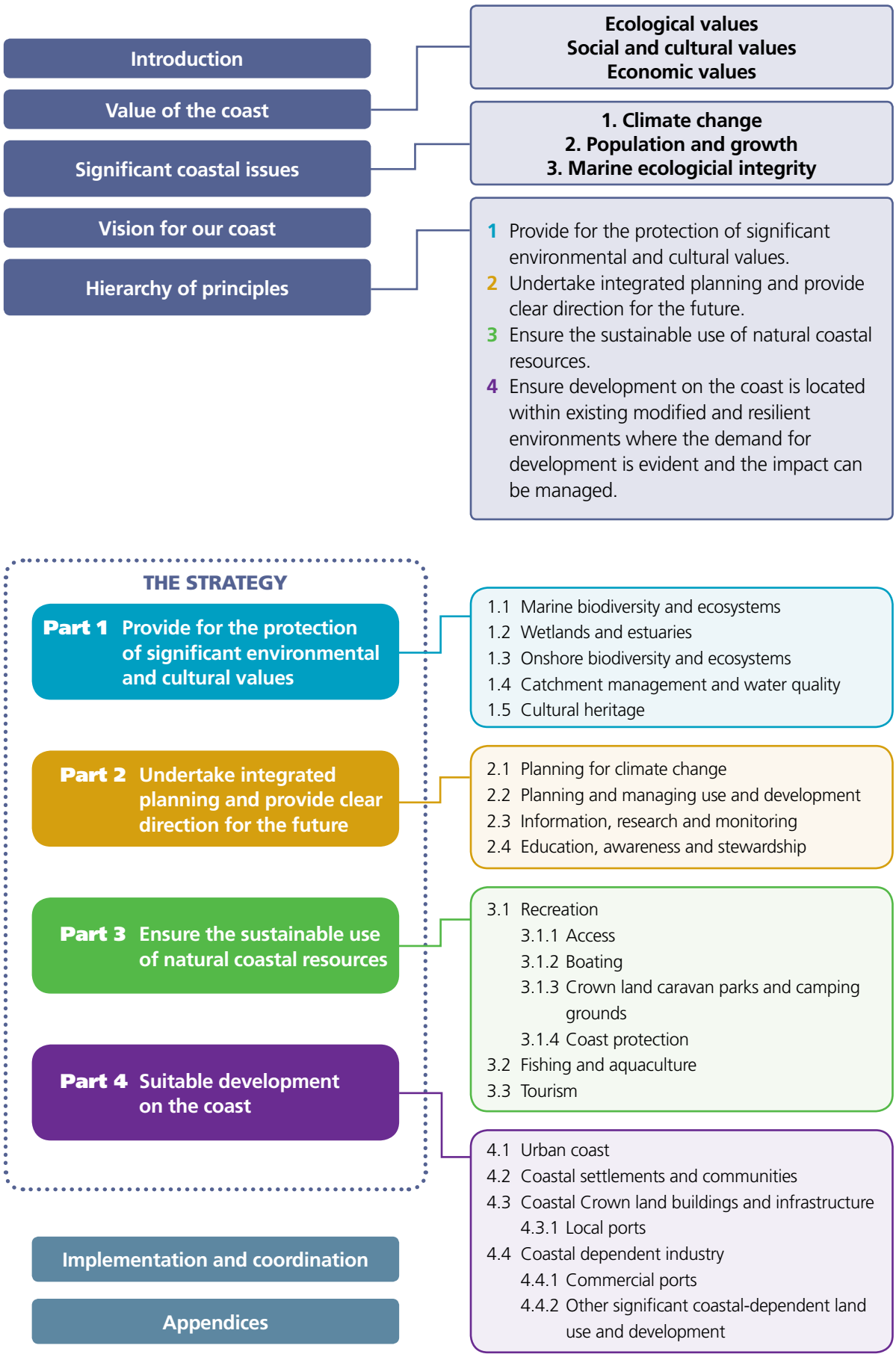


Figure 2: Structure and components of the Victorian Coastal Strategy 2008

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. (**DSE**, CMA, PV, CoM).

Listed agencies include all their divisions and delegation, and a specific division may be included in brackets after the agency. 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.

AAV	**Aboriginal Affairs Victoria**
CES	**Commissioner for Environmental Sustainability**
CMA	**Catchment Management Authorities** This refers to all or one of the five catchment management authorities that border the coast.
CoM	**Committees of Management** This refers to bodies delegated under the *Crown Land (Reserves) Act* 1978 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.
DIIRD	**Department of Innovation, Industry and Regional Development**
DPC	**Department of Premier and Cabinet**
DPCD	**Department of Planning and Community Development**
DPI	**Department of Primary Industries**
DSE	**Department of Sustainability and Environment**
EPA	**Environment Protection Authority**
ESTA	**Emergency Services Telecommunications Authority**
HV	**Heritage Victoria**
LG	**Local government** 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.
LPA	**Local Port Authority**
MSV	**Marine Safety Victoria**
MW	**Melbourne Water** 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.
OVGA	**Office of the Victorian Government Architect**
PV	**Parks Victoria** 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.
RCB	**Regional Coastal Boards** Includes the Western Coastal Board (WCB), Central Coastal Board (CCB) and Gippsland Coastal Board (GCB).
TV	**Tourism Victoria**
VCC	**Victorian Coastal Council**
VWA	**Victorian Water authorities** This refers to all or some of the water authorities whose area of responsibility borders the coast.

Purpose of the Victorian Coastal Strategy

The Victorian Coastal Strategy 2008 provides a comprehensive integrated management framework for the coast of Victoria. It is established under the *Coastal Management Act* 1995. The Act directs the Victorian Coastal Strategy to provide for long-term planning of the Victorian coast for the next 100 years and beyond.

The purpose of the strategy is to provide:

1. a vision for the planning, management and use of coastal, estuarine and marine environments
2. the government's policy commitment for coastal, estuarine and marine environments
3. a framework for the development and implementation of other specific strategies and plans such as Coastal Action Plans, management plans and planning schemes
4. a guide for exercising discretion by decision-makers, where appropriate.

Structure

A hierarchy of principles sets the foundation of the strategy. The hierarchy of principles provides the basis for a series of policies and actions to guide planning, management and decision-making on coastal private and Crown land, as well as in coastal catchments, estuarine and marine waters.

The policies and actions apply to the next five years and focus on significant issues including climate change, population and growth and marine ecological integrity.

Figure 2 illustrates the structure and components of the Victorian Coastal Strategy 2008.

Scope

This strategy applies to all Victorian coastal waters (i.e. the sea and seabed to the state limit – three nautical miles or 5.5 kilometres off shore) and all private and coastal Crown land directly influenced by the sea or directly influencing the coastline. Those influences range from visual to drainage impacts, as illustrated in Figure 3.

Great Ocean Road from Teddy's Lookout I. WALTON

This strategy is a policy document intended for use by coastal, estuarine and marine planners, and managers. As the government's framework for the long-term stewardship of the Victorian coast, the application of this strategy relies on effective partnerships between stakeholders.

This strategy gives direction for planning and managing the impacts of activities on and in the:

- marine environment – includes the nearshore marine environment, the seabed and waters out to the state limit or 5.5 kilometres.
- foreshore – or coastal Crown land 200 metres from the high water mark
- coastal hinterland – on private and Crown land directly influenced by the sea or directly influencing the coastline and land within critical views of the foreshore and nearshore environment
- catchments – feeding rivers and drainage systems and including estuaries.

The strategy addresses all activities or processes that may impact on coastal and marine areas. References to 'the coast' include the coast, estuarine and marine environment.

Underpinning the strategy

This is the third Victorian Coastal Strategy. It has a vision and hierarchy of principles similar to the two previous strategies published in 1997 and 2002. This strategy highlights three significant issues: climate change, population and growth and marine ecological integrity. It presents polices and actions for the next five years to address these issues and other existing, emerging and future coastal issues.

The vision and core principles used in previous strategies – that the conservation of the coast is central to our economic and social needs – are as important to this strategy as they have been in the past.

Review, research and consultation

The development of this strategy has been informed by:

1. a comprehensive review of relevant documentation, in particular the Victorian coastal strategies published in 1997 and 2002
2. significant social and economic research, which is conducted every five years
3. substantial community and stakeholder feedback to the draft Victorian Coastal Strategy 2007, obtained through varied consultation methods.

Detailed analysis and review of all of this information was undertaken and underpins and supports this strategy.

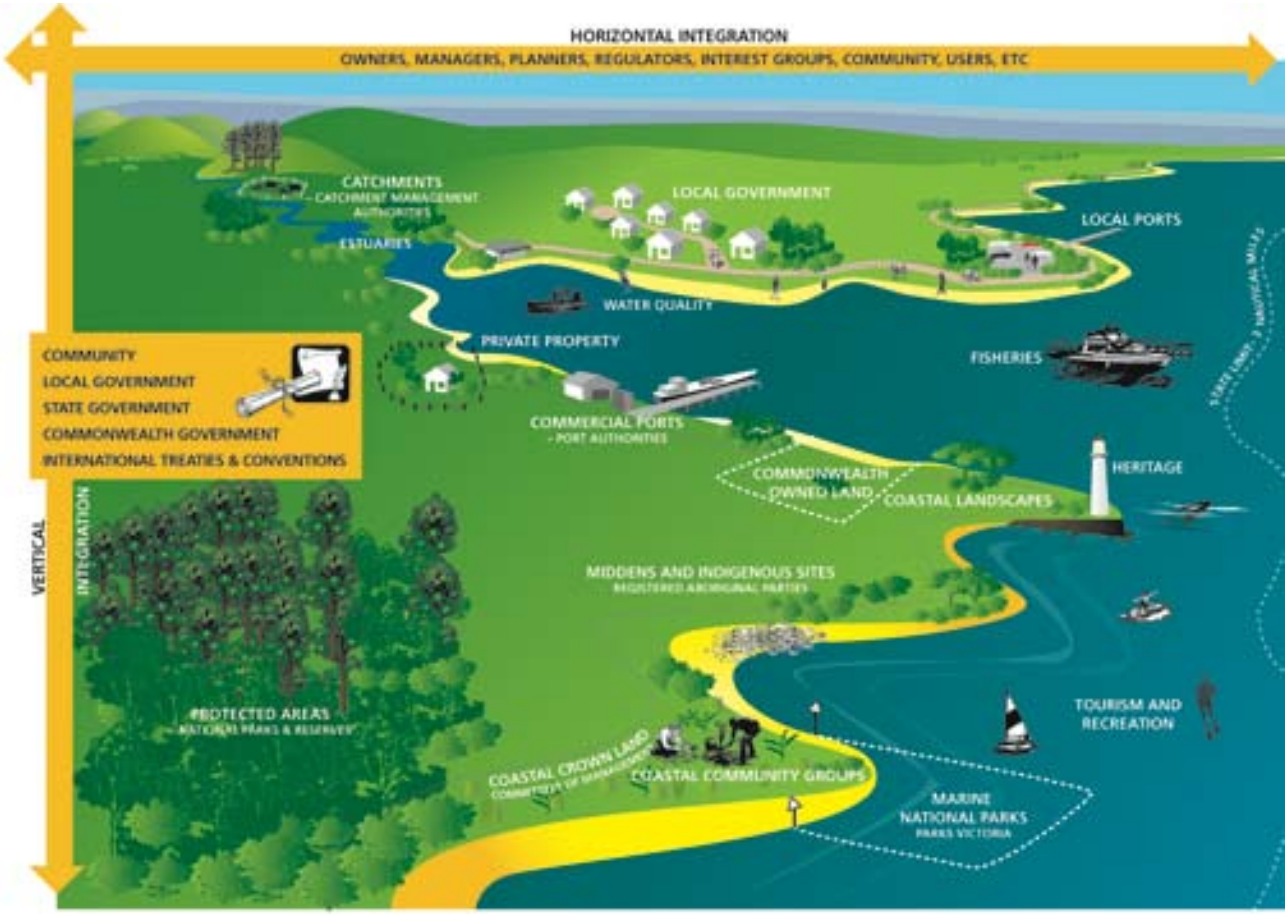


Figure 3: Integrated coastal zone management in Victoria

Bathing boxes – Brighton Beach. I. WALTON

Ecologically sustainable development

Also underpinning this strategy is the Victorian Coastal Council's commitment to ecologically sustainable development which is influenced through integrated coastal zone management, ecosystem-based management and adaptive management.

The key concepts are:

- **Ecologically sustainable development** (ESD) which incorporates caring for the environment, economic performance and social responsibility, often called the triple bottom line.
- **Integrated coastal zone management** (ICZM) which integrates coastal planning and management across the land and sea and the private and Crown land interfaces, refer Figure 3. It also integrates the activities of:
  - various government agencies, industry, non-government organisations and communities along the coastal zone (horizontal integration)
  - Commonwealth, state and local government and the community (vertical integration).

  The Australian Government's framework for a national cooperative approach to integrated coastal zone management (2006) outlines national priorities and sets the scene for an agreed approach on ICZM in each state.
- **Ecosystem-based management** (EBM) which protects and manages the environment, recognising that humans and human needs are an integral part of the system.
- **Adaptive management** which learns from the current management activities to inform and improve the next phase of management. It is systematic and means continuously improving our planning and management approaches.

Context

This strategy complements and relies on other related existing government policy about planning and managing land use and development on and near the coast, for example:

- *Coastal spaces*, 2006
- *Great Ocean Road regional strategy*, 2004
- Regional Catchment Strategies for the five adjacent coastal catchments
- *National cooperative approach to integrated coastal zone management*, 2006
- *Melbourne 2030: Planning for sustainable growth*, 2005
- *Planning for all of Melbourne, The Victorian Government response to the Melbourne 2030 Audit, 2008*
- *Victorian river health strategy*, 2002
- *Growing Victoria together: a vision for Victoria to 2010 and beyond*
- *Our environment our future*, 2006
- *Victorian biodiversity strategy*
- *Victoria's nature-based tourism strategy 2008–12*
- *Victoria's Heritage: Strengthening our communities*, 2006
- *State Environment Protection Policies (SEPPs)*.

This strategy will be most effective where it is referred to and implemented in regional and local plans, including:

- **Coastal Action Plans and management plans** which identify strategic directions and objectives to facilitate recreational use and tourism, and provide for the protection and enhancement of significant features of the region's coast. These plans are prepared under the *Coastal Management Act* 1995
- **planning schemes** which set out state and local policies and provisions for the use, development and protection of land. Planning schemes are prepared by the local council or the Minister for Planning under the *Planning and Environment Act* 1987
- **Regional Catchment Strategies** which outline the natural assets of the region, how they are interrelated, and what needs to be done to manage and use natural assets in a sustainable way. These strategies are prepared under the *Catchment and Land Protection Act* 1994.

Those involved along the coast

On the coast there are:

- owners
- communities, visitors and users
- planners
- managers
- agencies that regulate use and behaviour
- researchers
- private sector

Owners

Unlike many developed areas of the world, Victoria is blessed with a legacy of 96 per cent of its coastline in public ownership. In Victoria the Minister for Environment and Climate Change has responsibility for all coastal Crown land on behalf of all Victorians.

Communities, visitors and users

Victorians have a strong connection to the coast either through regular holidays, visiting or living near the coast. Victorians' love of the coast is an important factor in long-term coastal management and protection. Coastal communities and coastal-based groups have a crucial role in coastal planning and management by contributing their time, local knowledge, expertise and being part of the decision-making process.

Active communities create more robust coastal management outcomes and more connected coastal communities. Common activities include volunteering in local conservation groups and projects, being on Committees of Management, and being active in clubs and groups such as life saving, fishing, boating, water access and safety, education and training. Nearly 20,000 coastal volunteers in over 200 community groups care for our coast. Their contribution is recognised annually through the Victorian Coastal Awards for Excellence.

Aboriginal people and communities also have a key role in planning and managing coastal areas and making decisions about coastal resources. They participate in decision-making forums and native title-related negotiations, such as land use and cooperative management agreements. The recent native title determination for the Gunditjmara people in south-western Victoria will influence coastal planning and management in this area.

Aboriginal organisations may also be a Registered Aboriginal Party (RAP) under the *Aboriginal Heritage Act* 2006, with responsibilities for Aboriginal cultural heritage along the coast. Under this Act, a RAP has rights and responsibilities for certain land use, development and management activities that have implications for coastal planning and management.

Victorian Coastal Award winners 2008: these awards recognise the great work people, groups, businesses, schools, Governments and agencies undertake to protect and enhance Victoria's coast J. LEE

The planners

The large number of agencies with an interest in Victoria's coast is reflected in the number of authorities whose planning 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 significant role in considering and approving planning permits on coastal Crown land and private land and in the nearshore environment, under the planning scheme. Local government also has a key role in preparing and consulting on proposed changes to the planning scheme.

The managers

More than two thirds of Victoria's 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 through park management plans.

Most of the remaining coastal Crown land is reserved under the *Crown Land (Reserves) Act* 1978 for various public purposes, and is generally protected. Committees of Management appointed by the Minister usually manage these reserves. A committee can be composed of voluntary local community representatives, or be an agency, such as Parks Victoria or local government under the *Crown Land (Reserves) Act* 1978.

The Department of Sustainability and Environment manages small areas of 'unreserved' Crown land along the foreshore and most of the seabed. Private land abutting the coast is managed by the land owner or their agent.

The 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. They include 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 researchers

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

Private sector

Many businesses and industries are dependent on a coastal location and therefore influence and are influenced by the coast. It is important that the private sector plays a role in referring to and implementing this strategy. These businesses and industries support local, regional and state employment and broader economic activity. This strategy seeks to guide their contribution to improve environmental outcomes and community coastal infrastructure and services.

Margaret Mac Donald (far right) – Victorian Coastal Award winner for Lifetime Achievement, with other volunteers and a Parks Victoria ranger.

PHOTO COURTESY OF MARGARET MACDONALD

Value of the coast

A clear understanding of the value of the coast and the tensions between the various values and the use of coastal resources is fundamental. This understanding provides a clear rationale for further development of information and planning and management tools to inform decisions on the coast.

Ecological values

Victoria's coast supports a diverse range of ecosystems along its 2,000 kilometre length. The south coast of Australia is the only major south-facing coastline in the world and has been isolated for approximately 65 million years. This isolation has meant many species have evolved that only exist in south-eastern and southern Australian waters. Reef systems, seagrass beds, towering 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.

Offshore islands are significant havens for birds such as penguins, shearwaters, Australasian gannets and orange-bellied parrots. Australian fur seals are found in large colonies along the coast and on many of Victoria's islands.

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 for fish spawning or as nursery grounds.

Weedy Seadragon – Victoria's state marine emblem. A. NEWTON

Table 1: Examples of ecosystem goods and services

ECOSYSTEM GOODS AND SERVICES		
Provisioning Goods produced or provided by ecosystems: • Food • Fresh water • Fuel • Genetic resources • Fibre	**Regulating** Benefits obtained from the regulation of ecosystem processes: • Climate regulation • Flood regulation • Erosion regulation and shoreline stabilisation • Disease regulation • Water purification	**Cultural** Non-material benefits from ecosystems: • Recreational • Aesthetic • Educational • Inspirational • Spiritual
Supporting Services necessary for production of other ecosystem services: • Sand and soil formation • Primary production • Waste treatment and nutrient cycling • Water cycling		

Adapted from the *Millennium Ecosystem Assessment, Ecosystems and Human Well-Being: Synthesis* (World Resources Institute, 2005).

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. In the swales behind the dunes, woodlands commonly exist, with some small pockets of threatened coastal Moonah woodlands still surviving. In other parts, dry forests can be found down to the beach edge and coastal heath exists along cliffs and rocky coasts.

The coastal ecosystems provide numerous intangible values to the Victorian community by offering environmental goods and services that are essential for human well-being. Some of these goods and services include biodiversity, water purification, climate regulation, nutrient cycling and the stabilization of shorelines, which often protects built infrastructure. These in turn support the maintenance of life, the pursuit of a variety of lifestyles, and the ability to undertake a range of commercial activities within the coastal area.

Table 1 gives an overview of coastal ecosystems and the services they provide.

Social and cultural values

The coast provides significant social and cultural values for Victorians. The coast's natural aesthetics, heritage, and the diverse range of recreational pursuits it provides make it attractive and valuable for residents, visitors and tourists. In Victoria, the coast is largely accessible and provides for a wide range of experiences from the bustling city beach to smaller seaside settlements and the remote, untouched wilderness areas.

Coastal heritage values play an important role in creating our sense of place and defining who we are. Coastal heritage comprises many different layers of history and meaning, from areas of natural significance to past and present Aboriginal traditions. Coastal heritage encompasses places created by early and recent settlers; and includes customs, celebrations and special characteristics that build community pride and enhance social cohesion.

Over the past decade our desire to experience and enjoy the coast has grown significantly. Bernard Salt in his landmark book *The Big Shift: Welcome to the third Australian Culture* (2003) asserts that a new and powerful culture, the 'culture of the beach' has emerged. This new culture is challenging the two well-established and dominant cultures of the bush and the city. The numbers tell the story. Eighty-five per cent of the country's population lives within 50 kilometres of our coast and a quarter live within three kilometres. Almost six million Australians live in coastal areas outside capital cities. In Victoria between 1996 and 2006 the annual growth rate of Victoria's coastal areas was 1.4 per cent compared with the state average of 1.2 per cent, and approximately nine out of ten Victorians visit the coast every year (IPSOS, 2007).

Salt argues this sea-change movement is driven by a fundamental shift in Australians' values, particularly related to leisure, entertainment, lifestyle and retirement, and enabled by new financial arrangements such as superannuation. Most Victorians living close to the coast visit regularly, largely to escape from the daily pressures to a clean, healthy, natural environment. 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. Access to healthy natural environments is good for mental and physical health and wellbeing.

Economic values

Commercial activities on the coast rely on and are supported by the natural asset-base of the Victorian coast. Coastal-dependent industries such as fishing, aquaculture, tourism and recreational pursuits, ports, shipping, and oil and gas extraction make a significant contribution to local and regional economies and the Victorian economy as a whole.

A study by consultants URS in 2007, *Assessing the Value of the Coast to Victoria*, identified some of the commercial and intrinsic economic contributions the coast makes to Victoria's economy each year. These findings are outlined below in summary.

In 2003, total employment within the tourism industry in coastal areas, not including Melbourne, was 13,250 people – contributing $908 million to Victoria's economy. The coastal tourism industry is growing at a much higher rate than Victoria as a whole. There has been an 18 per cent increase in tourism employment in coastal regions between 1997 and 2003, compared to nine per cent for the whole of Victoria (URS, 2007).

Commercial ports, shipping, commercial fishing, aquaculture and some renewable energy industries also rely directly on coastal assets. Together with coastal tourism, these industries contribute over $2.8 billion a year to the Victorian economy. If the petroleum industry is included, the total value is over $5.8 billion, and although most of the industry's raw resources are outside state waters, much of the handling, processing and refining operations are within the coastal area (URS, 2007).

The value of informal recreation such as walking, recreational fishing, sailing, and sightseeing has been estimated at more than $1.9 billion (URS, 2007). This shows how significant coastal ecosystem services are, and how protecting natural coastal ecosystems is crucial for their inherent value and their contribution to Victoria's economy.

'Getting away from it all' – Croajingolong National Park. CA/CC SNAPSHOTS

St Kilda Pier. IAN WALTON

Significant coastal issues

The Victorian Coastal Council has identified three significant issues facing our coast that require our specific attention. They are:

1 Climate change

2 Population and growth

3 Marine ecological integrity

Storm over the Ninety Mile Beach, Gippsland (background) – CA/CC SNAPSHOTS; **Storm waves breaking over the sea wall in Geelong –** GEELONG ADVERTISER**; Western Port –** DSE PUBLIC ASSETS; **Pot-bellied seahorse –** M. NORMAN – MUSEUM VICTORIA

Climate change

The flooded streets of Lakes Entrance during the floods of July 2007 P. WHEELER

Over the medium to long term, climate change poses real and serious threats to our coast. During this century, it is likely the Victorian coastline will be impacted by sea level rise and increased frequency and severity of storm events leading to inundation and erosion. It is also predicted that higher temperatures will increase bushfire risk along the coast, and increased sea temperatures, changing sea currents and further acidification of the ocean will affect the marine environment.

The Intergovernmental Panel on Climate Change (IPCC) is the authoritative international scientific advisory body on human-induced climate change science. In the Fourth Assessment Report, (November 2007) the IPCC projected sea level rise of between 0.18–0.59 metres by 2090–2099 using a hierarchy of models plus additional ice sheet melt of 0.1–0.2 metres. However, the upper values of sea level rise (e.g. 0.59 metres) projected by the models were not considered to be upper bounds of possible sea level rise by 2099 (refer figure 4).

While there is uncertainty about the quantum of the sea level rise, the data provided in the IPCC report shows the sea level is rising and will continue to rise in the 21st century and in all likelihood beyond.

Recent observations (refer figure 5) show the observed sea levels from tide gauges and satellites are tracking near the upper bound of the IPCC 2001 projections since the start of the projections in 1990 (Rahmstorf *et al*. 2007)

On the basis of the IPCC report and until national benchmarks for coastal vulnerability are established, a policy of planning for sea level rise of not less than 0.8 metres by 2100 should be implemented. This policy should be generally applied for planning and risk management purposes. As new scientific data becomes available, the policy will be refined.

It is the combined effects of sea level rise, the impact of tides, storm surges, wave processes and local conditions such as topography, elevation and geology that will produce climate change impacts and risks in coastal areas. Figure 6 shows the impact of tides, storm surge and wave processes on sea level.

In this context, it is useful to recognise that sea level rise will create a spectrum of risk, with the highest likelihood of impacts in the lowest lying areas.

Managing and adapting to these impacts and risks will pose challenges in the short, medium and long-term, depending on the events that arise and the life of the buildings and infrastructure and other assets.

There are three adaptation options, protect, accommodate or retreat. Adaptation strategies should be precautionary, that is, planning for likely future circumstances even if full scientific certainty is not possible.

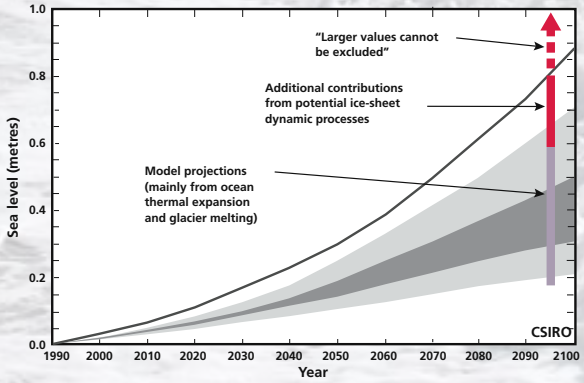


Figure 4: Projected sea level rise for the 21st century:
The projected range of global averaged sea-level rise from the IPCC 2001 Assessment Report (Church *et al*. 2001) for the period 1990 to 2100 is shown by the lines and shading. The central dark shading is an average of models for the range of *Special Report on Emission Scenarios* (SRES) greenhouse gas emission scenarios. The light shading is the range for all models and all SRES scenarios and the outer bold lines include an allowance for land-ice uncertainty.

The updated AR4 IPCC projections of 2007 for the SRES scenarios (Meehl et al. 2007) are shown by the bars plotted at 2095. The magenta (lighter) bar is the range of model projections (90% confidence limits). Ocean thermal expansion and melting of glaciers and ice caps are the largest contribution to this range. The red bar is a potential but poorly quantified additional contribution from a dynamic response of the Greenland and Antarctic ice sheets to global warming. Note that the IPCC AR4 states that "larger values cannot be excluded, but understanding of these effects is too limited to assess their likelihood or provide a best estimate or an upper bound for sea-level rise".

Source: figure and caption: CSIRO 2008a

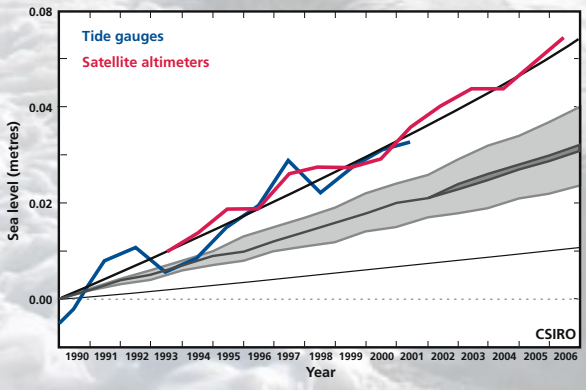


Figure 5: Observations versus projections:
Recent observations show the observed sea levels from tide gauges (blue) and satellites (red) are tracking near the upper bound (black line) of the IPCC 2001 projections (grey shading and black lines) since the start of the projections in 1990 (Rahmstorf *et al*. 2007). This upper limit leads to a global-averaged sea-level rise by 2100 of 88 cm compared to 1990 values. These observations do not necessarily indicate that sea level will continue to track this upper limit - it may diverge above or below this upper limit. However, the ice sheet uncertainties referred to above are essentially one-sided – i.e. they could lead to a significantly larger sea-level rise than current projections but are unlikely to lead to a significantly smaller rise. Note also that greenhouse gas emissions are now tracking just above the highest of the *Special Report on Emission Scenarios* (SRES) emissions scenarios used in calculating these projections (GCP_CarbonBudget 2007, Raupach *et al*. 2007; Canadell *et al*. 2007).

Source: figure and caption: CSIRO 2008b

Planning and management programs that can help vulnerable habitats to survive and improve the resilience of the coastal and marine environment are preferred. This means working with the scientific community to identify and encourage ongoing research and analysis to inform future planning and management.

The potential climate change impacts for coastal areas are summarised in Table 2.

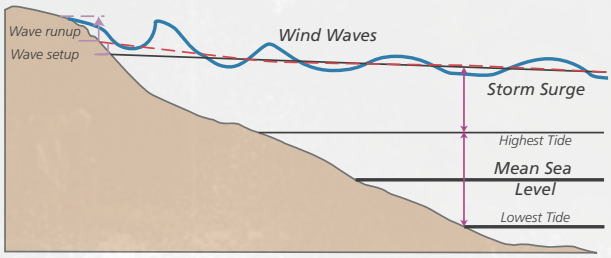


Figure 6: Impacts of tides, storm surge and wave processes on sea level. CSIRO (2008)

Table 2: Potential climate change impacts and implications for coastal areas

Potential climate change effects	Impacts for coastal communities
Sea level rise Coastal erosion	• Loss of beaches • Loss of Crown land • Migration of sand dunes • Infrastructure threat or damage • Adverse impact on lifestyle or amenity values • Loss of habitat and biodiversity loss • Declining tourism values (especially iconic beaches) • Rising water tables close to the coast • Loss of, or threat to private property • Insurance issues
Frequent storm events More intense storm events Decreased rainfall Flooding and inundation	• Damage to infrastructure (energy, water, roads, buildings, telecommunications, coastal ports, jetties, seawalls and access) • Damage to marine and shoreline ecosystems from storm water and agricultural runoff • Water shortages (during drought) and contamination (storm events, inundation, flooding, ground water salination or contamination) • Agricultural industry impacts – sudden weather events and long-term events (e.g. drought) • Tourism impacts (damage to tourism infrastructure, visitor perception of risk) • Recreation impacts • Public safety and evacuation capacity • Capacity of emergency services – volunteers, infrastructure (hospitals, shelters, supplies)
Warming sea temperatures Ocean acidification	• Threats to marine biodiversity (mangroves, saltmarshes, sea grass) • Damage to estuaries – biodiversity, tourism and economic values • Threat to fisheries and recreational fishing • Threats to port functions • Damage to reefs
Increased temperatures Increased humidity	• Increased bushfire frequency and intensity • Public health, especially aged community • Disease vectors (insects) • Food spoilage • Capacity of health services • Economic impacts of disease • Rural industry readjustments • Peak energy demand increases

Source: Adapted from Planning for climate change, National Sea Change Taskforce, 2008 – www.seachangetaskforce.org.au

The policies and actions outlined in this strategy will address the issue of climate change by:

1 Applying the policy of planning for sea level rise of not less than 0.8 metres by 2100.

2 Completing, as a matter of urgency, a coastal vulnerability study and incorporating the findings into relevant policy, planning and management frameworks.

3 Establishing a climate change scientific research and data system and ensuring planning and management frameworks and actions respond quickly to the best available current and emerging science.

Policies and actions related to climate change are located in sections: 1.1 pg 26 | 1.3 pg 29 | 1.5 pg 32 | 2.1 pg 36 | 2.4 pg 42 | 3.14 pg 49 | 3.2 pg 50 | 4.2 pg 59 | 4.3 pg 62 | 4.3.1 pg 64

Population and growth

Victoria has experienced unprecedented population growth along the coast. This rapid population growth combined with increasing levels of tourism in coastal areas is placing pressure on many of Victoria's coastal communities and coastal environments. Table 3 provides a summary of historical and projected population trends.

The movement to coastal areas outside capital cities has been labelled both the 'sea change phenomenon' and 'coastal suburbanisation', and is occurring Australia-wide, predominantly in settlements within a 1.5 hour drive of major cities and towns. Increasing affluence, access to technology and infrastructure, including improved transport links, have contributed to coastal growth. These factors combined have enabled greater mobility and choice when considering where to live and visit. Victorians' strong desire to be near the coast is also evident in the increasing levels of second home or holiday home ownership in many coastal settlements.

The sea change phenomenon brings many benefits including more vibrant and diverse local economies, improvements to infrastructure and increased levels of services. However the scale of pressure and intensity of impacts can create environmental, social and economic challenges. Our passion for the coast creates ongoing and increasing pressures on the very aesthetic, cultural and environmental values we love.

Coastal growth can lead to biodiversity and habitat loss, water degradation in coastal waters, wetlands, lakes and rivers, coastal habitat loss, damage to wetlands, the introduction of pest plants and animals, coastal erosion, destruction of coastal ecosystems, loss of cultural heritage, conversion of productive agricultural land and impacts on scenic coastal landscapes, views and vistas.

Socially, it can lead to pressures on the particular values and character of coastal areas and settlements – the very reason people choose to move to or visit a place. This pressure is particularly intense in coastal areas experiencing rapid growth and gentrification. It can also lead to community instability associated with a high turnover of residents. In settlements that experience high levels of tourism and high ratios of second home owners to permanent residents, these impacts can be more pronounced. Table 4 shows the vacancy rate for selected coastal settlements in 2006. Many of these are likely to be holiday homes used part time, seasonally or rented out for parts of the year.

Table 4: Unoccupied dwellings in coastal settlements 2006

Settlement	No. Unoccupied Dwellings 2006	Vacancy Rate
Venus Bay	1,174	81.75%
Lorne	1,167	72.85%
Loch Sport	1,075	72.83%
Golden Beach	377	71.27%
Seaspray	198	70.97%
Airey's Inlet	990	67.76%
Indented Head	557	66.23%
Cape Paterson	585	66.03%
Anglesea	1,804	65.41%
Flinders	414	64.39%
Phillip Island	5,812	64.38 %
St Leonards	1080	58.82%

Source : ABS Census 2006 customised tables

Table 3: Summary of historical and projected population trends

	Population			Actual Change 1996 – 2006		Projected Change 2006 – 2016	
Area	1996	2006	2016	NET	%	NET	%
Coastal Victoria	883,698	1,017,654	1,109,889	133,956	15.16%	92,235	9.06%
Coastal Share	19.38%	19.84%	19.91%	-	-	-	-
Victoria	4,560,149	5,128,300	5,574,755	568,151	12.46%	446,455	8.71%

Note: Coastal Victoria is defined by ABS Statistical Local Area's excluding Casey
Source: ABS Estimated Resident Population 1996 and 2006; Victoria in Future 2007

Coastal urbanisation directly impacts infrastructure such as water supply, waste management and disposal, roads, drainage and storm water management systems. It also has implications for the delivery of other services such as lifesaving and the development and implementation of emergency management for events, such as bushfire, storm surge, and flooding.

The populations of coastal towns vary greatly during the year because of seasons, festivals and major events. Figure 7 compares the growth in peak populations in some towns. Towns that experienced particularly high peaks in 2006 included Port Fairy, Lorne and most Great Ocean Road townships, Cowes, Inverloch, Venus Bay, Metung and Lake Tyers.

Figure 7: Peak population estimates for selected towns 2006

Sources: DSE Towns in Time data based on ABS Census 2006; AAA Tourist accommodation data 2007

NOTE: Peak population estimates take into account potential population should unoccupied dwellings and tourist accommodation be utilised. A count of unoccupied dwellings is provided by the ABS Census and this number has been multiplied by the average household size for regional Victoria in 2006 (2.59 persons). Tourist accommodation data has been obtained from AAA Tourism and the number of persons in tourist accommodation determined on the basis of either 2 persons per bedroom, or a person capacity where this was stated.

Map prepared by Spatial Analayis & Research Branch DPCD October 2007

The policies and actions outlined in this strategy will address the issue of population and growth by:

1 Planning and managing for coastal population growth and increased visitation so that impacts do not cause an unsustainable use of coastal resources.

2 Balancing growth and visitation with the need to respect the unique values and character of coastal areas and coastal settlements.

3 Strengthening community understanding and capacity to respond to future patterns of change, particularly those communities experiencing rapid change.

Policies and actions related to population and growth are located in sections: 2.1 pg 36 | 2.2 pg 39 | 4.1 pg 57 | 4.2 pg 59

Marine ecological integrity

Victoria shares a unique marine environment with the rest of southern Australia. Many species are found only here, and these marine ecosystems are as distinctly Australian as our terrestrial plants and animals. Victoria's marine biodiversity is unfortunately not widely understood and appreciated across our community, given that it is often out of sight under the sea surface, small and well-hidden.

Victoria's marine environment supports a wide range of highly valued uses including fishing, aquaculture, recreation, tourism and shipping. These uses depend on the sustained ecological integrity of our marine ecosystems, but can also place it at risk. The threats vary across the bays and open coast, but include exotic species, unsustainable harvesting of particular species, physical changes to habitats, seismic impacts, over-use, and input or resuspending of nutrients, toxins and sediment. These threats to marine biodiversity are also not well understood and can go unnoticed. In addition, the interactions among threats can be complex and difficult to predict.

There has been much progress in both scientific understanding of, and management approaches to, Victoria's marine environments. However, there is still a lot to learn and plan for continual improvement. Climate change is likely to pose new threats to our marine biodiversity, with possible effects including inundation and storm surges (in the nearshore), increases in seawater acidity, changes in catchment input patterns and changes in seawater temperature.

Marine parks and sanctuaries now protect 5.3 per cent of Victoria's coastal waters from a range of threats. The other 95 per cent also has significant biodiversity values and supports many uses. The large scale, multiple uses and complex inter-relationships of our marine environment require an integrated, ecosystem-based approach to management.

Informed by the best available science, we need to continue to manage threats in order to retain marine biodiversity while ensuring ecologically sustainable use of marine resources. At the same time, we must actively improve our marine management approaches and tools, and our scientific understanding.

Decorator crab CA/CC SNAPSHOTS

The policies and actions outlined in this strategy will address the issue of marine ecological integrity by:

1 Improving our understanding of marine ecosystems values through substantial research and monitoring programs.

2 Coordinating planning and management of the coastal catchments in response to the increased understanding of the values of marine ecosystems.

3 Managing the pressures from increased urbanisation and the intensification of agricultural and commercial development within coastal catchments which threaten the integrity of marine ecosystems.

Policies and actions related to marine ecological integrity are located in sections: 1.1 pg 26 | 1.2 pg 28 | 1.4 pg 31 | 2.3 pg 41 | 2.4 pg 42 | 3.2 pg 50

The vision for our coast

A biologically and culturally rich, diverse coastal, estuarine and marine environment that is managed for its protection, sustainable use and enjoyment today and for future generations.

Our connection with the coast

Today, as for thousands of years, we treasure the Victorian coast. We live and work in coastal communities or spend our leisure time there. We are fortunate so much of our coastline is quite intact and most of it is in public hands, making it available to all.

Most people have special memories of beach holidays with families and friends: swimming, surfing and playing, rock hopping, and bush adventuring. Each of us has a favourite place – it may be the endless beaches and fishing towns of East Gippsland, the peace and quiet of the Gippsland Lakes and Corner Inlet, the granite coast and wild bush of the Prom, or the holiday feel of Phillip Island and its rollicking penguins and seals.

Then there are the seagrass and bird habitats of Western Port, and Port Phillip Bay's extensive playground set amongst sandy beaches, heritage and maritime landscapes and shipping terminals. While the surf beaches and maritime history of the west coast and the magnificent Great Ocean Road can never be forgotten.

Many of us have looked with wonder at middens in the dunes and on cliff tops, imagining the gatherings Aboriginal people have shared around campfires for thousands of years.

There is a sense of remoteness and distance from daily clutter and noise, even around Port Phillip Bay at the end of a long day at work. We love the long views, the silence at night or the sound of waves against the beach.

The coast is a symbol for getting away from it all – by walking quietly in the bush and spotting wildlife, sitting on a headland and taking in a sunrise, sunset or a moonrise, fishing on a jetty, promenading on a pier, running along the beach, diving beneath the sea surface, sailing, sipping a coffee, reading the paper, watching the weather roll in or soaking in the sun and salty air.

What will our coast look like when we achieve our vision?

Our planning and management frameworks will be well-established and responsive to change to ensure that communities will keep their distinctive character and beach-side feel, even when they are developed. Structures on the coast and adjoining private land will be sensitively sited and designed, incorporating well-recognised principles of good design. We will be able to experience the wilderness of the coast between one town and the next. Metropolitan beaches will be clean, safe and remain an important place to socialise. They will be more intensively used, and will vary from the cosmopolitan to the truly relaxed.

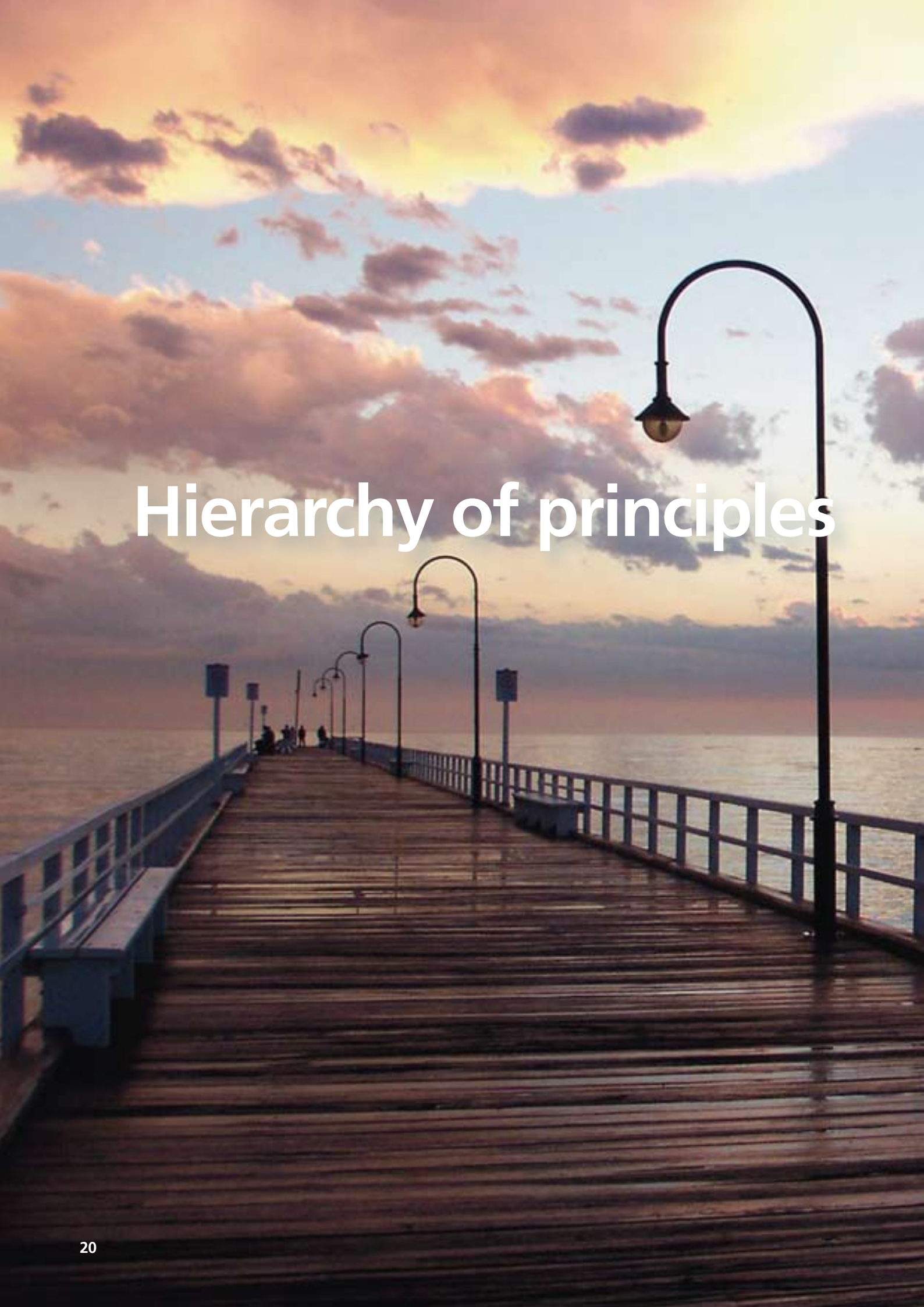
The water will always be clean. The sea will nourish an incredible diversity of fish, seagrasses, mammals, crustaceans and other plants and animals – and we will know so much more about them.

The shape of our coast will move and change as more and more storms buffet it due to our changing climate. Skilled coastal planners and managers will lessen the costs of damage to our coastal infrastructure, roads, drains and other facilities. Coastal plants and animals will gradually move further inland and some will be lost with the advancing sea. Private land owners will want to help protect plants and animals with their land, and volunteers, community groups and Aboriginal people will share a strong role in managing this change.

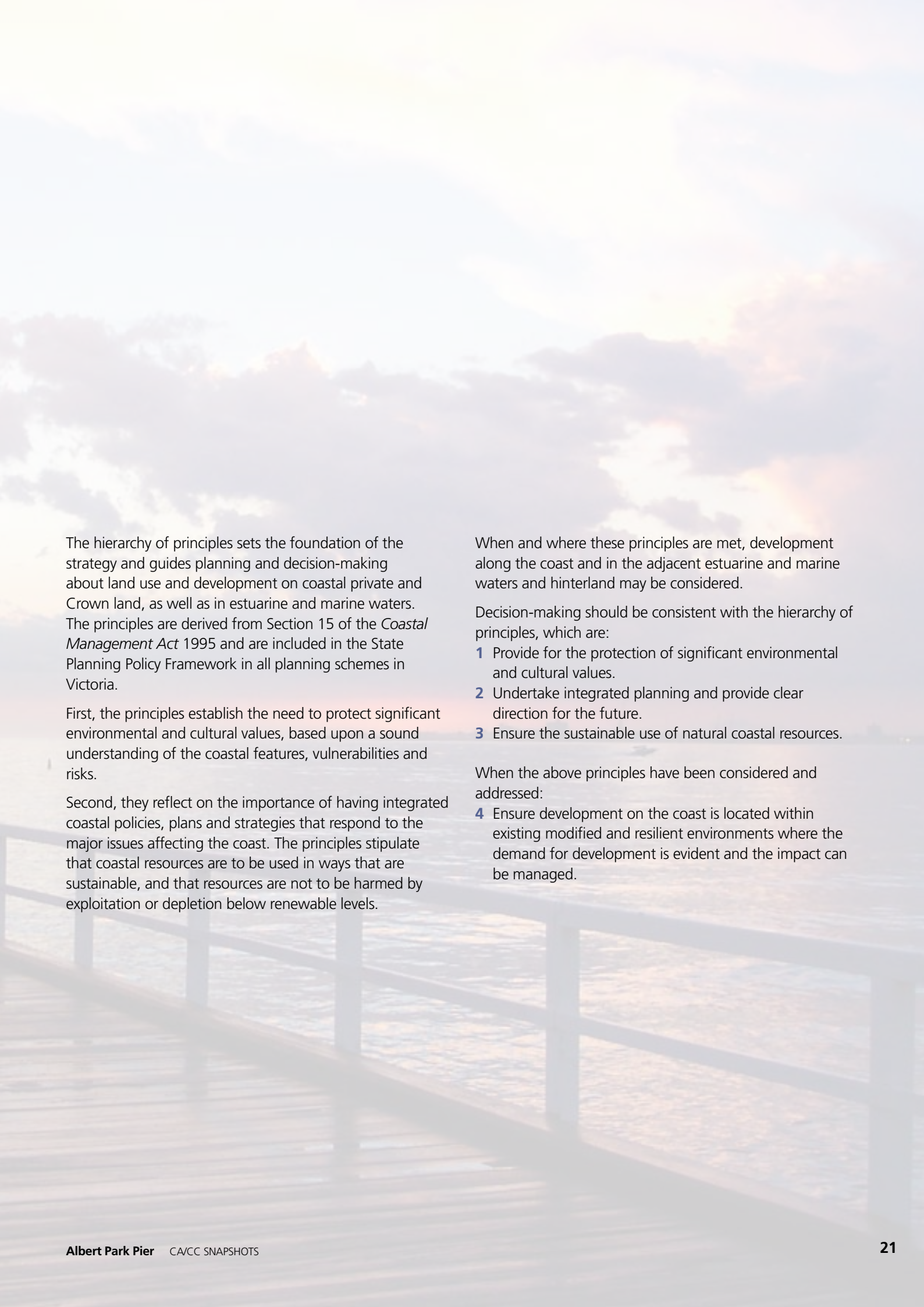
The coast will increasingly become an important economic hub. It will support an ever-growing population, provide quality tourism experiences, and have sustainable commercial fishing and aquaculture, host bustling ports and shipping terminals and support well-located renewable energy facilities.

This third Victorian Coastal Strategy represents our generation's determination to continue to look after and protect our coast and sustain its environmental, social and economic integrity.

London Bridge Beach, Mornington Peninsula National Park. VCC



Hierarchy of principles



The hierarchy of principles sets the foundation of the strategy and guides planning and decision-making about land use and development on coastal private and Crown land, as well as in estuarine and marine waters. The principles are derived from Section 15 of the *Coastal Management Act* 1995 and are included in the State Planning Policy Framework in all planning schemes in Victoria.

First, the principles establish the need to protect significant environmental and cultural values, based upon a sound understanding of the coastal features, vulnerabilities and risks.

Second, they reflect on the importance of having integrated coastal policies, plans and strategies that respond to the major issues affecting the coast. The principles stipulate that coastal resources are to be used in ways that are sustainable, and that resources are not to be harmed by exploitation or depletion below renewable levels.

When and where these principles are met, development along the coast and in the adjacent estuarine and marine waters and hinterland may be considered.

Decision-making should be consistent with the hierarchy of principles, which are:

1. Provide for the protection of significant environmental and cultural values.
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 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.

Hierarchy of Principles for coastal, estuarine and

1 Provide for the protection of significant environmental and cultural values.

This principle is about identifying then protecting, conserving, improving and restoring biological, ecological, physical and cultural integrity and diversity.

This principle seeks to:

- protect, improve and restore coastal, estuarine and marine features of scientific (i.e. biological, ecological, geological and geomorphological) significance
- identify and protect threatened species and their habitats
- avoid interfering with the natural processes that shape the coast
- retain largely inaccessible parts of the coast to preserve their significant biodiversity and ecological integrity
- conserve sites and landscapes of cultural, scientific, and historical significance
- identify, protect and manage Aboriginal cultural heritage in partnership with Aboriginal communities.

2 Undertake integrated planning and provide clear direction for the future.

This principle is about providing clear direction and resources for the protection, management, development and use of the coastal, estuarine and marine environment in a way that is environmentally sustainable.

This principle seeks to:

- ensure integrated coastal zone planning and management (ICZM) takes into account the environmental, social and economic implications of decisions
- ensure that the value of coastal resources are identified and the impacts of any proposed use or development on those values are understood and considered before decisions are made
- provide clear policy in relation to coastal, estuarine and marine planning and management that can be effectively implemented at the regional and local level through Coastal Action Plans, management plans, regional catchment strategies, planning schemes and governance arrangements allowing community input and scrutiny
- ensure policies and plans are consistent with the Victorian Coastal Strategy and other state and regional policies such as Coastal spaces (2006), Great Ocean Road strategy (2003), Coastal Action Plans and management plans
- understand and plan for the environmental, social and economic impacts and risks associated with climate change, coastal erosion, coastal inundation and degradation of estuaries and catchment impacts
- ensure the best available science, adequate resources and guidance regarding climate change impacts and adaptation options is available to coastal planners and managers so that they can make informed decisions
- investigate adaptation options such as protect, accommodate and retreat
- require a long-term view when making decisions about coastal and marine environments which are perennial 'public good' assets
- consider cumulative implications of all decisions and impacts
- apply the precautionary principle to decision-making, particularly if threats of serious or irreversible environmental damage exist or are unknown.

3 Ensure the sustainable use of natural coastal resources.

This principle is about using the coastal, estuarine and marine environment in an ecologically sustainable way. Sustainable use of a natural resource means being able to use the resource in a way and at a rate that does not lead to damaging the environment or depleting the resource, thereby maintaining the resources potential to meet the needs and aspirations of present and future generations.

This principle seeks to:

- ensure an integrated analysis of economic, social, environmental and cultural heritage implications of decisions
- manage community use of foreshore land, buildings and other assets to return the greatest public benefit while protecting environmental and social values
- maintain access to coastal Crown land except when there is the need to protect high value resources, or for security or safety reasons
- manage Victoria's fisheries to ensure current and future fish stocks
- promote an ecologically sustainable and viable aquaculture industry
- ensure nature-based tourism and recreation opportunities are sustainable and sensitive to the natural environment and the unique coastal character and offer a high level of experiential learning.

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.

When the preceding principles have been considered and addressed, this principle aims to ensure that:

- urban development on the coast is directed to appropriate areas within existing settlements and activity centres
- development on coastal Crown land is coastal-dependent or closely related to coastal-dependent uses and is directed to activity nodes and recreation nodes
- impacts associated with the current or proposed use of coastal land are identified, addressed and managed.

This principle also aims to ensure that development on and adjacent to the coast is of high quality, is well-designed and sensitively sited.

Appropriate development is development that:

- is consistent with relevant coastal policies and plans
- responds to existing or preferred coastal character
- is functionally dependent upon a coastal location
- reverses or addresses coastal degradation and demonstrates net community benefit, taking into consideration long term environmental, social and economic impacts

This principle recognises that coastal Crown land is a limited resource and must be used sparingly and wisely.

This principle seeks to:

- direct development away from sensitive coastal areas and significant landscapes and manage it within existing settlements and activity centres, and within activity and recreation nodes
- ensure that development on and adjacent to the coast is appropriately designed, and sited
- enhance the community use, enjoyment and experience of the special coastal values
- preserve non-urban areas between settlements and their significant values
- ensure that development on coastal Crown land is functionally dependent upon a coastal location
- preserve coastal Crown land as a primarily natural asset
- encourage fewer better-used developments on coastal Crown land, through co-location and resource sharing
- ensure appropriate development of service infrastructure to enhance the economic and social wellbeing of the community.

PART 1

Provide for the protection of significant environmental and cultural values

Provide for the protection of significant environmental and cultural values

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This principle seeks to:

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- retain largely inaccessible parts of the coast to preserve their significant biodiversity and ecological integrity
- conserve sites and landscapes of cultural, scientific, and historical significance
- identify, protect and manage Aboriginal cultural heritage in partnership with Aboriginal communities.

Wilsons Promontory I. WALTON

PART 1

1.1 Marine biodiversity and ecosystems

Ornate Cowfish – Flinders Pier. J. FINN, MUSEUM VICTORIA

Context

Victoria shares a unique marine environment with the rest of southern Australia. Mosaics of different habitats in intertidal areas and under the sea – including rocky reefs, sand and mud, seagrass and algal beds – support many different types of marine plants and animals. These habitats are connected by flowing seawater that carries a range of marine plants and animals at various life-history stages. The diversity of marine life such as seaweeds, sea mosses, worms, crabs and shrimps in southern Australia is as great as that of any comparable part of the world.

Marine national parks and marine sanctuaries safeguard important marine habitats and species, significant natural features, cultural heritage and aesthetic values. Continued management of these areas is important. However we must also improve our focus on managing the rest of Victoria's marine environment. These waters have significant intrinsic biodiversity values, and also interact with the marine protected areas physically and ecologically. They support a variety of uses, including fishing, aquaculture, recreation, tourism and shipping, and deliver a range of ecosystem services which depend in many ways on their biodiversity.

Threats from unsustainable use

Many valued uses of the marine environment also threaten biodiversity, often through their effects on water quality. The threats vary along Victoria's coast, and can include input of nutrients, toxins, sediment, exotic species, physical changes to habitats and over use. Some threats stem from catchments or activities in local marine and estuarine areas, while others – such as marine pests – may be introduced by shipping and boating movements. While the importance of catchment-based threats to the bays is well-established, better understanding of their relative importance along Victoria's open coast would provide a clearer basis for refining catchment management priorities.

Managing these threats is complex but crucial to protecting biodiversity and at the same time supporting sustainable use of resources. Multiple uses can result in a range of threats occurring in an area, which can have inter-related effects.

Climate change

Marine threats are likely to include a range of climate change implications in the future. Effects of inundation and storm surges are likely to focus in nearshore, particularly intertidal areas. Increases to seawater acidity may not allow some marine animals to produce shells and skeletons, and may affect biodiversity and fisheries. Changes to rainfall patterns may affect how catchment-derived nutrients, sediments and toxins are delivered to marine environments. Changes in seawater temperature may alter ocean currents, and could affect distributions of marine animals and plants. These are significant challenges, especially for the fisheries industry. More specific predictions about the vulnerability of Victoria's marine environment to climate change threats, advised by better scientific understanding, will be critical for preparing for and adapting to inevitable risks and impacts. We will need a coordinated approach to consider impacts of large-scale issues, such as changes to ocean currents.

Building scientific understanding

We must continue to manage known threats to marine biodiversity, and the emerging threats associated with climate change, informed by the best available science. We need to build our understanding of how ecologically important marine communities vary naturally over time – and which ecological processes are responsible – so we can better predict their response to pressures arising from climate change, catchment activities and new developments.

Sometimes we can use the best international science to inform Victorian management, but often we must develop additional understanding of how global knowledge must be modified for the Australian context, or even down to the scale of local sections of Victoria's coast.

We also need to explore opportunities to strengthen coordination and information sharing. The Victorian Coastal Council's expert science panel is an important mechanism for providing independent advice about emerging scientific issues and information gaps relating to the coast.

Community involvement

Community support for, and contribution to, reducing threats to marine biodiversity is vital. The value of marine biodiversity is not necessarily well-appreciated by the wider community as it is generally out of sight under the sea surface. Engaging and enabling the community to work with government policy makers and marine scientists through education and good communication is essential.

Coordination

Coordinating marine management, planning and implementation is a priority to reduce conflicts in values, uses and approaches across government, industry sectors and community. Effective linkages between management frameworks for catchments, waterways, coastal and marine systems are crucial to effectively tackle cross-environment threats. As such, it is important to consider mechanisms to improve:

- leadership in marine management, planning and implementation
- collaboration between agencies and industry sectors
- integration in decision-making.

Addressing these issues will require adequate ongoing resources as well as effective, informed prioritisation of approaches and tools.

The approaches and tools we use need to reflect linkages between catchments and marine environments, but also capture the characteristics and complexities that are unique to marine ecosystems and their management.

Policy

1 Protect, maintain and where appropriate improve marine ecological integrity by:
   - reducing the impact of sea-based activities on marine ecological integrity, focussing where possible on preventing damage rather than attempting rehabilitation
   - preventing the introduction of high risk marine pests and providing emergency response to eradicate new infestations as required
   - minimising the need for dredging and ensuring that necessary dredging meets best practice
   - avoiding potential impacts on water quality and biodiversity from industrial and extractive uses
   - effectively responding to marine pollution incidents including oil spills
   - minimising threats to marine protected areas by addressing outcomes of ongoing monitoring and risk assessments
   - planning and managing use and development within coastal catchments which threaten the integrity of marine ecosystems.
2 Understand and where feasible prepare adaptation responses for marine environments for the key risks and impacts of climate change.
3 Access current and best available emerging marine science, and build scientific understanding through effective, targeted research and monitoring programs.
4 Continually improve marine planning and management frameworks and tools.

Actions

a Build the scientific understanding required to accurately predict the vulnerability of Victoria's marine ecosystems to climate change and identify options for marine ecosystems to prepare and adapt to climate change through national and Victorian approaches (**DSE**, DPI, EPA, VCC).

b Develop a marine biodiversity science and research strategy which informs Victoria's marine management. The strategy should consider funding options and opportunities and identify strategies to strengthen coordination with other relevant states. Improving strategic understanding of Western Port's ecological systems and threats should be a particular focus of this action (**DSE**, CCB, EPA, MW, PPWPCMA).

c Develop and implement a marine condition assessment framework and reporting approach that will inform monitoring approaches, supported by a scientific assessment of existing programs and future needs (**DSE**, EPA, DPI, PV, CMA).

d Improve Victoria's marine management, planning and institutional framework to address current and emerging challenges – such as climate change, marine parks and sanctuaries (comprehensiveness, adequacy and representation), and catchment-coast-sea integration – with the possible outcome of a marine strategy (**DSE**, DPI, EPA, PV).

e Develop a strategic framework to improve the prioritisation of management actions for marine assets such as biodiversity, fish habitats and key processes (**DSE**, DPI, PV, CMA).

f Update and improve Victoria's protocols for marine pest incursions, including a rapid response to new incursions, meeting obligations under a national system to prevent and manage marine pests), and supporting national best practice guidelines for managing biofouling across stakeholder groups (**DSE**, EPA, DPI, DOT)

Magnificent Ascidians – Beware Reef Marine Sanctuary FRIENDS OF BEWARE REEF

1.2 Wetlands and estuaries

Context

Wetlands are the interface between terrestrial and aquatic ecosystems. They are intrinsically different from terrestrial and aquatic ecosystems, but are highly dependent on and influenced by both terrestrial and aquatic ecosystems.

Wetlands are areas either temporarily or permanently covered by water, including swamps and saltmarshes. Some of the most important wetlands in Victoria are on the coast. This includes the five Ramsar sites – wetlands of international importance – and another 18 wetlands of national importance. Two UNESCO biosphere reserves also recognise the exceptional natural values of sections of the Victorian coast, the Mornington Peninsula and Western Port, and Croajingalong Biospheres.

Wetlands are sediment traps and filter nutrients from catchments, protecting rivers and marine areas from many potentially threatening processes. They protect our shores from wave action, and reduce the impacts of floods.

Estuaries connect rivers to the sea. In estuaries, salt water from the open sea mixes with freshwater draining from the land, creating unique and important ecosystems. Estuaries are important breeding and nursery grounds for aquatic fauna. They contain highly productive fisheries and are therefore crucial to fishing industries. There are 83 estuaries along the Victorian coast, including brackish rivers and streams, inlets, small bays and coastal barrier lagoons.

Victoria's coastal wetlands and estuaries are noted for their habitat diversity and high biological productivity. They support abundant wildlife, such as resident and migrant shorebirds, waterbirds, and fish, and unique wetland vegetation communities, such as saltmarsh, mangroves and reed beds.

In Victoria wetlands and estuaries are often surrounded by coastal settlements which expose them to intensive levels of recreation and use, illegal estuary mouth openings, changes in river flow regimes, run-off of catchment nutrients, possible pollution events such as oil spills, invasion by weeds or pests, and salinisation.

Wetlands and estuaries on private land are potentially exposed to further agricultural and development threats. Wetlands and estuaries are also particularly susceptible to climate change impacts, such as inundation from rising sea levels and storm surges, lower rainfall, increased temperatures and increased storm events.

Policy

1. Increase our understanding of onshore environments through research and monitoring programs to determine the impacts on wetlands and estuaries.
2. Protect and improve the ecological integrity of Ramsar sites, coastal wetlands and estuaries.
3. Ensure that rivers are ecologically healthy and replenish productive estuaries through the provision of adequate environmental flows.
4. Manage artificial estuary mouth openings in accordance with the Estuary Entrance Management Support System.

Actions

a Develop and implement an integrated river, wetland and estuary strategy, based on asset priorities and integrate the recommendations into relevant planning and management strategies (**DSE**, CMA, PV, DPI, CoM, VCC).

Mangroves and saltmarsh – Andersons Inlet P. WIERZBOWSKI

1.3 Onshore biodiversity and ecosystems

Context

Victoria's onshore coastal environments contain a wide range of habitats which support a diversity of flora and fauna and vary from small pockets to broad areas. Habitat such as beaches, large dune systems, woodlands, windswept cliff tops, heathlands and dry forests are home to a variety of native mammals, birds, reptiles and amphibians.

A key challenge is to maintain healthy and diverse coastal ecosystems particularly in areas where the coast is in high demand. Coastal habitats in these locations tend to gradually fragment or are lost as development occurs over time.

Introduced animals, such as cats and foxes, and environmental weeds cause gradual decline in indigenous species. A number of species and communities are already threatened, including the orange-bellied parrot and coastal Moonah woodland. Managing these pressures is even more complex where coastal areas border privately-owned land.

The likely impacts of climate change will add further challenges and complexity to the ways in which we manage these threats. Climate change will have a range of serious impacts on onshore biodiversity and ecosystem health. Increased variability in weather patterns will put additional stress on many ecosystems and threaten ecological function, often in ways we cannot predict. It may also allow some pest species to increase their population and new or dormant pest plants and animals to emerge.

Connectivity is an important contributor to maintaining and improving the resilience of biodiversity to climate change. While the scale of the challenge we face is significant, climate change impacts may also create opportunities for positive land use change to support biodiversity migration and adaptation strategies.

In response to these challenges, the Victorian Government has committed to developing a Land and Biodiversity White Paper. Due for release in 2009, the White Paper will:

- set the direction for Victorian Government policy and investment priorities in natural resource management, land health and biodiversity for the next 20-50 years
- consider how environment and natural resource management activity at the regional, catchment, local and farm scale, and on public land, is contributing to Victoria's overall environmental health
- ensure Victorian Government policy and investment is responsive to new threats and opportunities.

Terns in flight

CA/CC SNAPSHOTS

Policy

1 Understand and address gaps in expertise of onshore environments through research and monitoring programs.
2 Protect and improve the ecological integrity of onshore coastal environments.
3 Control illegal access from private land and encroachment of private property and gardens onto coastal Crown land.
4 Ensure a well-managed, comprehensive and representative system of coastal parks and reserves.
5 Reduce the fragmentation of the natural coastal environment and improve the connectivity of habitat corridors across Crown land and private land and between coastal and inland vegetation.
6 Increase the estate of coastal Crown land through land swaps, donations and purchases.
7 Encourage land owners within coastal areas to revegetate and landscape using indigenous species of local provenance, and eradicate environmental weeds on their property.
8 Encourage the use, development or management of private land adjacent to coastal Crown land to support the long-term maintenance and conservation of the coast's natural values.
9 Restore, rehabilitate and nurture coastal biodiversity and vegetation under regionally and locally determined priorities.
10 Use appropriate planned burning regimes for asset protection and maintenance of ecological health.

Actions

a Review existing science and undertake new research to understand the vulnerability of onshore coastal habitats and species to climate change impacts, and prepare adaptation options and priorities (**DSE**, CMA, Universities, VCC).
b Develop a program to report on and monitor the condition of onshore coastal and estuarine habitat, including finer-scale mapping of ecological vegetation classes, at identified sites across the state (**DSE**, CMA, PV, CoM).
c Raise awareness of the impacts of vandalism of coastal vegetation and develop regional and/or local approaches to address the issue (**RCB**, CoM, PV, LG, DSE).
d Undertake accurate mapping of coastal property boundaries in areas known to be inaccurate and negatively impacting on coastal access, maintenance and protection (**DSE**, CoM, PV, LG).
e Work with adjacent private landholders to investigate mechanisms to address the maintenance and conservation of coastal Crown land values such as planning provisions, planning permit conditions, agreements, covenants, nature links, rate rebates etc. (**LG**, DSE, DPCD, CoM, PV).
f Develop a coastal tender program (similar to BushTender/BushBroker) that encourages landholders to protect existing habitat and absorb the movement of vulnerable habitats due to climate change from Crown land onto private property in identified priority areas (**DSE**, CMA).

Hooded plover adult and juvenile G. EHMKE –BIRDS AUSTRALIA

1.4 Catchment management and water quality

Hopkins River – Warrnambool CA/CC SNAPSHOTS

Context

A catchment is an area of land, bound by hills or mountains from which all runoff water flows to the same low point, which could be a lake, dam, river, creek, bay, wetland or estuary where it enters the sea. Catchments are connected from top to bottom, so what happens upstream in a catchment has a large influence further down the catchment. This is why it is important to manage a catchment as a whole, rather than in parts.

One of the greatest threats to marine environments is from land use and development in the catchment. Agricultural use and the progressive urbanisation of land and removal of vegetation leads to substantial changes in both the quality and quantity of water discharged from a catchment. Agricultural and urban runoff contains large amounts of accumulated pollutants, including nitrogen, phosphorus, suspended solids, organic particles and heavy metals.

Catchments also include stormwater and wastewater infrastructure which often terminate in the ocean or bays. The quality of water draining from these outfalls can have a detrimental impact on the health of estuarine and marine environments.

The State Environmental Protection Policy SEPP (Waters of Victoria) applies to all surface waters of Victoria and aims to provide a co-ordinated approach for the protection and, where necessary, rehabilitation of the health of Victoria's water environments. Specific schedules to SEPP (Waters of Victoria) deal with individual catchments and have more detailed requirements that apply within the catchments.

Better land management within catchments is essential for the survival of habitats and the flora and fauna that live within them. Each of the five catchments that border the Victorian coast has a Regional Catchment Strategy, prepared by a Catchment Management Authority. These strategies demonstrate the connections between land, water, and biodiversity with human and natural activities that occur there. Regional Catchment Strategies outline what needs to be done to plan, manage, conserve and use the natural assets in a sustainable and integrated way.

The Victorian River Health Strategy and regional river health strategies also contain actions to reduce impacts on downstream environments.

Policy

1. Improve integration and collaboration between catchment, coastal, and marine management and programs to reduce the impact of catchment-based land use and activity on the coast.
2. Reduce the impact of effluent and stormwater discharge on marine and estuarine environments by effective treatment and reuse, and water conservation approaches to minimise volumes.
3. Improve and upgrade all ocean outfalls and where possible achieve best practice environmental water management by relocating to a non-sea or ocean disposal area for recycling and re-use.
4. Complete and implement stormwater management plans, prioritising those actions which address source control and are consistent with water sensitive urban design principles.

Actions

- **a** Establish a marine, estuarine and coastal technical reference group to review regional catchment strategies, propose actions, develop and assess funding priorities and provide coastal, estuarine and marine expertise to catchment management authorities, as required **(CMA)**.
- **b** Consolidate and integrate frameworks and programs to address land based sources of marine pollution to the bays, Gippsland Lakes, and other priority areas (**CMA**, RCB, EPA, LG).
- **c** Establish and coordinate a working group of relevant agencies to assess water quality impacts by septic tanks in non-sewered areas in coastal communities (**VCC**, EPA, LG, VWA).
- **d** Promote the need for major land use and operational changes in farming practices to reduce the impact of catchment discharges that impact on the health of marine ecosystems (**CMA**, DPI, DSE, LG).

1.5 Cultural values and heritage

1.5.1 Aboriginal Heritage

Context

The Victorian coast is very significant to Aboriginal people. Thousands of Aboriginal cultural heritage places are recorded along the coast and we continue to find more. Figure 10, page 85, identifies the known Aboriginal cultural heritage places in Victoria.

Lack of general awareness of the significance of Aboriginal cultural heritage to Aboriginal people, and the important relationship between Aboriginal people and the coast and sea country affects the preservation of Aboriginal cultural identity. When Aboriginal people talk about country they include the ocean, their sea country that provides so many resources they still depend upon for their wellbeing, and the submerged lands that bear the footprints of their ancestors.

The Victorian *Aboriginal Heritage Act* 2006 recognises Aboriginal people as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage. Aboriginal cultural heritage management, native title claims and determinations need to be factored in to all decisions affecting the planning and management of the Victorian coast.

Aboriginal midden in cliffs near Anglesea VCC

1.5.2 Non-Aboriginal heritage

Context

Heritage buildings and places – ranging from coastal ports and settlements to shipwrecks, landscapes and buildings – influence the character of Victoria's coast. They demonstrate our historic links to the coast and the sea. Tourism in many places, such as Queenscliff and Port Fairy, is dependent on this maritime history where heritage places are one of the main attractions. They enhance our understanding of the past, aid social cohesion and help communities build strong futures. The Victorian Heritage Strategy recognises that places of cultural significance range from past and present Aboriginal traditions to places created by early and recent settlers.

Wreck Beach L. MURRELL

Policy

1 Identify and protect Aboriginal cultural heritage along the coast, which may include restricting access to certain areas.
2 Recognise Aboriginal people as the primary guardians, keepers and knowledge-holders of Aboriginal cultural heritage.
3 Identify, assess, document and protect cultural landscapes, heritage places, archaeological sites and historic shipwrecks on the coast and underwater and on coastal Crown and private land and include them on asset and heritage registers and within local planning schemes.
4 Encourage appropriate re-use of heritage places for community uses and coastal tourism.
5 Ensure that climate change strategies consider Aboriginal and non-Aboriginal cultural heritage.

Actions

a Review Coastal Action Plans and management plans in consultation with Traditional Owners, Registered Aboriginal Parties and applicants, to respond to the implications of native title claims and the *Aboriginal Heritage Act* 2006 along the coast (**RCB/CoM** & **PV**, DPCD, DSE).
b Work with Aboriginal communities, through Traditional Owners, Registered Aboriginal Parties or applicants, to integrate traditional knowledge into coastal planning and management (**CoM** & **PV**, DPCD, LG).
c Provide land managers and planners with access to heritage programs delivered by Heritage Victoria and advice through local heritage advisor services (**DPCD**).
d Develop an advisory note for coastal planners, managers and users on managing Aboriginal cultural heritage and activities and developments on the coast (**DSE/AAV**, VCC, CoM, PV).

Aboriginal dancer at the Tarerer Festival – Killarney.

TARERER GUNDIJ PROJECT ASSOCIATION.

PART 2

Undertake integrated planning and provide clear direction for the future

Undertake integrated planning and provide clear direction for the future

This principle is about providing clear direction and resources for the protection, management, development and use of the coastal, estuarine and marine environment in a way that is environmentally sustainable.

This principle seeks to:

- ensure integrated coastal zone planning and management (ICZM) takes into account the environmental, social and economic implications of decisions
- ensure that the values of coastal resources are identified and the impacts of any proposed use or development on those values are understood and considered before decisions are made
- provide clear policy in relation to coastal, estuarine and marine planning and management that can be effectively implemented at the regional and local level through Coastal Action Plans, management plans, regional catchment strategies, planning schemes and governance arrangements allowing community input and scrutiny
- ensure policies and plans are consistent with the Victorian Coastal Strategy and other state and regional policies such as Coastal spaces (2006), Great Ocean Road strategy (2003), Coastal Action Plans and management plans
- understand and plan for the environmental, social and economic impacts and risks associated with climate change, coastal erosion, coastal inundation and degradation of estuaries and catchment impacts
- ensure the best available science, adequate resources and guidance regarding climate change impacts and adaptation options is available to coastal planners and managers so that they can make informed decisions
- investigate adaptation options such as protect, accommodate and retreat
- require a long-term view when making decisions about coastal and marine environments which are perennial 'public good' assets
- consider cumulative implications of all decisions and impacts
- apply the precautionary principle to decision-making, particularly if threats of serious or irreversible environmental damage exist or are unknown.

2.1 Planning for climate change

Seaspray Lifesaving Club after a storm in 2005 C. MCCUBBIN

PART 2

Context

Sea level

The coast is dynamic and we see constant changes occurring in the sea level from day to day and from season to season. However, this century we will see further changes. Increased temperatures, caused by increased concentrations of greenhouse gases, trigger sea level rise. This is due to:

- thermal expansion of sea water as it heats up
- glacial and ice cap melt, and
- Greenland ice sheet melt, to a lesser extent.

The most recent Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report states that 'human influences have very likely contributed to sea level rise [and other impacts] in the latter half of the twentieth century'. The IPCC concludes that:

- global average sea level has risen since 1961 at an average rate of 1.8 millimetres per year and since 1993 at 3.1 millimetres per year
- annual average ice extent has shrunk by 2.7 per cent per decade since 1978 (when records began) (IPCC, 2007).

Locally, recording stations at Lorne and Stony Point have recorded sea level rises of 2.8 millimetres per year and 2.4 millimetres per year respectively since 1991 (National Tidal Centre, Bureau of Meteorology, 2006).

Global sea level rose by about 0.17 metres during the last century (Church and White, 2006).

In its *Fourth Assessment Report* the IPCC projected sea level rise of between 0.18–0.59 metres by 2090–2099 using a hierarchy of models plus additional ice sheet melt of 0.1–0.2 metres. However, the upper values of sea level rise (e.g. 0.59 metres) projected by the models were not considered to be the upper bounds of possible sea level rise by 2099. While there is uncertainty about the quantum of the sea level rise, data provided in the IPCC report shows that the sea level is rising and will continue to rise in the 21st century and in all likelihood beyond.

Even if greenhouse gas emissions are stabilised, sea levels will continue to rise throughout this century and into the next. Uncertainty still exists in climate projections, including future green house gas emissions, climate sensitivity, speed of change and regional responses to global climate changes (CSIRO, 2007).

Adoption of a precautionary strategy suggests that a policy of planning for sea level rise of not less than 0.8 metres by 2100 should be adopted. This policy will be reviewed as scientific data becomes available or when national benchmarks are established.

Storm surges

Sea level rise on its own will not have the greatest impacts on the coast: increased storm events and storm surges will result in damaging waves, erosion, wind and inundation occurring further inland. Flooding, erosion and damage to infrastructure and ecosystems will also occur.

A storm surge is an elevated sea level caused by a low pressure system and intense winds. A storm surge will have maximum impact when combined with a high or king tide. Storm surges are likely to occur more frequently and with greater severity as weather patterns change due to changed wind patterns, rainfall and sea surface temperatures. Impacts to property and infrastructure are already occurring when storms strike, including:

- damage to and loss of boats
- damage to and loss of structures on the foreshore
- entry of water behind sea walls via storm water drains due to breaching of barriers
- salt water intrusion into fresh water aquifers
- coastal erosion and accretion
- inundation of low-lying areas and damage to coastal vegetation and habitats.

Coastal processes

The shape of the sea floor and adjacent bays, headlands and islands affect the height of storm surges. A wide gently sloping continental shelf will amplify storm surges while any features like bays and channels will funnel the storm surge and increase its height.

Many natural barrier features on the coast which normally protect against erosion by storms and waves are likely to be affected by rising sea levels and increased storm events, including islands, seagrass, beaches and dunes.

Coastal processes are complex and it is too simplistic to draw a line on a map at a contour and accurately predict sea level rise. Erosion could lead to significant recession of the coast taking it further inland, depending on the local geology.

Sea temperatures

Shifts in ranges and changes to algal, plankton and fish abundance are associated with sea water temperature increases, ice cover, sea water acidity, salinity, oxygen levels and circulation (IPCC, 2007).

Adapting to climate change

While significant effort is now focused on establishing mechanisms to decrease greenhouse gas emissions, the major challenge for coastal planners and managers now lies in getting prepared to adapt to climate change risks and impacts.

There are three adaptation options:

1. protect (protection of beaches, dunes and infrastructure; land use and development)
2. accommodate (planning and building policies and provisions, redesign and rebuild)
3. retreat (relocation of infrastructure, land use and development).

These three options together with emergency disaster and management must be considered for all vulnerable areas along the coast.

On the basis of the IPCC projection and until national benchmarks for coastal vulnerability are established, a policy of planning for sea level rise of not less than 0.8 metres by 2100 should be implemented. As scientific data becomes available, the policy will be refined. This benchmark may be superseded by national benchmarks.

Future Coasts (refer box) is seeking to provide a comprehensive vulnerability assessment of the risk of climate change to the Victorian coastline by the end of 2010. The program will also develop strategies, planning tools and other responses for coastal planners and managers to adequately manage the risks and minimise the impact of climate change. The program is part of the Victorian Climate Change Adaptation Program.

In collaboration, national, state and local government will need to develop consistent benchmarks for coastal vulnerability assessments to determine the likely impact of climate change on the community.

This strategy contains a range of policies and actions to help prepare Victoria's coastal communities for the impacts associated with climate change. In particular, it is policy in this strategy to apply the precautionary principle to planning and management decision making when considering the risks associated with climate change. The precautionary principle is a 'commonsense' notion that requires decision-makers to be cautious when assessing potential health or environmental harms in the absence of the full scientific facts.

We need to understand the environmental, social and economic risks and impacts associated with climate change.

The National Sea Change Taskforce in the publication, *Planning for climate change: Leading Practice for Sea Change Communities in Coastal Australia*, 2008 identifies two primary threats associated with climate change for coastal communities in Australia. The first is the physical exposure of many coastal settlements to increased natural hazards which threaten human safety, lifestyle, physical assets, biodiversity, and tourism and agriculture-based economies. The second is the particular socio-economic profile of coastal communities; many have higher levels of social vulnerability, reducing their capacity to adapt to climate change risk. www.seachangetaskforce.org.au

We need to ensure that up-to-date information, adequate resources and guidance regarding climate change impacts are available to coastal planners and managers. This will enable planners and managers to incorporate adaptation considerations in land-use planning and management frameworks so that they can respond to unexpected changes or new scientific information as it comes to hand.

Victorian Government's Future Coasts program

Future Coasts, led by the Department of Sustainability and Environment is seeking to provide a comprehensive vulnerability assessment of the risk of climate change to the Victorian coastline by the end of 2010. The program will also develop strategies, planning tools and other responses for coastal planners and managers to adequately manage the risks and minimise the impacts of climate change. The program is part of the Victorian Climate Change Adaptation Program.

Currently the focus is on capturing high-resolution digital elevation modelling (DEM) for the Victorian coastline. About two thirds of the terrestrial coast has been assessed so far, including the bays, the west coast and some of the Gippsland coast. The next priority is to capture bathymetric (sea depth) data.

Projections and digital elevation modelling (DEM)

Climate change and sea level rise projections rely on high resolution modelling. DEM provides digital representation of terrain, above and below the water. DEM is being captured to 10 metres elevation on land, and to a depth of 20 metres beneath the sea.

DEM can also be used to create high resolution relief maps and to create 3D visualisation models. This will allow more accurate modelling of storm surge, waves, coastal processes, recession and inundation along the coast under different sea level rise scenarios.

The DEM data will be available in 2010 through the Department of Sustainability and Environment's Spatial Information Infrastructure division.

Further information on the Future Coasts Program can be obtained from the Department of Sustainability and Environment's Climate Change Adaptation Branch at www.climatechange.vic.gov.au\futurecoasts.

PART 2

Policy

1 Plan for sea level rise of not less than 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 impacts associated with climate change. As scientific data becomes available the policy of planning for sea level rise of not less than 0.8 metres by 2100 will be reviewed.

2 Apply the precautionary principle to planning and management decision-making when considering the risks associated with climate change.

3 Prioritise the planning and management responses and adaptation strategies to vulnerable areas, such as protect, redesign, rebuild, elevate, relocate and retreat.

4 Ensure that new development is located and designed so that it can be appropriately protected from climate change's risks and impacts and coastal hazards such as:
- inundation by storm tides or combined storm tides and stormwater (both river and coastal inundation)
- geotechnical risk (landslide)
- coastal erosion
- sand drift.

5 Avoid development within primary sand dunes and in low-lying coastal areas.

6 Encourage the revegetation of land abutting coastal Crown land using local provenance indigenous species to build the resilience of the coastal environment and to maintain biodiversity.

7 New development that may be at risk from future sea level rise and storm surge events will not be protected by the expenditure of public funds.

8 Ensure that climate change should not be a barrier to investment in minor coastal public infrastructure provided the design-life is within the timeframe of potential impact.

9 Ensure planning and management frameworks are prepared for changes in local conditions as a result of climate change and can respond quickly to the best available current and emerging science.

10 Ensure all plans prepared under the *Coastal Management Act* 1995 and strategies relating to the coast, including Coastal Action Plans and management plans consider the most recent scientific information on the impacts of climate change.

Actions

a Establish an appropriate mechanism and/or instrument to support policy and decision-making in relation to the risks and impacts of climate change (**DSE** & **DPCD**).

b Work through national and state processes to develop consistent national benchmarks for coastal vulnerability assessments (**DSE**).

c Develop comprehensive vulnerability assessments for the whole Victorian coast (through the Future Coasts program) to provide guidance to all planners and manager as to how to apply the information for decision-making (**DSE** & **DPCD**).

d Develop a methodology to provide guidance to all planners and managers as to how to apply the policy of planning for sea level rise of not less than 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions for decision-making (**DSE**).

e. Upon completion of vulnerability assessments being undertaken as part of the Future Coasts program:
- Investigate opportunities within the Victoria Planning Provisions to address climate change risks and impacts and, if necessary investigate the development of new provisions to manage coastal climate change risks and impacts (**DPCD ,** LG, & DSE).
- Develop appropriate adaptation strategies to support local and regional level decision-making in relation to the risks and impacts of climate change to the coastline (**DSE**, **DPCD** & **RCB**).

Mornington boating facility during a storm in 2008. J. HART

2.2 Planning and managing use and development

Context

It is important to provide clear consistent direction for planning and managing the use and development of coastal, estuarine and marine environments in a way that is environmentally sustainable. This creates the need to have appropriate integrated coastal policies, plans and strategies that respond to the major issues affecting the coast and importantly improve integration of catchment and marine management.

The policy frameworks and provisions for planning and managing Victoria's coastal environment range from state-wide approaches, such as SEPPs, to regional and local-scale tools such as local planning policies in planning schemes as well as Coastal Action Plans and other management plans that focus on particular coastal issues and circumstances.

Appropriate plans – such as this strategy, *Coastal spaces* (2006), Great Ocean Road Region Strategy, Coastal Action Plans, management plans, regional catchment strategies and planning schemes – need to be constantly reviewed and updated to direct future use and development of the coast in appropriate locations.

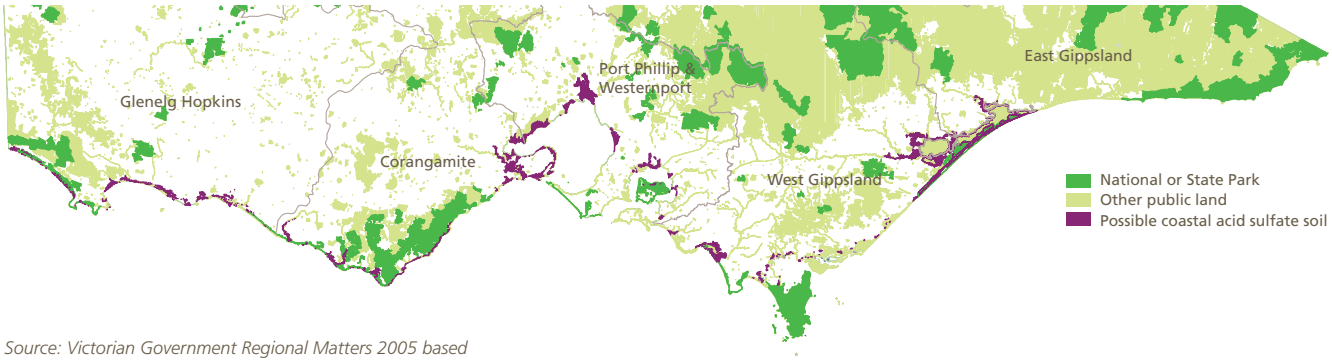
Land suitable for use and development along the coastal strip is scarce and competition is intense between different activities and land uses. This leads to development pressures on land in lower-lying areas that require care and consideration of a number of risks such as coastal acid sulfate soils, land slip, flooding and climate change.

While most of the immediate coastal strip is reserved in public ownership and largely managed for its natural and recreational values, the development on adjacent private land and of adjoining coastal settlements has dramatically impacted the coast.

With these challenges in mind it is important that the environmental, economic and social values of coastal resources are identified and the impacts of land use and development on those values are determined as far as practicable before decisions are made.

A number of policies and actions relating to planning and managing use and development are outlined in this strategy and apply to the whole of the coast.

In particular, it is policy in this strategy to identify and avoid development in areas susceptible to flooding, landslip, erosion, bush fire or geotechnical risk and avoid disturbing coastal acid sulfate soils (CASS). It is also policy to prohibit the development of new residential 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 sulfate soils.



Source: Victorian Government Regional Matters 2005 based on soil data from DPI and Public Land data from DSE

Figure 8: Estimated extent of coastal acid sulfate soils.

PART 2

Policy

1 Ensure that planners and managers have regard to the following documents when preparing coastal planning schemes and Coastal Action Plans and management plans, where appropriate:
   - Victorian Coastal Strategy (2008)
   - *Coastal spaces* (2006)
   - Melbourne 2030: planning for sustainable growth (2005) and Planning for all of Melbourne: the Victorian Government response to the Melbourne 2030 audit.
   - Great Ocean Road Region Strategy (2004)
   - Regional Catchment Strategies
   - Approved Coastal Action Plans and management plans under the *Coastal Management Act*, 1995
   - Other approved management plans such as management plans for Marine National Parks and Sanctuaries.

2 Ensure coastal planning schemes apply the appropriate provisions contained within the Victoria Planning Provisions to protect non-urban areas between settlements for their visual, environmental and biodiversity values.

3 Protect visually significant landscapes, views and vistas in coastal areas through the application of the recommendations of the Coastal Spaces Landscape Assessment Study 2006.

4 Protect non-urban areas for their visual landscape, environmental, agricultural and recreational qualities.

5 Encourage opportunities to restructure old and inappropriate subdivisions to reduce development impacts on the environment.

6 Identify and avoid development in areas susceptible to flooding (both river and coastal inundation), landslip, erosion, coastal acid sulfate soils, bush fire or geotechnical risk.

7 Avoid disturbing coastal acid sulfate soils (CASS) and ensure any development proposed near or on CASS demonstrates that it will avoid any disturbance.

8 Prohibit the development of new residential canal estates to ensure the protection of coastal and estuarine environments.

Actions

a Review the effectiveness of Victoria's coastal planning and management arrangements and identify and develop improvements (**VCC**, RCB, DSE).

b Review the State Planning Policy Framework (SPPF) in the Victoria Planning Provisions (VPP), to include the coastal policy statements contained in the Victorian Coastal Strategy, 2008 (**DPCD**, VCC, DSE).

c Develop a program to implement the Draft strategy for Coastal Acid Sulfate Soils in Victoria, which:
   - raises awareness of the location, risks and management options for CASS
   - establishes leadership for the implementation
   - ensures best practice in the assessment and identification of CASS risks to guide decision makers (**DSE**, DPCD, DPI, EPA, LG).

d Review coastal planning schemes to determine the need to extend their control into the marine environment for 600 metres to ensure consistency in the area of control along the coast and to improve the integration of catchment and marine planning and management (**DPCD**, LG, DSE, VCC).

Tambo Bluff Estate – the East Gippsland Shire Council have recently developed a structure plan to address this old and inappropriate sub-division.

EAST GIPPSLAND SHIRE COUNCIL

2.3 Information, research and monitoring

Context

Collecting information, undertaking research and monitoring coastal, estuarine and marine environments is fundamental to understanding and identifying current and emerging issues. It also helps us to assess how effective our planning and management strategies are in achieving their objectives.

Collecting data and information, and conducting research and monitoring require an integrated and multidisciplinary approach. Knowledge must be gathered across a wide range of areas, not just science. Using a variety of sources of information enhances decision-making and planning frameworks by being more representative, less biased, and more holistic. This involves input from a range of experts (such as scientists, social scientists, engineers, lawyers, economists) as well as local and Aboriginal people.

Scientific and technical information can determine the potential environmental and economic impacts of a proposed use or development. However, this information alone cannot determine the appropriateness of the use or development. Social and cultural impacts must also been considered.

Therefore, it is important to involve the wider community in the decision-making process. Public participation allows community values, including local and Aboriginal knowledge, to be considered when making decisions about use and development along Victoria's coast.

We also need to improve access and sharing of knowledge and information, so that planning and management decisions make use of the best available information.

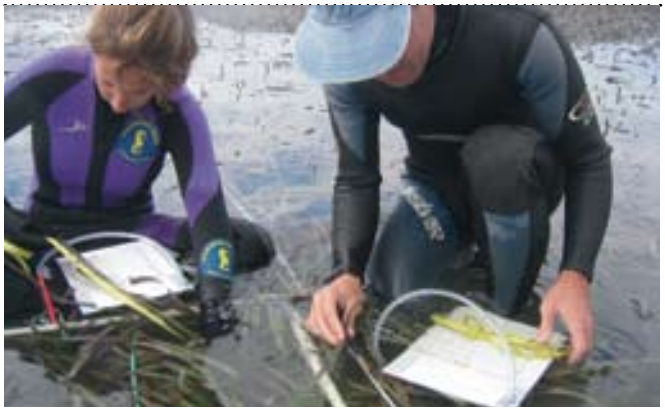
A major central point for coastal, estuarine, marine, and climate education and research would benefit information exchange and sharing of knowledge. Effectively bringing all research entities together is a worthy pursuit and will improve our knowledge and capacity to address the challenges ahead. This information and research must then be applied to day-to-day decision-making.

Policy

1. Develop a robust scientific and technical base to assist informing coastal, estuarine and marine planning and management in Victoria.
2. Ensure the consideration of local and Aboriginal knowledge when assessing a proposed use or development along the coast.
3. Ensure sharing of information and research between governments, coastal, estuarine and marine agencies, research institutions and the wider community.

Actions

- **a** Broker independent scientific advice from a network of experts to monitor emerging scientific issues and assist with effective coastal, estuarine and marine management in Victoria (**VCC**).
- **b** Develop a central scientific information data base for access by all (**VCC**, RCB, DSE).
- **c** Provide local government with sufficient information and build capacity to ensure that planning schemes are effectively used to identify, protect, and address threats to significant coastal environments on private land abutting coastal Crown land (**DSE**, DPCD).
- **d** Identify the monitoring needs for Victoria's coast (**VCC**).



SeaSearch seagrass monitoring – Corner Inlet Marine National Park
R. KOSS, SEASEARCH.

2.4 Education, awareness and stewardship

PART 2

Context

Victorians have a strong connection to the coast and are increasingly choosing to live or spend time near the coast to enhance their lifestyle and sense of wellbeing. This strong connection to the coast means that we must ensure the ongoing protection and management of our coastal assets. Research has demonstrated that the health and wellbeing of Victoria's coastal environment is enhanced if the community is aware of, understands, and appreciates coastal ecosystems and coastal cultural heritage.

Education is central to understanding Victoria's coastal environment. Coastal education occurs in a variety of places – within the school curriculum, through specialised marine science programs, and over summer along the coastline through volunteer and community group activities.

A more informed community is more likely to be involved in decision-making processes and conservation projects. Volunteers and community groups are integral to coastal management by participating in conservation projects and amenity works, management planning, habitat monitoring, and the delivery of education programs.

Many members of coastal communities volunteer on Committees of Management which are directly responsible for planning, managing, improving, maintaining and controlling sections of the coast under the *Crown Land Reserves Act* 1978. Along with other delegated coastal managers such as local government and Parks Victoria, they are crucial in promoting broader engagement and participation in coastal planning, management, and decision-making. This helps to shape the character of coastal settlements and promote a sense of community ownership of the coast. They also act as a conduit for the broader community informing them of coastal issues and involving them in decision-making processes. Under current arrangements, Committee of Management volunteers as well as other coastal environmental volunteers receive support from various government agency networks, such as the CoastAction/Coastcare facilitator network.

Approaches to coastal planning and management are inconsistent along the coast and depend on resources, skill levels of decision-makers and competing management priorities. Although different approaches can complement the local needs of a community, a core range of skills and expertise, as well as an understanding of the broader planning and management context are required to effectively manage the coast.

'The Connies' handing out collector cards and educating children about Australian Fur Seals at a festival. THE CONNIES

Coast Action/Coastcare 'Summer by the Sea' activity program – Barwon Heads R. PILGRIM

Policy

1 Build community understanding, awareness and appreciation of coastal values and issues, in particular the impacts of climate change.
2 Ensure ongoing and meaningful community engagement and active involvement in planning, management, and decision-making.
3 Encourage and support community monitoring programs.
4 Ensure coastal, estuarine and marine planners and managers receive adequate training, resources, and guidance to make informed decisions.

Actions

a Continue monitoring community attitudes to Victorian coastal and marine environments through longitudinal social research to ensure a clear understanding of community perceptions to coastal conservation and management (**VCC**).

b Convene a marine and coastal education taskforce to coordinate statewide education activities and priorities and develop a marine and coastal education strategy with key education providers (**VCC**).

c Actively seek opportunities for community involvement in coastal education, management, monitoring and planning, through community networks, with particular emphasis on those groups that are under-represented, such as young people and people of diverse cultural backgrounds (**DSE**, CoM, PV, DPI).

d Deliver training to planners and managers for effective decision-making, particularly in relation to (**DSE/DPCD**):

- implementing state coastal policy in management plans and planning schemes through effective local planning polices and provisions
- understanding the implications of climate change as it applies to particular parts of the coast
- assessing coastal vulnerability and appropriate adaptation responses
- informing the local community of coastal vulnerabilities and the risks and impacts of climate change, such as inundation, erosion, bushfire risk along the coast and loss of biodiversity
- emergency and risk management
- community engagement and participation
- governance and project management
- cultural heritage
- coastal acid sulfate soils

Lornecare volunteer R. PILGRIM

PART 3

Ensure the sustainable use of natural coastal resources

Ensure the sustainable use of natural coastal resources

This principle is about using the coastal, estuarine and marine environment in an ecologically sustainable way. Sustainable use of a natural resource means being able to use the resource in a way and at a rate that does not lead to damaging the environment or depleting the resource, thereby maintaining the resources potential to meet the needs and aspirations of present and future generations.

This principle seeks to:

- ensure an integrated analysis of economic, social, environmental and cultural heritage implications of decisions
- manage community use of foreshore land, buildings and other assets to return the greatest public benefit while protecting environmental and social values
- maintain access to coastal Crown land except when there is the need to protect high value resources, or for security or safety reasons
- manage Victoria's fisheries to ensure current and future fish stocks
- promote an ecologically sustainable and viable aquaculture industry
- ensure nature-based tourism and recreation opportunities are sustainable and sensitive to the natural environment and the unique coastal character and offer a high level of experiential learning.

School of Blue sprats – southern Port Phillip Bay. M. NORMAN – MUSEUM VICTORIA

3.1 Recreation

Torquay surf beach I. WALTON

Victorians are fortunate to have a legacy of 96 per cent of coastal foreshore in public ownership. Like Australians in general, Victorians have a particular affinity with the coast. Last year almost nine out of every ten Victorians visited the coast at least once (IPSOS, 2007). The coast contributes significantly to the physical and mental wellbeing of Victorians by providing a place to exercise, recreate and unwind.

A range of coastal Crown land infrastructure, from stairs and boardwalks to boat ramps and piers, supports access to and recreation on the foreshore and water.

The most popular activities when visiting the coast are short walks or strolls, swimming and boogie boarding, and picnicking and relaxing (IPSOS, 2007). Recreational fishing also continues to be a popular attraction, estimated to involve over 550,000 Victorians. As Victoria's population grows, the desire to holiday or visit the coast and our interest in nature-based tourism will continue. Victoria's coastal environment will therefore experience a greater intensity of use. It is critical that coastal planners and managers respond to this increased demand for infrastructure required to access and enjoy our coastal environment in a strategically planned and managed way.

Surfer in the Rip Curl Pro at Bells Beach GEELONG ADVERTISER

3.1.1 Access

Access steps – Ocean Grove I. WALTON

Context

Many parts of the coast are very accessible with high quality facilities. Other areas can only support minimal or no access to maintain ecological integrity. Some areas may require seasonal closure to enable protection of threatened species. There are some access points which are inappropriate because they may not be maintained adequately; the level of allowable access may not match the capacity of that particular coastal environment; they may create further environmental or cultural site degradation; or they may be unsafe. The demand for access and a diverse range of recreational opportunities in coastal areas needs to be strategically managed.

A key challenge for land managers is to provide appropriate access in a way that is safe, can be maintained in the long-term, and protects the ecological integrity and biodiversity of the surrounding environment. The limited amount of space and the diverse range of recreational activities that occur on the coast can also be a challenge for land managers, particularly when uses compete with one another.

The range of potential risks on the coast is another significant challenge for land managers. Beach users, boat goers, sightseers, coastal managers and community groups and volunteers are all exposed to a range of risks on the coast. Ageing infrastructure, weather and beach conditions, natural processes such as erosion and geology such as unstable cliffs present risks to users. Under climate change scenarios, the frequency and scale of these risks will increase, impacting on infrastructure and the safety of beach users.

Managing these risks to prevent and reduce emergency events is challenging, particularly when combined with increased visitation.

A range of opportunities to experience the coast will continue to be offered to the community, including the young, aged and the physically disadvantaged. However, it is neither possible, nor desirable, to provide a uniformly high level of access to all parts of the coast, and therefore access and service levels must be determined in a strategic way.

Policy

1. Strategically plan for and deliver sustainable and equitable recreation opportunities on the coast that respond to an identified demand.
2. Manage demand for coastal recreation, including Crown land access, to protect natural and cultural values and optimise visitor experiences.
3. Apply standards and agreed levels of service for a range of recreational uses across coastal, estuarine and marine environments.
4. Support the use of the coast by community-based clubs, such as lifesaving, angling, yachting and sailing clubs that provide safe and supervised water activities and manage access to and use of the coastal environment.
5. Ensure public safety considerations are addressed where public access to the coast is provided, readily available or encouraged.
6. Prohibit unauthorised off-road access to coastal Crown land by private vehicles.
7. Plan to have direct nodal access roads to coastal areas, and where possible and practical avoid running roads parallel to the coast.
8. Redesign, remove or relocate poorly used or poorly sited roads or car parks for environmental, aesthetic and safety reasons.

Actions

- **a** Facilitate regional approaches to improve and rationalise access to and on the coast through the application of a coastal access decision-making tool (**RCB**, DSE, CoM, PV, LG).
- **b** Establish priority areas for all mobility access needs (**RCB**, CoM, PV, DSE).
- **c** Develop a level of service framework for the coast to facilitate the delivery of a consistent quality of service to coastal visitors, and to identify strategic priorities for investment in the type, scale and quality of services that coastal planners and managers should deliver (**VCC**, DSE, CoM, PV).
- **d** Implement programs to assist coastal planners and managers address risk from aging infrastructure, aquatic safety, access and emergency events (**DSE**, MSV, LSV, ESTA).

3.1.2 Boating

Context

Boating is an important recreational and social outlet for many people. Boat registration is increasing faster than population growth. The size of boats is increasing, as is the demand for launching and retrieval and boat storage facilities.

The boating industry contributes significantly to employment and economic activity in Victoria, with direct expenditure on boating of $1.4 billion in 2005, as well as contributing to our health and enjoyment of the coast (Central Coastal Board, 2007).

Economically important commercial fishing fleets, diving vessels, tourism operations and marine management, research, and search and rescue boats also operate from boat ramps and facilities along the coast.

It is important to understand and strategically manage the increasing demand for improved and new boating facilities. We need to provide safe access to, from and on the water while ensuring impacts on the natural environment and coastal processes are minimised. The safety of boat users and swimmers is paramount.

The high capital and maintenance cost of infrastructure to support boating activities remains a challenge for coastal planners, managers and community-based clubs and groups. Balancing these needs with those of other coastal user groups and the ongoing pressure for commercial development will become an increasing challenge.

Policy

1 Strategically plan for and deliver sustainable boating facilities and infrastructure on the coast via Coastal Action Plans that respond to a demand assessment, safety considerations, the protection and sustainable management of coastal processes, conservation objectives, and quality of experience for all beach users.
2 Provide new access and review existing inappropriate access in accordance with the recreational boating facilities hierarchy. See figure 11, on page 86.
3 Ensure the provision of effluent disposal facilities at strategic boating locations to address illegal sewage discharge from boats.

Actions

a Develop and implement (and/or review as required) boating Coastal Action Plans across Victoria (**RCB**, MSV, PV, CoM, LG).
b Develop a long-term strategy for the upgrade and sustainable development of safe boating facilities and infrastructure at strategically identified sites along the Victorian coast (**DSE**, PV, MSV).

Queenscliff IAN WALTON

3.1.3 Crown land caravan parks and camping grounds

Wye River foreshore caravan and camping park DSE

Context

There are 84 caravan parks and camping grounds on coastal Crown land along Victoria's coast that offer safe, low-key and affordable holiday experiences. Demand for sites has increased – particularly over the last five years – with 100 per cent occupancy at peak times, but as little as 10 to 20 per cent during the off-peak season. These caravan and camping parks underpin a significant component of funding for coastal management. Maintenance requirements and demand for higher quality facilities continues to grow. Expenditure must be balanced with other priorities, such as environmental management, emergency management and wastewater management. The closure of caravan parks on private land is increasing the demand at coastal Crown land parks. The long-term capacity of existing parks and opportunities for new parks needs to be considered. The *Caravan and Camping Parks on Coastal Crown Land Reference Group report* (2006) addresses these issues.

Policy

1 Improve user amenity and reduce detrimental environmental effects of accommodation on coastal Crown land.
2 Ensure that a diverse range of accommodation options for coastal experiences is maintained and that sites and facilities are accessible to all prospective users.
3 Discourage long-term exclusive occupancy (more than 12 months) of coastal caravan and camping sites.

Actions

a Complete management plans for all coastal Crown land caravan parks and camping grounds (**CoM** & **PV**, DSE).
b Apply the recommendations of the Caravan and Camping Parks on Coastal Crown Land Reference Group report, including developing best practice management guidelines, finalising leasing allocation policy, and giving guidance to park managers on managing annual site permits (**DSE**, PV, CoM).

3.1.4 Coast protection

Context

Beach sand constantly moves as part of a natural, dynamic coastal environment. Many Port Phillip Bay beaches protect the foreshore and public infrastructure from the effects of coastal erosion. While erosion is a natural process, many of these beaches are artificial and require ongoing renourishment so that the beach remains for recreational purposes. These artificial beaches also play a role in protecting public, and sometimes private infrastructure.

Coastal protection works, such as groynes and seawalls, are sometimes effective but can cause erosion problems further along the coast if they are not well-designed and sited. Changing weather patterns will increase the frequency and severity of storms and incidences of beach loss. These coastal protection works may no longer be feasible options in some locations along the Victorian coast due to the risks and impacts associated with climate change.

Policy

1 Prioritise funding for coastal protection works where there is significant demonstrable public value.
2 Protect assets from coastal erosion and storm activity by managing coastal processes along the Port Phillip Bay coast where there is significant demonstrable public value, whilst having regard to the risks and impacts of climate change.

Actions

a Strategically plan for the management of sand with greater consideration of climate change risks and impacts and the relative costs and benefits of any beach protection or renourishment activities, and undertake education, communication and engagement with the community regarding sand management issues (**DSE**).

3.2 Fishing and aquaculture

Fisherman – Sorrento
I. WALTON

Context

Victoria's commercial and recreational fisheries are diverse and geographically extensive. Our oceans, bays, wetlands and estuaries support some of the world's finest seafood, from abalone and mussels to rock lobster and snapper. Victoria exports abalone, rock lobster, eel, giant crab, scallop, urchin and jellyfish. Abalone and rock lobster fisheries are Victoria's most valuable commercial fisheries.

The significance of the recreational fishing industry is demonstrated by the involvement of more than 550,000 Victorians. The recreational catch of whiting and snapper is estimated to be considerably higher than the commercial take of these species.

Fisheries Victoria is a division of the Department of Primary Industries. Fisheries Victoria manages the fisheries resource by developing and implementing policies, projects and services. History shows that without effective management and control fisheries can become over-fished, leading to significant ecological impacts, declining catches, the collapse of fishing industries and economic hardship for the communities they support. Fisheries are vulnerable to the environmental impacts of pollution, drought, fire, disease, and competition from introduced or noxious species. Some fish stocks are also subject to natural variability for reasons that are not clearly understood. Both commercial and recreational fishing in Victoria is closely monitored and subject to a suite of management controls in accordance with ecological sustainability principles.

As wild fishery stocks approach the limits of sustainable seafood supply, the aquaculture industry is playing an increasingly important role in meeting local and global demand for seafood products. However, aquaculture farms have the potential to pose significant challenges to the Victorian fishing industry and marine environments in general. The issue of water exchange and disease transfer between aquaculture farms and the marine environment is a significant current issue, particularly with the spread of the ganglioneuritis virus affecting abalone. We need to ensure a better understanding of aquaculture impacts on the environment, use low environmental impact production systems and demonstrate best practice aquaculture and environmental management.

The impacts of climate change, effluent and disease incursions, energy costs, global competition and new developments in science and technology require the establishment of clear direction for the maintenance of effective management of Victoria's fisheries.

Policy

1. Manage Victoria's fisheries, and the ecosystems on which they depend, within an ecologically sustainable framework to ensure maintenance and improvement to current and future fish stocks.
2. Promote an ecologically sustainable and viable aquaculture industry.
3. Address recreational fishing impacts through education, enforcement and suitable facilities.
4. Encourage shared ownership of fisheries management through partnership arrangements.

Actions

- **a** Support the development of a climate change strategy which aims to facilitate adaptation to the risks and impacts of climate change in both the commercial and recreational fishing sectors (**DPI**).
- **b** Improve capacity to monitor and assess levels of recreational fishing to ensure sustainable use (**DPI**).
- **c** Improve understanding of habitat and environment requirements for key fisheries resources (**DPI**, DSE).

3.3 Tourism

Phillip Island penguin parade
PHILLIP ISLAND NATURE PARKS

Context

Domestic and international tourism is a key economic driver for Victoria and extremely important for local and regional communities and economies along the Victorian coast. Going to the beach is the most popular nature-based activity for all domestic and international visitors, representing about half of all visits (International visitor survey and *National visitor survey*, 2005).

Victoria's nature-based tourism strategy 2008–2012 highlights growing consumer demand for ecologically sustainable tourism and unique experiences in the natural environment.

A key challenge is the balance between providing built facilities to satisfy market demand and the footprint of built infrastructure on the coast. Nature-based tourism offers the opportunity to experience coastal and marine environments in unique ways, and can increase visitors' appreciation of these environments. Built facilities to support this industry generally require a natural setting, which needs to be balanced with policy to protect non-urban areas between settlements and their significant values. Opportunities for the development of quality tourism products situated within the coastal hinterland areas may provide a range of benefits for local communities and economies while mitigating impacts on coastal resources.

Clear planning principles are required to achieve coastal policy objectives and increase regional tourism investment in the right locations within non-urban areas. Coastal spaces (2006) suggests that such principles may include:

- The need to provide high quality visitor/tourist accommodation which responds to a regional tourism product strength, outlines the desired visitor experience to be achieved and demonstrates consistency with regional tourism strategies.
- The design of a development should provide an outcome that responds to the above and seeks to minimise overall impact through being subordinate to the visual and environmental qualities of a particular locality and minimising the overall footprint of a development.
- Accommodation should be specifically designed to prevent conversion to permanent residential occupation to protect the future overall availability of accommodation stock.
- The need to provide for an appropriate scale and intensity of use and development relative to a site to manage the provision of additional services such as water and sewerage.

Policy

1. Support development of sustainable nature-based tourism that benefits the local community and state and regional economies and heightens visitors' experience of the coast.
2. Require tourism operators to address the environmental impacts of business operations and ensure the health and safety of tourists.
3. Support the development of tourism accommodation opportunities that are non-residential in nature and are consistent with the long term strategic planning objectives outlined within a settlement plan.
4. Improve and enhance tourists' and visitors' experience and understanding of the coast, while protecting sensitive and significant areas.

Actions

a Explore opportunities for recreation and tourism ventures which are sensitive to coastal settings and meet regional needs (**DSE**, TV, PV).

b Develop guidelines for planning and evaluating appropriate nature-based tourism developments outside existing settlements (**DPCD**, DSE, TV, PV).

c Progress the concept of the Great Victorian Coastal Walk (**VCC**, DSE, PV, CoM, TV).

PART 4

Suitable development on the coast

Suitable development on the coast

This strategy contains policies and actions to direct development away from sensitive coastal areas and significant landscapes and manage it within existing settlements and urban areas and within activity nodes and recreation nodes. Directing development to these locations:

- contains use and development to certain locations
- properly establishes boundaries for development
- assists in managing and planning for development pressures
- reduces the overall impact of use and development and protects more sensitive areas, contributing to environmental sustainability
- maintains Victoria's unique coastal landscape values
- contributes to improved levels of service
- guides infrastructure investment for permanent and visiting populations
- provides for better use of existing infrastructure and economies of scale
- provides certainty for communities and developers.

Seaford Lifesaving Club VCC

Seaford Lifesaving Club ROBERT SIMEONI ARCHITECTS

Seaford Lifesaving Club ROBERT SIMEONI ARCHITECTS

PART 4

Settlements and activity nodes

This strategy focuses on protecting the coastal environment and its sustainable use. *Coastal spaces* (2006) provides clear direction on managing coastal growth pressures by consolidating urban development to existing settlements and urban areas (activity nodes) and protecting non-urban landscapes between settlements.

This strategy recognises the importance of *Coastal spaces* and the need to accelerate the incorporation of coastal settlement boundaries and significant landscape overlays into planning schemes to provide the necessary statutory basis to support decision-making. This strategy also recognises the need to support local government to undertake this critical task, whether it is through funding, providing guidance, or assisting with implementation processes.

Coastal spaces defines the role and function of the 87 existing coastal settlements outside the greater Melbourne region. The greater Melbourne region is covered by *Melbourne 2030*. These settlements range from regional centres and district towns, to smaller villages and hamlets. Figure 1 inside the front cover describes the role and function of each settlement.

Coastal spaces recognises that each coastal settlement is different in spatial terms. Some have significant capacity to accommodate future growth and others have moderate spatial growth capacity or low spatial growth capacity due to limitations associated with the need to protect environmentally sensitive values, limited services or development constraints. Although most settlements can support growth and consolidation, there is a constant challenge to achieve this without detriment to valued coastal character.

The Coastal Spaces 2006 Settlement Framework (Figure 12a and 12b on pages 87 and 88):

- provides direction on which settlements have capability to sustain and support spatial growth and infill development
- identifies settlements which need to be managed within their coastal environments
- creates a framework to help guide infrastructure investment.

Coastal spaces also recognises the key relationships and connections between coastal and hinterland settlements. Hinterland settlements play an important role in coastal settlement planning in many localities by accommodating demand for residential and other types of urban-related development and regional services.

Understanding the spatial growth potential across a region guides local settlement planning effort and expectation. This approach to planning in coastal regions is important as it:

- focuses urban development in existing settlements and discourages linear and isolated development proliferation within the coastal environment
- promotes the protection of natural landscapes through directing urban pressure to existing settlements
- facilitates a more considered and planned response to the likely coastal impacts of climate change
- makes the best use of resources
- minimises the extent of human habitation impacts on natural coastal values
- promotes diversity in settlements and supports healthy communities with a strong local focus and identity
- protects the underlying biodiversity, value and attractiveness of the coast that is important to sustain tourism and other recreational values.

The future impacts of climate change (sea level rise, storm surges, coastal erosion, flooding and bushfires) will fundamentally determine the shape, size, capacity and viability of existing settlements. Climate change may also make some settlements non-viable.

Planners will be required to assess and avoid future spatial climate change risks and impacts using the best available information to inform the spatial growth management parameters through the settlement planning process. Application of the precautionary principle to guide decision-making is important where emerging information supports an increase in exposure to risk. Applying the precautionary principle and minimising exposure to increased risks and impacts associated with climate change is an important element of this strategy.

Activity nodes

A range of large and small activity nodes are located along the Victorian coast. Activity nodes are located within existing coastal settlements and correlate with existing activity centres under *Melbourne 2030* which:

- contain both public and private land
- provide community recreation facilities and opportunities which enhance the coastal experience
- provide appropriate areas for commercial uses, including ports and fishing
- provide tourist accommodation and activities
- have an increased density of development and range of uses
- provide for public transport and traffic needs
- contain development which exhibits excellence in design and complements or integrates with the coastal landscape and setting
- contain development which is of a scale appropriate to the local context
- complement and benefit from adjacent private land use and development.

The objective for activity nodes is to provide a focus area for access to the coast, services, and social interaction within existing settlements and urban areas, and to link and integrate the public and private realms within this area.

Examples of activity nodes include Warrnambool, Lorne, St Kilda, Mornington, Cowes, Lakes Entrance and Mallacoota.

Recreation nodes

Recreation nodes are areas that:

- are located on coastal Crown land, outside of activity nodes
- exhibit a high level of use and visitation for recreation and water-related activities
- offer foreshore and marine access, and may contain boat ramps
- contain recreational infrastructure such as piers, fishing platforms, walking tracks, picnic and camping grounds, and lifesaving clubs
- have identified strategic priorities for the provision of existing recreation facilities and provide opportunities for the redevelopment or expansion of facilities for the net community and public benefit.

The objective for recreation nodes is to provide access to recreation and water-related activities where a genuine need is identified through a strategic assessment, whilst limiting the scale and intensity of development to that which is appropriate to the area.

Examples of recreation nodes include the Twelve Apostles, Cape Otway lighthouse precinct, Bells Beach, Sorrento ocean beach, The Nobbies on Phillip Island, Squeaky Beach in Wilsons Promontory and West Cape in the Cape Conran Coastal Park.

Figure 9 shows a conceptual model of the relationship between an activity node and a recreation node.

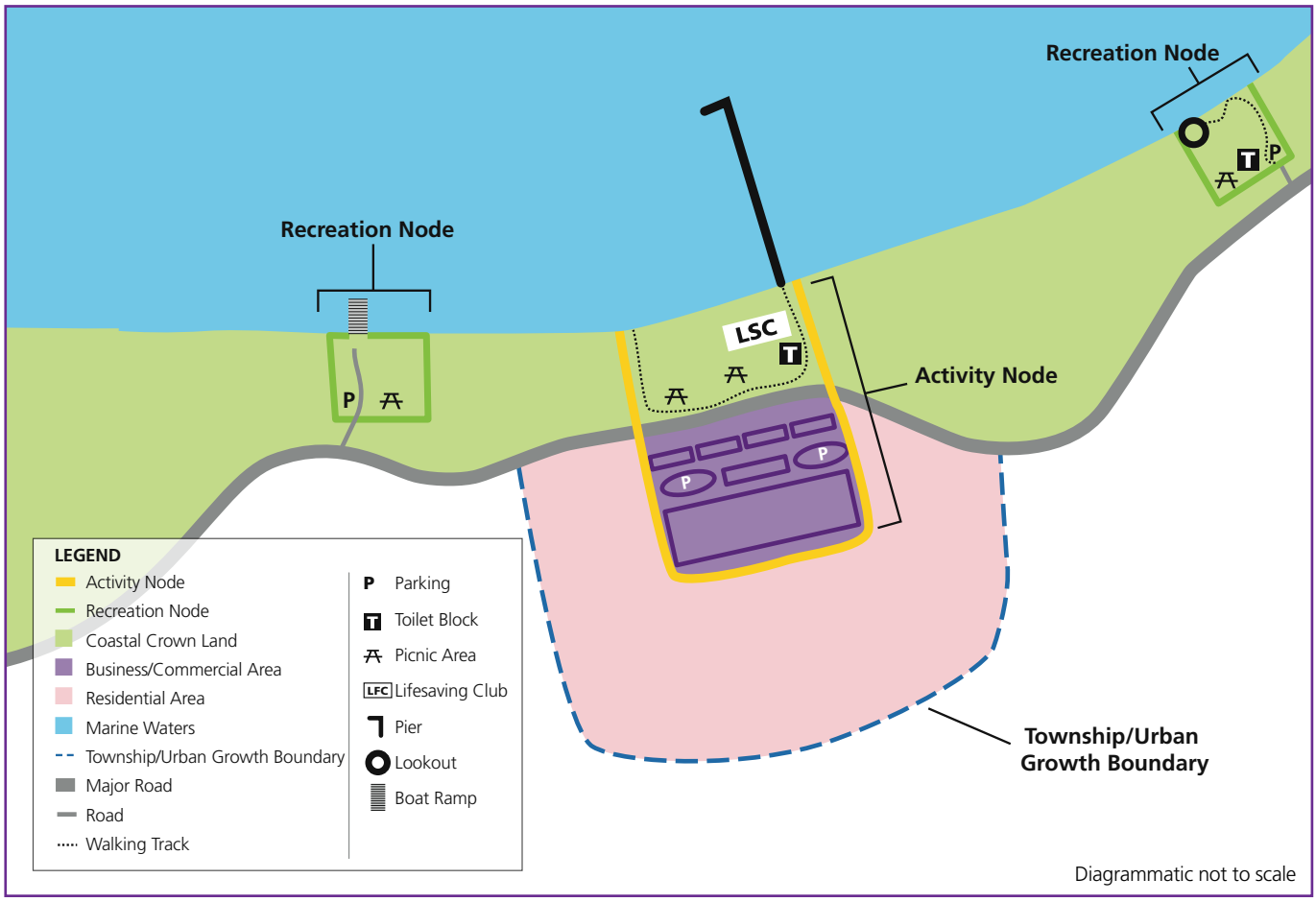


Figure 9: Diagrammatic representation of the spatial location and possible features of activity nodes and recreation nodes

PART 4

Any development on coastal Crown land within an activity node or recreation node should satisfy the criteria for use and development on coastal Crown land (see shaded box below).

This strategy does not define the precise location, scale of function or hierarchy of activity nodes or recreation nodes. Instead, activity nodes and recreation nodes are defined by the Regional Coastal Boards, working in conjunction with DSE, local government, committees of management, Parks Victoria and communities of interest. Activity nodes and recreation nodes are identified in Coastal Actions Plans and management plans prepared and approved under the *Coastal Management Act 1995*.

In 50 to 100 years, climate change may make some activity nodes and recreation nodes non-viable. Vulnerable activity nodes and recreation nodes may be subject to negative impacts in the short term. Any planning to accommodate this change must be based on vulnerability studies, the best current and emerging science and strategic justification.

Criteria for use and development on coastal Crown land

Coastal-dependent land use and development on coastal Crown land includes boat ramps, surf clubs, yachting, boating or angling clubs, boathouses, ports and harbours, as well as recreational infrastructure to support beach-related activity such as change rooms or toilets, seating, barbeques, shade structures. Not all aspects of these facilities are coastal-dependent and a reasonable balance is required when determining their appropriateness and location.

Development on coastal Crown land gives people access to the coast and should reflect safety, recreation and industry needs. These uses and development are not needed at all locations along the coast and some uses may be better located inland. Development should ensure public access and encourage joint use by a range of coastal users. Opportunities for use and development on coastal Crown land are limited and competition for these opportunities can be intense in many locations. The limited land resources need to be used sparingly and for net community and public benefit.

Use and development on coastal Crown land should meet the following criteria, where relevant:

- has demonstrated need to be sited on the coast and requires a coastal location to function
- located within an activity node or recreation node
- fulfils an identifiable need or demand that cannot be met elsewhere
- demonstrates considerable net community and public benefit and ensures equity in community access to new and existing use and development
- involved consultation with local and broader community
- facilitates multi-use of sites and existing infrastructure and the rationalisation of existing buildings and car parks without resulting in over-use
- facilitates improvements of sites or existing developments that have poor environmental or social performance
- is consistent with the requirements of Coastal Action Plans, management plans and the relevant planning scheme
- exhibits excellence in siting and design, complements or integrates with the coastal landscape and setting, maintains important public views, vistas and sightlines and is set back from the coast as far as practicable in line with vulnerability assessments (please see the "Siting and Design Guidelines for Structures on the Victorian Coast" and the "Good Design and the Coast" brochure, both available at **www.vcc.vic.gov.au**)
- will not be vulnerable to climate change risk within the lifespan of the new development
- enhances public access to the coast and will not result in a reduction of open space
- has carefully considered access, pedestrian safety and implications to the surrounding community from demand likely to be generated by the new use
- encourages access by modes other than private vehicle
- 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
- supports market rent and appropriate rates and taxes for all commercial use of coastal Crown land to discourage the use of coastal Crown land as a cheap alternative to private land.

4.1 Urban coast

Context

The urban coastline has enormous social, cultural and environmental values for the local community and visitors. However, it is significantly different to many other coastal areas in Victoria. The urban coastline has been extensively developed, experiences intensive levels of demand and use and has been highly modified in many areas. Some coastal settlements' foreshores also exhibit these characteristics.

The urban coastline around metropolitan Melbourne, Geelong and the Mornington and Bellarine Peninsulas are dynamic coastal environments with diverse local economies, valued highly by residents and the many visitors who come to enjoy them. The urban coast offers a unique experience of city life on the bay, and performs important functions as community open space, a social and cultural gathering place along with the conventional role of city and suburban beach. In these areas the foreshore and water also provide a sense of identity and place for those people and communities who live near or regularly visit their coast.

Increasingly, the coast is important for recreation as residential densities in established urban coastal areas continue to grow. In some municipalities coastal Crown land may be the only substantial open space available for community use.

The challenges presented by urban coastal growth are complex, compounded by the increasing threats of climate change. Urban coastal development presents challenges associated with respecting existing neighbourhood character and retaining visually significant landscapes, views and vistas, as well as servicing issues relating to water supply, waste disposal, storm water discharge and sewage treatment.

Along the urban coastline, there is significant interaction between the coastal Crown land and the adjacent urban area. This area is highly valued by local communities for its recreational, cultural and historic values. Activities within these areas require sensitive and orderly planning and management with regard to the expectations of the community to achieve improved outcomes.

Melbourne 2030: planning for sustainable growth is the government's principal strategy for managing the growth of Melbourne into the future. Melbourne 2030 defines a network of multi-functional activity centres that are focal points for communities and provide for services, employment and social interaction.

The activity centres defined in Melbourne 2030 situated in coastal locations are also activity nodes under the Victorian Coastal Strategy. These activity centres will continue to be the focus of further intensification of activity and development. These activity centres include Frankston, Williamstown and Mornington. Figure 1 inside the front cover illustrates the location of the Melbourne 2030 activity centres around Port Phillip and Western Port Bays. Smaller neighbourhood activity centres can also be defined within local planning schemes.

Melbourne 2030 also directs significant urban growth to the south-eastern and Wyndham growth corridors which will result in an increase in development, visitation and activity in these coastal areas, and notably the introduction of significant population into the Western Port region.

The anticipated increase in development and activity and population and visitor numbers in activity centres and growth corridors requires ongoing planning and management to maintain the special values of the coastal environment, while providing improved access to areas best able to sustain increased use.

Geelong foreshore

Policy

1 Improve the environmental health of the bays and their catchments by reducing major environmental impacts associated with urban growth and development within the coastal hinterland and catchments by:
- requiring coastal urban planning and management to be consistent with the Victorian Coastal Strategy 2008, regional catchment strategies and the objectives of *Melbourne 2030*
- requiring activity centre and growth area planning and management to protect significant natural coastal assets
- continually monitoring and improving the quality of stormwater entering waterways
- coordinating waterway management arrangements for the catchments
- ensuring land-use change and development comprehensively integrates environmental protection as part of the development approvals process
- addressing the quality and quantity of storm water discharge to the bays and estuaries.

2 Ensure the protection and enhancement of the coastal and foreshore environments and the character of urban coastal areas.

3 Support landscape assessment studies to map and protect non-urban areas of landscape significance using the methodology employed as part of the Coastal Spaces Landscape Assessment Study 2006.

4 Pursue opportunities to integrate coastal objectives with activity centre structure planning and implementation under Melbourne 2030.

5 Promote the incorporation of ecological sustainable design techniques in developments, such as energy and materials efficiency and water sensitive urban design.

6 Seek co-location of car parking and other opportunities for shared use within activity centres to support activity nodes on the coast.

Actions

a Develop Green Wedge Management Plans to manage non urban use and development in identified areas (**LG**, DPCD).

b Incorporate the findings of landscape and neighbourhood character assessments into planning schemes in urban coastal areas experiencing development pressures (**LG**, DPCD).

St Kilda foreshore CITY OF PORT PHILLIP

4.2 Coastal settlements and communities

Context

Preserving the special features or characteristics of a settlement, which are the very reason people choose to move to a settlement, while maintaining a reasonable level of services and infrastructure is challenging for many coastal local governments. These challenges are greatest where existing planning and management frameworks are not designed to manage sudden or large scale growth, and where local councils are small and poorly resourced.

The pressure on coastal communities at a time of rapid change has been the subject of research undertaken by the National Sea Change Taskforce in the report, Meeting the sea change challenge: best practice models of local and regional planning for sea change communities (2006). This report documents the range of governance, environmental, community, economic and infrastructure challenges affecting 'sea change' councils in Australia and internationally, and identifies best practice in addressing these issues.

Within this context, this section of the strategy includes a number of policies and actions to ensure that coastal settlements and growth are appropriately planned and managed to protect the natural environment and preserve the special features or characteristics of a settlement – also a challenge for the urban coast – while maintaining a reasonable level of service delivery and an appropriate level of infrastructure.

It is important that the community is engaged with these planning and management processes and are involved in developing a long-term vision for their community through settlement planning, and landscape and character studies.

Sustainable coastal communities

A sustainable coastal community is one which encourages:

Social and cultural wellbeing

- a sense of community and valued lifestyle even in communities where many residents are not permanent
- a well-informed, engaged community which participates in decisions and actions that affect them
- use and maintenance of heritage places and protection and celebration of significant cultural heritage sites
- high quality coastal public infrastructure which is well-designed, maintained and used as a community asset throughout the year
- the promotion of walking and cycling within and between settlements through well planned integrated pathways including quality connections along foreshores and to public spaces.

Economic activity

- a healthy, diverse economy supporting the requirements of local, regional and visitor populations
- a variety of holiday and tourist accommodation which is used throughout the year
- innovative tourism, business and rural activities that demonstrate sustainability practices and do not compromise the integrity and diversity of natural assets
- public or community transport designed to meet local and regional needs and to support links between coastal towns, regional centres and key tourism sites
- a strong relationship with the rural and regional economy.

Nippers – Fairhaven FAIRHAVEN SLSC

Apollo Bay township I. WALTON

PART 4

PART 4

Appropriate development

- consolidated urban development within settlements that have capacity for growth and the protection of non-urban landscapes between settlements
- building design and development that minimises the impact on natural ecosystems, landscapes and native flora and fauna
- building design and development that is sensitive and responsive to the coastal character of the settlement and significant landscapes, features and values
- development that is set back from the coast and low-lying areas to accommodate coastal features, vegetation and climate change risks and impacts
- environmentally sensitive design in residential development and subdivision that seeks to minimise the development impact and footprint
- water-sensitive design to avoid discharge of waste and storm water into the coastal reserves, ground water and other waters
- diversity of housing choice to support more affordable entry points into home ownership and enabling older residents to downsize their housing needs and remain within their community.

Environment protection and conservation

- the protection and conservation of significant natural and cultural features and values
- the maintenance and enhancement of biodiversity to deliver healthier waterways and coastal, estuarine and marine environments
- the contribution of non-urban landscapes as significant agricultural, cultural and landscape value and resources
- the use of local provenance indigenous species in landscaping and revegetation to enhance urban environments, provide habitat and support the resilience of the coast
- the need to avoid, negate, or offset the impact of the development on greenhouse gas emissions.

Policy

1 Identify a clear settlement boundary 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 is 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 Ensure coastal settlements and growth are appropriately planned and managed by:
- supporting a network of diverse settlements as outlined within the Coastal Settlement Framework to provide for a broad range of opportunities and diversity
- implementing and reviewing coastal settlement boundaries as part of the settlement planning process, consistent with the Coastal Settlement Boundaries Planning Practice Note, and having regard to the best available information on sea level rise and climate change risks and impacts
- implementing the Coastal Spaces Landscape Assessment Study, State Overview Report, 2006 into relevant planning schemes.
- 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 demand for urban sprawl.

3 Maintain existing non-urban breaks between all coastal settlements to support community identity, sense of place and limit urban sprawl.

4 Avoid linear development along the coastal edge and major transport routes and within rural landscapes to preserve areas between settlements for non-urban use.

5 Retain non-urban uses between settlements and protect visually significant landscapes, views and vistas.

6 Ensure development is sensitively sited and designed and respects the character of coastal settlements.

7 Ensure a sustainable water supply and storm water and sewerage treatment for all development.

8 Promote the incorporation of ecological sustainable design techniques in developments, such as energy and materials efficiency and water sensitive urban design.

9 Target priorities for infrastructure and innovative solutions in environmental hotspots where the provisions for potable water and reticulated sewerage services are not present or limited.

10 Promote on-going regional coordination and communication mechanisms to maximise knowledge transfer and practice around coastal change management and planning.

Actions

a Incorporate settlement boundaries into planning schemes by 2010 (**LG**, DPCD).

b Investigate options to reduce economic, environmental and social impacts of old and inappropriate subdivisions along the coast which are environmentally vulnerable and pose fire and health risks (**DSE** & **DPCD**, LG).

c Identify mechanisms and strategies to strengthen community resilience and social cohesion and to preserve a sense of place, particularly within communities experiencing rapid change due to the sea change phenomenon (**DSE**, DPCD, LG).

d Encourage economic development research targeted to the specific needs of small- to medium-sized communities situated within highly sensitive environmental contexts (**LG**, DIIRD).

e Develop a planning research program to investigate and provide information to planners and managers on the following issues (**DPCD**, DSE, LG):

- impacts and implications of population growth and seasonally fluctuating population levels on:
  - **i** short and longer term planning and management strategies
  - **ii** the carrying capacity of coastal Crown land and the broader coastal environmental
- the impacts of sea change communities, ageing coastal populations and the implication for service delivery and infrastructure as part of a review and refinement of the coastal settlement framework
- land tenure and changes in property ownership and development patterns to determine and better understand the trends in coastal settlement growth dynamics
- residential land availability and demand, particularly in settlements with high spatial growth capacity within 1.5 hours of Melbourne
- the predicted impacts of climate change on built coastal environments, including economic and social implications.

f. Review the siting and design guidelines for structures on the Victorian coast (VCC, 1998) to provide a product that promotes environmentally sensitive design, sympathetic to coastal locations, which address the following (**VCC**, DPCD, DSE, OVGA):

- incorporating energy and materials efficiency and water-sensitive urban design techniques, including solar access, natural light and ventilation, use of local materials and services, rainwater capture and water recycling
- coastal character and the appropriateness of new built form for the existing sense of place
- protecting significant views of waterways and from waterways
- the coastal environment and coastal landscapes as a dominant setting
- the spaces around buildings and maintaining the coastal landscape between towns along the coast, avoiding 'ribbon' development
- continuity of the built and natural public realms
- effects of extreme coastal weather on the built environment and outdoor spaces
- effects of different use-patterns and seasonal occupation.

The Apollo Bay YHA by Perkins Architects incorporates numerous ESD principles and indigenous landscaping . PERKINS ARCHITECTS

The Cape Schanck House by Paul Morgan Architects has been sensitively sited and designed to respond to the surrounding coastal tea tree. PAUL MORGAN ARCHITECTS

4.3 Coastal Crown land buildings and infrastructure

Context

A range of buildings and infrastructure are located on coastal Crown land which provide for access and enjoyment of the coastal experience and for public safety. These can include toilet and shower blocks, lifesaving clubs, marine rescue services, visitor centres, networks of pathways, barbeques, piers, jetties and facilities to support recreational boating and fishing. There are some commercial facilities providing food and services located on coastal Crown land, and in some areas, particularly in urban coastal areas they have become prevalent.

These buildings and infrastructure give people access to the coast and should provide for safety, shelter, and recreation, as well as industry needs. A key challenge for coastal planners and managers is the need to upgrade ageing coastal infrastructure. There is limited funding to maintain these assets and their condition varies significantly. In the future, we will need to abandon, co-locate and relocate some of these assets to generate economies of scale and to avoid risks and impacts from climate change.

The growing metropolitan and coastal population has long enjoyed the foreshore and waters with its accessible coastline, swimming beaches, parks, trails and piers, recreational fishing, boating, promenading and cycling. The range of traditional foreshore and coastal activities has also diversified with new sporting and recreational trends. But a growing gap between demand and supply of contemporary facilities is compromising both the potential growth of activities and the ability to facilitate safe access, sustainable and enjoyable recreational experiences. Simply trying to meet demand would place unsustainable demands on the coast.

Any new buildings and infrastructure on coastal Crown land should be sensitively sited and designed

Lorne Pier EDAW AUSTRALIA

to minimise visual and ecological impact. Where appropriate, existing buildings and infrastructure should be consolidated, redesigned, re-sited or landscaped to minimise visual and ecological impacts. The rejuvenation of heritage places has the potential to accommodate new uses and contribute positively to the coastal environment and experience.

Buildings on coastal Crown land are generally situated in highly desirable, highly valued beachfront positions, but in many cases do not demonstrate the excellence in design that their privileged location deserves. This may be due to the age of the building, poor original design or a general lack of maintenance. As these buildings occupy an important public space, it is critical that buildings on the coast are of the highest standard of design form, function and role, and that the use of the building is maximised throughout the year, for a broad range of public use. Some club buildings can restrict access and prevent other uses. Clubs too must recognise their privileged locations and ensure they meet their net community and public benefit obligations by working with local user groups and committees of management.

Policy

1. Ensure provision of buildings and infrastructure on coastal Crown land is coastal dependant, sustainable, accessible, equitable and meets community needs for coastal and water-based experiences.
2. Apply the criteria for use and development on coastal Crown land (page 56) when considering investment or development on coastal Crown land.
3. Ensure clear lease agreements are in place and direct revenue from coastal Crown land, coastal waters or the seabed to coastal management and to protecting, developing and maintaining the environment and infrastructure in accordance with approved management plans.
4. Support investment in activity nodes and key recreation nodes with significant community benefit outcomes, and where a genuine need is identified through a strategic assessment consistent with this strategy.
5. Relocate non-coastal-dependent uses away from coastal Crown land, when the opportunity arises.

Actions

- **a** Develop a register of all public assets, buildings and spaces on coastal Crown land (**DSE**, PV, CoM).
- **b** Develop a long-term approach for planning and managing buildings and infrastructure that may be affected by climate change risks and impacts to assist public infrastructure managers adapt to climate change (**DSE**, PV, CoM).
- **c** Develop a comprehensive asset investment strategy having regard to their purpose, design and future use, rather than simply maintenance and renewal. This may include decommissioning redundant assets (**DSE**, PV, CoM).
- **d** Explore innovative funding opportunities and sources for funding coastal infrastructure (**DSE**, PV, CoM).
- **e** Fund the ongoing maintenance of piers and jetties, seawalls, groynes and other coastal protection infrastructure to an agreed standard and in accordance with strategic priorities (**DSE**, PV, CoM).
- **f** Develop a bathing box and boatshed policy and management guideline to provide clear direction to the licensees of bathing box and boatsheds, planners, land managers and decision-makers responsible for Crown land foreshores containing bathing boxes and boatsheds (**DSE**).

Frankston foreshore VCC

Seaford Lifesaving Club and jetty VCC

PART 4

4.3.1 Local ports

Context

Local ports have important recreation and tourism functions, as well as being important for commercial operations such as fishing, and form part of an integrated network supporting access to the coast.

Local ports responsibilities include:

- wharfs, piers, jetties and marina development, management and operation
- berthing and mooring development, management and operation – including pump out and refuelling
- navigation, port operations, regulation and compliance
- waterway management including boating safety, incident management, emergency response, maritime security, marine pollution response, vessel salvage
- dredging and sand management
- slipways, boat-lifting and boat repairs.

Currently 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, Parks Victoria, and catchment management authorities. This situation results in many agencies being involved in boating and marine infrastructure, and in some areas planning and management responsibilities overlap.

Local ports can affect the amenity, use and enjoyment of nearby residential and other private land uses, as well as coastal uses. The need for consultation, collaboration and integration among the various stakeholders is critical so that the needs of one user group are not unduly dominant.

Policy

1 Ensure all local ports operate efficiently and effectively, and contribute positively to local character, amenity, recreation, economy and environmental values.

2 Ensure that development or maintenance work of local port facilities considers the impact of storm tides or combined storm tides and storm water, coastal erosion or sand drift, including an allowance for changes in sea level due to subsidence and anticipated climate change.

3 Enhance the community experience and perception of local ports.

Actions

a Develop a local ports strategy that includes adaptation to the risks and impacts of climate change (**DSE**, Local Port Authorities & CoM, MSV).

b Conduct a review of the ports services regulations for local ports (**DSE**, MSV, Local Port Authorities & CoM).

Port of Port Fairy L. MURRELL

4.4 Coastal-dependent industry

4.4.1 Commercial ports

Context

Commercial ports are significant contributors to the Victorian economy, with the Port of Melbourne the largest and the busiest container port in Australia. Other commercial ports are located at Hastings, Geelong and Portland and cater for bulk cargo. These ports are Victoria's trading gateway to the world, providing access to more than 300 markets for Victorian exporters. The ports' efficient operation is essential to both Victorian and Australian economies.

The Victorian Ports Strategic Framework (2004) provides high level strategic guidance for the long term development of Victorian commercial ports. The development of individual port land use strategies will provide important policy directions and where appropriate, infrastructure planning.

The Channel Deepening Project is being implemented by the Port of Melbourne Corporation (PoMC). It will deepen shipping channels in Port Phillip Bay and the lower reaches of the Yarra River by dredging to enable ships up to 14 metre draught to access the Port of Melbourne. Dredging operations commenced in February 2008. The operational stage of the project that includes dredging and ancillary works is scheduled for completion in late-2009. Monitoring programs will continue for a further two years.

Policy

1. Support the sustainable development of commercial ports.
2. Support efforts by commercial ports to minimise environmental impacts on the coast and bay waters through Port Safety and Environmental Management Plans.
3. Support the enhancement of the community experience and perception of the commercial ports.

Port of Melbourne I. WALTON

PART 4

4.4.2 Other significant coastal-dependent land use and development

Context

The exposure to Bass Strait and the Southern Ocean means sections of the Victorian coast are well-suited to the renewable energy sources and a number of projects are well-established. Common renewable energy technologies include hydro, geothermal, wind, tidal, wave, and solar power.

The Victorian coast currently hosts a variety of marine-coast-inland infrastructure such as development associated with gas and oil extraction. Further coastal infrastructure is also anticipated. There is the proposed desalination plant at Wonthaggi and the likelihood of further desalination plants along the coast in the future, and perhaps further infrastructure associated with the emergence of carbon capture and storage, otherwise known as geosequestration.

There is concern regarding the potential of land subsidence around the Gippsland region. The type of subsidence potentially affecting the Gippsland coast results from the extraction of large quantities of groundwater, oil and natural gas. However, the current incidence of subsidence is yet to be conclusively proven. Subsidence can cause greater flooding, particularly if compounded by the likely impacts of climate change and increased dampening of low-lying areas. Development in low areas needs to consider potential land subsidence.

Proposals for new coastal-dependent industry or expansion of existing coastal industry should be subject to appropriate environmental and landscape assessments to determine whether the likely effects on the environment, including cumulative and long-term effects, are acceptable and have appropriate mitigation and management measures.

While these projects offer significant economic and social benefits, a strategic approach to their siting and location is important to ensure minimal environmental impact, and to take into account climate change risks and the landscape and aesthetic values of the coast.

Policy

1 Ensure proposals for large scale coastal-dependent use and development are subject to comprehensive planning assessment and consider environmental, social and economic effects.

Codrington wind farm CA/CC SNAPSHOTS

Southern Jewel Anemones – Beware Reef Marine Sanctuary FRIENDS OF BEWARE REEF

Implementation and coordination

The planning and management of Victoria's coastal, estuarine and marine environment is the responsibility of many parties, from the government acting for and on behalf of the people of Victoria, to government agencies with legislated responsibilities to protect, conduct or control activity, to appointed managers with defined responsibilities, to the Victorian community either as businesses, organised groups or as individuals.

The *Coastal Management Act* 1995 is the key legislative basis for the Victorian Coastal Strategy.

The Act:

a establishes the Victorian Coastal Council
b establishes the three Regional Coastal Boards (Western, Central and Gippsland)
c provides for the coordinated strategic planning and management of the Victorian coast
d provides for the preparation and implementation of Coastal Action Plans and management plans for coastal Crown land including the sea-bed
e provides a coordinated approach to approvals for the use and development of coastal Crown land including the sea-bed through Coastal Management Act consents.

The Victorian Coastal Council has the task of working to define a vision for Victoria's coast and providing clear direction on how that vision is to be realised.

This strategy is the primary document for coastal, estuarine and marine management in Victoria. Its purpose is to direct all planning and management that affects the Victorian coast. The Act requires that all land managers must take all reasonable steps to give effect to this strategy.

The Victorian Coastal Council's role is to coordinate the implementation of the Victorian Coastal Strategy and Coastal Action Plans, and must report annually to the Minister for Environment and Climate Change on the implementation of this strategy.

The Regional Coastal Boards have responsibility for development of Coastal Action Plans within their respective regions. Coastal Action Plans are the primary tool for the planning and management of significant coastal, estuarine and marine areas or issues. Coastal Action Plans are endorsed by the Minister and published in the Government Gazette. Coastal Action Plans must identify strategic directions and objectives for use and development in the region, and must provide for detailed planning of the region or part thereof.

Many other pieces of Victorian legislation also have a significant function in ensuring the effective planning and management of the Victorian coastal and marine environment. The agencies responsible for giving effect to this legislation are represented as both lead and partner bodies in implementing this strategy. Their responsibilities and strategic efforts contribute to the sound planning and management of the coast within the framework provided by this strategy. They include:

- Department of Sustainability and Environment – sustainable management of public land, water resources, climate change, bushfires, forests and ecosystems
- Department of Primary Industries – sustainable development of primary industries including fisheries, agriculture, forests, petroleum, minerals and energy
- Department of Planning and Community Development – land use planning and environmental assessment
- Parks Victoria – management of National Parks, reserves, public land and marine areas, and recreational infrastructure
- Environment Protection Authority – prevents and controls pollution on land, in the water and air
- Department of Transport –provides a government policy role in relation to the general development of commercial ports and associated freight networks

Local government is the critical third tier of government, which is closest to the community and environment, and is a key coastal planner and manager (when delegated under the *Crown Land Reserves Act* 1978) in Victoria. In its planning capacity, which is provided for by the *Planning and Environment Act* 1987, local government has the responsibility for applying the State Planning Policy Framework, and developing its own Local Planning Policy Framework, for the municipal area it has responsibilities for and in consultation with the communities it represents. Through these tools, local government drives planning and decision-making that affects the Victorian coast, particularly as it applies to the private realm.

Committees of Management on the Victorian coast are an established delegated management arrangement that are provided for and appointed by the provisions of the *Crown Land (Reserves) Act* 1978. They include Parks Victoria, local government, port authorities, and skills-based appointed committees with important community representation. The Victorian Coastal Strategy, in concert with Coastal Action Plans and/or management plans is the primary tools these committees will use for effective decision-making.

Catchment Management Authorities have primary responsibility for catchment planning in Victoria. This authority is provided for by the *Catchment and Land Protection Act* 1994. The principle of integrated coastal zone management applied in this strategy relies on good catchment management. The understanding and role of Catchment Management Authorities in achieving catchment health is vital to a healthy marine and coastal environment. Through the development of Regional Catchment Strategies and Regional Catchment Investment Plans, Catchment Management Authorities have key responsibilities to deliver on marine and coastal protection.

Peak bodies, non-government organisations, interest groups and universities are also key players in informing coastal and marine planning and management in Victoria. These groups provide good representation of community attitude, have knowledge to share, and contribute to direction-setting and decision-making. Encouraging these groups to develop and build the best information base they can and encouraging planners and managers to consult and involve these groups is an important process to be supported in Victoria's approach to the management of its coast.

Community groups and volunteers are vital contributors to coastal management in Victoria. Their passion, dedication, and community and environmental spirit help deliver many improvements to the coastal environment that government would have difficulty fulfilling. Many of these groups are supported by various government agency networks such as the Department of Sustainability and Environment Coast Action/Coastcare facilitator network.

The Victorian Coastal Council, under its authority outlined in the *Coastal Management Act* 1995, will work to provide for a whole-of-government approach to the planning and management of the coastal environment.

The council will exercise this responsibility by co-ordinating:

- the establishment of priorities, standard setting and target development
- reporting on effective coastal management and identification of gaps
- development and support of business cases that deliver on key coastal priorities
- advocacy for improvements to program areas and research
- pursuing funding for the implementation of this strategy through avenues such as the Land and Biodiversity White Paper due for release in 2009 and the Climate of Opportunity White Paper which will also be released in mid 2009.
- facilitation of effective partnerships and improved relationships between government, business, industry, representative groups and the community
- development of funding principles for appropriate investment into the coastal environment.

Actions

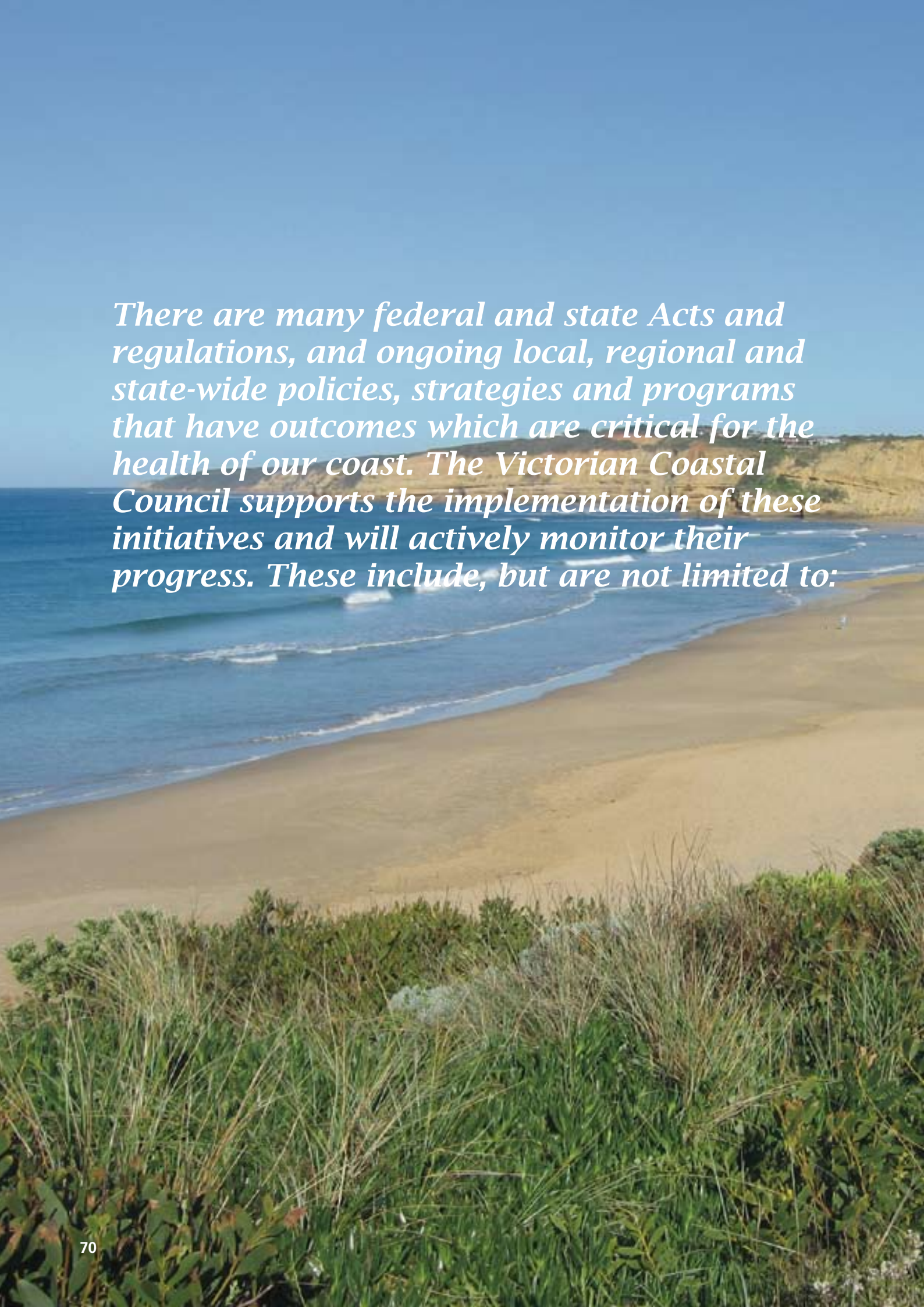
a Establish a co-ordinating committee with inter-departmental and Victorian Coastal Council representation to provide for a whole-of-government approach to the Victorian Coastal Strategy. The role of the committee will be to actively contribute to the development of the Victorian Coastal Strategy Implementation Plan (**DSE**, **VCC**).

b Within six months of the release of this strategy, the committee will develop an implementation plan as a priority action. The implementation plan will include (**DSE**, **VCC**):

- action priorities set in consultation with lead and partner agents
- commitment to actions assigned to lead and partner agents, with timelines defined and clear lines of accountability
- targets and/or key performance indicators for each action, with a focus on priority actions
- gap identification concerning resources, skills base and capacity to deliver
- improvements to program areas by strategic realignment
- identification of research needs
- identification of any business cases needed to support decision-making on further investment and funding models
- defined monitoring approach to evaluate the effectiveness of the Victorian Coastal Strategy
- development of a reporting program over the life of the strategy.

c Report on the progress of the implementation of the actions in this strategy with a mid-term review by 2011 (**VCC**).

d Review the Victorian Coastal Strategy by 2013 (**VCC**).



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 critical for the health of our coast. The Victorian Coastal Council supports the implementation of these initiatives and will actively monitor their progress. These include, but are not limited to:

Acts:

- *Aboriginal Heritage Act* 2006
- *Coastal Management Act* 1995
- *Crown Land (Reserves) Act* 1978
- *Environment Protection Act* 1970
- *Environmental Protection and Biodiversity Conservation Act* 1999
- *Flora and Fauna Guarantee Act* 1988
- *Land Act* 1958
- *Marine Act* 1988
- *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:

- Australia's Oceans Policy (Australian Government, 1998)
- Coastal Spaces Initiative (DSE and VCC, 2006)
- Commercial port land-use strategies (port authorities)
- Draft Strategy for Coastal Acid Sulfate Soils (DSE, 2008)
- Great Ocean Road Regional Strategy (DSE, 2004)
- Growing Victoria Together (DPC, 2005)
- Melbourne 2030: Planning for sustainable growth, (DSE, 2005) and Planning for all of Melbourne, The Victorian Government response to the Melbourne 2030 Audit (2008)
- National Cooperative Approach to Integrated Coastal Zone Management – Framework and Implementation Plan (DEH, 2006)
- Our Environment, Our Future: Sustainability Action Statement (DSE, 2006)
- Regional Catchment Strategies (CMAs)
- State Environment Protection Policies (EPA)
- Victoria's Biodiversity Strategy (NRE (now DSE), 1997)
- Victoria's Nature-Based Tourism Strategy 2008–2012 (TV, PV and DSE, 2008)
- Victoria's System of Marine National Parks and Marine Sanctuaries – Management Strategy 2003–2010 (PV)
- Victoria's Native Vegetation Management – A Framework for Action (DSE, 2002)
- Victorian Abalone Aquaculture Translocation Protocol (DPI, 2007)
- Victorian Aquaculture Strategy (DPI, 2008)
- Victorian Greenhouse Strategy (DNRE (now DSE), 2002)
- Victorian Heritage Strategy (DPCD, 2006)
- Victoria Planning Provisions, including the State Planning Policy Framework and the Local Planning Policy Framework
- Victorian Ports Strategic Framework (DOI, 2004)
- Victorian River Health Strategy (DSE, 2002) and Regional River Health Strategies (CMA)

Plans:

- Coastal Action Plans under the *Coastal Management Act* 1995 (RCB)
- Management Plans under the *Coastal Management Act* 1995 (CoM), *Fisheries Act* 1995 (DPI), 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)
- Committee of Management Responsibilities and Good Practice Guidelines (DSE, 2003)
- Minimal Impact Guidelines – Marine National Parks and Sanctuaries (PV)
- Siting and Design Guidelines for Structures on the Victorian Coast (VCC, 1998)

Programs:

- Beach Monitoring Program (EPA)
- Better Bays and Waterways Program (EPA and Melbourne Water)
- Community engagement and participation programs such as Coast Action/Coastcare (DSE), the Friends network, Fishcare (DPI), Sea Search, Reefwatch, and Estuary Watch
- Future Coasts – preparing Victoria's coast for climate change (DSE)
- Indigenous Partnerships Framework 2007–2010 (DSE, 2007)

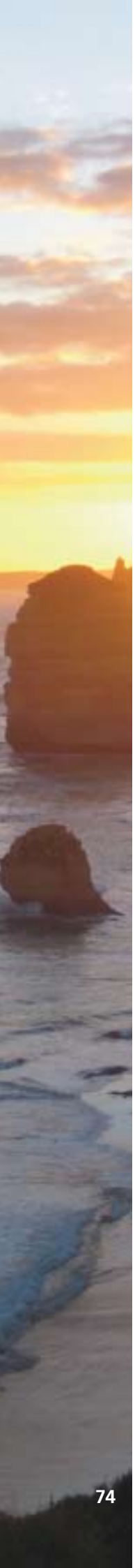
In addition, Australia is party to many international treaties which influence the use and management of coastal, estuarine and marine environments.

Appendices

Glossary

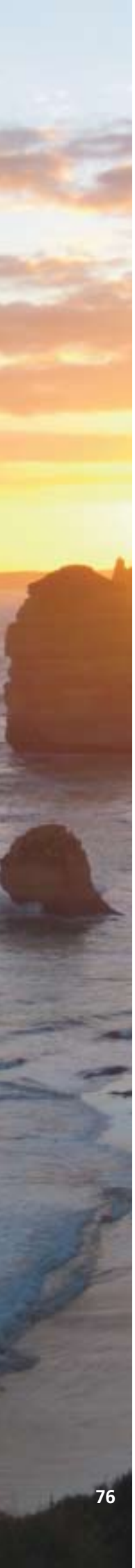
Activity centres	defined in *Melbourne 2030: Planning for sustainable growth*, activity centres provide the focus for services, employment and social interaction in cities and towns within metropolitan Melbourne. They are where people shop, work, meet, relax and often live. Usually well-served by public transport, they range in size and intensity of use.
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.
Adaptive management	systematic process for continually improving management policies and practices by learning from the outcomes of operational programs and incorporating new information.
Aquaculture	cultivation of fish, molluscs and other aquatic organisms in fresh or salt water for human use.
Beach renourishment	a technique used to restore an eroding or lost beach, involving placing appropriately sourced sand on the shoreline to widen the beach, for the purpose of protecting adjoining natural and man-made assets.
Biofouling	the undesirable settlement and growth of microorganisms, plants, algae, and animals on submerged structures, especially ships' hulls. Biofouling also occurs on the surfaces of living marine organisms.
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.
Bioregion	broadscale mapping unit that capture the patterns and ecological characteristics in the landscape.
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.
Climate change	changes in climate attributed to the human-induced increase in concentration of greenhouse gases in the atmosphere. Climate change involves increases in temperature, sea level, and increased frequency of severe weather events such as storms.
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.

Twelve Apostles near Port Campbell J ALLSOP



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.
District town	settlements with large and diverse populations. All essential services are provided to surrounding settlements. Variety of housing and moderate employment base. Popular visitor destinations, closer to Melbourne popular retirement destinations.
Ecological vegetation class (EVC)	the components of a vegetation classification system. They are groupings of vegetation communities based on floristic, structural and ecological features.
Ecologically sustainable development	development that improves the total quality of life, now and in the future, in a way that maintains the ecological processes on which life depends.
Ecologically sustainable use	the use of a species or ecosystem within the capacity of the species, ecosystem and bioregion for renewal or regeneration.
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.
Effluent	a liquid, partially or completely treated or in its natural state, flowing from a water or sewage treatment plant.
Environmental flow	the water regimes needed to sustain the ecological values of aquatic ecosystems at a low level of risk.
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.
Fire regime	the frequency, intensity, season and scale of fire in a given area over a period of time.
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.
Geosequestration (also known as carbon capture and storage)	geosequestration is a technology that puts CO^2 into deep, secure underground geological storage, including in deep geological structures underneath the ocean.
Habitat	the area occupied by an organism or group of organisms.
Hamlet	settlements with low, seasonal population levels, located in a singular urban zone. Generally no sewer connection or major services, and limited accommodation. High levels of holiday home ownership closer to Melbourne.
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).

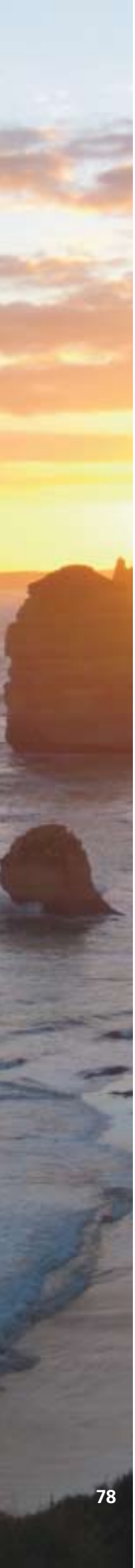
Invasive species	an animal pest, weed or disease that can adversely affect indigenous species and ecosystems.
Marine National Park	highly protected areas reserved and managed under the *National Parks Act* 1975 that represent the range of marine environments in Victoria, and in which no fishing, extractive 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.
Municipal strategic statement	a concise statement of the key strategic planning, land use and development objectives for a municipality and includes strategies and actions for achieving those objectives.
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.
Planning scheme overlay	additional requirements to a planning zone which provide for specific development issues or policy matters.
Precautionary principle	it is a fundamental component of the concept of ecologically sustainable development (ESD) and has been defined in Principle 15 of the Rio Declaration (1992) United Nations Conference on Environment and Development, Rio, 1992 (the "Rio Declaration"): *Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*
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.
Regional centre	a settlement with large, diverse population and housing base with all essential services, including education, hospitals and interchange points for public transport. Large employment bases with strong connections with surrounding settlements.
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.
Rural district	settlement with a cluster of housing on smaller rural sized lots in non-urban zones. Generally they provide no water or sewer connections and no services.
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 centre, district town, town, village, hamlet or rural district.
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 (also known as township plans and urban design frameworks)	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.
Subdivision	division of land into two or more parts which can be separately sold.
Subsidence	the sinking or lowering of the earth's surface.
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.
Town	a settlement with population levels that vary in line with general services. Diversity of demography and housing. Moderate to high levels holiday home ownership. Popular retirement/lifestyle destination closer to Melbourne. Basic medical facilities. Strong employment relationship with larger settlements nearby.
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.
Village	a settlement with moderate population levels and seasonal fluctuations. Access to basic services. Sewer connections vary. Moderate to high levels of holiday home ownership in settlements closer to Melbourne or regional centres.
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.

Acronyms

AAV	**Aboriginal Affairs Victoria** Central point of advice on all aspects of Aboriginal affairs in Victoria.
CAP	**Coastal Action Plan**
CASS	**Coastal Acid Sulfate Soils**
CCB	**Central Coastal Board** See 'regional coastal board'. Region extends from Breamlea to Venus Bay.
CES	**Commissioner for Environmental Sustainability** An independent body that advocates, audits and reports on environmental sustainability.
CMA	**Catchment Management Authority** Established under the *Catchment and Land Protection Act* 1994 to achieve integrated and sustainable catchment management. There are five coastal CMAs in Victoria.
CoM	**Committee of Management** Appointed to manage, maintain, improve and control coastal Crown land reserves.
CSIRO	**Commonwealth Scientific and Industrial Research Organisation** Australia's peak research organisation which provides scientific solutions to industry, governments and communities around the world.
DEM	**Digital elevation modelling**
DIIRD	**Department of Innovation, Industry and Regional Development** Provides leadership for Victorian economic and regional development.
DOT	**Department of Transport** Main provider of essential infrastructure in Victoria, including commercial ports, channels, rail and roads.
DPC	**Department of Premier and Cabinet** Provides a leadership role in the identification and implementation of the strategic directions of Victorian Government.
DPCD	**Department of Planning and Community Development** Responsible for land use planning and environmental assessment.
DPI	**Department of Primary Industries** Promotes the sustainable development of primary industries including fisheries, agriculture, forests, petroleum, minerals and energy
DSE	**Department of Sustainability and Environment** Responsible for the sustainable management of public land, water resources, climate change, bushfires, forests and ecosystems.
EBM	**Ecosystem-based management**
EPA	**Environment Protection Authority** An independent statutory authority set up to prevent and control pollution on land, in water and air, and industrial noise.
ESD	**Ecologically sustainable development**



EVC	**Ecological vegetation class**
GCB	**Gippsland Coastal Board** See 'regional coastal board'. Region extends from the New South Wales border to Venus Bay.
HV	**Heritage Victoria** Manage historic shipwrecks and relics and recommend places and objects for inclusion on the Victorian Heritage Register.
ICZM	**Integrated coastal zone management**
IPCC	**Intergovernmental Panel on Climate Change**
LG	**Local government** 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.
LPPF	**Local planning policy framework**
MSV	**Marine Safety Victoria** Coordinates waterway management and vessel standards. Funds the improvement and development of associated infrastructure.
MW	**Melbourne Water** Manages Melbourne's water supply catchments, sewage treatment, rivers, creeks and major drainage systems throughout the Port Phillip and Westernport region.
PV	**Parks Victoria** Established under the *Parks Victoria Act* 1998 to provide services to the State for the management of parks, reserves, and other land.
RAP	**Registered Aboriginal Party**
RCB	**Regional Coastal Board** The Western, Central and Gippsland Regional Coastal Boards are established under the *Coastal Management Act* 1995 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.
SEPP	**State Environment Protection Policies** Prepared under the *Environment Protection Act* 1970 to provide the leadership, legal and statutory basis for improving water quality in the marine environment.
SPPF	**State planning policy framework**
TV	**Tourism Victoria** Develops and markets Victoria as a premium tourist destination for Australian and international travellers.
VCC	**Victorian Coastal Council** The Victorian Coastal Council is appointed under the *Coastal Management Act* 1995 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.
VPP	**Victoria planning provisions**
WCB	**Western Coastal Board** See 'regional coastal board'. Region extends from Breamlea to the South Australian Border.

References

Aboriginal Affairs Victoria (AAV) (2005) *Aboriginal Cultural Heritage Places* map, Victorian Government, Melbourne. **www.dvc.vic.gov.au/aav**

Association of Bayside Municipalities (2001) *Port Phillip Coastal and Marine Planning Program, Stormwater Implementation Project: Statutory Framework and Standards* September 2001. **www.abmonline.asn.au**

Bruntland, G (ed) (1987) *Our Common Future: The World Commission on Environment and Development*, Oxford University Press. **www.oup.com/uk/catalogue**

Canadell, J.G., C. Le Quéréc, M.R. Raupach, C.B. Field, E.T. Buitenhuis, P. Ciais, T.J. Conway, N.P. Gillett, R.A. Houghton and G. Marland (2007), *Contributions to accelerating atmospheric CO2 growth from economic activity, carbon intensity, and efficiency of natural sinks.* PNAS, 104, 18866-18870, doi: 10.1073/pnas.0702737104.

Central Coastal Board, The State of Victoria (2007) *Boating Coastal Action Plan for the Central Region*. **www.ccb.vic.gov.au**

Chambers, Nicky; Simmons, Craig & Wackernagel (2000) *Sharing Nature's Interest: Using Ecological Footprints as an Indicator of Sustainability*, Earthscan, London. **www.earthscan.co.uk**

Church, J.A., J.M. Gregory, P. Huybrechts, M. Kuhn, K. Lambeck, M.T. Nhuan, D. Qin and P.L. Woodworth (2001), Changes in Sea Level. *Climate Change 2001: The Scientific Basis*, J.T. Houghton et al., Eds., Cambridge University Press, 639-694

Church, J. and White, N. (2006) *20th century acceleration in sea level rise*. Geophysical Research Letters, 33, L01602. **www.pol.ac.uk/psmsl/**

CSIRO (2007) *Climate Change in Australia – Technical Report*. Australian Government, Canberra. **www.climatechangeinaustralia.gov.au/**

CSIRO (2008a), viewed November 2008, **http://www.cmar.csiro.au/sealevel/sl_proj_21st.html**

CSIRO (2008b), viewed November 2008, **http://www.cmar.csiro.au/sealevel/sl_proj_obs_vs_proj.html**

Department of Infrastructure (2004) *Victorian Ports Strategic Framework* Victorian Government, Melbourne. **www.doi.vic.gov.au/Doi/Internet/Freight.nsf**

Department of Natural Resources and Environment (2002) *Native Vegetation Management: A Framework for Action*, Victorian Government, Melbourne. **www.dse.vic.gov.au/DSE**

Department of Natural Resources and Environment (2002) *Healthy Rivers Healthy Communities and Regional Growth: Victorian River Health Strategy*, Victorian Government, Melbourne **www.dse.vic.gov.au/dse/nrenlwm.nsf**

Department of Planning and Community Development (2008) *Victorian Aboriginal Heritage Council Strategic Plan 2008–2011*. Victorian Government, Melbourne. **www.dpcd.vic.gov.au/aav**

Department of Primary Industries (2006) *Fisheries Victoria Positioning Statement 2006–2010*, Victorian Government, Melbourne. **www.dpi.vic.gov.au/DPI**

Department of Primary Industries (2006b) *Ecosystem-based fisheries management. A policy statement* July 2006–June 2010, Victorian Government, Melbourne. **www.dpi.vic.gov.au/DPI**

Department of Primary Industries (2005) *Fisheries Victoria Management Report Series: Planning Guidelines for Land Based Aquaculture in Victoria*. Fisheries Victoria Management Report Series No. 21, Victorian Government, Melbourne. **www.dpi.vic.gov.au/DPI**

Department of Sustainability and Environment (2004) *Great Ocean Road Region Towards a vision for the future. A land use and transport strategy*, Victorian Government, Melbourne. **www.dpcd.vic.gov.au/dse**

Department of Sustainability and Environment (2006) *The Caravan and Camping Parks on Coastal Crown Land Reference Group report*, Melbourne. **www.dse.vic.gov.au/dse**

Department of Sustainability and Environment (2006) *Coastal Spaces Inception Report: May 2006*, Victorian Government, Melbourne. **www.dse.vic.gov.au/dse**

Department of Sustainability and Environment (2006) *Coastal Spaces Recommendations: April 2006*, Victorian Government, Melbourne. **www.dse.vic.gov.au/dse**

Department of Sustainability and Environment (2006) *Coastal Spaces Landscape Assessment Study*, Victorian Government, Melbourne. **www.dse.vic.gov.au/dse**

Department of Sustainability and Environment (2006) *Coastal Spaces Landscape Assessment Study: State Overview Report September 2006*, Victorian Government, Melbourne. **www.dse.vic.gov.au/dse**

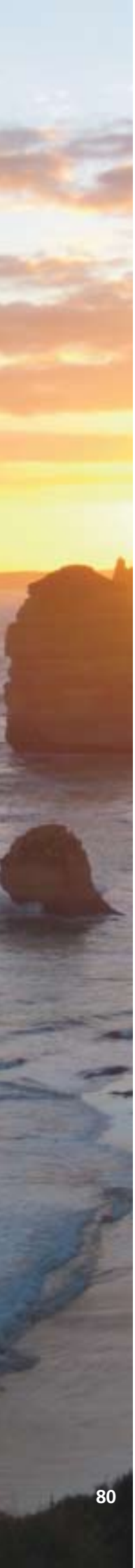
Department of Sustainability and Environment (2008) *Draft Strategy for Coastal Acid Sulfate Soils in Victoria*, Victorian Government, Melbourne. **www.dse.vic.gov.au/dse**

Department of Sustainability and Environment (2008) *Future Coasts: Preparing Victoria's coast for climate change – February 2008, Issue 2* Victorian Government, Melbourne. **www.climatechange.vic.gov.au**

Department of Sustainability and Environment (2008) *Land and Biodiversity at a Time of Climate Change: Green Paper*, Victorian Government, Melbourne. **www.dse.vic.gov.au/landwhitepaper**

Department of Sustainability and Environment (2005) *Regional Matters: An Atlas of Regional Victoria 2005*, Victorian Government, Melbourne. **www.dse.vic.gov.au/DSE**

Department of Sustainability and Environment (2006) *Our Environment Our Future: Sustainability Action Statement 2006* Victorian Government, Melbourne. **www.dse.vic.gov.au/DSE**



Department of Sustainability and Environment (2007) *Indigenous Partnership Framework 2007–2010* Victorian Government, Melbourne. **www.dse.vic.gov.au/DSE**

Environment Conservation Council (2000) Marine, *Coastal and Estuarine Investigation, Final Report*. **www.veac.vic.gov.au**

Intergovernmental Panel for Climate Change (2007) *A report of Working Group 1 of the Intergovernmental Panel on Climate Change: Summary for Policy Makers*. **www.ipcc.ch/**

International Visitor Survey and National Visitor Survey (2005), Tourism Australia. **www.tourism.australia.com/Research.asp**

IPSOS (2007) *Victorian Coastal and Marine Environment Community Attitudes and Behaviour Research: Wave 3. Final Report*, IPSOS Consultants, Melbourne. **www.vcc.vic.gov.au/**

GEF/UNDP/IIMO Regional Programme on Partnerships in Environmental Managements for the Sea's of East Asia (2005) Framework for National Coastal and Marine Policy Development. **www.pemsea.org/knowledge-center/pemsea-publications**

Gippsland Integrated Natural Resources Forum (2008) *Natural resources Report Card 2008* **www.ginrf.org.au**

Gurran, Dr. N et al. (2005) *Meeting the Sea Change Challenge: Sea Change Communities in Coastal Australia – 31 March 2005*, Planning Research Centre, University of Sydney. **www.seachangetaskforce.org.au**

Gurran, Dr. N et al. (2006) *Meeting the Sea Change Challenge: Best Practice Models of Local and Regional Planning for Sea Change Communities – Report No. 2, January 2006*, Planning Research Centre, University of Sydney. **www.seachangetaskforce.org.au**

Hansen, J. (2007) *Scientific reticence and sea level rise.* Environmental Research Letters. 2, 1-6. **www.iop.org/EJ/article/**

Hunter, J.R. (2008), Estimating Sea-Level Extremes Under Conditions of Uncertain Sea-Level Rise. *Submitted to Climatic Change*.

IPCC (2007) *Intergovernmental Panel on Climate Change Fourth Assessment Report. Summary for Policy Makers*. IPCC, Brussels. **www.ipcc.ch/pdf/assessmentreport/**

Land Conservation Council (1993) *Marine and Coastal Special Investigation Descriptive Report*, Victorian Government, Melbourne. **www.veac.vic.gov.au**

Lemke, P., J. Ren, R.B. Alley, I. Allison, J. Carrasco, G. Flato, Y. Fujii, G. Kaser, P. Mote, R.H. Thomas and T. Zhang (2007), Observations: Changes in Snow, Ice and Frozen Ground. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Meehl, G. A., C. Covey, T. Delworth, M. Latif, B. McAvaney, J. F. B. Mitchell, R. J. Stouffer and K. E. Taylor (2007), *The WCRP CMIP3 multi-model dataset: A new era in climate change research. Bulletin of the American Meteorological Society*, 88, 1383-1394.

Mornington Peninsula Shire Council and the Central Coastal Board (2005) *Mornington Peninsula Shire Mt Eliza to Point Nepean Coastal Action Plan: 2021*. **www.ccb.vic.gov.au**

National Tidal Centre, Australian Bureau of Meteorology (2006) *The Australian Baseline Sea Level Monitoring Project: Annual Sea Level Data Summary Report*, July 2005–June 2006. **www.bom.gov.au/oceanography**

Natural Resource Management Ministerial Council (2006) *National Cooperative Approach to Integrated Coastal Zone Management: Framework and Implementation Plan* Commonwealth Government, Australia. **www.deh.gov.au/coasts/iczm/index.html**

Office of the Victorian Government Architect (2008) *Good Design and the Coast, Issue 03*, Victorian Government, Melbourne. **www.dpc.vic.gov.au**

Port Phillip and Westernport Catchment Management Authority (2004), *Port Phillip and Western Port Regional Catchment Strategy 2004–2009*. **www.ppwcma.vic.gov.au**

Rahmstorf S; Cazenave A; Church JA et al. (2007) *Recent climate observations compared to projections*, Science 316, 709. **www.sciencemag.org**

Rahmstorf, S. (2007) *A Semi-Empirical Approach to Projecting Future Sea Level Rise*. Science. 315, 368-370. **www.sciencemag.org**

Raupach, M.R., G. Marland, P. Ciais, C. Le Quéré, J.G. Canadell, G. Klepper and C.B. Field (2007), *Global and regional drivers of accelerating CO2 emissions*. PNAS, 104, 10288-10293, doi:10.1073/pnas.0700609104.

SGS (2007) *Impacts of Coastal Populations Fluctuations*, SGS Economics and Planning, Melbourne. **www.dse.vic.gov.au**

Smith T and Doherty M (2006) *The suburbanisation of coastal Australia*, Paper Prepared for the 2006 Australia State of the Environment Committee, Department of Environment and Heritage, Canberra. **www.environment.gov.au/soe/2006/publications/**

State of Victoria (2008) *Planning for all of Melbourne: The Victorian Government response to the Melbourne 2030 Audit* Victorian Government, Melbourne. **www.dpcd.vic.gov.au**

Tourism Victoria (2007) *Victoria's Nature-Based Tourism Strategy Draft*, Victorian Government, Melbourne. **www.tourism.vic.gov.au/strategies-and-plans/**

Urban Enterprise (2007) *Coastal Population Fluctuations: Phillip Island; Torquay*, Urban Enterprise, Melbourne. **www.dse.vic.gov.au/DSE**

URS (2007) *Assessing the Value of the Coast to Victoria.* URS, Melbourne. **www.vcc.vic.gov.au**

Victorian Coastal Council (2002) *Victorian Coastal Strategy*, Victorian Government, Australia. **www.vcc.vic.gov.au**

Victorian Coastal Council (2004) T*he Victorian Coast Report: The Actions*, Victorian Government, Melbourne. **www.vcc.vic.gov.au**

Victorian Coastal Council (2007) *Draft Victorian Coastal Strategy*, Victorian Government, Australia. **www.vcc.vic.gov.au**

Appendix A: Actions table

	Action	Page Number	Lead Agent	Partner Agents
1.1 Marine biodiversity and ecosystems				
1.1a	Build the scientific understanding required to accurately predict the vulnerability of Victoria's marine ecosystems to climate change and identify options for marine ecosystems to prepare and adapt to climate change through national and Victorian approaches.	27	DSE	DPI, EPA, VCC
1.1b	Develop a marine biodiversity science and research strategy which informs Victoria's marine management. The strategy should consider funding options and opportunities and identify strategies to strengthen coordination with other relevant states. Improving strategic understanding of Western Port's ecological systems and threats should be a particular focus of this action.	27	DSE	CCB, EPA, MW, PPWPCMA
1.1c	Develop and implement a marine condition assessment framework and reporting approach that will inform monitoring approaches, supported by a scientific assessment of existing programs and future needs.	27	DSE	EPA, DPI, PV, CMA
1.1d	Improve Victoria's marine management, planning and institutional framework to address current and emerging challenges – such as climate change, marine parks and sanctuaries (comprehensiveness, adequacy and representation), and catchment-coast-sea integration – with the possible outcome of a marine strategy.	27	DSE	DPI, EPA, PV
1.1e	Develop a strategic framework to improve the prioritisation of management actions for marine assets such as biodiversity, fish habitats and key processes.	27	DSE	DPI, PV, CMA
1.1f	Update and improve Victoria's protocols for marine pest incursions, including a rapid response to new incursions, meeting obligations under a national system to prevent and manage marine pests), and supporting national best practice guidelines for managing biofouling across stakeholder groups	27	DSE	EPA, DPI, DOT
1.2 Wetlands and estuaries				
1.2a	Develop and implement an integrated river, wetland and estuary strategy, based on asset priorities and integrate the recommendations into relevant planning and management strategies.	28	DSE	CMA, PV, DPI, CoM, VCC
1.3 Onshore biodiversity and ecosystems				
1.3a	Review existing science and undertake new research to understand the vulnerability of onshore coastal habitats and species to climate change impacts, and prepare adaptation options and priorities.	30	DSE	CMA, Universities, VCC
1.3b	Develop a program to report on and monitor the condition of onshore coastal and estuarine habitat, including finer-scale mapping of ecological vegetation classes, at identified sites across the state.	30	DSE	CMA, PV, CoM
1.3c	Raise awareness of the impacts of vandalism of coastal vegetation and develop regional and/or local approaches to address the issue.	30	RCB	CoM, PV, LG, DSE
1.3d	Undertake accurate mapping of coastal property boundaries in areas known to be inaccurate and negatively impacting on coastal access, maintenance and protection.	30	DSE	CoM, PV, LG
1.3e	Work with adjacent private landholders to investigate mechanisms to address the maintenance and conservation of coastal Crown land values such as planning provisions, planning permit conditions, agreements, covenants, nature links, rate rebates etc.	30	LG	DSE, DPCD, CoM, PV
1.3f	Develop a coastal tender program (similar to BushTender/BushBroker) that encourages landholders to protect existing habitat and absorb the movement of vulnerable habitats due to climate change from Crown land onto private property in identified priority areas.	30	DSE	CMA
1.4 Catchment management and water quality				
1.4a	Establish a marine, estuarine and coastal technical reference group to review regional catchment strategies, propose actions, develop and assess funding priorities and provide coastal, estuarine and marine expertise to catchment management authorities, as required.	31	CMA	
1.4b	Consolidate and integrate frameworks and programs to address land based sources of marine pollution to the bays, Gippsland Lakes, and other priority areas.	31	CMA	RCB, EPA, LG
1.4c	Establish and coordinate a working group of relevant agencies to assess water quality impacts by septic tanks in non-sewered areas in coastal communities.	31	VCC	EPA, LG, VWA
1.4d	Promote the need for major land use and operational changes in farming practices to reduce the impact of catchment discharges that impact on the health of marine ecosystems.	31	CMA	DPI, DSE, LG, DPCD
1.5 Cultural values and heritage				
1.5a	Review Coastal Action Plans and management plans in consultation with Traditional Owners, Registered Aboriginal Parties and applicants, to respond to the implications of native title claims and the *Aboriginal Heritage Act* 2006 along the coast.	33	RCB/CoM & PV	DPCD, DSE
1.5b	Work with Aboriginal communities, through Traditional Owners, Registered Aboriginal Parties or applicants, to integrate traditional knowledge into coastal planning and management.	33	CoM & PV	DPCD, LG
1.5c	Provide land managers and planners with access to heritage programs delivered by Heritage Victoria and advice through local heritage advisor services.	33	DPCD	
1.5d	Develop an advisory note for coastal planners, managers and users on managing Aboriginal cultural heritage and activities and developments on the coast.	33	DSE/AAV	VCC, CoM, PV

	Action	Page Number	Lead Agent	Partner Agents
2.1 Planning for climate change				
2.1a	Establish an appropriate mechanism and/or instrument to support policy and decision-making in relation to the risks and impacts of climate change.	38	DPCD & DSE	
2.1b	Work through national and state processes to develop consistent national benchmarks for coastal vulnerability assessments.	38	DSE & DPCD	
2.1c	Develop comprehensive vulnerability assessments for the whole Victorian coast (through the Future Coasts program) to provide guidance to all planners and managers as to how to apply the information for decision-making.	38	DSE & DPCD	
2.1d	Develop a methodology to provide guidance to all planners and managers as to how to apply the policy of planning for sea level rise of not less than 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions for decision-making .	38	DSE	
2.1e	Upon completion of vulnerability assessments being undertaken as part of the Future Coasts program: • Investigate opportunities within the Victoria Planning Provisions to address climate change risks and impacts and, if necessary investigate the development of new provisions to manage coastal climate change risks and impacts (DPCD) • Develop appropriate adaptation strategies to support local and regional level decision-making in relation to the impact and risk of climate change to the coastline (DSE, DPCD, RCB).	38	DPCD DSE, DPCD, RCB	LG, DSE
2.2 Planning and managing use and development				
2.2a	Review the effectiveness of Victoria's coastal planning and management arrangements and identify and develop improvements.	40	VCC	RCB, DSE
2.2b	Review the State Planning Policy Framework (SPPF) in the Victoria Planning Provisions (VPP), to include the coastal policy statements contained in the Victorian Coastal Strategy, 2008.	40	DPCD	VCC, DSE
2.2c	Develop a program to implement the Draft strategy for Coastal Acid Sulfate Soils in Victoria, which: • raises awareness of the location, risks and management options for CASS • establishes leadership for the implementation • ensures best practice in the assessment and identification of CASS risks to guide decision makers.	40	DSE	DPCD, DPI, EPA, LG
2.2d	Review coastal planning schemes to determine the need to extend their control into the marine environment for 600 metres to ensure consistency in the area of control along the coast and to improve the integration of catchment and marine planning and management.	40	DPCD	LG, DSE, VCC
2.3 Information, research and monitoring				
2.3a	Broker independent scientific advice from a network of experts to monitor emerging scientific issues and assist with effective coastal, estuarine and marine management in Victoria.	41	VCC	
2.3b	Develop a central scientific information data base for access by all.	41	VCC	RCB, DSE
2.3c	Provide local government with sufficient information and build capacity to ensure that planning schemes are effectively used to identify, protect, and address threats to significant coastal environments on private land abutting coastal Crown land.	41	DSE	DPCD
2.3d	Identify the monitoring needs for Victoria's coast.	41	VCC	
2.4 Education, awareness and stewardship				
2.4a	Continue monitoring community attitudes to Victorian coastal and marine environments through longitudinal social research to ensure a clear understanding of community perceptions to coastal conservation and management.	43	VCC	
2.4b	Convene a marine and coastal education taskforce to coordinate statewide education activities and priorities and develop a marine and coastal education strategy with key education providers.	43	VCC	
2.4c	Actively seek opportunities for community involvement in coastal education, management, monitoring and planning, through community networks, with particular emphasis on those groups that are under-represented, such as young people and people of diverse cultural backgrounds.	43	DSE	CoM, PV, DPI
2.4d	Deliver training to planners and managers for effective decision-making, particularly in relation to: • implementing state coastal policy in management plans and planning schemes through effective local planning polices and provisions • understanding the implications of climate change as it applies to particular parts of the coast • assessing coastal vulnerability and appropriate adaption responses • informing the local community of coastal vulnerabilities and the risks and impacts of climate change, such as inundation, erosion, bushfire risk along the coast and loss of biodiversity • emergency and risk management • community engagement and participation • governance and project management • cultural heritage • coastal acid sulfate soils.	43	DSE/DPCD	

	Action	Page Number	Lead Agent	Partner Agents
3.1.1 Access				
3.1.1a	Facilitate regional approaches to improve and rationalise access to and on the coast through the application of a coastal access decision-making tool.	47	RCB	DSE, CoM, PV, LG
3.1.1b	Develop a level of service framework for the coast to facilitate the delivery of a consistent quality of service to coastal visitors, and strategic priorities for investment to identify in the type, scale and quality of services that coastal planners and managers should deliver.	47	VCC	DSE, CoM, PV
3.1.1c	Establish priority areas for all mobility access needs.	47	RCB	CoM, PV, DSE
3.1.1d	Implement programs to assist coastal planners and managers to address risk from aging infrastructure, aquatic safety, access and emergency events.	47	DSE	MSV, LSV, ESTA
3.1.2 Boating				
3.1.2a	Develop and implement (and/or review as required) boating Coastal Action Plans across Victoria.	48	RCB	MSV, PV, CoM, LG
3.1.2b	Develop a long-term strategy for the upgrade and sustainable development of safe boating facilities and infrastructure at strategically identified sites along the Victorian coast.	48	DSE	PV, MSV
3.1.3 Crown land caravan parks and camping grounds				
3.1.3a	Complete management plans for all coastal Crown land caravan parks and camping grounds.	49	CoM & PV	DSE
3.1.3b	Apply the recommendations of the Caravan and Camping Parks on Coastal Crown Land Reference Group report, including developing best practice management guidelines, finalising leasing allocation policy, and giving guidance to park managers on managing annual site permits.	49	DSE	CoM, PV
3.1.4 Coast protection				
3.1.4a	Strategically plan for the management of sand with greater consideration of climate change risks and impacts and the relative costs and benefits of any beach protection or renourishment and undertake greater education, communication and engagement with the community regarding sand management issues.	49	DSE	
3.2 Fishing and aquaculture				
3.2a	Support the development of a climate change strategy which aims to facilitate adaptation to the risks and impacts of climate change in both the commercial and recreational fishing sectors.	50	DPI	
3.2b	Improve the capacity to monitor and assess levels of recreational fishing to ensure sustainable use.	50	DPI	
3.2c	Improve understanding of habitat and environment requirements for key fisheries resources.	50	DPI	DSE
3.3 Tourism				
3.3a	Explore opportunities for recreation and tourism ventures which are sensitive to coastal settings and meet regional needs.	51	DSE	TV, PV
3.3b	Develop guidelines for planning and evaluating appropriate nature-based tourism developments outside existing settlements.	51	DPCD	DSE, TV, PV
3.3c	Progress the concept of the Great Victorian Coastal Walk.	51	VCC	DSE, PV, CoM, TV
4.1 Urban coast				
4.1a	Develop Green Wedge Management Plans to manage non urban use and development in identified areas.	58	LG	DPCD
4.1b	Incorporate the findings of landscape and neighbourhood character assessments into planning schemes in urban coastal areas experiencing development pressures.	59	LG	DPCD
4.2 Coastal settlements and communities				
4.2a	Incorporate settlement boundaries into planning schemes by 2010.	61	LG	DPCD
4.2b	Investigate options to reduce economic, environmental and social impacts of old and inappropriate subdivisions along the coast which are environmentally vulnerable and pose fire and health risks.	61	DSE & DPCD	LG
4.2c	Identify mechanisms and strategies to strengthen community resilience and social cohesion and to preserve a sense of place, particularly within communities experiencing rapid change due to the sea change phenomenon.	61	MAV	DPCD, LG
4.2d	Encourage economic development research targeted to the specific needs of small- to medium-sized communities situated within highly sensitive environmental contexts.	61	LG	DIIRD
4.2e	Develop a planning research program to investigate and provide information to planners and managers on the following issues: • impacts and implications of population growth and seasonally fluctuating population levels on: i short and longer term planning and management strategies ii the carrying capacity of coastal Crown land and the broader coastal environmental • the impacts of sea change communities, ageing coastal populations and the implication for service delivery and infrastructure as part of a review and refinement of the coastal settlement framework • land tenure and changes in property ownership and development patterns to determine and better understand the trends in coastal settlement growth dynamics.	61	DPCD	DSE, LG

	Action	Page Number	Lead Agent	Partner Agents
4.2f	Review the siting and design guidelines for structures on the Victorian coast (VCC, 1998) to provide a product that promotes environmentally sensitive design, sympathetic to coastal locations, which address the following: • incorporating energy and materials efficiency and water-sensitive urban design techniques, including solar access, natural light and ventilation, use of local materials and services, rainwater capture and water recycling • coastal character and the appropriateness of new built form for the existing sense of place • protecting significant views of waterways and from waterways • the coastal environment and coastal landscapes as a dominant setting • the spaces around buildings and maintaining the coastal landscape between towns along the coast, avoiding 'ribbon' development • continuity of the built and natural public realms • effects of extreme coastal weather on the built environment and outdoor spaces • effects of different use-patterns and seasonal occupation.	62	VCC	DPCD, DSE, OVGA
4.3 Coastal Crown land buildings and infrastructure				
4.3a	Develop a register of all public assets, buildings and spaces on coastal Crown land.	63	DSE	CoM, PV
4.3b	Develop a long-term approach for planning and managing buildings and infrastructure that may be affected by climate change risks and impacts to assist public infrastructure managers adapt to climate change.	63	DSE	PV, CoM
4.3c	Develop a comprehensive asset investment strategy having regard to their purpose, design and future use, rather than simply maintenance and renewal. This may include decommissioning of redundant assets.	63	DSE	PV, CoM
4.3d	Explore innovative funding opportunities and sources for funding coastal infrastructure.	63	DSE	PV, CoM
4.3e	Fund the ongoing maintenance of piers and jetties, seawalls, groynes and other coastal protection infrastructure, in accordance with strategic priorities and to an agreed standard.	63	DSE	PV, CoM
4.3f	Develop a bathing box and boatshed policy and management guideline to provide clear direction to the licensees of bathing box and boatsheds, planners, land managers and decision-makers responsible for Crown land foreshores containing bathing boxes and boatsheds	63	DSE	
4.3.1 Local Ports				
4.3.1a	Develop a local ports strategy that includes adaptation to the risks and impacts of climate change.	64	DSE	Local Port Authorities & CoM, PV, MSV
4.3.1b	Conduct a review of the ports services regulations for local ports.	64	DSE	PV, MSV, Local Port Authorities
Implementation and coordination				
a	Establish a co-ordinating committee with inter-departmental and Victorian Coastal Council representation to provide for a whole-of-government approach to the Victorian Coastal Strategy. The role of the committee will be to actively contribute to the development of the Victorian Coastal Strategy Implementation Plan.	69	DSE, VCC	
b	Within six months of the release of this strategy, the committee will develop an implementation plan as a priority action. The implementation plan will include: • action priorities set in consultation with lead and partner agents • commitment to actions assigned to lead and partner agents, with timelines defined and clear lines of accountability • targets and/or key performance indicators for each action, with a focus on priority actions • gap identification concerning resources, capacity to deliver and skills base • improvements to program areas by strategic realignment • identification of research needs • identification of any business cases needed to support decision-making on further investment and funding models • defined monitoring approach to the effectiveness of the Victorian Coastal Strategy • development of a reporting program over the life of the strategy.	69	DSE, VCC	
c	Report on the progress of the implementation of the actions in this strategy with a mid-term review by 2011.	69	VCC	
d	Review the Victorian Coastal Strategy by 2013.	69	VCC	

Maps

Figure 10: Aboriginal cultural heritage along the Victorian coast 2008

Source: AAV 2008 Aboriginal Cultural Heritage

Figure 11: Recreational boat facility hierarchy 2030

State Marine Precinct
A State Marine Precinct incorporates facilities of international, national, State, regional and local significance. These include ports, marinas, charter boat facilities, slip facilities, waterfront activities, marine services, piers, jetties and ramps. Such a location would generate major investment to harness and use the synergy of facilities.

Regional Boating Facility
A Regional Boating Facility accommodates a significant amount of recreational boating in appropriate conditions. These include multiple boat ramps, jetties, substantial car parking, safety measures where required and significant onshore facilities such as fish cleaning facilities, wash down areas and toilets. A site satisfying this level of hierarchy generates a significant level of boating activity from a wide catchment.

Note : Other existing local and district boat ramps will operate as provided in relevant Coastal Action Plans and management plans.

diagrammatic not to scale

Melbourne
(includes regional boat ramps at Williamstown, Docklands, St Kilda)
Altona
Werribee South
Sandringham
Mordialloc Creek
Patterson River
Geelong
Portarlington
St Leonards
Frankston
Tooradin
Queenscliff
Mornington
Hastings
Martha Cove
Rye
Cowes
Rhyll
Newhaven

See the *Central Coastal Board Boating Coastal Action Plan* (2007)

Mallacoota
Metung
Paynesville
Lakes Entrance
Loch Sport
Nelson
Portland
Cape Nelson
Port Fairy
Warrnambool
Apollo Bay
Cape Otway
Port Welshpool
Port Albert
Wilsons Promontory

Western Coastal Region
Facilities in the western region to be confirmed and updated with coastal action plan

Central Coastal Region

Gippsland Coastal Region
Facilities in the Gippsland region to be confirmed and updated with coastal action plan

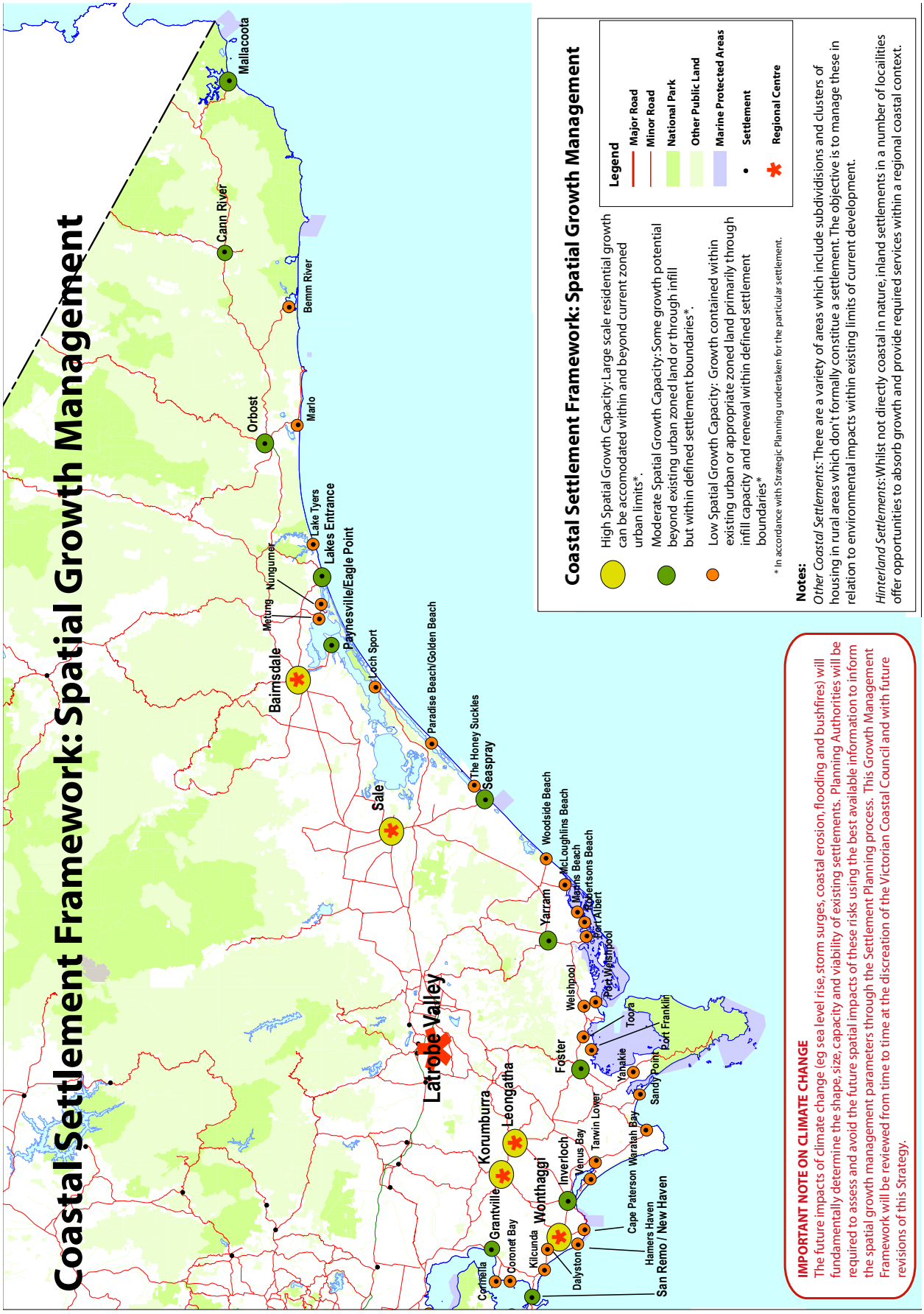


Figure 12 a: Coastal Settlement framework

The Melbourne metropolitan area, Geelong and parts of Western Port were not included in the original scope of the Coastal Spaces initiative and therefore do not feature in this map

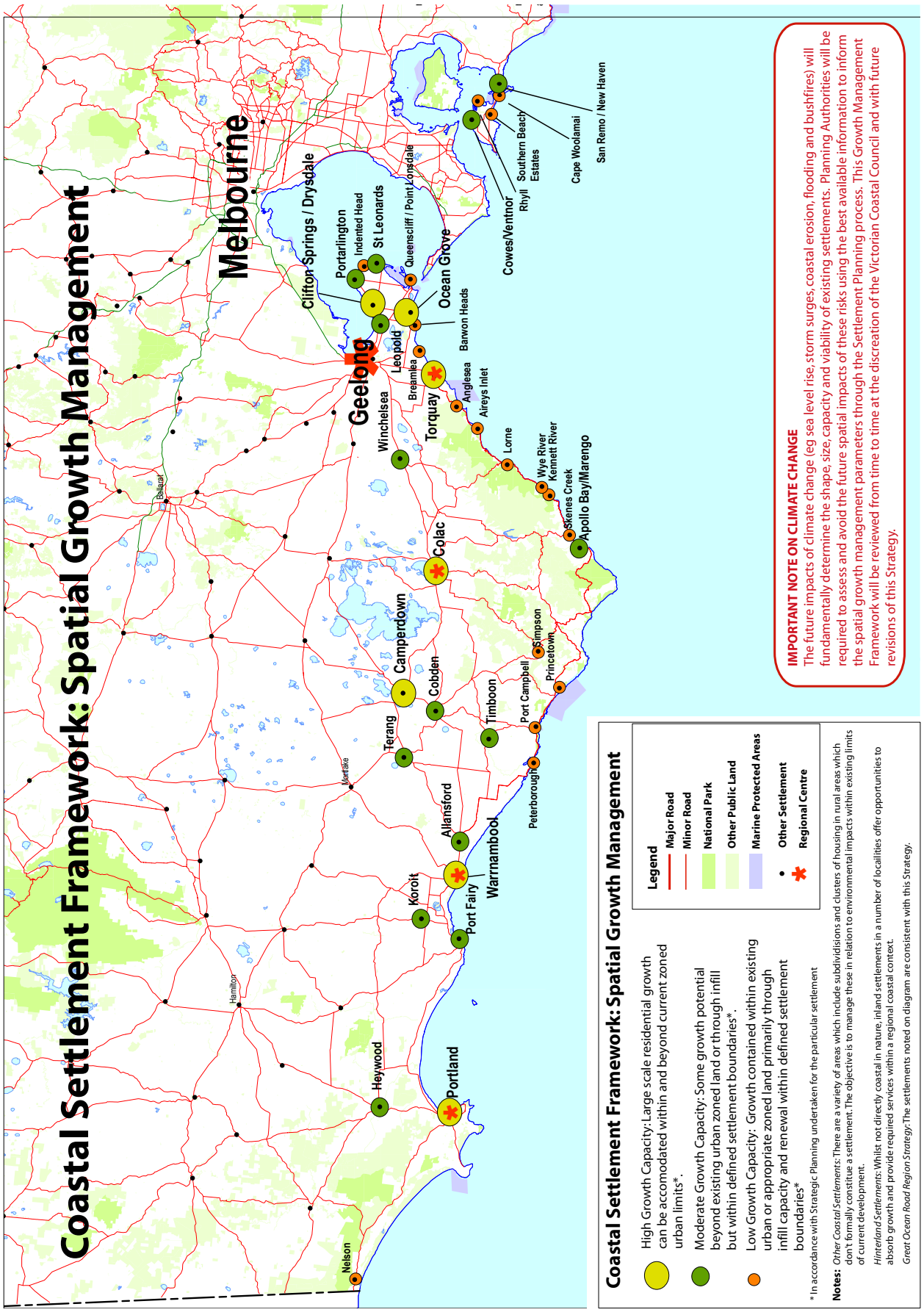


Figure 12 b: Coastal Settlement framework

The Melbourne metropolitan area, Geelong and parts of Western Port were not included in the original scope of the Coastal Spaces initiative and therefore do not feature in this map