

GLENELG ENVIRONMENT STRATEGY 2010 – 2020



Vision

Everyone acting together to ensure a healthy natural environment supporting a sustainable future for our communities

Acknowledgements

This strategy was developed by Glenelg Shire Council with the generous assistance and guidance from the steering committee and the Glenelg Shire community.

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Mayor's Foreword

The land of Glenelg Shire, and its natural and cultural resources has long been cared for by its original Indigenous custodians - the Gunditjmara, Bunganditj and Jardwadjali people. Glenelg Shire Council proudly acknowledges their rich culture and strong connection to country, and pays respect to the past and present Indigenous people for their ongoing nurturing of this land.

As a community we are privileged to live, work and play in a beautiful and unique natural environment. From our thriving coastal and rural towns to our national parks, nature reserves and wondrous coastline, our estuaries, rivers and wetlands and productive farm land, we have a responsibility to future generations to ensure that in partnership we manage and protect these precious natural assets. This environment strategy aims to protect and enhance these environmental values, while being sensitive to the social and economic needs of our vibrant and active communities.

This strategy adopts a holistic approach to sustainable management of the environment. It is a broad ranging document affecting all business units within Council, the wider community and other local authorities that have management responsibilities within the Shire. There is also clear intention by Council to ensure all Council decisions and activities are not done in isolation, but consider regional, state-wide and national priorities, while working in partnership at the local level to address local issues.

It is significant and timely that the Victorian Government released the land and biodiversity white paper, *Securing Our Natural Future*, in late 2009. This provides a long-term framework to secure Victoria's land, water and biodiversity in the face of ongoing pressures and climate change over the next 50 years. The alignment of the Glenelg Shire's Environment Strategy to this important policy document, as well as other key state and national strategies, will contribute to broader government objectives and help secure funding for the delivery of many outcomes in this strategy. This document outlines the strategies and actions for the next 10 years that will contribute to improvements in landscape function and resilience within this local government area.

The Glenelg Environment Strategy is a shared vision – it reflects the values and aspirations of our community. Particular thanks must go to those who have contributed to this strategy; the members of the Glenelg Environment Strategy Steering Committee who represent a range of organisations across and beyond the Shire; to those staff and Council officers who have given their time to input specialist knowledge and advice into the strategy, and the many community members who have contributed constructive actions for our region. Their participation and input has helped shape the issues addressed in this document.

Our challenge is to now implement this strategy and ensure the protection and enhancement of our precious natural world now and into the future.

Gilbert Wilson

Mayor
Glenelg Shire Council



Executive Summary

Table 1 Council's aims and strategies

1. DECISION-MAKING	
Aim	Be innovative and progressive in the way Council protects, manages and enhances environmental values while promoting economic prosperity, social equity, health and well-being. Inspire the Glenelg Shire community and visitors to take into account environmental considerations as well as economic and social factors in their day-to-day activities.
Strategy	1.1 Incorporate robust Environmental-Social-Economic, evidence-based decision-making processes in to Council governance
Strategy	1.2 Council to value and consider local communities' views on environmental issues in planning and implementation
2. ENVIRONMENTAL AWARENESS AND EDUCATION	
Aim	Council is a leader through environmentally sustainable practices, and supports and educates Glenelg Shire residents and visitors to live and play in a more sustainable way. Influence and lobby decision-makers and professionals in all sectors of the community whose actions impact on the environmental values of Glenelg Shire.
Strategy	2.1 Effective behaviour change
Strategy	2.2 Inform people of their responsibilities
3. BIODIVERSITY	
Aim	Continue to improve management and advocacy for protecting biodiversity of the natural assets in Glenelg Shire to ensure in the long term a robust environment resilient and adaptable to change. Reverse the current rate of decline in the extent and quality of biodiversity in Glenelg Shire.
Strategy	3.1 Council to value and appropriately manage biodiversity and environmental values of Council managed land
Strategy	3.2 Improve roadside vegetation conservation and management

Strategy	3.3 In partnership, Council to deliver incentives and education programs that foster an ethic of conservation and environmental care on private land
Strategy	3.4 Council to actively contribute to planning and decision-making with all Crown land managers in Glenelg Shire
4. PEST PLANTS AND ANIMALS	
Aim	Collaborate with partner agencies to ensure effective management of pest plants and animals within the Shire through ongoing eradication and control programs.
Strategy	4.1 Provide leadership and positive stewardship of pest plant and animal management in the Shire
5. COASTLINE AND SEA	
Aim	Coastal and marine environments to retain their environmental, cultural and other values, which makes them iconic attractions for Australians and international visitors, through Council's planning, management and influence. This will be achieved in conjunction with other local, regional and state authorities.
Strategy	5.1 Increase the capacity and resilience of Glenelg's biophysical coastal environment to adjust to the impacts of climate change
Strategy	5.2 Through strong Council planning, management and influence, ensure the coastline retains its environmental and cultural heritage values
Strategy	5.3 Glenelg Shire to manage the threats and influences on estuarine ecosystems
Strategy	5.4 Manage the threats and influences on marine environment and biodiversity through excellent management of coastal planning and activities as coastal committee of management
6. WATERWAYS, LAKES AND WETLANDS	
Aim	Work with the community and partner agencies to protect and enhance the health of waterways, lakes, wetlands and ground water sources in Glenelg Shire.
Strategy	6.1 Protect and enhance the health of wetlands, lakes, waterways and aquifers and their sources in Glenelg Shire



7. SOIL AND FARMLAND	
Aim	Work with the community and partner agencies to conserve and improve the health of soil and farm land in Glenelg Shire.
Strategy	7.1 Council to advocate and support soil conservation practices throughout Glenelg Shire
Strategy	7.2 Council to advocate and support land management practices that limit the spread of dryland salinity in the Shire
Strategy	7.3 Council to take all reasonable steps to prevent disturbance of acid sulfate soils in Glenelg Shire
Strategy	7.4 Council planning to best match land use with the capacity of the landscape
8. RESOURCE EFFICIENCY	
Aim	<p>Reduce greenhouse gas emissions of Council's activities and offset those which cannot be avoided. Through the strategies developed and lessons learnt, help the community do the same.</p> <p>Aggressively pursue waste reduction and minimisation measures which increase recycling, recovery and reuse (of all waste streams including green waste) and work towards zero organic waste to landfills in the Shire.</p> <p>Achieve the sustainable use of energy and natural resources in urban areas through integrated urban transport planning and more efficient subdivision, building and open space design.</p> <p>Continue improving Council's potable water use. Through the strategies developed and lessons learnt, help the community do the same.</p>
Strategy	8.1 Reduce greenhouse gas (GHG) emissions from Council activities and offset those which cannot be avoided
Strategy	8.2 Identify and support the implementation of opportunities for abatement of air pollution by the Shire's communities

Strategy	8.3 Recycle and recover, working towards zero waste to landfills in the Shire
Strategy	8.4 Plan and implement sustainable urban design and transport modes for Glenelg Shire
Strategy	8.5 Protect and conserve potable water sources in Glenelg Shire
9. TARGETS AND TRANSPARENCY	
Aim	<p>To measure and monitor key environmental indicators and set time-limited targets which drive performance and improvement.</p> <p>Provide regular, transparent and consistent reporting on progress against environmental targets using recognised standards.</p>
Strategy	9.1 Establish, integrate and implement an environmental performance assessment and reporting system for Glenelg Shire Council



Table 2 First 12 months implementation

Develop an action plan and establish a cross-functional team to drive the internal integration and implementation of this strategy and performance reporting (1.1.1 and 1.1.2)
Implement the most suitable performance reporting system for Council use (9.1.1 and 9.1.2)
Establish a partnership network of environmental stakeholders who meet quarterly with the aim of developing partnership projects to implement the strategy (1.2.1)
Partnership network develops an annual implementation plan for responses involving external partners (9.1.4)
Develop an easy-to-use, brief Community Engagement and Communication Plan (1.2.7)
Map and assess Council owned and managed land for biodiversity and cultural heritage values (3.1.1 and 3.2.5)
Review, update and implement the Council's Roadside Management Guidelines (1997) (3.2.1 and 3.2.2)
Land Capability Assessment to inform Council planning scheme amendments and decisions (7.4.1)
In consultation, develop and implement a Glenelg Shire Pest Plant and Animal Plan (4.1.1)
Investigate and integrate planning mechanisms to list environmental weeds that adversely impact the environmental values of the Shire(4.1.2)
Carry out actions that contribute to resource use efficiency, addressing greenhouse gas emissions, water, waste and transport (8).

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Abbreviations

A & I	Assets and Infrastructure, Council Department
BGANZ	Botanical Gardens Australia and New Zealand Inc.
CAP	Coastal Action Plan
CASS	Coastal Acid Sulfate Soils
CD	Community Development
CDO	Community Development Officer at Council
CoMs	Committees of Management
DCC	Department of Climate Change, Australian Government
DPC	Department of Premier and Cabinet
DPCD	Department of Planning and Community Development
DPI	Department of Primary Industry, Victorian Government
DSE	Department of Sustainability and Environment, Victorian Government
EBMP	Environmental Best Management Practice (DPI program)
EDS	Ecologically Sustainable Development
EDT	Economic Development and Tourism, Council Department
EMS	Environmental Management Systems
EPA	Environmental Protection Authority, Victorian Government
EPO	Environmental Protection Overlay

ESC	Environmental Sustainability Coordinator or team at Council
ESO	Environmental Significance Overlay
ESE	Environmental, Social and Economic
GAV	Greening Australia Victoria
GHCMA	Glenelg Hopkins Catchment Management Authority, <i>will merge to become the Western Districts NRCA</i>
GHG	Green House Gases
GMTOAC	Gunditj Mirring Traditional Owners Aboriginal Corporation
GSC	Glenelg Shire Council
H141	Habitat 141, a Greening Australia program
HV	Heritage Victoria
IA	Infrastructure Australia, Australian Government
ICLEI	International Council for Local Environmental Initiatives
LL	Council Local Laws staff
MERO	Municipal Emergency Response Officer
NRCA	Natural Resource and Catchment Authority, <i>this is the new body replacing the Glenelg Hopkins and Corangamite Catchment Management Authorities and the Western Coastal Board (WCB) to become the Western Districts NRCA, one of five new NRCAs for Victoria¹</i>
NRM	Natural resource management
OCES	Office for the Commissioner of Environmental Sustainability
P and G	Parks and Gardens, Glenelg Shire Council
PEDT	Planning, Economic Development and Tourism, Council Department
POPL	Port of Portland Pty. Ltd.
PSG	Portland Sustainability Group

¹ Securing Our Natural Future. A for land and biodiversity at a time of climate change. A Victorian Government Initiative, November 2009



PV	Parks Victoria
RCS	Regional Catchment Strategy
RDV	Rural Development Victoria, Victorian Government
RDA	Regional Development Australia
RS	Recreational Services at Council
SLO	Significant Landscape Overlay, Victorian Planning scheme
SMT	Senior Management Team of Glenelg Shire Council
SOP	Standard Operating Procedure
SRW	Southern Rural Water
SV	Sustainability Victoria, Victorian Government
SWSP	South West Sustainability Partnership, subcommittees: <i>Green House Gas Alliance and Natural Assets Alliance</i>
SWWRG	South West Waste Reduction Group
TFN	Trust for Nature
VCC	Victorian Coastal Council, Victorian Government
VCS	Victorian Coastal Strategy, 2008
VGA	Victorian Government Architect
VIF	Victorian Investment Framework, State Government
VPO	Vegetation Protection Overlay
WCB	Western Coastal Board, <i>will merge to become the Western Districts NRCA</i>
WFP	Whole Farm Planning
WSUD	Water Sensitive Urban Design
WW	Wannon Water
XFT	Cross-functional team, Council staff



Introduction

Glenelg Shire Council is committed to environmental sustainability. A healthy, self-sustaining environment is fundamental to the four key strategic objectives in the Glenelg Shire Council Plan²: responsible governance, community wellbeing, a vibrant economy and quality places to live. The implementation of this strategy is fundamental to achieving all four strategic objectives.

In 1987, the United Nations World Commission for the Environment and Development published the report *Our Common Future*, which defines the concept of sustainable development as:
“...development that meets the needs of the present without compromising the ability of future generations to meet their needs.”

In 1992, Australia published a National Strategy for Ecologically Sustainable Development, which chose the following definition for Ecologically Sustainable Development (ESD):
“...using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and that total quality of life, now and in the future, can be increased.”

In 1997, John Elkington broadened the concept to encompass what we now know as the triple bottom line of environmental, social and economic responsibility (ESE). He defined sustainability as:
“The principle of ensuring that our actions today do not limit the range of economic, social and environmental options open to future generations.”

Local Government must achieve the best outcomes for local communities and health of the natural environment through long-term decision-making³. Glenelg Shire Council must therefore aim at environmental, social and economic viability and sustainability of the municipality, ensure resources are used efficiently and effectively, and that best value principles are applied to best meet the needs of the local community and improve the overall quality of life. The Glenelg Environment Strategy will be a foundation document in this process.

The diverse range of goods and services provided by a healthy environment and its ecosystems is fundamental to life and our livelihoods. This strategy seeks to protect and maintain Glenelg's environment for the sustained delivery of its goods and services, of which it is often hard to calculate a dollar value. These include goods such as food, timber and other fibres, fresh water and air, and services such as water filtration, photosynthesis, waste decomposition, pollination, flood regulation, carbon sequestration, pest control, and cultural, spiritual and aesthetic values.

The natural environment, while initially shaped by landscapes, climate and evolution, is increasingly shaped by human population, including tourism and development pressures. As populations increase, unsustainable modes of resource use that have served us in the past (e.g. taking, using and dumping) are no longer considered acceptable. The impact of human activity and the spread of development across the landscape are causing natural systems to become fragmented and degraded⁴. Ecosystems lose their ability to adapt and migrate over the land in response to natural disturbances such as climate shifts or bush fire, and so become vulnerable to complete collapse. The goods and services provided by natural systems, which sustain life and underpin local economies, are then threatened.

The Glenelg Shire has a wealth of natural resources of regional, national and international significance. As all sections of the environment are ultimately connected, it is vital to take a holistic approach to management of the environment and often to take a regional or catchment scale view. It is the healthy land, water and biodiversity that form the basis for Glenelg Shire's primary production and tourism industries. Maintaining environmental integrity and productivity is essential for our future economic prosperity and wellbeing.

Glenelg residents are concerned about the present state of the environment and expect environmental values to be preserved at healthy, sustainable levels. A recent report shows that 39% of residents surveyed are very concerned about the present state of the environment, and the top ranking environmental issues identified for Glenelg Shire were water (32%), fire (25%), climate change (22%) and pollution (9%)⁵.

Our challenge is to work in partnership with the community and others responsible for land management to bring our environment into a position of health and balance, of sustainability into the future. We must carefully choose what resources we take, use them sparingly and efficiently, reuse as many times as possible, and ultimately recycle the resources. We must protect and enhance our remnant biodiversity, and look after the health of the ecosystems fundamental to life and the prosperity of Glenelg Shire. The responses listed in this strategy aim to do that.



Vision

The vision for managing Glenelg Shire's environment is:

***Everyone acting together to ensure
a healthy natural environment supporting
a sustainable future for our communities***

Achieving the vision

The guiding principle of this strategy is to protect, manage and enhance the local environment while making a contribution to regional, state and national objectives. This guiding principle is articulated through the development of strategies and recommended Council responses for each of the following nine management areas of Council.

1. Decision-making
2. Environmental awareness and education
3. Biodiversity
4. Pest plants and animals
5. Coastline and sea
6. Waterways, lakes and wetlands
7. Soil and farmland
8. Resource efficiency
9. Targets and transparency

For each of these management areas and the related issues described in the pages ahead, a Council strategy and recommended responses are presented. The priority⁶, Council's role, the lead organisation and partners, success measures and resource implications for Council are also presented for each response.

The implementation detail will be held in a four-year action plan matching the duration of the Council Plan. This action plan will be revisited each year to evaluate progress and ensure budgets for each year's implementation. It is envisaged that this strategic level document will stay current and set the direction for the next 10 years, from 2010 to 2020. The action planning cycle will allow a flexible response from year to year to adjust to changing government priorities and funding opportunities.

⁶ Council response priorities: high (implement within 0 – three years, 2010 – 2013), medium (implement within three - five years, 2014 and 2015), low (implement in five+ years, in 2016 onwards) or ongoing (implementation from 2010 onwards). These are given at the end of each table.

Council's Role

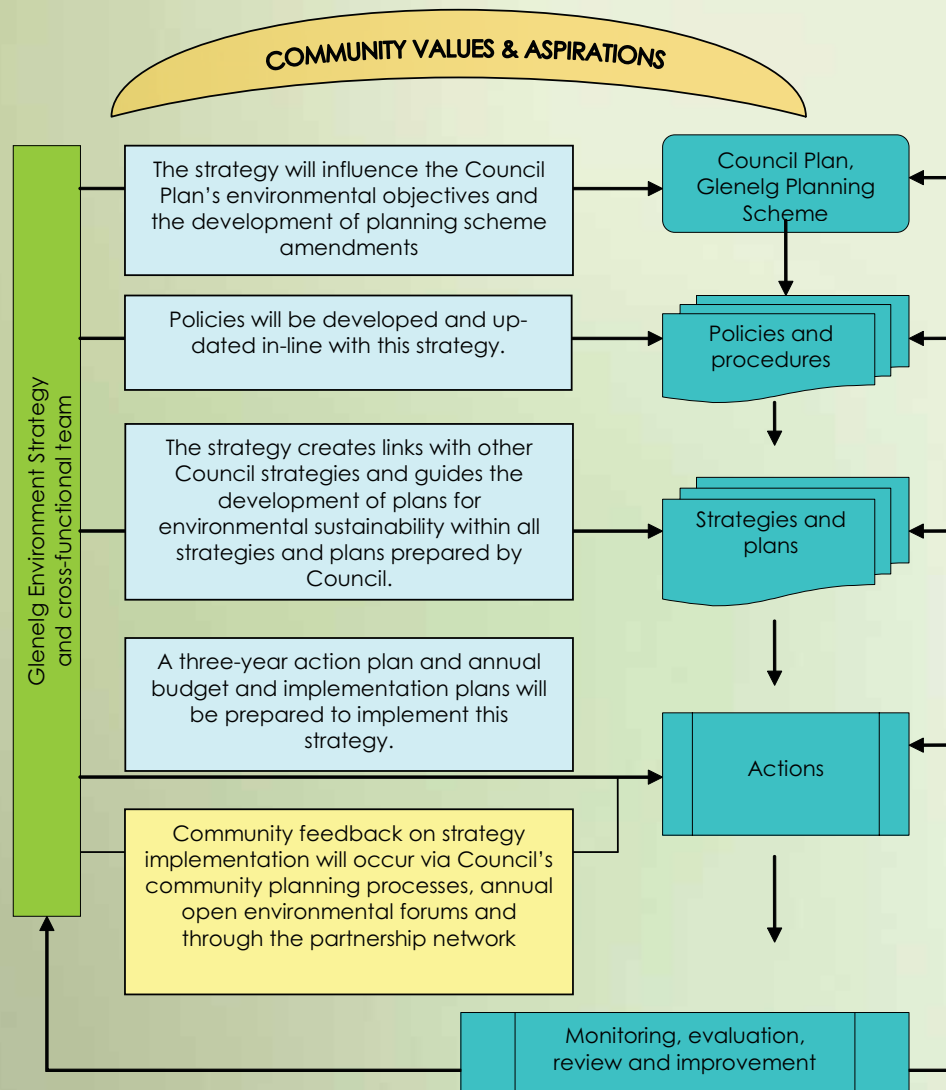


Figure 1 How the Glenelg Environment Strategy will be used in Council decision-making

Council provides a broad range of environmental services and functions that aim to ensure a liveable, productive and sustainable community. Many of these roles are statutory responsibilities. Council has a lead role in areas of governance, strategic planning, service provision, community planning and development, as well as staff development and the development of partnerships. It also plays a strong support or advocacy role on environmental issues that are not directly under its authority but which impact on the wellbeing of its residents, as well as establishing and developing working partnerships with agencies and groups.

Council will use this strategy to embed environmental sustainability into areas it has responsibility for and influence over, such as the Glenelg planning scheme and other higher level plans. The strategy will be used in Council decision-making as shown in Figure 1, linking to the objectives of the Council Plan and providing the basis for developing environmental sustainability policies and procedures, as well as amendments to the Glenelg planning scheme. It will inform priority setting and the development of four-year action plans, as well as be integrated into existing Council plans and strategies.

This strategy also aligns with and supports the recommendations of Council's Municipal Public Health Plan (2009), the Glenelg Strategic Futures Plan (2009) and the Recreational and Open Space Strategy (2007), particularly those aspects relating to the development of sustainable healthy communities and protection of natural assets.

At an operational level, Council will use this document as its strategic approach to embedding environmental sustainability in its operations. In partnership with diverse communities across the Shire, this document provides a framework by which Council can work cooperatively with key stakeholders and the community to manage natural resources and ensure a healthy sustainable future.

Current Situation

In the 200 years since European settlement, Glenelg Shire has undergone major transformations. The Shire's abundant natural resources have built the prosperity we have today, and supplied the needs of a growing population. The intense use of the Shire's natural resources has altered the functioning of many of its ecosystems.

Most of the environmental indicators for Victoria and Glenelg Shire show that the environment is already degraded and is getting worse^{7,8,9}. Population growth, increasing consumption and development have led to:

- Loss, fragmentation and degradation of habitat
- The unsustainable use of many natural resources
- Introduction of invasive species
- Marine and coastal pollution
- Changes in aquatic environment, water flows and water quality
- Changes in natural fire regimes.

The impact of climate change, continued population growth and land use change will continue to put pressure on the Shire's natural resources, gradually weakening its resilience to natural disturbances (eg. drought, fire, flood cycles), and ability to provide the goods and services communities have relied on in the past.

Communities around the Shire have indicated what matters to them most about the environment; Figure 2 summarises the data collected during the community consultation in early 2009 on environmental values, issues and actions¹⁰. These findings support the more rigorous State Government survey¹¹ that indicates Glenelg Shire residents are very concerned about the present state of the environment (see the introduction on page 2 for details).

Successive governments have enacted a range of legislation to protect and sustainably manage natural assets (Appendix 1) and protect significant areas of the Shire (Appendix 2). Also, industry, other landholders, community volunteers and non-governmental

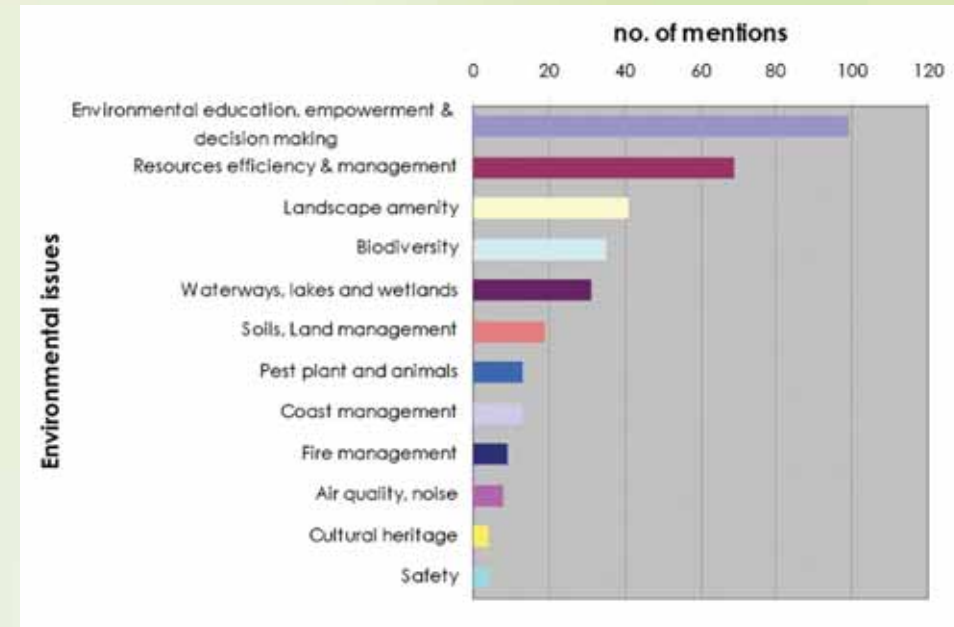


Figure 2 Summary of Community input

Refer to Appendix 2 for additional information

organisations, such as Greening Australia and Trust for Nature, continue to address the threats to the Shire's natural assets.

Council has also demonstrated its on-going commitment to environmental sustainability over the past 10 – 15 years through a range of achievements (Appendix 1, Council Plans, Policies and Initiatives). In July 2007, Council prepared a Local Environmental Sustainability Priority Statement¹² outlining the key issues it faces with respect to sustainability and climate change. The five key issues included managing water resources, protecting the coast, improving air quality, enhancing biodiversity and managing waste. A draft Environmental Sustainability Framework (2007) was prepared and this helped secure funding for the development of this strategy.

⁷ Victorian State of the Environment Report 2008, released by the Commissioner for Environmental Sustainability who is appointed under the Commissioner for Environmental Sustainability Act 2003. This is Victoria's first report on the state of the environment which addresses the full breadth of environmental issues. ⁸ Securing Our Natural Future, a white paper for land and biodiversity in a time of climate change, 2009 Victorian Government ⁹ Catchment Condition Report, 2007, Victorian Catchment Management Council, www.vcmc.vic.gov.au, October 2007 ¹⁰ See Appendix 4 for details of this summary. A Report on the data collated from the community consultation for the Glenelg Environment Strategy, 2009 is on Glenelg Shire's website: What Matters to the Community Most - Summary of values, issues and actions from the community consultation for the Glenelg Environment Strategy, 2009 ¹¹ The Green Light Report – Glenelg, 2009 Victorian Government ¹² The Victorian Local Sustainability Accord, partnership agreement between the Victorian State Government and local governments on environmental sustainability; [http://www.dse.vic.gov.au/DSE/Department of Sustainability and Environment Home > Conservation and Environment > Sustainability](http://www.dse.vic.gov.au/DSE/Department%20of%20Sustainability%20and%20Environment/Home%20%20%20Conservation%20and%20Environment%20%20Sustainability) ¹³ Securing Our Natural Future, a white paper for land and biodiversity in a time of climate change, 2009 Victorian Government

Land and Biodiversity White Paper¹³

In November 2009 the Victorian Government released *Securing Our Natural Future*, a white paper for land and biodiversity in a time of climate change. This white paper will establish the direction for Victorian Government policy and investment priorities in natural resource management, land health and biodiversity for the next 20 – 50 years.

As well as providing a long-term strategic framework that has implications for local government, the land and biodiversity white paper describes a range of outcomes that will directly impact this strategy during its 10-year life span (Appendix 3). This strategy will be reviewed to incorporate relevant white paper outcomes as they are realised and as new information becomes available.

One of the main changes for Glenelg Shire and the implementation of this strategy stemming from the white paper, is the formation of the Western Districts Natural Resource and Catchment Authority (NRCA) through the merger of the Glenelg Hopkins Catchment Management Authority, Western Coastal Board and Corangamite Catchment Authority. The new NRCA will cover the area from the South Australian border to Queenscliff, and is expected to be established by June 2011.

As the roles and functions of the Glenelg Hopkins Catchment Management Authority and Western Coastal Board, two of the key stakeholders in this strategy, will most likely be absorbed by the new NRCA during the first years of this strategy, these organisations are referred to throughout this document as the NRCA or NRCA/WCB respectively, in anticipation of future changes.

South West Flagship

Another locally significant outcome of the white paper is the nomination of the South West Flagship area.

In order to build healthy, resilient and productive ecosystems across Victoria's landscapes, the white paper outlines a plan that focuses on landscapes, called flagship areas, which provide people with important ecosystem services. One of the 13 proposed flagship areas is the South West Flagship. This encompasses an area from Discovery Bay, including the Discovery Bay Marine Park, north across the Glenelg Plain to Dergholm State Park and onto the Little Desert National Park, and to the east as far as the Tyrendarra lava flow.

Flagship areas will receive special investment and management for the protection of the important ecosystem services they provide, which is warranted in the face of climate, land-use and demographic change. This is likely to benefit Glenelg Shire, providing funding for the implementation of numerous responses in this strategy that contribute to this and other white papers¹⁴ and other Government objectives.

When certain landscapes have been shown to respond in a similar way to climate change, and should therefore be managed in a similar way to maximize their resilience and minimize adverse climate change, they may be linked together in what is called a 'biolink'.

Therefore, another key outcome of the white paper is the creation of a biolink to the north linking the newly formed flagship area to another newly formed flagship area in the Grampians region.



¹⁴ Victorian Government white papers: *Securing of Water Future*, 2004, *Securing Our Natural Future* and the *Climate Change* white paper, due in 2010.

Glenelg Shire's Natural Assets

The high significance of Glenelg Shire's natural assets is widely recognised, highlighting the importance of the goods and services they provide and the need to protect and use them sustainably. This is demonstrated by:

- The Federal Government's *Caring for Our Country*¹⁵ program which nominated investment priority areas in Glenelg Shire (primarily the lower Glenelg River catchment and estuary, and the Discovery Bay Coastal Park).
- The Federal *Environment Protection and Biodiversity Act* (1999), which nominated two 'biodiversity hot-spots' in Glenelg –part of the Victorian Volcanic Plain within the Shire (number five on the biodiversity list) and their critically endangered grasslands, and the Naracoorte Coastal Plain¹⁶ stretching from South West Victoria into the South East of South Australia (number six).



- The State Government's *Land and Biodiversity White Paper*¹⁷ nomination of the South West Flagship, which covers the Glenelg Shire and is linked to the Greater Grampians Flagship via a biolink area to the north of Glenelg Shire.
- National, state and regional parks covering almost 25% of the Shire's large land area (Appendix 2).
- Discovery Bay Marine Park and Marine Protected Area west of Cape Bridgewater.
- The inclusion of significant Shire areas in two UNESCO bids, based on the wider region's high conservation values. The Kanawinka Global Geopark is being established, and the Victorian Volcanic Plains Biosphere Committee is working hard to achieve 'UNESCO Biosphere Status' for a region extending from Colac to Portland.
- Budj Bim's National Heritage sites at Lake Condah and Tyrendarra, which are potential candidates for World Heritage nomination by the Federal Government.
- Habitat 141, a ground-breaking climate-change protection project that connects the Glenelg Shire to northern arid parks¹⁸ and the Murray River.

A detailed profile of the Shire and its natural assets is presented in Appendix 5. This describes the coastline, hinterland, five bioregions, main land managers, population, cultural heritage and the Shire's reserves.

¹⁵ CFOC Business Plans, 2009/2010 and 2020/2011, <http://www.nrm.gov.au/> ¹⁶ Naracoorte Coastal Plain extends to Cape Bridgewater ¹⁷ *Securing Our Natural Future*, a white paper for land and biodiversity in a time of climate change, 2009 Victorian Government ¹⁸ Habitat 141 is a large scale, long term connectivity initiative looking to safeguard our natural and agricultural environments against the many threats of climate change. Recognised as a biodiversity hot spot, the region along the Victorian SA border is one of few places in Australia where wilderness areas form a series of stepping stones, from the southernmost coastal regions of Glenelg Shire through to the arid zone.

1 Decision-making

Council's aim

To be innovative and progressive in the way Council protects, manages and enhances environmental values while promoting economic prosperity, social equity, health and well being.

To inspire Glenelg Shire community members and visitors to take into account environmental considerations as well as economic and social factors in their day-to-day activities.

1.1 Issue: Economic-Social-Environmental (E-S-E) decision-making tools

Local government has many challenges - one of the biggest being the ability to balance numerous factors when making decisions on behalf of the community. In a broad sense, every time Council allocates funding, assesses development applications and prioritises work programs, it must do so in the context of financial constraints, community needs and environmental impacts.

There are matters that local government must navigate on behalf of its communities that are beyond its control; challenges such as the impacts of climate change, limited oil reserves and the uncertainties of global finances and markets. Council must assess and evaluate the implication of each of these for its communities and make balanced, triple-bottom-line decisions using the best evidence available, and then adaptively managing the impacts.

Gradual climate change, such as lower rainfall and warming land and sea temperatures, and extreme weather events, such as heat-waves, drought, floods and fire, are critical to the people of the Glenelg Shire, adversely impacting the region's vegetation, soils, water, wetlands, coast and estuaries.

Glenelg Shire Council has responded to this by making a commitment in the Council plan to conduct business within a framework that values economic, social and environmental perspectives, thus fulfilling its primary objective of promoting these three values for the future viability and sustainability of the municipality.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Incorporate robust Environmental-Social-Economic, evidence-based decision-making processes into Council governance				
1.1.1 Action plans (for a four-year period) for this strategy are developed with clear targets and reported against, including annual planning, budgets and reporting	Ongoing strategic planning	GSC ESC, XFT, SMT (partnership network)	Action plans align to the Council plan and its four-year term; Actions developed will consider actions derived from the five community engagement sessions held in early 2009 in different communities in the Shire; New policies and procedures are developed as needed to support the strategy; Measurable, specific targets are used for the implementation of responses; Strategy responses are completed; and Community engagement is undertaken and a communication plan is developed	Within existing budgets
1.1.2 A cross-functional team is established to drive the internal integration and implementation of this strategy and performance reporting in Response 9.1.2	Ongoing strategic planning	GSC various staff	A cross-functional team is established with a terms of reference and project charter; The strategy is integrated into all existing relevant policies, strategies and plans by the responsible staff; New policies and procedures are developed as needed to support the strategy; Strategy responses are completed; and Measurable, specific targets are used for the implementation of responses and to report against	Within existing budgets
1.1.3 Plan for the future needs of the community through evidence-based decision-making that addresses the costs, benefits and risks of proposed actions on the basis of all three perspectives economic, social and environmental.	On-going governance	GSC ESC and relevant staff	A tool is developed for use in decision-making by Council and management to ensure this occurs; and Environmental sustainability and E-S-E considerations become routine in all Council activities	Within existing budgets (ESC and other staff)

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Incorporate robust Environmental-Social-Economic, evidence-based decision-making processes into Council governance				
1.1.4 Develop a robust decision-making process and tools that integrate the protection and enhancement of the Shire's unique environmental values, whilst promoting economic prosperity, social equity and healthy people.	High governance	GSC ESC and relevant staff	Tools will be specifically developed for prioritising capital works and prioritising rezoning for land use; A decision-making tool is developed which aligns Response 1.1.1; and Planning scheme amendments and tools are developed for this purpose	Within existing budgets (ESC and other staff)
1.1.5 Ensure strong links and cross-referencing between Council strategies and management plans.	High strategic planning	GSC ESC and relevant staff	Environmental sustainability and E-S-E considerations become routine in all Council activities; and This strategy is referred to in other key policies	Within existing budgets (ESC and other staff)
1.1.6 Incorporate relevant outcomes from the land and biodiversity white paper (2009) into this strategy as they are realised and new information becomes available.	High strategic planning	GSC, ESC (DSE, relevant agencies)	Future versions of this strategy align with and incorporate outcomes from the white paper	Within existing budgets
1.1.7 Council to proactively lead the way and provide the community with mechanisms to facilitate community-based discussions on the environmental impact of climate change, and the risk and planning implications for local communities.	High community development and planning	GSC relevant staff (DSE, NRCA)	Community engaged on implication of climate change to their community	Requires strong submission for NRM funds to assist resourcing
1.1.8 Ensure the impacts of climate change are incorporated into key plans and strategies and into the Glenelg Shire planning scheme as information becomes available.	High strategic planning	GSC PEDT	Climate change is integral to Glenelg planning scheme; and Climate change white paper (2010) outcomes, where relevant, are incorporated into this strategy as they are realised and new information becomes available	Within existing budgets (ESC and other staff)
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

1.2 Issue: Community engagement

Individuals and communities have the right to participate in decisions that affect them, and there is an expectation that local government will create mechanisms to allow this to happen.

An engaged community presents a great opportunity for the Shire to actively work with the community and develop a shared understanding of the issues and a collaborative approach to problem solving.

Effective community engagement will ensure that Council plans accurately reflect community aspirations, needs and opinions. Effective community engagement also means better community support, involvement and ultimately improved project outcomes. There will also be increased understanding of community issues, and therefore better partnerships and networks.



Glenelg Shire has shown commitment to consulting and listening to local opinions and ideas in the development of key plans and strategies, such as the Glenelg Strategic Futures Plan, and the Portland Bay Infrastructure Plan, as well as consulting widely in the development of other community plans.

The quality and community acceptance of this environment strategy relies on effective engagement with the community during its development, and ensuing years of implementation planning and execution.

Local Indigenous communities have a strong interest in land and biodiversity protection, and natural resource management. They are developing appropriate skills to increase their involvement in such roles. The recently determined Native Title claim covering all Crown land within the Shire of Glenelg, signifies that Gunditjmirring traditional owners are to be consulted with regarding any proposed development on Crown land.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council values and considers local communities' views on environmental issues in planning and implementation				
1.2.1 Establish a partnership network of environmental stakeholders who meet quarterly with the aim of developing partnership projects to implement the strategy	High partnership development	GSC (key stakeholders)	Increased number of environmentally-focussed partnership projects successfully completed; and Improved access to external resources and funding through the partnership project	Within existing budgets
1.2.2 Facilitate open community environmental forums annually as an opportunity to report back to communities on the environment strategy's implementation and seek feedback	High service provision	GSC, ESC	A community environmental forum held each year; and Community issues are successfully addressed and acted on	Within existing budgets
1.2.3 Use Council's community planning processes or current mechanisms to seek input from all sectors of the community regarding the implementation and evaluation of this strategy	High strategic planning	GSC, ESC, CDO, relevant staff (community)	Environmental matters flowing to Council from this process	Within existing budgets (ESC and other staff)
1.2.4 Council to engage with Indigenous traditional owner groups to finalise an agreement	High partnership development	GSC (GMTOAC], NRCA, DSE)	A ratified Indigenous agreement that addresses the protection of Aboriginal heritage, acknowledges Native Title rights and fosters an Indigenous sustainable land management ethic	Within existing budgets
1.2.5 In partnership, provide a range of opportunities for Indigenous engagement and involvement	High partnership development	GSC (GMTOAC], NRCA, DSE)	Increasing the number of activities and partnership projects involving the Shire's Indigenous community members	Dependent on external funding sources
1.2.6 Train project management staff in community engagement planning and delivery to ensure best practice	Medium staff development	GSC, ESC	A wider cross-section of staff use a range of community engagement tools	\$1,500 (10 staff in DSE's one-day program)

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council values and considers local communities' views on environmental issues in planning and implementation				
1.2.7 Develop a brief and easy-to-use Community Engagement and Communication Plan for this strategy to help seek funding for community engagement and training activities.	High strategic planning	GSC ESC, XFT (partnership network)	An easy-to-use community strategy	Within existing budgets
1.2.8 Document participant feedback and the knowledge gained from implementing environmental programs under this strategy	Ongoing service provision	GSC ESC, XFT	Feedback and project results made available to the public via the web, articles, media coverage, etc.	Within existing budgets
1.2.9 Council to encourage and support leadership by community groups active in the environmental protection, and encourage new groups to do the same	Ongoing community planning and development	GSC ESC, CDO, RS (community groups, NRCA, DSE)	The Shire's environmental groups have a clearly defined role and stronger working relationships with Council	External funding may be available
1.2.10 In partnership, Council to show continued support for events which promote greater understanding and awareness of the natural assets and the local environmental issues	Ongoing community planning and development	GSC relevant staff (DSE, NRCA community groups)	Council actively partners with agencies and community groups in engaging the community on environmental matters; and Council continues to develop and support events like the Bonney Upwelling Festival	Within existing budgets, additional external funding may be necessary
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

2 Environmental Awareness and Education

Council's aim:

Council is a leader through environmentally sustainable practices, and supports and educates Glenelg Shire residents and visitors to live and play in a more sustainable way.

Council will influence and lobby decision-makers and professionals in all sectors of the community whose actions impact on the environmental values of Glenelg Shire.

2.1 Issue: Effective behaviour change

In the past, the most prevalent method of encouraging sustainable behaviour change has been the provision of information on why and how to change. Experience and recent research has shown that to achieve behavioural change on a community or household scale, it is not enough to simply provide information.

Now a more comprehensive approach is sought to help communities negotiate the challenging maze of change. Leaders in this field, like Doug McKenzie-Mohr and Les Robinson, provide us with ways to do this.

In addition to providing a vision as to why behavioural change is important and what change is required, Council seeks to identify barriers to change and to provide the skills and experience to make change convenient. Importantly, behavioural change needs to be wrapped up in a sense of community and celebrating achievements.

In pursuing this approach, Council seeks to gain knowledge from its experience through a learning action cycle, a process of continual improvement in how we engage and influence the wider community.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Effective behavior change				
2.1.1 Initiate, as well as support and promote other groups and agencies in partnering opportunities, environmental education and awareness-raising projects and events	Ongoing community planning and development	GSC, ESC, CD/ CDO, RS and relevant staff (Partnership Network, DSE, NRCA/ WCB, PV, DPCD, etc)	Increased number of environmental education initiatives per annum; Education and awareness programs including all areas within this strategy, e.g: - Climate change impacts (5.1.5) - Solid waste management (8.3.1) by partnering in the South West Waste Management Group's initiatives; and Landcare community sessions	Requires strong submission for NRM funds to assist resourcing
2.1.2 Implement environmental programs that provide opportunities for community participation and include Indigenous communities, with the aim of giving people knowledge, skills and experience of environmental issues. This approach will be adopted in preference to simply providing information about environmental issues	Ongoing service provision	GSC, ESC, CDO (Community, including Indigenous groups, agencies)	Increased number and range of events for participation	Within existing budgets
2.1.3 When possible, reward and celebrate with people and groups who have achieved success in maintaining and enhancing the environmental values of the Shire	Ongoing community planning and development	GSC, ESC, CDO (diverse community groups, agencies)	Council develops a program for recognition (e.g. awards, prizes, certificates of recognition)	Within existing budgets (ESC and other staff)
2.1.4 Lobby and seek to influence relevant decision makers in all sectors regarding the environmental values of Glenelg Shire and their sustainable management	Ongoing advocacy	GSC senior managers, PEDT, ESC and relevant staff	Council openly supporting the protection of Glenelg's environmental values; and Increase in the number of lobbying occurrences	Within existing budgets
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

2.2 Issue: Informing people of their responsibilities

Glenelg is a popular place for tourists and residents alike and has experienced steady population growth and increased visitor numbers in recent years. Population forecast for Glenelg Shire indicates that the number of residents will continue to grow in the foreseeable future.

People will continue to be attracted to the region due to Glenelg Shire's relatively high reliable rainfall and, like other coastal areas of Australia, the coastal fringe will be under increasing development pressure and environmental impacts. Inland areas are predicted to experience changes in land use, with cropping becoming more common.



In new situations, having access to the right information is important. New residents to the Shire need to receive information when they arrive. When new regulations and guidelines are introduced, all local residents need to be informed. Everyone needs to have a clear understanding of their legal responsibilities in terms of pest, plant and feral animal control, native flora and fauna protection, Aboriginal and European cultural heritage protection, and fire risk management.

Residents need to be informed on waste and litter management priorities and waste minimisation initiatives. Glenelg Shire has a responsibility to keep residents well informed, as a cooperative approach will lead to improved management and a healthier environment.

Although the onus is on individuals to abide by the law, local government has a role in helping people familiarise themselves with local issues and acceptable land management practices.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Inform people of their responsibilities				
2.2.1 Assist new and existing residents to become aware of their responsibilities in relation to pest plant management, pest animal control, native animals, Indigenous vegetation, Aboriginal and European cultural heritage protection and fire risk management	Ongoing community planning and development	GSC, ESC, CD/ CDO, RS and relevant staff (DSE, NRCA, PV, DPI)	Information made available on Council's web page; via a brochure, promotion at local events, communications through Council's media processes, or in partnership with other agencies or community groups; and Clear information is available on what happens in case of breaches	Within existing budgets
2.2.2 Develop and distribute a Glenelg Environment Directory, containing contact information for all environmental groups within the Shire so all residents are encouraged to participate in local environmental groups and Landcare	Medium service provision	GSC, ESC (DSE, NRCA, PV, DPI)	Directory available on website	Within existing budgets; additional funding may be required
2.2.3 Develop and keep up-to-date environmental information on Glenelg Shire's website that reflects the management areas in this strategy	Ongoing service provision	GSC, ESC	All sections of the strategy and associated documents available on Council website; and Greater community awareness and access	Within existing budgets
2.2.4 Streamline and develop new internal procedures for managing obligations and enforcement of relevant environmental legislation for which local government is responsible	High governance	GSC (DSE, DPI, EPA, NRCA)	Clear in-house process and procedures	Within existing budgets; may require external expertise during establishment
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

3 Biodiversity

Council's aim:

Continue to improve management and advocacy for protecting biodiversity of the natural assets in Glenelg Shire to ensure in the long term a robust environment resilient and adaptable to change.

Reverse the current rate of decline in the extent and quality of biodiversity in Glenelg Shire.

The Glenelg Shire is a biodiversity 'hot-spot' of extremely high order. It has a rich array of plant and animal species on land and in the sea, many of which occur nowhere else in the world.

Biodiversity is a cornerstone of healthy, functioning and sustainable ecosystems, which provide the goods and services we rely on. The biodiversity on public land is generally in good condition. Elsewhere it is in poor condition and declining¹⁹.

In Glenelg Shire broad functional landscapes have become highly fragmented and stressed, and the critical services that nature provides for humans are in decline. Over the next 50 years we face even greater losses in biodiversity²⁰ due to ever increasing population growth and consumption, not to mention variable and changing climatic conditions.

It is essential that our municipality supports initiatives that fulfill environmental objectives to protect and restore biodiversity locally, whilst considering how this links to the wider region. Aligning this environment strategy to contribute to the objectives of the State Government's land and biodiversity white paper (2009) will ensure resources for the implementation of many aspects of this strategy, particularly given the proposed investment in the South West Flagship.

Fostering economic opportunities in the Shire around sustainable management and landscape repair will benefit Shire communities, its landscapes and biodiversity. The growing natural resource management industry needs to be ambitiously supported to provide employment and business opportunities within the Shire. This will enable local communities to benefit directly from the Government's new direction and investment in addressing the environment and carbon economy which incorporates environmental and ecological economics.

A strong relationship between the economy and the environment will deliver social benefits due to improved environmental outcomes.





Biodiversity mapping in Glenelg Shire occurred in the late 1990's, and Glenelg was the first western Victorian Shire to be mapped. This resulted in maps identifying roadsides with high conservation significance, significant remnant vegetation, wetlands and waterways, and environmentally significant habitats. The intention was to incorporate these maps and overlays in the Glenelg planning scheme. It is important when making decisions or setting targets regarding biodiversity to have quality bench-marking data on the particular natural asset. Without a baseline it is difficult to set objectives, and monitor any changes or improvements. For this reason it is important for the Shire to develop benchmark data for its assets.

The Biodiversity Actions Plans for the Bridgewater²¹, Warrnambool Plain²² and Glenelg Plain²³ bioregions describe the natural assets of these regions, as well as identifying threatened species and plant communities. Community groups like the Tarragal Landcare Group have produced a Biodiversity Local Area Plan²⁴ in partnership with the catchment authority, and the Department of Sustainability and Environment. The plan provides area-specific guidelines for biodiversity protection and enhancement. Local area plans will have greater value if the planning scheme references them and the biodiversity action plans, as a source of local and regional strategic information.

Many reserves in the Shire, often with wetlands (see Section 6), are known to have highly significant biodiversity levels and are significant in terms of local identity. They provide unique local community resources as places for social interaction and community strengthening, as well as adding to local landscape character. The foreshore, cliffs and Nun's Beach in Portland, Ess Lagoon in Casterton, and the river areas in townships like Heywood, Narrawong, Dartmoor and Digby are prime examples. In some instances, volunteers groups like the Friends of the Glenelg River, Portland Coastal Cliffs and Friends of the Surry, help manage these areas by carrying out environmental weeding, regeneration and studies. Such activities are invaluable to the management of biodiversity on Council land.

Glenelg Shire has the longest history of European settlement in Victoria, and consequently has numerous sites of significant European botanical heritage which contribute to the landscape values, and the Shire's biological and cultural heritage. The Portland Botanical Gardens, Henty Park, the Almond Tree Reserve and Portland town green are examples of such sites under Council management. There are also other sites on private land. The continued protection and enhancement through current best management practice is vital to ensure these sites continue to be of value and amenity to the Shire's future residents and visitors.

The planning process, and in particular, Victoria's Native Vegetation Retention controls, are the main process for protecting native vegetation on private and public land, and aim to achieve a net gain in the quality and extent of native vegetation.

This chapter covers how Council can protect and improve biodiversity values in the following key areas; on land where it has direct management responsibilities, including roadside reserves. And indirectly, where it can influence private land management and work in partnership with other major crown land managers.

Biodiversity protection of estuaries, the coast and sea, and waterways, lakes and wetlands is dealt with in the respective chapters.

²¹ Biodiversity Action Planning, Bridgewater Landscape Zone, Landscape Plan for the Bridgewater bioregion, 2005, Department of Sustainability and Environment, State of Victoria ²² Warrnambool Bioregional Plan (Draft), 2002, Department of Natural Resources and Environment, State of Victoria ²³ Biodiversity Action Planning, Lower Glenelg Landscape Zone, Glenelg Plain bioregion, 2005, Department of Sustainability and Environment, State of Victoria ²⁴ Restoring the Connectivity, Biodiversity Local Areas Plan, produced by Tarragal Landcare Group Inc. in partnership with the Biodiversity Unit DSE, Warrnambool 2008



3.1 Issue: Council owned or managed public open spaces

Despite the fact that Council owns or is the delegated manager of only a small area of the Shire (less than 1%), many areas of Council owned or managed public land support a range of Indigenous flora, and numerous Indigenous birds, reptiles, animals and other microfauna. Some of these areas are known to be of significant environmental value, and require appropriate management and protection, whilst other sites are yet to be assessed for their biodiversity values. Rates data indicates Council owns approximately 316 open space sites in the municipality, covering approximately 995 hectares of land²⁵. The most significant of these sites are small local parks or playgrounds, sporting reserves and conservation (nature) reserves.

Also, Council is the delegated land manager of 62 Crown land reserves with a total area of 408 hectares (Appendix 5, Table 3). These reserves are used for a range of municipal purposes, such as public buildings (libraries, kindergartens, aerodrome, pools, offices etc), gravel pits and public open spaces such as high amenity public areas (e.g. Portland Foreshore Reserve), recreation sporting parks and natural areas. Many of these reserves have high environmental and biodiversity values which need to be protected, whilst the environmental values of others could be improved.

An example of a Crown land reserve with high environmental value is Fawthrop Lagoon. Other sites, such as sporting ovals, have Indigenous vegetation growing within the surrounds. Alexander Oval and Yarraman Park in Portland, and Island Park in Casterton, are ideal examples of this. These active sporting facilities are surrounded by Indigenous vegetation that provides habitat for Indigenous flora and fauna and enhances local amenity.

A number of reserves are of high ecological significance, identified as having high biodiversity conservation status, rare or endangered species or plant communities and which are of importance for their ecological function. Fawthrop Lagoon meets all these criteria.

The vegetation communities and species of conservation significance have not been specifically mapped for reserves in Glenelg Shire. Filling this void is an important objective to help Council plan for the appropriate management of biodiversity values in the future.

Council's Recreation and Open Space Strategy (2007) provides guidelines and principles for the provision and development of open space²⁶. They also describe a system for categorizing open space in Glenelg into four kinds: sports grounds, regional and district parks, local parks and natural areas, and additional guidelines are to be considered in any review of the planning scheme²⁷.

Overarching principles of using locally Indigenous species for revegetation projects, and meeting industry standards in the planning and execution of revegetation projects, is needed. These must include vehicle hygiene practices.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to value and appropriately manage biodiversity and environmental values of Council managed land				
3.1.1 Map and assess Council owned and managed land for biodiversity and cultural heritage values	High strategic planning	GSC relevant staff (DSE)	All land Council holds title to or is the delegated manager is identified spatially and details clarified; Clarity of scope and improved coordination of management of Council managed areas; and Individual areas of public open space are: - Categorised according to the Recreational Open Space Strategy ²⁸ , - Assessed for biodiversity and botanical heritage values present, such as species or vegetation communities or other environmental assets of conservation significance, - Threatening processes are identified and actions developed to minimise impact of threats.	Within existing budgets (relevant staff)
3.1.2 Make information on the biodiversity and botanical heritage values of Council owned and managed land (from Response 3.1.1) readily available to Shire staff, community groups and other interested parties.	High service provision	GSC relevant staff	A spatial layer to be available on Council's online mapping system; Documentation made available on Council website; and Improvement of the scope and coordination of management of Council managed areas	Within existing budgets (relevant staff)
3.1.3 Develop guidelines for the design and management of Council managed urban landscapes and public open space	High strategic planning	GSC, ESC and relevant staff	Management guidelines for urban landscapes (recreation and public open space) are available and applied; Guidelines are based on strong design and sustainable landscape principles, including: - Minimum design standards - Minimum maintenance standards and standard operating procedures (SOPs)	Use staff skills within organisation; additional specialist services may be required, \$10,000

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to value and appropriately manage biodiversity and environmental values of Council managed land				
			<ul style="list-style-type: none"> - Plant species lists appropriate to different streetscape and open space applications - Specifications on substrate, mulches and soil preparation, etc. <p>Examples are provided to the community and contribute to building quality urban places; and</p> <p>The township displays sustainable urban landscapes and improved liveability</p>	
<p>3.1.4 Strengthen management of the Portland Botanical Gardens, which was placed on the Victorian Heritage Register in 2009, to maintain the scientific, conservation, educational and recreational significance of the gardens now and into the future.</p>	High service provision	GSC ESC and relevant staff (Friends of the Portland Botanic Gardens)	<p>Develop an action plan with time lines from the conservation plan to be implemented in stages;</p> <p>The education and conservation activities of the gardens are enhanced; and</p> <p>The role of the Friends of the Botanic Gardens is clarified and the group is actively engaged in garden programs.</p>	<p>Limited scope with current expertise and staffing levels;</p> <p>External funding may have to be sought</p>
<p>3.1.5 Review Council's urban tree policy</p>	High service provision	GSC ESC and relevant staff (partnership network)	<p>The policy is strengthened to ensure best practice and include:</p> <ul style="list-style-type: none"> - Street planting schedules listing tree species suitable for the constraints of specific sites (eg. different road verges or median strip widths); - Reference to trees of significance and tree assessment reports where relevant - Contribution and value of street trees and urban landscape to carbon offsets; <p>Increased tree plantings appropriate to circumstances to improve township amenity and liveability; and</p> <p>The reviewed urban tree policy is endorsed by Council</p>	<p>Within existing budgets (ESC);</p> <p>It is likely that external funding is available for this project</p>



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to value and appropriately manage biodiversity and environmental values of Council managed land				
3.1.6 Develop a management plan for the Portland Green and the Cork Oak (<i>Quercus suber</i>) which is on the Victorian Heritage Register.	High strategic planning	GSC, ESC and relevant staff	The Portland Green Management Plan is made available and applied to the management of this area to ensure the long-term health of the Cork Oak; and Management arrangements with other key stakeholders are clarified and agreed	Within existing budgets (ESC); It is likely that external funding is available for this project
3.1.7 Develop guidelines to manage the threats to environmental assets on Council managed natural areas, other than roadsides	High strategic planning	GSC ESC and relevant staff (NRCA, DSE, community groups)	Guidelines for the management of natural areas are available and used to protect and enhance them. Guidelines to include: - Minimum standards for management of natural areas (wetlands, estuaries, coastal and other) that reflects area's true value - Guidelines and standards for offset planting, habitat replacement and standard operating procedures (SOPs); Glenelg Coastal Action Plan (CAP) and Victorian Coastal Strategy, 2008 (VCS) are used to develop guidelines for coastal and marine areas; and Individual management plans (as in Response 3.1.9 below) are developed for areas of high conservation significance	Within existing budgets (ESC); external funding may be sourced for this work
3.1.8 All revegetation, habitat enhancement and offset planting undertaken by Council are conducted to industry best-practice standards	High strategic planning	GSC, ESC and relevant staff (NRCA, DSE, Alcoa Seed bank, local nurseries)	Revegetation and offset planting guidelines are available and used; Plantings which offset both tree removal and Council's carbon emissions are done in a planned, strategic way for best possible results; Areas of offset planting align and complement, where possible, broader landscape scale objectives of State and Federal Government or other significant projects;	Within existing budgets



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to value and appropriately manage biodiversity and environmental values of Council managed land				
			<p>Appropriate data is recorded on all revegetation works and offset plantings (including spatial mapping, material source, species, dates, etc);</p> <p>Indigenous material of provenance is used in revegetation and habitat enhancement projects and in the management of natural areas in townships; and</p> <p>All plantings match the ecological vegetation class of the area.</p>	
<p>3.1.9 Prepare and renew management plans for Council managed land where significant environmental assets have been identified under Response 3.1.1</p>	<p>Medium strategic planning</p>	<p>GSC (Community user groups, DSE)</p>	<p>Management plans are available and have been developed with the support of local user groups;</p> <p>For other reserves, the environmental values and vegetation management will be addressed in future asset management plans and policies prepared for reserves under the Response 3.1.7 and the Recreational and Open Space Strategy²⁹ (Recommendation number 22, p.18);</p> <p>Management plans are reviewed each five years; and</p> <p>Improved amenity and health of natural assets under Council's care</p>	<p>Within existing budgets (ESC), external funding may be sought</p>
<p>3.1.10 Integrate the activities of all relevant Council departments to enable cross-unit planning for the management of biodiversity and other environmental assets on Council managed land.</p>	<p>Ongoing strategic planning</p>	<p>GSC, XFT P&G, LL, PEDT, ESC, relevant staff) (DSE, VicRoads)</p>	<p>Cross-unit planning occurs for the following critical processes:</p> <ul style="list-style-type: none"> - Works programs for reserve maintenance - Capital works programming (particularly roads works) - Constructing or upgrading infrastructure - Tourism initiatives and small and large scale public events - Fire prevention and prescribed burning 	<p>Within existing budgets; likely to be assisted by funding for State and Federal Government</p>

²⁹ Recreational and Open Space Strategy, April 2007, Recommendation no.22, p18).

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to value and appropriately manage biodiversity and environmental values of Council managed land				
			<ul style="list-style-type: none"> - Emergency management - Assessment of development applications - Zoning of land, design and maintenance of public open space and recreation planning; Council's environmental sustainability officer provides specialist input into the appropriate management of biodiversity and other environmental assets; and An integrated cross-unit approach achieves improved biodiversity outcomes for Council's operations	
3.1.11 Continue to develop the skills and professional competence of parks and gardens staff	Ongoing staff development	GSC, relevant staff (DSE, HV, BGANZ)	Senior staff participate in regional industry networks; All staff having a minimum of Certificate III Amenity Horticulture or equivalent trade qualification by 2015; and Staff have access to professional/skill development activities	Within existing budgets
3.1.12 Develop a policy clarifying community involvement in the management of Council managed land	High strategic planning	GSC relevant staff (Community groups)	A Council policy is created to guide community groups involved with sporting and nature reserves, parks and play grounds, etc; Council encourages and supports cooperative management activities with community groups; and Increasing the number of examples where clubs and community groups have achieved favorable biodiversity outcomes.	Within existing budgets (ESC, recreation services)



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to value and appropriately manage biodiversity and environmental values of Council managed land				
3.1.13 On land adjacent to Council land, partner with and support volunteer community groups, educational organisations, neighbours and other government agencies to improve management of the biodiversity values and connectivity.	Ongoing partnership development	GSC (ESC, RS, CD and relevant staff (agencies, community groups)	Information is exchanged on biodiversity values of neighboring land or land connected to Council land; Corridors linkages are spatially identified and habitat connectivity improved; and An improved number of partnership initiatives	Within existing budgets; External funding is likely to be available
3.1.14 Review and improve the use of planning scheme tools to protect biodiversity on Shire owned or managed public open space.	High strategic planning	GSC, PEDT, GIS staff (DSE, NRCA, HV)	Relevant overlays, such as Environmental Significance Overlays (ESO) and Vegetation Protection Overlays (VPO), Significant Landscape Overlays (SLO), where warranted, are in place; Natural and cultural values of significant landscapes are protected; and Information is easily available to public via Council's online mapping and planning scheme information	Within existing budgets; External funding and expertise may be sought
3.1.15 Implement the pest plant and animal plan developed under Response 4.1.1 to enhance the habitat and biodiversity values of Council owned and managed land	Medium strategic planning	GSC ESC (DPI, NRCA, PV)	The pest plant and animal plan is used across Council operations to manage pests and improve biodiversity values	Within existing budgets; External funding may be available, or work done in partnership
3.1.16 Incorporate the controlled use of fire to maintain and enhance ecological diversity where appropriate.	Medium strategic planning	GSC relevant staff (DSE, CFA)	Ecological burns are included as a possible means of maintaining biodiversity	External funding may be sourced and work done in partnership



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to value and appropriately manage biodiversity and environmental values of Council managed land				
3.1.17 Develop and implement procedures to manage soil degradation and erosion associated with Council works.	Medium strategic planning	GSC ESC (NRCA, DSE)	Procedures are used by Council employees and contractors, preventing the importation or movement of soils containing weeds or pathogens onto reserve areas or other areas owned or managed by Council; and Improved soil management practices in Council operations	Within existing budgets; External funds may be sought for training and development
3.1.18 Provide suitable, safe public access within reserves, consistent with the protection of natural and cultural features.	High service provision	GSC ESC and relevant staff	Access identified and rated	Within existing budgets
3.1.19 In partnership with relevant agencies, monitor and evaluate the condition of biodiversity values and use the information as the basis for ongoing improvement of management practices	Ongoing partnership development	GSC ESC and relevant staff (agencies)	Improved knowledge and understanding of biodiversity value across organization	Within existing budgets. May require additional staffing
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

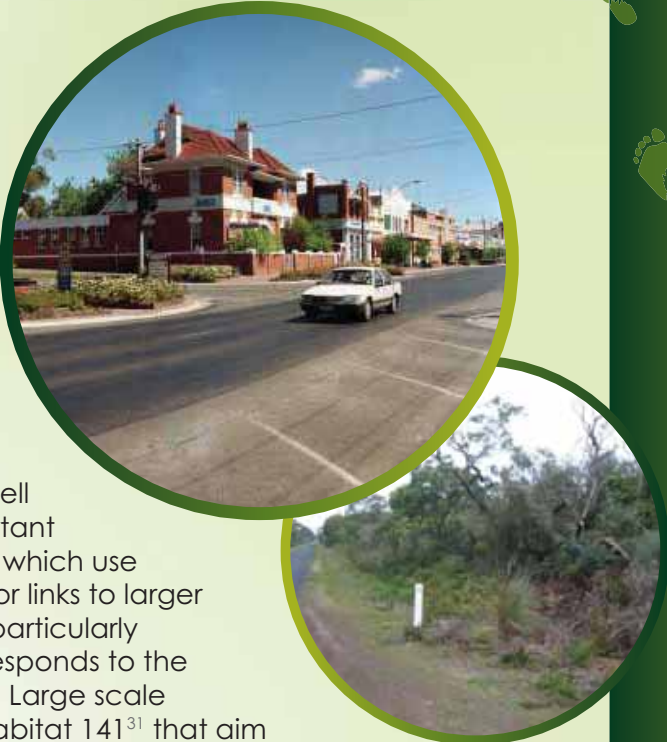
3.2 Issue: Council managed roadsides

Glenelg Shire's road network is stretched across a varied landscape of open plains, steep valleys, foothills and forest. Management of the road network includes management of the roadside vegetation - the linear stretch of grasses, shrubs and trees located between the road shoulder and the adjacent property boundary (the road reserve).

In Glenelg Shire, the total area of land in all road reserves (used and disused) is approximately one fifth of the Shire's area (123,832 Ha) and accommodates 3350 kilometres (km) of roads. Glenelg Shire is the responsible authority for 2998 km of local roads (or 90% in length), while VicRoads is responsible for the management of 352km of the Shire's main roads and Highways (approximately 10% in length).

The road reserves under Council's management are the single largest public area it has direct influence over, and can achieve considerable environmental and biodiversity outcomes. A strategic approach to the management of these areas must become a future focus for Glenelg Shire Council. Glenelg's roads represent a great opportunity for leadership in contributing to the new flagships and biolinks being developed in an integrated manner across Victoria through all agencies, including local government³⁰.

In 1997, roadsides were surveyed for areas of high conservation value with the help of the Casterton and Portland field naturalist groups. The information gathered was used to prepare the Glenelg Shire's Roadside Management Guidelines adopted by Council in 1997 and which has been partially implemented. Department of Sustainability and Environment also used the survey information to produce a Vegetation Protection Overlay (VPO) for roadsides in Glenelg Shire that were identified with significant remnant grasslands, or native vegetation with high biodiversity values that support rare or threatened species or plant communities. The VPO was intended for inclusion in the Glenelg planning scheme.



The vegetation on roadsides is an important resource that is all too often the only remaining representation of certain vegetation types in the landscape, and plays an important ecological, as well as aesthetic role. It is an important habitat for a range of species which use roadside vegetation as corridor links to larger habitat areas. This function is particularly important as the landscape responds to the altering of climatic conditions. Large scale landscape projects such as Habitat 141³¹ that aim to restore habitat connections from the outback to the ocean, would benefit from Glenelg Shire's effort in protecting linear strips of habitat along selected roads.

Conservation of roadside vegetation, including native grasslands, therefore has wide-ranging benefits for biodiversity and resilience in Glenelg Shire in times of climate change and increasing pressure on the environment.

Summer-active native grasses are a lower fire hazard compared to introduced species. In grass land areas, the CFA prefer the use of the native grasses in roadsides³².

³⁰ Securing Our Natural Future, a white paper for land and biodiversity in a time of climate change, 2009 Victorian Government ³¹ Habitat 141 is a large scale, long term connectivity initiative looking to safeguard our natural and agricultural environments against the many threats of climate change. Recognised as a biodiversity hot spot, the region along the Victorian SA border is one of few places in Australia where wilderness areas form a series of stepping stones, from the southernmost coastal regions of Glenelg Shire through to the arid zone ³² Roadside Program Case Study Hamilton Highway ProMect. www.cfa.vic.gov.au/business/documents/roadside.../hamiltonhwy.pdf, Nov 2009

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Improve roadside vegetation conservation and management				
3.2.1 Review, update and implement Council's roadside management guidelines (1997)	High strategic planning	GSC, ESC (DSE, VicRoads, CFA, Landcare groups)	Council to create up-to-date roadside management guidelines that are used as a complete roadside management document. It would include: - Council's strategic direction - Objectives and actions on management of roadside vegetation - Maps identifying sites of biodiversity significance for protection; The document should contain guidelines on (but not exclusively): -Weed management -Roadside rehabilitation and revegetation -Roadside grazing and droving -Protection of native vegetation on roadsides giving consideration to public safety and fire management. -Permitted activities in road reserves; and All relevant staff receive training on the guidelines	Within existing budgets
3.2.2 Develop a practice note to guide Glenelg Shire staff, contractors and the broader community on the implications of the roadside management plan to their activities.	High service provision	GSC, ESC	Practice note to be readily available, circulated and updated as required; and Contractors and communities informed on implications of roadside management plan	Within existing budgets
3.2.3 Develop a Code of Environmental Practice for Works on Rural Roadsides and other Council Controlled Land	Medium strategic planning	GSC (agencies)	Creation of a technical document that is available and used by staff/contractors to inform of best practice planning and implementation for on-ground works; A map overlay is made available for this purpose on Glenelg Shire's 'Maps Online' service; and Improved biodiversity protection on Council managed land and roadsides	Within existing budgets; Additional staff or training may be required



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Improve roadside vegetation conservation and management				
3.2.4 Develop a local policy for the Glenelg Planning scheme which makes reference to Biodiversity Local Area Plans and Biodiversity Action Plans for each bioregion.	High strategic planning	GSC PEDT (DSE,, DPCD, NRCA, Tarragal Landcare)	Habitat/biodiversity protection and connectivity in Shire is integrated into planning scheme; and This action to improve biodiversity outcomes and encourage more groups to develop Local Area Plans.	Additional training may be required
3.2.5 In partnership, conduct roadside vegetation mapping and assessment, then develop and implement the most appropriate tools to protect biodiversity on Shire managed roadsides	Medium strategic planning	GSC ESC, PEDT, (DSE, Greening Australia, community groups)	The presence of appropriate overlays or other planning tools in the Glenelg planning scheme to protect roadside biodiversity; High conservation roadsides are identified and protected; Staff and contractors are informed, and aware of their roles and responsibilities; and Biodiversity values and connectivity on local roadsides improves	Within current budgets
3.2.6 Investigate and develop a local policy for the Glenelg Shire planning scheme on management of roadside vegetation in Council managed road reserves.	High strategic planning	GSC ESC, PEDT (DSE, DPCD, Landcare groups, community)	Creation of a defined policy specifying clearance width permitted on Crown land along boundary fences; Integration of this policy into the planning scheme; and Clear information made available to land managers explaining the policy	Additional training may be required
3.2.7 Develop a communication protocol with other organisations that have a responsibility for or role in roadside management to ensure actions are coordinated and resources are shared when appropriate.	Medium strategic planning	GSC ESC, XFT, LL, A&I, MERO (DSE, VicRoads CFA)	Co-ordinate multi- agency approach to roadside vegetation management in Glenelg Shire	Internal procedure to be developed with relevant GSC staff

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Improve roadside vegetation conservation and management				
3.2.8 Clarify with landholders and Shire residents the permitted and non-permitted activities on roadsides (Crown land reserves)	High service provision	GSC ESC, LL (Community and community groups)	An information brochure is developed and available; Clear information available and accessible on Council's web page; and Inclusion of information on the consequences of non-compliance	Supplementary staff may be required
3.2.9 Council to undertake activities with a knowledge of key landscape-scale programs and initiatives occurring across the Shire, and where possible support and promote these actions	Ongoing (NRM agencies and groups)	GSC, relevant staff across Council, XFT, ESC (partnership network, GAV, GMTOAC, community groups)	Council to acknowledge and support in principle the programs for habitat restoration and protection of ecosystem services, such as the Victorian Plains Biosphere initiative, Habitat 141 and Lake Condah Project; and also under State and Federal flagship and priority area programs; Council to identify local roads which are key components to integrated landscape projects for special management regimes; and Management regimes to be determined by cross-functional teams together with the partnership network	
3.2.10 Implement Response 7.4.1, (the Land Capability Assessment) which will also provide significant biodiversity benefits.	High strategic planning	GSC, PEDT	Land capability assessment referenced in the planning scheme	Within existing budgets
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

3.3 Issue: Biodiversity on private land

Biodiversity is closely linked to the landscape and its geological formations. The protection of these formations and landscapes on private land, such as lava flows, limestone caves, the Budj Bim landscape, Glenelg basin and coast areas, is critical to preserving the diversity of life forms. These and other areas have been identified in the Glenelg Strategic Futures Plan and the Coastal Spaces Landscape Assessment Study (2006)³³ as important parts of the region. Therefore it is important to protect these landscape features from the cumulative impacts of land use change and development.

Biodiversity mapping in the late 1990's identified 47 remnant vegetation sites of environmental significance in the municipality. Vegetation Protection Overlays (VPO) were developed for incorporation into the Glenelg planning scheme for the protection of these areas. Twenty-two wetlands or waterways were also listed in the schedule as requiring an Environmental Significance Overlay (ESO) to complement the planning scheme. Many of these wetlands are on, or run through, privately owned land, and are areas rich in biodiversity.

These two overlays provide a trigger for the need of a planning permit unless otherwise exempt. The Wildfire Management Overlay (WMO) and Bushfire Prone Area (BPA) also guide the process of vegetation management from a safety perspective. This enables Council and referral agencies, such as the Department of Sustainability and Environment, to be part of the land-use and development process so everything is consistent with State and local Government policy objectives in relation to biodiversity management.



For many years, it has been contended that the most successful outcomes in biodiversity conservation on private land are best achieved through a combination of regulation and incentives. Therefore, in addition to the statutory regulations provided in the planning scheme and other relevant legislation, Council is in an ideal position to deliver incentives and education programs that foster an ethic of conservation and environmental care on private land.

The Trust for Nature³⁴ operates in this way. It has developed four mechanisms for achieving real conservation gains: conservation covenants which provide permanent protection under the Victorian Conservation Trust Act 1972; a stewardship program that provides support to covenantors to achieve best land management practice and other assistance; a revolving fund which is used to buy environmentally significant land that is on-sold with a conservation covenant; and land acquisition where Trust for Nature purchases properties of high conservation significance in the interest of all Australians, both now and into the future. The properties purchased are retained by Trust for Nature and managed accordingly, almost always with the support of a voluntary friends group.

The second element of the State Government's framework for action is to focus attention on landscapes that provide the people of Victoria with important ecosystem services. The flagship areas and biolinks identified in the framework will receive special management and investment. Private land managers will be encouraged to increase biodiversity on their properties by funding incentives in recognition of the importance of the goods and services provided by the land they manage.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY In partnership, Council will deliver incentives and education programs that foster conservation and environmental care on private land				
3.3.1 Review and include new information into the planning scheme on areas of biodiversity significance on private and public land within the Shire as it becomes available.	Ongoing strategic planning	GSC PEDT, ESC (DSE, DPCD, NRCA)	Areas of biodiversity significance are clearly identified, with the appropriate planning tools in place to maximize their protection	Within existing budgets
3.3.2 Continue to develop programs and strengthen local policies for biodiversity protection in the Glenelg Shire planning scheme as information becomes available	Medium strategic planning	GSC, PEDT, ESC (DSE, DPCD, NRCA)	Biodiversity values clearly defined in the Glenelg planning scheme; Land-use and development in Glenelg is done in a way that protects, and enhances where possible, biodiversity values; and A Land Management Biodiversity Incentive Program is considered for developed by Council.	Requires strong joint submissions for NRM funds to assist resourcing; Training/ up-skilling of staff may be required
3.3.3 Investigate and develop incentives which encourage landholders to undertake biodiversity conservation and sustainable land management practices	Medium strategic planning	GSC, ESC, corporate services (DPI, DSE, NRCA, TFN)	Council creates a land sustainability rebate, covenant protection payment or other incentive programs to encourage landholders to undertake biodiversity conservation; Information on Trust for Nature's conservation covenants and stewardship program are available on Council website; and These are supported through cooperative activities at field days, and through whole farm planning.	May require external funding to resource and staff the development of this program
3.3.4 Promote environmental values and ecosystem services in the broader community	High advocacy	GSC ESC (DPI, DSE, NRCA)	Regular joint activities with agencies to deliver/foster knowledge of ecosystem services and environmental values; and Private landholders become more aware of their responsibilities in relation to the environment; and Council website has information relating to this and links to other sites	Will require expertise and support from key agencies

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY In partnership, Council will deliver incentives and education programs that foster conservation and environmental care on private land				
3.3.5 Participate in and support regional and catchment planning, and programs that protect and enhance biodiversity values on private land.	Ongoing partnership development	GSC ESC (DPI, DSE, NRCA)	Council representatives attend Regional Catchment Strategy (RCS) planning meetings; and Local groups active in environmental activities to receive support from Council (eg. administrative, technical and financial support)	With existing budgets; External funding may be available
3.3.6 Continue using land management plans (LMPs) as appropriate, and encourage the application of whole farm planning (WFP) etc., as a means of achieving improvements to biodiversity values and reduced environmental impacts.	Ongoing strategic planning	GSC ESC (DPI, DSE, NRCA) Alcoa Seed Bank, GAV, community)	Council recording (spatially and other) the application of land management plans (or similar) and encouraging landscape connectivity; Increasing the area of the Shire managed under LMPs, WFP or EMS; and Information on the type and uses of such planning is made available on Council's website	Within existing budgets
3.3.7 Develop Indigenous planting guides for Glenelg Shire townships, make them available to these communities and encourage residents to plant Indigenous species	Medium service provision	GSC, ESC (DPI, DSE, NRCA) Alcoa Seed Bank, GAV, community)	Indigenous planting guides are created and made available to communities across the Shire; The information is available on Council's webpage; and Continued support of the successful 'Biodiversity in Your Backyard' workshops across the Shire, or similar	Within existing budgets or external funding
3.3.8 Encourage residents to collect seed or propagules of provenance, especially where removal of native vegetation is unavoidable. These products can be deposited at the Portland Seed Bank for use in offset or replacement plantings and revegetation programs.	Ongoing advocacy	GSC, ESC (Alcoa Seed Bank, community)	Increased awareness of the Portland Seed Bank and revegetation techniques; Increased awareness of using provenance material; and Information on seed collection guidelines on Council website	Within existing budgets

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

3.4 Issue: Biodiversity on Crown land

Approximately 286,000 Ha (46% of area) of public land exists in the Shire, most of which is on Crown land managed by organisations other than Council (Table 3). Much of the land managed by Parks Victoria is the Cobboboonee and Lower Glenelg National Parks, and Discovery Bay Coastal Park, and therefore represents the major conservation resources in the Shire. In this context, an important function of Council is participating in planning and decision-making with all Crown land managers in the Shire.



Management of land in Crown land reserves is often assigned to committees of management, involving either locally elected and appointed community-based committees, or Glenelg Shire Council itself.

All committees of management report to Department of Sustainability and Environment. Glenelg Shire Council can delegate some of its committee of management responsibilities to local community-based bodies through Section 86 of the Local Government Act. It is important that committees of management be encouraged to provide a high standard of environmental management of the land under their care.

The Department of Sustainability and Environment will assist Council to determine which parcels of land contain significant assets, and provide guidance on the preferred standard of environmental management. Department of Sustainability and Environment can also assist committees in the development of environmental management plans.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council actively contributes to planning and decision-making with all Crown land managers in Glenelg Shire				
3.4.1 Foster a cooperative and partnership philosophy in Council's relationship with other Crown land managers and Aboriginal communities within the municipality	Ongoing partnership development	GSC (DSE, PV, NRCA, Indigenous groups, GMTOAC, VicRoads, VicTrack)	Where a clear environmental benefit can be demonstrated, resources and information are shared across tenures and jurisdictions; Council and other land managers activities are informed and exchange information on activities; and Traditional owners and Indigenous groups are engaged in efforts and decisions relating to biodiversity management and integration of traditional knowledge	Within existing budgets
3.4.2 Committees of management are encouraged to develop management plans to ensure a high standard of environmental management of the land under their care.	Medium partnership development	GSC ESC, RS and other relevant staff (DSE, NRCA, committees of management, community groups)	Council provides leadership by providing guidelines for the development of management plans by committees of management; The guidelines provide a platform for committees to seek funding to develop and review environmental management plans; Public land committees of management are encouraged to prepare an environmental management plan to manage natural assets; Plans are reviewed every five years; and Council is responsible for ensuring the land managers meet these guidelines.	Within existing budgets
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

4 Pest Plants and Animals

Council's aim:

Collaborate with partner agencies to ensure effective management of pest plants and animals within the Shire through ongoing eradication and control programs.

4.1 Issue: management of pest plants and animals in Glenelg Shire

A major threat facing the biodiversity of bushland and productivity of agricultural land in Glenelg Shire is invasion by pest plants and animals. Significant costs are borne by private and public land managers, industry, local government and statutory authorities to combat this threat. The intangible nature of social and biodiversity impacts make it difficult to quantify the full capital cost of pest plants and animal control.

Local government, together with other land managers and members of the community, has a role to play in combating weeds in the region. As a land-owner under the *Catchment and Land Protection Act 1994*, Council has the legal responsibility to take all reasonable steps to eradicate regionally prohibited weeds, and prevent the growth and spread of these weeds. Land-owners are also required to prevent the spread of regionally controlled weeds on a roadside that adjoins their land, and is also prohibited from spreading seeds or parts of declared noxious weed in or on gravel, soil, fodder, animals or machinery. In addition to these legal responsibilities, it is desirable that all land managers:

- Practice weed hygiene in all land management activities;
- Prevent the growth and spread of weeds; and
- Report new occurrences of priority weeds

The development of a pest plant and animal management strategy for Glenelg Shire would provide a framework for the long-term, strategic management of pest plants and animals, and reduce their environmental, economic and social impacts in the Shire. Such a strategy must identify how this can be achieved through cooperative activities with other public and private land managers, and the community.

Under current Federal and State Government programs such as *Caring For Our Country*, and the land and biodiversity white paper, the management of pest plants and animals is a key issue. The recommended responses below should attract external funds as they complement and align with priorities activities already receiving investment in Glenelg Shire.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Provide leadership and positive stewardship of pest plant and animal management in the Shire				
4.1.1 In consultation, develop and implement a Glenelg Shire pest plant and animal plan	High strategic planning	GSC ESC (community, DPI, DSE, NRCA, PV, VicTrack, VicRoads)	A plan is developed in consultation with staff, community, partner agencies and other interested organisations; Weed management is integrated into routine operational activities, such as infrastructure maintenance and development, parks and gardens and contractor activities and guidelines; The plan aligns with state and regional PPA plans or policies; The plan identifies environmental weed species not listed by State or Federal Governments and SOPs are developed for their management; and Glenelg Shire demonstrates a strategic, coordinated and supportive approach to PPA	Additional staffing and external funding for implementation may be required. The project is likely to attract state or federal funding
4.1.2 Investigate and integrate planning mechanisms to list environmental weeds species that adversely impact the environmental values of the Shire	High strategic planning	GSC ESC, PEDT, P&G. A&I (DSE, DPCD, community, environmental groups)	Non-listed, local environmental weeds impacting Glenelg Shire are officially listed; and Mechanisms are in place in the planning scheme to control them	Within existing budgets
4.1.3 Establish an implementation committee to drive the implementation of the plan	High partnership development	GSC ESC	Pest control is implemented in a coordinated approach	External funds may be required for ongoing works



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Provide leadership and positive stewardship of pest plant and animal management in the Shire				
4.1.4 Develop and distribute a Glenelg Shire Environmental Weed Directory outlining the key weeds of Glenelg Shire, their identification, impact and control.	Medium service provision	GSC ESC	Ensure information on the threats that the weeds pose and how to best manage/treat them is available to residents and environmental groups; Greater community awareness of negative impacts of weed and their control; and Up-to-date weed information is made available on Council's web site	External funding is likely to be available
4.1.5 Provide support and assistance to groups and community networks that proactively undertake weed management programs on private or Council land.	Medium service provision	GSC	Greater recognition of voluntary efforts to control PPA; Council guides the community in efforts consistent with aims of this strategy	May be linked to land sustainability rebate or devolved external funding
4.1.6 Partner with the catchment authority, the DSE, Parks Victoria and Department of Primary Industries in weed education and community-driven weed management programs ³⁵ , and in seeking funding for weed and pest animal management in the Shire.	Ongoing partnership development	DPI, DSE, NRCA, (GSC, ESC)	GSC supports other agencies' programs operating in the Shire; and Funding is obtained from NMR funding sources for community driven weed programs	Strong funding submission to NRM investors to deliver partnership program
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

5 Coastline and Sea

Council's aim:

Coastal and marine environments retain their environmental, cultural and other values, which make them iconic attractions for Australian and international visitors, through Council's planning, management and influence. This will be achieved in conjunction with other local, regional and state authorities.

The dynamic interface between the coastal land and the sea features a variety of landforms such as headlands, steep rugged cliffs, coves, extensive dune systems and beaches, and offshore reefs. It also features distinctive coastal and marine ecosystems that harbour a range of complex vegetation communities capable of surviving the harsh and diverse coastal and marine extremes (refer to Appendix 5 for details).

The coastal waters off the coast of Glenelg Shire are part of the Otway Marine Bioregion. The Discovery Bay Marine National Park, a marine protected area 20 km west of Portland, is Victoria's marine gateway to the Great Australian Bight and the immense seas of the Southern Ocean. The Bonney Upwelling³⁶ occurs off the relatively narrow continental shelf neighbouring Glenelg coastline. This is a significant phenomenon where seasonal upwelling of cold nutrient-rich waters from the Southern Ocean brings diverse marine fauna to the region's waters to feed (see Appendix 5, Bioregions).

The Victorian Coastal Strategy (VCS) provides the State Government's policy and comprehensive integrated management framework for the Victorian coast for the next 100 years. The VCS sets out four principles³⁷ on coastal planning and management which must be applied consistently to all coastal development. Decision-making should be consistent with the hierarchy of principles, which are:

- Provide for the protection of significant environmental and cultural values;
- Undertake integrated planning and provide direction for the future;
- Ensure the sustainable use of natural coastal resources; and
- 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.

Much of the coastline and hinterland in Glenelg Shire is in public ownership (Crown land). Coastal Crown land is owned by all Victorians, and the Department of Sustainability and Environment has the key responsibility for implementing the *Crown land (Reserves) Act 1978* and *Coastal Management Act 1995*. Management of land in Crown land reserves is generally assigned to committees of management. Only limited sections of the coast are private land to the high water mark, these are in Portland city, and south of Bridgewater settlement.

Council is committee of management for small, key sections of coastal public open space. Council is also the Local Port Authority (since 1 July 2009) in Portland harbour and also contributes to the management and decisions regarding potential industrial developments (e.g. aquaculture, wave and wind power), tourism, boating and fishing. Consequently, it plays an important role in preserving the health of coastal and marine environments, and ensuring the environmental, social and economic values it provides the region are not adversely impacted.

Portland is also home to a deep-water commercial port. The port is an international gateway with close proximity to international shipping lanes, servicing western Victoria and the south east South Australia. Managed by the Port of Portland, the port specialises in bulk commodities, exporting grain, woodchips, logs, aluminium ingots and livestock. Import commodities include alumina, liquid pitch and fertiliser products. Annual throughput is approximately 4-million tonnes and growing³⁸.

Other industries on the Glenelg Shire coast include Portland Aluminium, Incitec Pivot, on-shore mariculture and the rock lobster and fishing fleet. Recreational fishing is also a major industry sector relying on Glenelg Shire's coastal and marine environment.

The environmental issues potentially arising from such uses include, but are not limited to, noise pollution, bilge water and oil spills, and effluent discharge to the sea, fresh water systems, or the air.

The challenge of managing coastal and marine environments focuses on minimizing the threat of unsustainable use, the impacts of climate change, building greater understanding and scientific knowledge and community involvement.

To ensure coastal and marine values are retained and protected, this chapter addresses how Council can provide leadership on the management of coastal, estuarine and marine environmental issues, as well as the impacts of extreme weather events and gradual climate change on Glenelg's coastal environment and communities.

5.1 Issue: Climate change impacts on the coast

The coast is dynamic, constantly changing from day to day and season to season. However, we will see further changes arising from climate change, including significant changes in the coming century. These changes include a rising sea level and increased frequency of storm surge. Increased temperatures, caused by increased concentrations of greenhouse gases will trigger the sea level rise. This is due to thermal expansion of seawater as it heats up, glacial and ice cap melt, and, to a lesser extent, Greenland ice sheet melt³⁹.

The Fourth Assessment Report from the most recent Intergovernmental Panel on Climate Change (IPCC) states that 'human influences have very likely contributed to sea level rise [and other impacts] in the latter half of the 20th century'. The IPCC concludes that:

- Global average sea level has risen since 1961 at an average rate of 1.8 mm per year and since 1993 at 3.1 mm 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 mm per year and 2.4 mm per year respectively since 1991 (National Tidal Centre, Bureau of Meteorology, 2006).



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

In its 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 greenhouse gas emissions, climate sensitivity, speed of change and regional responses to global climate changes. The Victorian Government has adopted a policy of planning for sea level rise of not less than 0.8 metres by 2100. This policy will be reviewed as scientific data becomes available or when national benchmarks are established.

The State Government's policy on the impact of climate change on the coast is outlined in the Victorian Coastal Strategy (the source of the information above) and states the science which is accepted by Government. Research on climate change is ongoing and the Victorian Government continues to invest in research on local risks and impacts.

For example, the State Government's Future Coasts Program⁴⁰ is designed to help Victorians better understand and plan for the risks associated with sea level rise along the Victorian coast.



The program is producing information about the impacts of sea level rise along the Victorian coast, with a focus on coastal erosion and flooding.

A recent study by CSIRO⁴¹ completed under the Future Coasts Program examines inundation for the Victorian Coast in the event of extreme sea levels. The challenge for Glenelg Shire Council is to prepare and plan ahead regarding climate change risks and impacts using the following three adaptation options: protect (protection of beaches, dunes and infrastructure, land-use and development); accommodate (planning and building policies and provisions, redesign and rebuild); and retreat (relocation of infrastructure, land use and development). These three options, together with emergency and disaster management, must be considered for all vulnerable areas along the coast.

Climate change and sea-level rise will have a major impact on the Shire's 134 km coastline. Prediction of risks and preparation for impacts is critical for all organisations with a role in coastal management. Planning for sea-level rise will require translating appropriate research into policy and planning approaches for managing key coastal and marine assets, water patterns, biodiversity and ecosystems.

Glenelg Shire is currently partnering with Department of Sustainability and Environment through *the Future Coasts Program* to investigate and research coastal climate change issues including coastal vulnerability, built assets and appropriate planning solutions.

⁴⁰ Future Coasts program, DSE ⁴¹ The Effect of Climate Change on Extreme Sea Levels along Victoria's Coast. A Project Undertaken for the Department of Sustainability and Environment, Victoria as part of the 'Future Coasts', Program, Kathleen L. McInnes, Ian Macadam and Julian O'Grady, November 2009

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Increase the capacity and resilience of Glenelg's biophysical coastal environment to adjust to the impacts of climate change				
5.1.1 Glenelg Shire Council to partner actively on research into coastal vulnerability and a risk assessment of climate change impacts and plan for appropriate management to lessen the impact.	Ongoing strategic planning	DSE, NRCA, DPCD (GSC relevant staff)	Ensure preparedness for the impacts of climate change on Glenelg coastline is evidence based and demonstrates a cooperative approach	Requires strong submission for NRM funds to assist resourcing
5.1.2 Ensure that the Glenelg planning scheme is regularly reviewed to reflect the most up-to-date climate change information, science, and assessments of vulnerability to provide the framework upon which well-informed decisions can be based.	High strategic planning	GSC PEDT (PDCD, NRCA, DSE)	1:100 year storm event data incorporated in the Shire's planning scheme and online mapping; and Relevant climate change mitigation tools reflected in planning scheme	Within existing budgets; External funding and assistance may be sourced
5.1.3 Council to lead communities and those with roles in coastal management in discussions, risk assessment and planning for impacts of climate change and extreme events on the coast, consistent with Response 1.1.7	Ongoing community development and planning	GSC relevant staff (DPCD, DSE, GHCMA NRCA/WCB)	Community engaged on implication of climate change to Glenelg's community; and Coastal committees of management to create plans which include consideration of climate change impacts consistent with 5.2.4	Requires strong submission for NRM funds to assist resourcing
5.1.4 Encourage Crown land managers and other private land-owners to plan for zones which facilitate the retreat of vegetation communities as sea level rises.	High partnership development	GSC ESC, A&I, relevant staff (DSE, DPCD, NRCA, PV, community)	In the long term, corridors are available for the retreat of fauna and flora; and Corridors may comprise lineal connections such as river riparian zones, nominated roadsides, etc.	Requires strong submission for NRM funds to assist resourcing
5.1.5 Council to support strong local educational programs on climate change impacts and what this means to local communities and environment in line with Response 2.1.1.	High community development and planning	GSC ESC (relevant agencies, community)	The public is kept informed on climate change and its impacts	Requires strong submission for NRM funds to assist resourcing
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

5.2 Issue: Coastal management

The Department of Sustainability and Environment is the major coastal land manager in the Shire, and they delegate management of coastal Crown land reserves to other organisations, such as Parks Victoria (Appendix 2), Glenelg Shire Council (Appendix 5, Table 4) and local community-based committees elected for a three-year term (Appendix 5, Table 5). The Great South West Walk Committee manages the Great South West Walk and also plays a role in management of coastal and forest areas.

As mentioned in Issue 3.4, all committees of management report to Department of Sustainability and Environment, and Glenelg Shire Council can delegate some of its committees of management responsibilities to local community-based bodies through Section 86 of the Local Government Act. Glenelg Shire Council is the appointed committee of management for smaller, but important and highly-used areas of coastal Crown land (Appendix 5, Table 4), particularly Portland Foreshore Reserve, including Battery Point, Ploughed Field and cliffs, Bridgewater Bay Foreshore Reserve and Dutton Way Foreshore Reserve. It is responsible for the on-going protection, maintenance and development of these coastal reserves, consistent with the direction outlined in the Victorian Coastal Strategy 2008 and Glenelg Coastal Action Plan 2004.



The Western Coastal Board is responsible for overseeing strategic coastal planning and facilitating the implementation of the Victorian Coastal Strategy in the western coastal region that extends from the Glenelg Shire to Surf Coast Shire. The proposed Western Districts Natural Resources Catchment Authority (to be established by June 2011) will assume these and other functions.

Planning for coastal areas by Council is guided by the Victorian Coastal Strategy 2008 and its hierarchy of principles, referrals to other agencies, the Glenelg Shire Coastal Action Plan 2004 (currently undergoing a statutory review) and South West Coastal Action Plan.

The Department of Sustainability and Environment can also assist Council and other committees of management develop coastal management plans under the Coastal Management Act 1995 and provide guidance on the preferred standard of environmental management.

Coastal Acid Sulfate Soil (CASS), which is found largely in low-lying coastal areas, is an important coastal management issue. Avoiding the disturbance of CASS is critical to stopping severe environmental damage. This issue and Council responses are dealt with in Chapter 7, Issue 7.3. Cliff collapse is another major ongoing issue in the Portland area.

Glenelg Shire's coastline is rich in examples of the Indigenous and European settlement cultural heritage that is largely based on the environment. Activities such as fish harvesting has attracted and supported both cultures. The settlers' occupation of the Convincing Ground at Allestree, with access to fish, whales, fresh water, firm sand, shelter from weather provided by vegetation and dunes, followed similar Indigenous use and led to clashes but also cooperation. There are a many off-shore shipwrecks, some in Portland Bay. This cultural heritage must be considered in management decisions relating to the coast and marine environments.

The fundamental challenge of both coastal and marine management is the coordination of multiple agencies managing competing interests. The coordination of coastal management, planning and implementation is a priority to reduce conflicts in values, uses and approaches across government. Glenelg Shire Council plays a key role in this.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Through strong Council planning, management and influence, ensure the coast retains its environmental and cultural heritage values				
5.2.1 Implement the measures for Issue 3.1 in relation to biodiversity management for all coastal land owned or managed by Council.	Ongoing strategic planning	GSC relevant departments (DSE)	Coastal biodiversity is better managed	Refer to Issue 3.1
5.2.2 Partner with the Western Coastal Board or relevant authority, in facilitating the implementation of the Glenelg Coastal Action Plan (CAP) and other relevant action plans (see Responses 5.2.2, 5.3.3, 5.4.2, 5.4.5)	Ongoing partnership development	GSC ESC (NRCA/WCB, Partnership Network)	A reference group is established to oversee implementation and monitor outcomes; Actions from the CAP are implemented; and Progress on the CAP is monitored and reported	Requires strong submission for NRM funds to assist resourcing
5.2.3 Develop and strengthen local policies for coastal management in the Glenelg Shire planning scheme to ensure land development is done in a way that protects and enhances coastal and marine values.	High strategic planning	GSC PEDT (DSE, DPCD, NRCA/WCB)	The hierarchy of principles in the Victorian Coastal Strategy (VCS) are consistently applied; Clear policies and tools for the protection of coastal values is available in the planning scheme; Significant landscape overlays are developed in line with recent reports ⁴² ; and Other tools and mechanisms are explored to ensure this	Within existing budgets
5.2.4 Coastal committees of management are encouraged to develop management plans to ensure a high standard of environmental management of the coastal land under their care.	Medium partnership development	GSC ESC, RS staff (DSE, committees of management and community groups)	Council demonstrates leadership by providing guidelines for the development of management plans by coastal committees of management, making reference to the CAP and VCS; The guidelines provide a platform for committees to seek funding to develop and review environmental management plans;	Within existing budgets

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Through strong Council planning, management and influence, ensure the coast retains its environmental and cultural heritage values				
			Committees of management and public land managers are encouraged to prepare an environmental management plan to manage natural assets; and Plans are reviewed every five years.	
5.2.5 Work in partnership with other coastal land managers and Indigenous groups in accordance with Response 3.4.1 to improve outcomes for coastal crown land	Ongoing partnership development	GSC relevant staff (see 3.4.1)	GSC representation at relevant meetings; Traditional knowledge is integrated into coastal planning and management (VCS, p. 33); An increased number of partnership projects; Partnerships are demonstrated between Council and Indigenous groups; and Improved coastal biodiversity	Within existing budgets
5.2.6 Participate in regional planning and decision-making in relation to coastal management, and advocate for the implementation of the VCS in Glenelg Shire.	Ongoing advocacy	GSC (NRCA/WCB, PV, DSE, DPCD)	Coastal issues in Glenelg Shire are addressed in regional planning and decision-making; and Regional coastal priority setting under new governance restructure receives full consideration	Within existing budgets
5.2.7 Incorporate coastal management issues into Council's environmental education program, consistent with responses to Issues 2.1 and 2.2.	Ongoing community planning and development	GSC ESC, XFT (NRCA, DSE/ Indigenous and environment groups)	The community is informed on coastal issues; and The community is actively involved with on-ground works and activities relating to coastal management	Requires strong submission for NRM funds to assist resourcing

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

5.3 Issue: Estuary management

An estuary is a semi-enclosed body of water where salt water from the open sea mixes with freshwater draining from the land. Estuaries provide a unique and dynamic habitat for native plants and animals, nursery and breeding sites for aquatic fauna, valuable recreation resources, landscape values. They are sites of cultural, scientific and educational significance, and they contribute economic value, particularly with respect to fishing and tourism.

Estuaries underpin the economic wellbeing of the region's coastal towns through their recreational and scenic value, as well as their natural functions in regulating water flows, maintaining water quality and providing fish nurseries. Therefore, compromising any estuarine values is likely to have inevitable economic consequences. These could include increased water treatment costs, erosion and loss of valuable floodplain farmland and fish stocks, reduced aesthetic appeal and an associated reduction in tourism, or reduced property values near degraded waterways.

The declining health of our rivers and estuaries and wetlands is the result of cumulative impacts of a number of human activities^{43,44,45}. These activities ultimately led to the deterioration of the quality of aquatic environments in waterways and estuaries. This significantly contributes to the declining abundance, diversity and range of fish, birds and other plants and animals reliant to these habitats.

In addition, local marine environments receive the water flowing from the Shire's estuaries, and are consequently impacted by content and quality of the water. Estuary management therefore has important implications for the health of adjacent marine areas.

Glenelg Shire Council owns or manages small portions of land around some estuaries in the Shire, and it manages stormwater infrastructure that drains water from urban areas into estuaries. Many threats to estuaries result from poor land use practices in the watershed area. Glenelg Shire has a duty to responsibly manage the threats to estuarine and marine environments. Considering the clear economic, social and environmental benefits of estuaries to the community, Council plays an important role in estuarine management.

GLENELG SHIRE ESTUARY FACTS AND FIGURES	
<p>Glenelg Catchment area: 11,998 km² River length: 500 km Estuary length: 70 km Listed under the Heritage Rivers Act 1992 and as a nationally important wetland</p>	<p>Surry Catchment area: 370 km² River length: 50 km Estuary length: 10 km</p>
<p>Fawthrop Lagoon Catchment area: 342 km² River length: 18 km Estuary length: 9 km</p>	<p>Fitzroy Catchment area: 1520 km² River length: 55 km Estuary length: 13 km</p>

Estuary management is guided by the Victorian Coastal Strategy (VCS) 2008, the South West Estuaries Coastal Action Plan 2002 and the Estuary Entrance Management Support Systems⁴⁶. Estuary management plans have been developed by Glenelg Hopkins Catchment Authority for rivers in the Shire using the framework identified in the Estuaries Coastal Action Plan. The Surry, Fitzroy and Glenelg Rivers all have estuary management plans, and the Fawthrop Wetland management plan is being finalised (2010).

⁴³ River Health Strategy 2004 – 2009 GHCMA ⁴⁴ A Guide to the Management of Native Fish: Victorian Coastal Rivers and Wetlands, Department of Sustainability and Environment, December 2008 Arthur Rylah Institute, Heidelberg ⁴⁵ Catchment Condition Report 2007, Victorian Catchment Management Council ⁴⁶ EEMSS Estuary Entrance Management Support System, EEMSS Background report and User Manual, GHCMA's website: <http://www.glenelg-hopkins.vic.gov.au/>, Coast and Marine

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Glenelg Shire will manage the threats and influences on estuarine ecosystems				
5.3.1 Review and implement the recommendations of the Portland Stormwater Management Plan, 2002	High service provision	GSC A&I staff, ESC	Improved water quality in wetlands and marine environments; and The installation of stormwater litter traps at Fawthrop Lagoon	Actions to be included in budgets; External funding may be available for some projects
5.3.2 Implement Response 8.4.6 on Water Sensitive Urban Design (WSUD) listed under Issues 8.4, Urban Design and Transport Planning with the aim of improving water quality.	High staff development, strategic planning	GSC PEDT, A&I (DSE, DPCD, NRCA/WCB, WW, DPI)	See Response 8.4.6	Staff training costs to integrate and implement WSUD; External funding may be available
5.3.3 Council to advocate for, and work in partnership, on the implementation of estuary management plans, especially to allay impacts of climate change	Ongoing advocacy, partnership development	GSC ESC, relevant Staff (partnership network, community)	Estuary management plans are actively implemented; Improved estuary management; and Greater community involvement on-ground	Requires strong joint submissions for NRM funds to assist resourcing; Staff costs within existing budgets
5.3.4 In partnership, investigate and mitigate pollution sources into Glenelg Shire estuaries, especially the Glenelg, Surry and Fitzroy Rivers and Darlots and Wattle Hill Creeks.	Ongoing strategic planning	EPA, DPI, DSE (GSC)	Improvement in the health of Portland and Glenelg basin waterways and sources; and Engagement of community in water health issues	Requires strong submission for NRM funds to assist resourcing
5.3.5 In partnership, monitor, assess and report to the community on the health of estuaries in Glenelg Shire.	Ongoing advocacy	EPA, NRCA/WCB, DHS (community, environment groups, GSC)	Improved monitoring of the Glenelg River estuary, and other estuaries in the Shire	Within existing budgets

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Glenelg Shire will manage the threats and influences on estuarine ecosystems				
5.3.6 Work with the community and partner agencies to enhance the health of estuaries and associated wetlands in Glenelg Shire.	Ongoing partnership development	NRCA/WCB, DSE, DPI, DSE, EPA (GSC)	Stronger partnerships achieving improvements in estuary health; and Establishment of community groups in Nelson (Glenelg River), Portland (Fawthrop Wetland) and Narrawong (Surry River) to become active in protection and on-ground works	External funding may be sourced through NRM funding bodies
5.3.7 Advocate strongly for resources to be allocated to estuaries in Glenelg Shire when priority setting is undertaken at regional, state and federal levels.	Ongoing advocacy	GSC Senior Management (NRCA/WCB, DSE)	The resourcing of estuary protection in Glenelg Shire, especially in light of climate change; Resources are allocated to the Shire's estuaries as part of funding for State and Federal flagship areas; and Objectives of the Kanawinka coast project are being achieved	Within existing budgets
5.3.8 Adoption of planning policy, zones and overlays into the Glenelg Shire planning scheme that protect and enhance the values of the Glenelg Shires estuaries and associated floodplains.	High strategic planning	GSC ESC, GIS staff (DSE, DPCD, PV, NRCA/WCB)	Establishment of planning scheme mechanisms to protect environmental values of estuaries and associated wetlands; and Coastal Spaces 2006 recommendations are integral to the planning scheme, including SLOs.	Requires strong submission for NRM funds to assist resourcing
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

5.4 Issue: Marine health and biodiversity

Glenelg Shire's unrivalled marine environment contains a mosaic of different habitats in intertidal areas and under the sea. At the western edge of the shallow waters of Bass Strait, the coastline of Glenelg Shire runs along a relatively narrow strip of continental shelf. This closeness to the deep waters of the Great Southern Ocean leads to the unique phenomenon of the Bonney Upwelling. This upwelling supplies a rich food source to a diverse array of marine life (see Appendix 5), including the largest mammal on earth - the Blue Whale.

The temperate waters off the southern Australian coast boast great biodiversity, with a high proportion of species exclusive to these waters. While they are home to numerous threatened marine species, the waters also host a range of introduced marine pest species, and are hampered by other threatening processes that impact on the environment's unique biodiversity and habitats.

Glenelg's extensive coastline, together with existing and potential activities such as housing and industrial developments (including aquaculture, marine energy installations which impact offshore and onshore), places the health of marine assets, such as marine biodiversity, fish habitat and key processes, at risk. Any adverse impacts would be detrimental to this.

The health of the Shire's intertidal and marine biodiversity needs to be conserved for its intrinsic value, but also for economic reasons. Marine health is a vital part of the Shire's economic health. It underpins the local economy and social fabric. The Glenelg Shire relies on the health of its marine environment for important commercial and recreational fishing industries, and benefits from its proximity to the Bonney Upwelling. Both Indigenous and European cultures have and still benefit from this.

There is a growing awareness of marine issues and the influence that land-based activities have on marine health. This is evident in the Victorian Coastal Strategy 2008, which identifies marine issues as one of three priority areas, together with climate change and population growth.

Marine health is inextricably linked to land-based uses and activities in the immediate vicinity to the shore, as well as river catchments that flow into the sea. It is important to improve the management of the marine environment. These waters have significant intrinsic biodiversity values that support fishing, aquaculture, recreation, tourism and shipping, and deliver a range of ecosystems services.

Understanding and managing the threats to marine ecosystems is complex, but critical to protecting marine biodiversity, and ensuring resilient marine ecosystems capable of sustainable use and continuing to deliver the goods and services Glenelg's communities have come to rely on.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Manage the threats and influences on marine environment and biodiversity through excellent management of coastal planning and activities as coastal committees of management				
5.4.1 Strongly support the implementation of Responses 5.3.1 and 5.3.4 on water quality and catchment management to minimise impacts on the marine environment	Ongoing service delivery	GSC A&I staff, ESC (EPA, DPI, DSE, NRCA/WCB)	Improvement in the health of Glenelg's marine environment; Mitigation of pollution sources into marine environments via Glenelg's estuaries, especially from the Glenelg, Surry and Fitzroy Rivers and Darlots and Wattle Hill Creeks; and Information made available on Council's website about the impacts of stormwater quality and activities which contribute to poor water quality	Requires strong submission for NRM funds to assist resourcing
5.4.2 Implementation of the Glenelg Shire Coastal Action Plan, particularly those actions addressing threats to marine health	Ongoing service provision	GSC ESC, A&I staff, (DSE, NRCA/WCB, PV)	Improved water quality in wetlands and marine environments; and The community is empowered and involved	Requires strong submission for NRM funds to assist resourcing
5.4.3 In partnership, Council to develop an understanding and improved co-ordination of marine management, planning and implementation	Ongoing partnership development and strategic planning	GSC, PEDT, ESC, relevant staff (partnership network, DSE, DPI, POPL, PV, Industry representatives, community groups)	Reduced conflict in values, uses and approaches across government and industry sectors and the community; Effective linkages established between management strategies and plans for marine, coastal and catchments systems, e.g. Local Port Authority and Commercial Port (POPL) strategies and plan, emergency management, biosecurity, etc; Collaboration between agencies and industry sectors resulting in integrated decision-making; and The management of cross-environmental threats	Requires strong submission for NRM funds to assist resourcing



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Manage the threats and influences on marine environment and biodiversity through excellent management of coastal planning and activities as coastal committees of management				
5.4.4 Council to encourage community support for, and involvement in, reducing threats to marine biodiversity and developing awareness of the values of marine biodiversity and other assets (fish habitat, key processes)	Ongoing community development	GSC, ESC, relevant staff (partnership network, DSE, DPI, POPL, PV, industry representatives, community groups	Creation of opportunities for the community to work with government policy makers and marine scientists to enable education and good communication; Community becomes knowledgeable and empowered in marine conservation activities; A community friends group is established for the Discovery Bay Marine Park (MPA); and Growth in the community support for the Bonney Upwelling Festival, including the attraction of experts to educate people about maritime issues	NRM funds to required to assist resourcing
5.4.5 Incorporate information on managing the impacts on marine environment arising from the proposed marine plan (due for release in 2014) and the climate change white paper, as it comes to light	Medium strategic planning	GSC ESC (DSE, NRCA, PV, DCC)	Incorporation of information relating to local government responsibilities into the environment strategy; and Decision making is evidence- or likelihood-based where appropriate	Within existing budgets
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

6 Waterways, Lakes and Wetlands

Council's aim:

Work with the community and partner agencies to protect and enhance the health of waterways, lakes, wetlands and ground water sources in Glenelg Shire.

6.1 Issue: The health of Glenelg's wetlands, rivers and aquifers

The sustainable management of water, protection of water quality and quantity, provision of water for the environment and as drought refuge, as well as secure, reliable and efficient water supplies are important issues across Victoria.

Waterways, lakes and wetlands intimately connect to estuaries, and their receiving marine environments. Management of these areas should not be conducted in isolation. The most significant threats to our waterways, lakes and wetlands are the practice of draining wetlands for agricultural use therefore altering water flow, pest plants and animals, pollution from urbanization, and the declining extent and quality of native vegetation. These and other threats impact on Glenelg Shire's wetlands and waterways, and in turn have a wide flow-on effect to estuaries and marine ecosystems.

Although not impacted as much as areas north of the divide, Glenelg Shire has had the lowest river flows on record and a number of 'permanent' wetlands have dried up and been converted to cropping. Waterways in forested catchments are generally in better condition than waterways in agricultural and urban areas.

Glenelg Shire lies in the far south west of the catchment authority region. All the waterways, lakes and wetlands in Glenelg Shire are part of Glenelg, Portland Coast and Millicent Basins. The former two basins are located south of the Great Dividing Range, and a small section of Millicent Basin, which lies in the north east corner of the Shire, has a number of important wetlands.

Wetlands are known to have high levels of biodiversity and provide important habitat for many flora and fauna species, including migratory birds. Numerous wetlands within Glenelg Shire have a range of unique species. The wetlands of the Discovery Bay Coastal Park are on the East Asian-Australasian Flyway and are of international significance. At least 12 of the Shire's wetlands are included in the National Directory of Important Wetlands.

A number of wetlands in the western part of the Shire are fed by groundwater, and have many unique characteristics. Notable wetland sites include the Glenelg River estuary and associated Long Swamp wetlands, as well as Lake Mundi in the Shire's north. Glenelg River and its estuary are listed by the State Government as a Heritage River⁴⁷. The lower Glenelg River and tributaries, and the adjacent land in the Discovery Bay Coastal Park, Lower Glenelg National Park and Crawford River Regional Park, are regarded as High Conservation Value Aquatic Ecosystems in the Federal Government's *Caring for Our Country Program*.

In addition to individual wetlands, wetland complexes, like Lindsay Werrikoo and Mundi-Selkirk wetlands in the north of the shire and Bats Ridge wetland system west of Portland, must be protected from the cumulative impacts of development.

Bridgewater Lakes and other waterways in Glenelg Shire are important to local communities as recreational areas and in defining a sense of place.

Councils can determine how private land is used and can therefore directly influence the protection of assets as valuable as these wetlands. The Shire manages only small areas of land around waterways. The majority of land along waterways is managed by private landholders, with the catchment authority generally responsible for the health of the waterway. Some landholders have licences to manage Crown water frontages along waterways. The Department of Sustainability and Environment together with NRCA (formerly GHCMA) are reviewing licences with the aim of undertaking protection works (e.g. fencing and stock exclusion) to improve the health of the waterways.



The Department of Sustainability and Environment's Office of Water is developing the Western Region Sustainable Water Strategy⁴⁸, which aims to secure water resources (surface and ground water) for the environment and for urban and rural users for the next 50 years. Water authorities will lead the delivery of the strategy in partnership with local government, the Department of Sustainability and Environment, the catchment authority, Wannon Water, and Southern Rural Water.

As with estuaries, Glenelg Shire Council has a responsibility to effectively manage these threats on the land it manages, and in partnership elsewhere. It can seek advice and technical support from the agencies and organisations, such as the Department of Sustainability and Environment and the catchment authority on these matters, as well as provide policy and technical advice for the review of planning tools which may be developed for the protection of waterways.

Hydrological systems may fluctuate dramatically with climate change. Future hydrological functions may be dependent on protecting buffer zones around existing features, or restoring original flows to protect environmental values.

Glenelg Shire must support communities and agencies in achieving the best possible environmental flows to the Glenelg River on completion of the Wimmera-Mallee Pipeline.

River estuaries are also important parts of the Shire's wetlands and are dealt with separately in the section on coastal and marine health (Section 5.2).

Where the term 'wetland' is used in the table below, it is defined to mean wetlands, lakes, waterways and associated buffer areas.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Protect and enhance the health of wetlands, lakes, waterways and aquifer and their sources in Glenelg Shire				
6.1.1 All responses listed against Issue 3.1 of this strategy in relation to biodiversity management.	Ongoing (see Issue 3.1)	GSC relevant staff	Improved biodiversity and health of Shire's wetlands	(see Issue 3.1)
6.1.2 Review the Glenelg Shire planning scheme to ensure it has appropriate tools to protect wetlands that are current with the State planning policy framework and the Western Region Sustainable Water Strategy (2010)	High strategic planning Partnership development	GSC PEDT (NRCA, DSE, SRW, WW)	Clear referencing of wetlands, inclusive of buffer zones and their surface and ground water sources, in the planning scheme, and subsequent protection by appropriate overlays and policies; Ensuring these planning tools protect both current and predicted future extents of wetlands, including buffer zones, and the significance of wetlands as a refuge in times of stress (eg. drought); and Protection and enhancement of wetland values where possible during developments in changing land-use and settlement patterns	Requires strong submission for NRM funds to assist resourcing
6.1.3 Council partners with the State Government to investigate the value and feasibility of using planning scheme instruments to achieve sustainable management of ground water resources as in 6.1.2 above.	High strategic planning Partnership development	GSC PEDT (NRCA, DSE, SRW, WW) GSC PEDT (NRCA, DSE, SRW, WW)	Protection of ground water sources through the planning scheme as in 6.1.2 above; Consideration for the impact on groundwater resources when assessing new development (industries, settlement, land-use); Data gaps on ground water sources and quality (eg. Nelson and Casterton) are addressed and made available to relevant parties; and New plantations need to acquire a license to extract ground water	Within existing budgets; External expertise and funding may be required
6.1.4 Council demonstrates making the wisest use of water resources by investigating options to reduce its licensed use of ground water.	Ongoing	GSC A&I	Reduced usage of ground water and substitution with harvested storm water, and treated waste or improved efficiency in the use of ground water	Within existing budgets; Additional funding is likely to be available

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Protect and enhance the health of wetlands, lakes, waterways and aquifer and their sources in Glenelg Shire				
6.1.5 Implement Response 8.4.6 on Water Sensitive Urban Design (WSUD) listed under Issues 8.4, Urban Design and Transport Planning with the aim of improving water quality.	High staff development Strategic planning	GSC PEDT, A&I (DSE, DPCD, NRCA, WW)	Council staff become proficient in WSUD planning, construction and maintenance; and WSUD features are present in new development and considered for incorporation of asset up-grades	Trained staff needed to integrate/ implement WSUD Funding may be available for specific projects
6.1.6 Participate in regional and catchment programs, planning and decision-making, and advocate strongly for resources for wetland protection in Glenelg Shire.	Ongoing advocacy	GSC (NRCA, DSE, DPI, WW)	Glenelg Shire is represented at meetings and has input into regional priority setting undertaken by the catchment authority and other relevant organisations.	Staff resourcing, time commitments
6.1.7 Glenelg Shire to participate in and support community groups and networks in achieving wetland restoration and the best possible flora and fauna environmental flows to key wetlands and rivers; and lobby and partner with agencies to do the same	Ongoing community planning and development advocacy	GSC, ESC, CDO and RS (community groups, H141 NRCA, DSE, DPI, WW)	Community groups are empowered and are involved in on-ground works and wetland restoration the Shire; Glenelg Shire to provide greater support (such as advocacy, administrative, technical or financial within budgetary constraints) to community groups working on wetland protection, eg. Friends of the Glenelg River and Lake Condah Sustainable Development Project; Establishment of community Landcare or Coastcare groups to help protect and enhance wetlands, eg. Fawthrop Lagoon, Nelson township and estuary; Establishment of habitat corridors to the Glenelg River on completion of the Wimmera-Mallee Pipeline; Restoration of key wetlands previously drained; and Closure of seaward drain outlets from Long Swamp, restoration of the swamp and redirection of waters to the Glenelg estuary wetlands	External funding for community activities via the Victorian Investment Framework (VIF) focus on communities' involvement in South West flagship area





Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Protect and enhance the health of wetlands, lakes, waterways and aquifer and their sources in Glenelg Shire				
6.1.8 In partnership with lead agencies with key roles in implementing and monitoring the Western Region Sustainable Water Strategy 2010, Glenelg Shire will support and implement actions where applicable.	Ongoing	DSE, SRW, WW, NRCA (GSC)	Council becomes actively engaged in implementation of relevant actions	Strong submission for funding to delivery strategy's outcomes will be required, and additional funding
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

7 Soil and Farmland

Council's aim:

Work with the community and partner agencies to conserve and improve the health of soil and farmland in Glenelg Shire.

7.1 Issue: Soils degradation and loss, and productivity decline

Soil is the soft outer covering of the earth. It is one of our most important natural assets and most of life on earth depends on it. Soil provides food for plants, which in turn provide food for animals and humans. Soil is created over very long periods of time and healthy soil is critical to the success of agriculture. The care and conservation of the soil is vital to the continued success of the agriculture. In the Glenelg Shire, communities have prospered from the fertile soils of the region, so everyone has a duty of care to manage the soil so it remains productive and continues to provide the necessities for plant, animal and human health for future generations.

Maintaining healthy soil is vital for the preservation of the natural environment and for agricultural production. The threats to soil health may be physical, chemical or biological. These threats are too often the result of poor land management practices and lead to soil degradation and loss. Threats to soil health include soil acidification, salinity, organic (carbon) depletion and loss of soil structure, compaction, nutrient depletion, chemical contamination and erosion. Where these occur there are lower levels of biodiversity within the natural environment and decreases in productivity in the agricultural sector.

The threats to soil health occurring most widely in Glenelg Shire are identified in the Glenelg Hopkins Soil Health Strategy 2008 – 2014. The most prevalent of these threats include wind erosion, nutrient decline, landslides, water erosion and acidification. Those areas most at risk and susceptible to these threats in Glenelg Shire include the lower Wannon River catchment area around Merino and Casterton, and the catchment areas of the Stokes River, Crawford River and Darlots Creek⁴⁹. All these catchments fall into the top 10 priority catchments in the Glenelg Hopkins Soil Health Strategy 2008 – 2014.

Coastal erosion is another form of soil degradation occurring within the Glenelg Shire, due either to natural coastal processes or other disturbances such as vegetation destruction or removal due to clearing, grazing or fire, or the impacts of altered ocean currents, rising sea level or introduced pest animal or plants.

Reduced pasture cover, due to intensive stock grazing pressures or soil tillage practices, expose the soil to losses and degradation. Industries based on these practices need to adopt best management methods to ensure sustained soil health and productivity in the future, and avoid loss of soil.

⁴⁹ Glenelg Hopkins Soil Health Strategy and Soil Health Plan 2009 – 2014, a Guide to Healthier Soils, Glenelg Hopkins Catchment Management Authority.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Protect and enhance the health of wetlands, lakes, waterways and aquifer and their sources in Glenelg Shire				
7.1.1 Use soil data maps to establish appropriate overlays for use in the development of land use zones; and develop policies in the Glenelg Shire planning scheme to assist land use rezoning.	Medium strategic planning	GSC PEDT	Soil overlays and relevant policies are made available in online mapping and planning scheme.	Within existing budgets
7.1.2 In partnership with the relevant agencies, provide information on soils and best practice management of soils in the Shire.	Medium partnership development	GSC ESC (DPI, NRCA, VFF, community groups)	Council partnering actively with NRCA on Glenelg Hopkins Soil Health Plan 2009 – 2014, a communication plan aimed at improving the current level of soils knowledge and awareness of the threats and remedial actions; Increased community knowledge of threats to soils and sustainable farming practice; Information available on the Council website and links for land managers to make informed decisions; and Improvements in soil health, productivity and profits	Within existing budgets; May require external expertise
7.1.3 Provide information and opportunities for landholders to complete an accredited property management planning or whole farm planning course incorporating best management practice for soils.	Medium community planning and development	GSC ESC, relevant staff (agencies)	Increase the number of Glenelg Shire farmers with whole farm plans	Within existing budgets
7.1.4 Encourage and work with landholders to develop their own Whole Farm Plan, (also know as property management plans) or land management plan (LMP) aimed at soil protection and best management practice.	Ongoing community planning and development	GSC ESC (DPI, EPA, Landcare groups)	An increase in the number of farmers and other key landholders using land management tools such as WFP, EBMP, E-farmer or equivalent; and Cape Nelson feed-lot companies have management plans in place	Within existing budgets (depends on priority and individual work plans)

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Protect and enhance the health of wetlands, lakes, waterways and aquifer and their sources in Glenelg Shire				
7.1.5 In partnership, provide opportunities for community groups or individuals to undertake revegetation aimed at controlling threats to soil.	Ongoing partnership development	GSC (NRCA, DPI, DSE, community groups)	An increase in the number of Glenelg Shire farmers implementing whole farm plans; and Increased use of revegetation as a method to prevent wind and water erosion, nutrient decline, landslides, water erosion and acidification.	Within existing budgets
7.1.6 Develop and implement measures, such as an environmental management plan, for road construction or other Council operations involving potential for soil disturbance or loss, which minimise soil degradation impacts.	Medium strategic planning	GSC ESC, A&I (DPI, EPA)	The creation of a Shire procedure for staff to minimize soil impacts	Within existing budgets; May require external expertise
7.1.7 Investigate the extent of quarrying and extractive activities within the Shire, and the impact quarries have on soil quality and landscape amenity.	Long term strategic planning	GSC ESC, PEDT A&I (DPI)	Quarries mapped and assessed	Within existing budgets
7.1.8 Investigate and develop processes for audits of forestry operations on private land.	High service delivery	GSC ESC, A&I (DPI, Forestry Independent Peak Body)	Random audits of forestry operations on private land	May require new staff appointment

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

7.2 Issue: Soil salinity



Salt in soils, and ground and surface water, is a natural part of the Australian landscape. Some areas are naturally saline. The significant changes to the landscape that have occurred since European settlement, including land clearing for farming and altered waterways and natural drainage, have caused water tables to rise and the expression of salinity to spread. Once soils become salt-affected, the consequences are dire and for the land manager include costs associated with foregone agricultural income, repair and maintenance of the land, reduced lifespan of infrastructure, increased cost of new infrastructure, and increased operating costs to minimise the adverse impacts of salinity.



Fortunately, Glenelg Shire has only a few areas of salt-affected soil. As a general rule, the occurrence of salinity increases north from the coast. Moderate levels of secondary soil salinity occur in farmland on the Dundas Tablelands and Glenelg River catchment upstream from Casterton⁵⁰, in the north east of the Shire. Small patches of low level soil salinity occur on farmland around Merino, Sandford and Casterton. The salinity of surface water at Sandford and Henty however, has not decreased⁵¹.

Primary (natural) salinity and salinity in coastal areas of the Shire have not yet been mapped. One of the impacts of sea level rise is a rising saline water table adjacent to the coast and the potential for dryland salinity to occur. Increased coastal soil and water salinity will have implications on land productivity, vegetation cover and water quality, as well as infrastructure and the built environment.

Ground water flow systems are important in soil salinity processes. The Merino tableland is an important recharge zone for ground water flow systems associated with the Otway Basin⁵². This basin stretches from the South Australian border almost to the west of Geelong and consists of four sand aquifers and two limestone aquifers in sediments up to 2000m in thickness. The ground water in these aquifers moves towards the coast, increasing in salinity along its path⁵³.

Monitoring shows a relatively consistent downward trend for ground water levels in the Glenelg Hopkins Catchment Management region. This is a positive outcome for salinity management in Glenelg Shire⁵⁴. The main contributing factors to falling ground water levels are reduced rainfall, change in land-use (increasing use of perennial pastures and forestry) and salinity control activities.

The challenge for Glenelg Shire Council is to advocate and support land management practices that continue to limit the spread of dryland salinity and prevent its spread southward as the Shire experiences drier conditions in the future.

⁵⁰ ibid ⁵¹ Glenelg Hopkins Salinity Plan (2005 – 2008) Report Card 2006. Glenelg Hopkins Catchment Management Authority ⁵² p268 State of the Environment Report 1988 Victoria's Inland Waters. Office of the Commissioner for the Environment, p 268 ⁵³ State of the Environment Report (1988) Victoria's Inland Waters. Office of the Commissioner for the Environment, pp. 268 ⁵⁴ Glenelg Hopkins Salinity Plan (2005 – 2008) Report Card 2006. Glenelg Hopkins Catchment Management Authority.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Increase the capacity and resilience of Glenelg's biophysical coastal environment to adjust to the impacts of climate change				
7.2.1 All Responses listed in 7.1 of this strategy in relation to conserving and promoting soil health.	Ongoing See Issue 7.1	See Issue 7.1	Ongoing improvement to soil health	See Issue 7.1
7.2.2 Map salinity in coastal and naturally occurring areas for Glenelg Shire.	Medium strategic planning	GSC (DPI, DSE, NRCA)	Development of an appropriate overlay which is available to planners as in 7.2.4 below; and Information on natural salinity available to public, eg. on Council's webpage	
7.2.3 Commission a background report to quantify the risk of salinity, and subsequent costs associated with Council infrastructure being affected or susceptible to damage	Low strategic planning	GSC (DPI, NRCA)	Council demonstrates a better understanding of its risk to the effects of dryland salinity	External expertise and funding required
7.2.4 Salinity management overlay is created and incorporated into the appropriate overlays and policies in the Glenelg Shire planning scheme.	High strategic planning	GSC, PEDT, GIS staff (DPI, NRCA)	Tools are made available to staff through the planning system	Within existing budgets
7.2.5 Provide information on best practice land management to reduce impacts of salinity for landholders and land managers.	Medium advocacy	DPI, NRCA (GSC,ESC)	Council advocates existing best management practice programs; and Information on salinity is made available to public, eg. on Council's webpage	Within existing budgets
7.2.6 Support community salinity and environmental monitoring programs as they become available, to help communities better understand the salinity problem.	Medium community planning and development	DSE, NRCA (GSC)	Council advocates existing salinity programs	Within existing budgets

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

7.3 Issue: Acid sulfate soils

Acid sulfate soil (ASS) found in Victoria can be associated with mineral ores, peats and inland water ways (Inland Acid Sulfate Soil, [IASS]) and low lying areas along the coast (Coastal Acid Sulfate Soil [CASS]). Avoiding the disturbance of ASS is critical to stopping severe environmental damage.

Acid sulfate soil occurs under waterlogged or highly reducing (anaerobic - without air) conditions where organic matter, sulfates and metal ions are all present.

As long as acid sulfate soils remain waterlogged or oxygen free, they are harmless. Any disturbance exposing the ASS to oxygen in the air, such as through drainage or de-watering, creates a chain of reactions which cause the soil to acidify to pH 4 or less. This is unnaturally acidic, as most soils are pH 4 to pH 9. Water leaching from disturbed coastal acid sulfate soil can be highly acidic too.

The disturbance of CASS and ASS can have devastating affects. Environmental impacts may include poor water quality, loss of fisheries and agricultural production. It results in the need for rehabilitation and impacts on infrastructure are costly.

Potential sites for CASS have been mapped⁵⁵ and are typically in the estuaries, lakes, lagoons, marshes, morasses and swamps along Victoria's coast. The flood plains of these water bodies and waterways are also potential sites, as are the coastal dunes and the plains behind them. Most of the coastline in Glenelg Shire and the lower Glenelg River are potential ASS sites; only the three capes are excluded.



⁵⁵ http://www.dse.vic.gov.au/dpi/vro/vrosite.nsf/pages/soil_acid_sulfate_soils

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council to take all reasonable steps to prevent disturbance of acid sulfate soils in Glenelg Shire				
7.3.1 Spatially identify the location of Coastal Acid Sulfate Soils in inland and coastal areas of the Shire	Medium strategic planning	GSC GIS staff, ESC, PEDT (DPI, DSE, DPCD, NRCA)	Potential sites have been assessed for the presence of ASS and mapped; On-line maps of CASS sites are available; and Information on ASS is available to community on Council website	Requires strong submission for NRM funds to assist
7.3.2 Strengthen and apply appropriate overlays to the Glenelg planning scheme to ensure appropriate development and use of land known to have ASS	High strategic planning	GSC (DSE, DPI, DPCD)	An appropriate overlay, for example an environmental audit overlay, is available in the planning scheme to trigger risk assessment and strengthen decision-making relating to ASS sites.	Within existing budgets
7.3.3 Council to incorporate a risk management approach to operations and decisions relating to ASS sites, applying the decision-making principles for managing ASS as outlined in the Victorian CASS Strategy ⁵⁶ .	High strategic planning	GSC A&I (DSE, DPI), NRCA	Training of relevant staff in CASS risk assessment	Within existing budgets DSE workshops for staff at a small cost
7.3.4 Quantify costs of Council infrastructure affected or susceptible to impacts from Coastal and Inland Acid Sulfate Soil, and plan appropriate risk management.	High strategic planning	GSC relevant asset managers	Council ensures a CASS risk management plan is in place	Requires strong submission for NRM funds to assist
7.3.5 Provide information to landholders of sites identified to have Coastal Acid Sulfate Soils, and advise on best practice land management to avoid disturbance of acid sulfate soils	Medium service provision	GSC ESC, GIS staff (NRCA, DSE)	Ensuring information on ASS is available on Council's website; Community is made aware of where ASS is and how to avoid disturbance; and Information on best practice management of acid sulfate soil is included in community education consistent with Responses 7.3.1, 7.3.4 and 7.3.5.	Requires strong submission for NRM funds to assist resourcing
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

7.4 Issue: Sustainable land use

Sustainable development requires identification of areas suited to production and development, as well as areas where such activities are not appropriate. Strategic planning that matches development and land use with the capacity of the landscape will address a range of soil quality and conservation issues.

A sustainable land use study analysing base data on the soil, geology, biodiversity values, scenic landscape values, and current land uses in the Shire would provide a basis for this. The study would address the ability of land to sustain a variety of uses in the long term. The study would also highlight priority areas for conservation and restoration of habitat linkages in the Shire and water conservation. Clear links between the outcomes of the study and the Glenelg planning scheme will be required to ensure application of the findings. There is an opportunity for the development of a land capability assessment to learn from the Future Coasts Project, looking at interactions between land-use, soils, landscape values and climate change.



The Department of Sustainability and Environment and Department of Primary Industries will provide Glenelg Shire with expert advice regarding the location of environmental values in the Shire to assist the development of a land capability study.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Council planning to best match land use with the capacity of the landscape				
7.4.1 Undertake a sustainable land use study to inform Council planning scheme amendments and decisions.	High strategic planning	GSC PEDT (DPI, NRCA, DSE)	Completion of a sustainable land-use study and appropriate amendments made to planning scheme	Currently within existing budgets
7.4.2 Undertake a study of land use changes such as impact of broad acre overhead irrigation, timber plantations or deep rooted perennial pastures, to determine their impact on surface and ground water reserves	Medium strategic planning	GSC PEDT (DPI, NRCA, DSE, universities)	Amending the Glenelg planning scheme to reflect study outcomes, therefore protecting water catchment and ground water reserves	Within existing budgets; Study will require external funding
7.4.3 Build institutional structures to create opportunities and minimise the risks associated with the advent of a Carbon Pollution Reduction Scheme, or similar, and the development of a terrestrial carbon market	High strategic planning	GSC (PEDT, A&I) (DPCD, NRCA, DSE)	Identification and protection of agricultural land reserve and relevant water supplies of the Shire under the planning scheme or using other mechanisms; Assist communities to prepare a regional climate change adaptation plan to manage the impacts of climate change on Glenelg's landscape and guide the development of policies to optimize future investment in terrestrial carbon; and Council to partner with agencies to monitor and report on the health and change in condition of natural resource assets of Glenelg Shire as in Response 9.1.3	May need external expertise and additional funding
7.4.4 To protect high natural and cultural values, consistently apply significant landscape overlays ⁵⁷ reflecting Governments overview of landscapes with natural and cultural significance	High strategic planning	GSC, PEDT, ESC (DPCD, DSE)	Ensuring areas of very high (State) significance are strongly protected through the application of appropriate planning scheme mechanisms (eg. SLO)	Within existing budgets

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

8 Resource Efficiency

Council's aim:

Reduce greenhouse gas emissions of Council's activities and offset those which cannot be avoided. Through the strategies developed and lessons learnt, help the community do the same.

Aggressively pursue waste reduction and minimisation measures which increase recycling, recovery and reuse (of all waste streams including green waste) and work towards zero organic waste to landfills in the Shire.

Achieve the sustainable use of energy and natural resources in urban areas through integrated urban transport planning and more efficient subdivision, building and open space design.

Continue improving Council's potable water use. Through the strategies developed and lessons learnt, help the community do the same.

This chapter outlines Council's responses on where it can directly influence its and the communities green-house emissions, waste minimisation, and encourage greater efficiency in urban design and transport and use of potable water.

8.1 Issue: Council's greenhouse gas emissions

Although Australia only contributes just over 1% of global greenhouse gas emissions, its per capita emissions are the highest in the world. Council recognises that climate change due to an enhanced greenhouse effect produced by fossil fuel consumption is real and significant. Through increased global temperatures and more erratic weather patterns, climate change poses a threat to both our man-made assets and also our natural assets, such as biodiversity, water supplies, healthy waterways and ocean acidification.

Glenelg Shire Council, as a business entity, has calculated its carbon footprint for 2007-2008 financial year as 17,840 tonnes (CO₂-e). The greatest contributor to this figure is the Portland landfill (66% of emissions). Other key contributors are gas (9% emissions) and electricity consumption (17%) associated with Bentinck Street assets (Glenelg Library, Portland Civic and Arts Centres, Shire's main office), electricity consumption associated with street lighting and automotive diesel consumption associated with the operation of heavy equipment and transport (7%).

Glenelg Shire Council's Carbon Reduction Plan (completed in 2009) identifies several initiatives enabling Council to deliver carbon emission reductions of up to 3,769 tonnes per annum within two to three years - this represents a significant 21% reduction in Council's footprint. The plan identifies a range of initiatives to reduce or offset carbon emissions.

Over the next five to 10 years Councils as a business entity can establish strong sustainability policies and procedures, and create a culture of sustainability throughout the organisation. The greatest advances are made when technology is supported by informed and motivated staff who apply the principles of sustainability to both their work practices and their decision-making processes.

Council also has the added and greater opportunity of improving sustainability and greenhouse practices of the residents and businesses throughout the Shire through the policies, examples and resources it creates.



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Reduce greenhouse gas (GHG) emissions from Council activities and offset those which cannot be avoided				
8.1.1 Set greenhouse emissions reduction target for Glenelg Shire Council linked to the suggested targets in Council Carbon Reduction Plan 2009.	High strategic planning	GSC ESC, SMT Councillors (DCC, SV)	GHGs from Council's operations are reduced	Within existing budgets
8.1.2 Implement the Glenelg Carbon Reduction Plan's progress towards achieving these targets and making improvements to reduce Council's greenhouse gas emissions.	High strategic planning	GSC ESC, relevant staff	Annually review progress towards achieving targets; and Council to gradually improve its ability to reduce emissions	Within existing budgets, with additional consultant support in early years
8.1.3 Establish an emissions inventory based on Glenelg Shire Council's benchmark emissions inventory completed in 2009 for use in reassessing progress towards the organisation's greenhouse gas reduction targets.	High staff development	GSC ESC, relevant staff (ICLEI, SV, OCES)	Annually review and update inventory; and Ensure emissions monitoring and reporting protocols are embedded in the organization	Within existing budgets
8.1.4 Develop plans, policies and actions to offset those emissions which cannot be avoided;	Medium strategic development	GSC ESC ICLEI, SV, DSE)	Ensure plans and policies are adopted by Council; Council to offset GHG emissions it cannot avoid and become involved in carbon offset planting activities; Greenhouse abatement contribution of street trees, urban landscapes and natural areas under Council's management to be included in offset contributions; and Council to revegetate closed landfill sites where mining content is deemed not appropriate with biodiversity plantings.	Within existing budgets; On-ground works will need budget submissions or external funding

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

8.2 Issue: Greenhouse gas emissions and air pollution from Glenelg's communities

One of the most powerful ways to minimise emissions is through actions at a local scale - the idea that small actions summed together amount to a significant impact.

Glenelg Shire Council can be a major influence in reducing greenhouse gas emissions across the Shire. Through the planning scheme, local laws, community programs and management of their own operations, Councils can directly influence and in many cases control activities that are the source of greenhouse gases.

Glenelg Shire can achieve this by committing to milestones⁵⁸ similar to those of the Cities for Climate Protection Program:

- Establish a base-year emissions inventory and forecast for the community and corporate sector;
- Set an emissions reduction goal;
- Develop and adopt a greenhouse reduction strategy – local greenhouse action plan;
- Implement the greenhouse action plan; and
- Monitor and report on emissions and the continued implementation of actions and policies.

The result, a carbon footprint for Glenelg Shire, would identify the key contributors to greenhouse gas emissions and opportunities for abatement. This would enable reduction targets and a greenhouse action plan to be developed and implemented for the Shire.



The practice of 'burning off', customary in agriculture and forest management in Glenelg Shire and potentially on the increase due to plantation harvest, impacts both human health and that of the environment.

Fine particles in smoke, known as PM10 (particulate matter smaller than 10 µm in diameter), can impact on people's health and travel hundreds of kilometres. The young, pregnant, elderly and those with chronic respiratory and cardiac conditions are more sensitive to smoke. It also emits huge amounts of greenhouse gases (carbon), noxious gases and carcinogens into the atmosphere, adding to global warming and localized impacts (smog, reduced visibility, etc).

Some urban Councils and forestry authorities⁵⁹ have a zero tolerance for unregistered fires, controlling who burns what and how much. The benefits are multiple - landholders burn only appropriate material (not plastics, such as silage wrap), timing and weather conditions are considered, fires are supervised and community notified.

A transparent system for burning where fires are logged would allow neighbours to be informed of impending fires and give those with sensitive health time to prepare.

⁵⁸ The International Council for Local Environmental Initiatives (ICLEI) and its Cities for Climate Protection (CCP) Program delivers greenhouse gas abatement programs actioned by Local Government in collaboration with Australian Greenhouse Office and the Victorian Government ⁵⁹ (www.fpa.gov.tas.au)

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Reduce greenhouse gas (GHG) emissions from Council activities and offset those which cannot be avoided				
8.2.1 In partnership, develop and adopt a greenhouse reduction strategy – local greenhouse action plan with emissions inventory and estimate of emissions growth for Glenelg Shire's community and business and industrial sectors.	High strategic planning	GSC (SV, DSE, DPCD, VFF, PSG, SWSP, commercial, industrial and farming sectors, community)	The creation of an emissions inventory for the Shire and estimate of growth; Greenhouse reduction strategy in place; Strategy to include options for avoiding and offsetting emissions; Communities actively involved in program; and Recording of any offset planting	External funding and expertise to develop
8.2.2 In partnership, implement an environmental education and awareness program with the local communities on energy conservation and greenhouse gas abatement actions.	Medium community development and planning	GSC ESC, relevant staff, (SV, WW, SWSP, SWWRG, PSG)	Increased number of initiatives relating to community abatement actions; and Community groups are active and supported in this area	May require additional staffing
8.2.3 Investigate and develop planning tools for the Glenelg Shire planning scheme that require consideration of energy conservation measures in new subdivisions and buildings.	High strategic planning	GSC PEDT, ESC	Known energy conservation measures widely applied; and An increase in number of green star rated buildings	Within existing budgets
8.2.4 Proactively pursue and support innovative opportunities that provide meaningful greenhouse gas abatement, as well as stimulating the local economy and improving the Shire's long-term profitability and economic performance	Medium strategic planning	GSC PEDT, ESC (SV, WW, SWSP, SWWRG, PSG)	Increase in the number of renewable energy initiatives	Within existing budgets



Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Reduce greenhouse gas (GHG) emissions from Council activities and offset those which cannot be avoided				
8.2.5 Support regional initiatives on greenhouse gas abatement and lobby decision makers where Glenelg Shire Council has little direct control	High advocacy	GSC relevant Staff, ESC (SWSP, DPCD, DSE, SV, RDA)	An increase in the number of abatement action across the Shire; and Growth in the environmental and sustainability sector	Within existing budgets
8.2.6 Council will investigate the extent and potential for burning off (agriculture and forestry) in the Shire, and other air-borne pollutants, and develop appropriate mechanisms to manage impacts of pollution on residents and the environment.	High service delivery	GSC ESC, LL, A&I, PEDT (partnership network, EPA, SWWRG, PSG, DSE, DPI, VFF)	Council to ensure a policy and administrative tools are in place to appropriately manage environmental and health impacts of burning off and air pollution; A transparent system is created to inform the community of impending burning off; and Clear information is available to the public on responsibilities and process via Council's website	Within existing budgets May require additional staffing and funding
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

8.3 Issue: Toward zero waste for Glenelg Shire's community

Disposal of solid waste to landfill is a waste of resources. In 2007/2008, 8,664 tonnes of residential waste and 2,560 tonnes of industrial waste were disposed at the Portland landfill. The Kerbside Waste Audit Report (April 2009) details kerbside waste for Glenelg Shire. The report quantifies residential waste and the detailed information can be used to inform decision-making, target education programs and build on the Regional Waste and Litter Education Strategy 2005 – 2008. Tourism has a significant impact on waste generation in the Shire, with the summer holiday and tuna fishing period experiencing much higher amounts of garbage generation than in the less popular winter months. In line with Sustainability Victoria's Zero Waste Strategy, Glenelg Shire strives to minimise disposal of waste and maximise resource efficiency by following the principles of the waste management hierarchy (Figure 3).

Council's partially implemented Waste Management Strategy (2004) incorporates the principles of ecologically sustainable development, sound waste management and works toward applying the waste management hierarchy (Figure 3). Council's aim has been to progressively replace smaller rural landfills with transfer stations. Currently, there are six landfills in the Shire. The Portland landfill, opened in 1959 and the Shire's only licensed site, is anticipated to meet waste disposal needs for the next 15 – 20 years. Meanwhile legacy emissions, 96% of the landfill emissions, are emitted from organic waste deposited in the landfills in years prior to 2008.

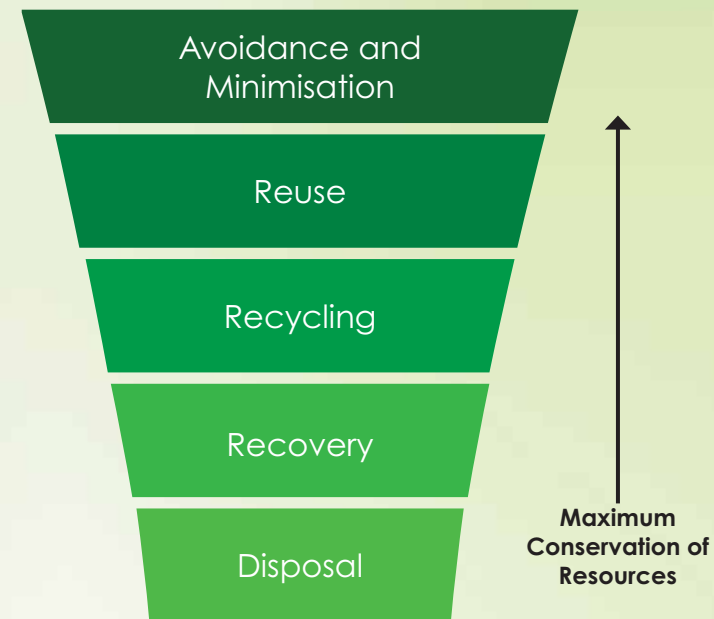


Figure 3 Waste Hierarchy

Working toward zero waste and achieving industry best practice means Glenelg Shire moving to improved waste management systems and infrastructure for garden and food organics (and residuals), recycling services to small and medium sized businesses, update infrastructure at landfills and transfer stations, increase resource recovery, and improve community access to services in remote areas for public place and event recycling.

There is an opportunity to build on existing product stewardship initiatives, so everyone involved in the life cycle of a product is responsible for reducing its environmental impact. This may be ideal for other priority household wastes, including farm chemicals, paint and oils, the newly coined 'e-waste' products like televisions, computers, IT and electrical equipment, as well as consumer packaging, silage wrap, tyres and batteries. Diverting these resources from landfill into recycling would involve working actively with business and industry to ensure the proper disposal or recycling of an end-of-life product.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Recycle and recover, working towards zero waste to landfills in the Shire				
8.3.1 In light of current knowledge on climate change and the up-coming carbon trading scheme, review and update Council's waste management strategy.	High strategic planning	GSC A&I, other relevant staff (SWWRG, EPA DPCD, SV)	Implementation of actions from a reviewed and updated waste management; The diversion of organic waste from landfill is included in the emissions abatement programs under this strategy (Sections 8.1); and Inclusion of education and awareness programs on solid waste management in the environmental education programs (see issues 2.1 and 2.2) detailed in this document.	Within existing budgets
8.3.2 Continue and improve data collection in line with industry standards, as this information is critical to assessing progress toward waste reduction targets and identifying which methods are most effective.	Ongoing strategic planning	GSC ESC, assets and waste management staff	Continued improvement and data collection for monitoring and reporting	Within existing budgets
8.3.3 Actively work towards a system to divert organic waste from landfill.	High partnership development	GSC ESC, relevant staff (commercial waste recyclers, SWWRG, NRCA, RDV, SV, IA)	Reduced waste, especially organics to landfill; Reduced GHG emissions; and Diversion of organic waste to appropriate processes (composting, pyrolysis, biochar, renewable fuels and heat)	Strong submission for external funding needed

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Recycle and recover, working towards zero waste to landfills in the Shire				
8.3.4 In striving towards zero waste, work with the commercial and industrial sectors to avoid or minimise waste.	Ongoing community planning and development	GSC ESC, A&I, CD/CDO, other relevant staff (SWWRG, community, commercial and industrial sectors)	The community acts to reduce waste and GHG emissions; The whole community is aware of their responsibilities and understands and uses recycling practices; and Agricultural sector recycles off-farm waste (e.g. silage wrap)	Within existing budgets
8.3.5 Continue to support community and not-for-profit groups, operations or initiatives that contribute to recycling and minimising wastes, particularly organic waste to landfill.	Ongoing partnership development	GSC, assets and waste management staff	Improvement of partnerships to reduce organic waste to landfill; and The development or use of commercial operations to recycle organics	Within existing budgets; May need additional staff support and expertise
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

8.4 Issue: Sustainable urban design and transport planning

'If you live sustainably you can walk to shop, to work or to school',
David Suzuki

The national strategy for Ecologically Sustainable Development⁶⁰ (ESD) is a broad policy that sets the scene for changes in direction, and a re-evaluation of priorities by all levels of government to ensure that all future development is more sustainable. It provides a framework for the preparation of more localised environmental management strategies.

The national strategy sets the challenge to achieve more sustainable use of energy and natural resources in urban areas through integrated urban transport planning and more efficient subdivision, building and open space design. With increasing popularity of coastal areas, including Glenelg Shire, Council recognises the importance of including sustainable development principles into local planning through the Glenelg Shire planning scheme. The siting and design guidelines for structures on the Victorian coast⁶¹ also guide development in coastal areas. The State Government architect is also available to offer advice on major projects.

Glenelg Shire Council can draw on the positive experiences of other local governments in delivering sustainable development. A good example is the Geelong City⁶², or it may consider using sustainability rating tools like STEPS⁶³ to ensure new residential development meets appropriate environmental standards.

This is an opportunity for Council to develop sustainable communities by limiting unsustainable built forms and lineal coastal and roadside development outside urban areas.



⁶⁰ National Strategy for Ecological Development 1992, Prepared by the Ecologically Sustainable Development Steering Committee, Endorsed by the Council of Australian Governments, December, 1992, ISBN 0 644 27253 8
⁶¹ Victorian Coastal Council 1998, <http://www.vcc.vic.gov.au>, April 2010 ⁶² Environment Management Strategy 2006 – 2011 – Geelong's pathway to a sustainable future, Local Agenda 21 ⁶³ STEPS Sustainable Tools for Environmental Performance Strategy, Moreland Council

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Plan and implement sustainable urban design and transport modes for Glenelg Shire				
8.4.1 Enhance local policies in the Glenelg planning scheme, strengthening consideration of energy and water conservation measures in new subdivisions, consistent with Response 8.5.3 and 8.2.3.	High strategic planning	GCS PEDT (DPCD, SV)	An increase in the number of new subdivisions displaying resource conservation measures, (eg. WSUD features, pervious surfaces, water retention basins, wetland filtering)	Within existing budgets
8.4.2 Promote urban forms which minimise transport requirements, and improve the efficiency of land supply and infrastructure.	High strategic planning	GCS PEDT (DPCD, SV)	The limitation of urban sprawl	Within existing budgets
8.4.3 Provide for opportunities in future development which limit the use of fossil fuels and promote the use of alternative transport modes, such as cycling and walking	Ongoing strategic planning	GSC PEDT (DPCD, SV, RDV, RDA)	Evidence of greater opportunities for cycling and walking	Requires strong submission for funds to assist resourcing
8.4.4 Promote subdivision, road and building design patterns that provide the greatest potential to utilise energy efficient dwelling design	Ongoing strategic planning	GCS PEDT (DPCD, SV)	Buildings aligned to maximize solar efficiency; and An increase in the amount of buildings with energy efficiency features (orientation and room layout, eaves, roof colors, etc).	Within existing budgets
8.4.5 Improve the amenity of urban areas through provision of public open space and landscaping sensitive to local character.	Ongoing strategic planning	GSC ESC, PEDT, A&I, P&G	Recognizable local landscape style and standards	Within existing budgets; May require external expertise initially

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Plan and implement sustainable urban design and transport modes for Glenelg Shire				
8.4.6 Integrate water cycle management into urban planning and design by applying the principles of Water Sensitive Urban Design (WSUD) across new developments and existing urban	Ongoing strategic planning	GSC ESC, PEDT, A&I (DPCD, SV)	Council ensures relevant staff are proficient in WSUD planning, construction and maintenance; WSUD features are present in new developments and considered for incorporation of asset up-grades; and More sites displaying WSUD	Within existing budgets; Staff training may be required
8.4.7 Foster the development of green infrastructure, including green roofs, walls and streets (WSUD), whilst promoting the multiple benefits of the natural environment and the life support function it plays in decisions about land use planning.	Ongoing strategic planning	GCS ESC, PEDT, A&I (DPCD, SV, RDV, RDA)	Increase in the number of green infrastructure examples across the Shire	Requires strong submission for funds to assist resourcing; Requires training in green infrastructure
* Priority implementation timelines: <i>High</i> , in next three years, 2010 – 2013. <i>Medium</i> , in three to five years, 2014 and 2015. <i>Low</i> , more than five years, in 2016 onwards. <i>Ongoing</i> , from 2010 onwards				

8.5 Issue: Increasing use of potable water in Glenelg Shire



While the demand for urban water for consumption is set to grow, our ability to divert more water from rivers and aquifers (natural underground water storages) is limited. Many of our rivers have reached or exceeded their limits for providing water for consumption. Meanwhile the drying effect of climate change is likely to reduce water run-off in our catchments.

The potable water sources for Glenelg Shire users are supplied mostly from aquifer systems, such as the Dilwyn Aquifer or Port Campbell Limestone Aquifer. Water from these ground water systems is pumped via bores directly to local treatment (filtration and disinfection) plants.

Deep bores extracting water from the Dilwyn Aquifer supply the towns of Portland, Heywood and Dartmoor. At Bald Hill in Portland, water is pumped into a storage basin with a holding capacity of 32 mega litres.

In the Shire's north, Casterton, Sandford and Merino are supplied by the Tullich bores that pump water from the Port Campbell Limestone Aquifer⁶¹. Other communities and industry within the Shire rely on private bores that access ground water, or roof harvesting for potable water supplies.

Wannon Water is the agency responsible for provision of urban water supply and sewerage treatment in Portland (sewage - ocean outfall), Heywood and Casterton (sewage - reuse via irrigation) and for urban water supply in the Dartmoor, Merino and Sandford.

Although high-level water restrictions (Stages 1 – 4) do not currently apply to any towns in Glenelg Shire, all water users are required to adopt permanent water saving measures⁶⁴. These are simple,

common-sense actions aimed at conserving the finite fresh water supplies. These measures include only using watering systems between 8 pm and 10 am to water lawns and gardens, only cleaning motor vehicles with a trigger nozzle fitted to the hose, never cleaning paved surfaces with a hose, only operating fountains that recycle water, and requirements to lodge an application before filling a pool greater than 10,000 Litres capacity for the first time.

It is estimated that Glenelg Shire Council consumes 250,000 kilolitres per year of water supplied from aquifers. It is also licensed to extract 69,000 kilolitres per year of untreated bore water (actual volumes extracted are unknown)⁶⁵. Council uses water predominantly for irrigation of public open space areas, sporting fields, public gardens and Council services, such as caravan parks, swimming pools, amenity blocks and libraries.

In addition to reducing its organizational water use, local government, as the local planning authority, is in a unique position to shape public attitudes and behavior regarding water consumption, and to set standards for water conservation in new developments. Also, through appropriate urban design and education campaigns, Council can also influence activities that result in improvement to water quality. Water-sensitive urban design initiatives such as rain gardens (also known as bio-retention systems), pervious pavements, litter traps and wetlands can have positive impacts on water quality.

The Department of Sustainability and Environment's Office of Water is developing the Western Region Sustainable Water Strategy (2010), which aims to secure water resources for the environment and for urban and rural users for the next 50 years. Water authorities will lead the delivery of the strategy in partnerships with Local Government, Natural Resources Catchment Authorities and Department of Sustainability and Environment.

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Protect and conserve potable water sources in Glenelg Shire				
8.5.1 Update data and actions in Glenelg Shire's sustainable water use plan and implement actions for Council reserves and buildings.	High strategic planning	GSC ESC, relevant P&G, A&I, RS staff (WW, SRW, NRCA)	Ensuring Council has an up-to-date water use plan; Council to reduce its use of potable water for its operations; Water audits are conducted; Water conservation measures with the most desirable cost/benefits ratio are implemented.	Within existing budgets
8.5.2 Council will incorporate best practice water conservation and water sensitive urban design (WSUD) measures into new Council facilities and works.	Ongoing service provision	GSC A&I (WW, NRCA, SV)	Reductions in potable water usage; Improved water quality; and Ensuring WSUD is a minimum standard in Council developments	Within existing budgets; Individual projects need internal or external funding
8.5.3 In conjunction with Wannon Water, enhance local policies in the Glenelg Shire planning scheme that strengthen consideration of water conservation and water quality measures in new subdivisions and buildings.	High strategic planning	GSC PEDT (WW, NRCA)	An increase in the application of water conservation and harvesting measures; and Water conservation measures include consideration of water use efficiency, waste water re-use, and harvesting of rain and stormwater.	Within existing budgets
8.5.4 Incorporate water conservation messages into the Shire's environmental education program, consistent with responses to Issues 2.1 and 2.2 in this strategy.	Ongoing community planning and development	GSC ESC, relevant staff (WW, NRCA)	Wider appreciation of how to conserve water and why this is important	Within existing budgets
8.5.5 Develop a formal partnership between Glenelg Shire Council, Southern Rural Water, Wannon Water and the catchment authority to implement the Western Region Sustainable Water Strategy 2010.	Medium partnership development	Relevant agencies (SRW, WW, DPI, NRCA) (GSC)	All parties to contribute to the implementation of the Western Region Sustainable Water Strategy; and Establishment of a water resources committee or similar, which is responsible for the preparation of a Glenelg Shire Sustainable Water Strategy.	Dependent on priorities in SW Region Sustainable Water Strategy

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

9 Targets and Transparency

Council's aim:

To measure and monitor key environmental indicators and set time-limited targets which drive performance and improvement.

Provide regular, transparent and consistent reporting on progress against environmental targets using recognised standards.

9.1 Issue: Performance assessment and reporting

Numerous systems and tools exist for the purpose of assessing and reporting environmental performance. Systems such as Ecomapping⁶⁶, EMS ISO 14000/14001⁶⁷, or Global Reporting Initiative⁶⁸ are available and widely used. All of these are built on the underlying principle of the adaptive management cycle of plan-do-check-review.

Council needs to assess which system best suits the organisation to determine its impact on the environment. It would also be beneficial to have a means of assessing improvement in the health of the Shire's natural assets and whether the aims of this strategy are being achieved.

An annual evaluation report on this Glenelg Environment Strategy will be a useful way of sharing the lessons learnt and setting priorities for

the following year. The effectiveness of the recommended Council responses must be assessed to determine their contribution towards improving natural resource condition in Glenelg Shire and broader region. Monitoring and evaluation for this purpose can be used for both program improvement and accountability purposes, and supports better targeting of resources.

At a regional scale, research has been undertaken by Deakin University and partners to identify and measure regional environmental sustainability indicators⁶⁹. The future direction for this research is to identify sustainability indicators for the region and develop a regional environmental sustainability report card, of which numerous examples exist^{70,71}.

Most of the environmental indicators for Victoria show that the environment is degraded, and is getting worse⁷². Our way of life continues to be maintained and enhanced through the gradual degradation of our natural environment. The environmental services we rely on are already damaged by human activities and past management, and will further degrade if we continue with current approaches.

It is important Glenelg Shire Council contributes to environmental monitoring and reporting for Glenelg Shire and at a regional and state level to help avoid further degradation and erosion of its natural asset base, and ensure a healthy liveable place for its residents.

The Australian Government's *Natural Resource Management Monitoring, Evaluation, Reporting and Improvement Framework*⁷³ (MERI Framework) is a broad, overarching document for use in the management of key natural assets. It provides a generic framework for monitoring, evaluating, reporting on and improving Australia's approach to managing key assets. The types of assets covered include human, social, natural, physical and financial assets.

Monitoring, evaluation, reporting and improvement are integral components of natural resource management programs. Glenelg Shire must use these to assess the impact, appropriateness, effectiveness, efficiency and legacy of its policies and programs, as well as a process to promote accountability.

⁶⁶ EcoMapping™ is used extensively within the context of Eco Management and Audit Scheme within the EU and enables small to medium enterprises to engage in simple environmental change ⁶⁷ The ISO 14000 family of standards addresses various aspects of environmental management ⁶⁸ Sustainability Reporting Guidelines, version 3.0, Global Reporting Initiative, www.globalreporting.org ⁶⁹ A GIS-based multiple criteria analysis tool for sustainability assessment in Glenelg Hopkins Catchment, 2007, M Graymore, A Wallis, A Richards, K O'Toole and B Mitchell, Deakin University ⁷⁰ Gippsland Integrated Natural Resources Forum, <http://www.ginrf.org.au/ReportCard/list.asp>, Mar 2010 ⁷¹ Metro Vancouver Sustainability Report, January 2009, www.metrovancouver.org ⁷² Victorian State of the Environment Report 2008, released by the Commissioner for Environmental Sustainability who is appointed under the Commissioner for Environmental Sustainability Act 2003. This is Victoria's first report on the state of the environment which addresses the full breadth of environmental issues ⁷³ Natural Resource Management Monitoring, Evaluation, Reporting and Improvement Framework

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Establish, integrate and implement an environmental performance assessment and reporting system for Glenelg Shire Council				
9.1.1 Determine environmental performance indicators and targets to be achieved by Council	High strategic planning	GSC ESC, XFT	Environmental performance indicators are listed and available; Indicators align with regional and state indicators for ease of benchmarking and pooling of data; and Aspirational targets are set for each and are made available	
9.1.2 Investigate, select and integrate the most suitable performance reporting system for Council use, consistent with Responses in 1.1 and 9.1.1 above that provide consistent credible assessment and reporting	High strategic planning	GSC various	Development of a performance reporting system for Council; Council to regularly set environmental sustainability targets and indicators; and Council to integrate and practice environmental monitoring and reporting	
9.1.3 The Glenelg Environment Strategy is aligned and closely integrated with the reporting system from Response 9.1.1 above.	Ongoing strategic planning	GSC ESC and various staff (partnership network)	Council utilises a closely aligned strategy and performance reporting system; The strategy performance is evaluated annually and results are used to help prioritise future actions; An annual evaluation report is published on the strategy's performance; and The performance of the strategy is benchmarked against regional environmental sustainability indicators (periodically and in line with regional assessment and reporting as under Response 9.1.3)	Within existing budgets; May require external expertise or training

Recommended Council Response	Priority* Council role	Responsibility lead (partner)	Success measure	Resource implications
STRATEGY Establish, integrate and implement an environmental performance assessment and reporting system for Glenelg Shire Council				
9.1.4 Using the partnership network established under Response 1.2.1, develop an annual implementation plan for responses involving external partners and contribute to regional sustainability monitoring and reporting	High strategic planning	GSC ESC (partnership network)	Development of an annual implementation plan to coordinate the strategy's implementation with external partners; Identification and pursuit of venues for Council to access State, Federal and other sources of external funding and investment; Council is actively involved in partnership projects with external stakeholders; Where appropriate, actions are developed that articulate into the Council plan and department plans; and Council contributes to and uses regional sustainability indicators to monitor the health and change in condition of the Shire's natural assets.	Within existing budgets
9.1.5 Council communicates the performance of the strategy to the community	Ongoing governance, community planning and development	GSC ESC and CDO (community groups, partnership network)	The development of an annual public environmental forum to monitor and review progress, and provide input on the strategy's implementation; The community is more aware of and contributes to achieving the aim of the strategy; and The strategy's performance is reported on in Council's annual plan	Within existing budgets

* Priority implementation timelines: *High*, in next three years, 2010 – 2013. *Medium*, in three to five years, 2014 and 2015. *Low*, more than five years, in 2016 onwards. *Ongoing*, from 2010 onwards

Appendices

Appendix 1 Legislative tools for environmental sustainability

Management Category	National Acts or Policies	State Acts or Policies	Regional Plans or Strategies	Council Plans, Policies or Initiatives
(Leading) Environmental Sustainability Principals of Ecologically Sustainable Development (EDS)	National Strategy for Ecological Development 1992	Environmental Protection Act 1970 Commissioner for Environmental Sustainability Act 2003 Environmental Sustainability Framework, 2005 Our Environment, Our Future – Victoria's Sustainability Action Statement, 2006 Victoria State of Environment Report, 2008 Victorian Climate Change White Paper, due 2010	Southwest Sustainability Partnership Blueprint 2001 Glenelg Hopkins Regional Catchment Strategy, 2003 – 2007	Glenelg Shire Planning Scheme and Municipal Strategic Statement Glenelg Shire Council Plan – Embracing the Future, 2009 - 2012 Local Environmental Sustainability Priority Statement, 2007 Environmental Sustainability Framework (draft), 2008 Municipal Public Health Plan, 2009 Glenelg Strategic Futures Plan, 2009
Decision-making		Local Government Act 1989 Government Best Value Principles Act, 1999		Glenelg Shire Council Plan, 2009 – 2013 Community Plans Indigenous Community Agreement with Glenelg Shire Council, by Oct 2010
Environmental Awareness and education	Living Sustainably: the Australian Government's National Action Plan for Education for Sustainability 2009	Victorian Greenhouse Strategy 2002	Regional Waste and Litter Education Strategy 2005 – 2008	Litter waste and recycling Education Action Plan Municipal Public Health Plan, 2009



Management Category	National Acts or Policies	State Acts or Policies	Regional Plans or Strategies	Council Plans, Policies or Initiatives
Biodiversity	<p>National Strategy for the Conservation of Australia's Biological Diversity 1996 (currently under review)</p> <p>Environment Protection and Biodiversity Conservation Act 1999</p> <p>Threatened Species Management Plans</p> <p>EPBC Policy Statement 3.8 on temperate grass land of the VVP</p> <p>The National Biodiversity and Climate Change Action Plan (2007)</p> <p>Australia's Biodiversity Conservation Strategy 200</p> <p>Australia's Strategy for the National Reserve System 2008-2030</p>	<p>Victorian Conservation Trust Act 1972</p> <p>National Parks Act, 1975</p> <p>Crown land (Reserves) Act, 1978</p> <p>Environmental Effects Act, 1978</p> <p>Conservation, Forest and Lands Act, 1987</p> <p>Flora and Fauna Guarantee Act, 1988</p> <p>Native Vegetation Management Framework, 2002</p> <p>Victorian Biodiversity Strategy (under review 2010)</p> <p>Victoria's Firewood Strategy, 2009</p> <p>Sustainability Charter for Victoria's State Forests, 2006</p> <p>Living with Fire – Victoria's Bushfire Strategy (2008).</p> <p>Securing Our Natural Future, land and biodiversity white paper, 2009</p>	<p>Glenelg Hopkins Regional Catchment Strategy (2003 – 2007</p> <p>NRCA Native Vegetation Management Plan 2000</p> <p>NRCA Habitat Plan</p> <p>Strategy for conserving biodiversity in the Dundas Tablelands Bioregion, Victoria</p> <p>Biodiversity Action Plans for:</p> <ul style="list-style-type: none"> - Glenelg Plain Bioregion - Bridgewater Bioregion - Warrnambool Plain Bioregion <p>Restoring Connectivity, Biodiversity Local Area Plan Tarragal Landcare Group 2008</p> <p>Other management plans</p>	<p>Glenelg Planning Scheme</p> <p>Line Clearance Vegetation Management Plan, 1997</p> <p>Roadside Management Guidelines, 1997</p> <p>Municipal Fire Prevention Plan, 2003</p> <p>Local Roads Management Plan, 2005</p> <p>Urban Tree policy, 2006</p> <p>Recreational Open Spaces Strategy, 2007</p> <p>List of Schedules, General Local Laws, 2008</p>
Pest Plants and Animals	<p>National Weeds Strategy 2007</p>	<p>Catchment and Land Protection Act 1994</p>	<p>Regional Weed Plan 2008 – 2012</p> <p>Glenelg Hopkins Rabbit Action Plan 2006</p>	<p>Roadside Management Guidelines, 1997</p> <p>List of Schedules, General Local Laws 2008</p>

Management Category	National Acts or Policies	State Acts or Policies	Regional Plans or Strategies	Council Plans, Policies or Initiatives
Coastline and Sea (refer to VCS, p70 and 71 for more details)	National Strategy for the Management of Coastal Acid Sulfate Soils 2000	Crown land (Reserves) Act 1978 Marine Act 1988 Coastal Management Act 1995 Victorian Coastal Strategy 2008 Land Conservation (Vehicle Control) Act 1972 Environmental Protection (Ship's Ballast Water) Regulations 2006	South West Estuaries Coastal Action Plan 2002 South West Victoria Regional Coastal Action Plan 2002 Glenelg Coastal Action Plan, 2004 (under review, 2010) Fitzroy Estuary Management plan 2006 Glenelg Estuary Management plan 2006 Boating Coastal Action Plan, 2010 Portland Bay Coastal Infrastructures Plan, 2008 Estuary Entrance Management Support Systems, GHCMA	Glenelg Shire Coastal Action Plan, 2004 (Statutory review 2010) Portland Bay Coastal Infrastructure Plan, 2006 Geotechnical Survey of Portland Foreshore, Lee Breakwater to South End of Dutton Way – Golder Associates, August 2000; Future Coasts Programs: Bathymetric (sea floor) digital elevation modeling (DEM), Glenelg Coastal Engineering Study and flood mapping of Portland and Narrawong
Cultural Heritage	Aboriginal and Torres Strait Islander Heritage Protection Act 1984 Native Title Act 1993 Commonwealth Heritage List National Estate Register	Aboriginal Heritage Act 2006 Aboriginal Heritage Regulations 2007 Victorian Heritage Strategy (DPCD, 2006) Indigenous Partnerships Framework 2007 – 2010 (DSE, 2007)		Indigenous Agreement between Glenelg Shire Council and Indigenous groups (under development)

Management Category	National Acts or Policies	State Acts or Policies	Regional Plans or Strategies	Council Plans, Policies or Initiatives
Waterways, Lakes and Wetlands	Water Act 2007 Water for the Future National Water Quality Management Strategy 1992 National Action Plan for Salinity and Water Quality 2000	Water Act 1989 Catchment and Land Protection Act 1994 Victorian River Health Strategy 2002 Fisheries Act 1995 Water White Paper - Securing Our Water Future Together (2004) South West Regional Sustainable Water Strategies, 2010	Nutrient Management Plan 2002 (NRCA) River Health Strategy, 2004-2009 (NRCA) Regional Wetlands Status Report 2006 (NRCA) Strategy for Existing Rural Drainage Areas 2004 – 2007 (NRCA) Surry Estuary Management Plan (NRCA)	Storm Water Management Plan, Portland, Casterton and Heywood, 2003 Glenelg Domestic Wastewater Management Plan (July 2009) Glenelg Shire Sustainable Water Use Plan, 2006 Fawthrop Wetland Management Plan, 2010
Soil and Farmland		Catchment and Land Protection Act 1994 Conservation, Forest and Lands Act 1987 Planning and Environment Act 1987 Farming Future Strategy, 2008	Salinity Plan 2005 -2008 (NRCA) Soil Health Strategy and Soil Health Plan 2009 – 2014 (NRCA)	Industrial Land Use Plan 2007 Municipal Fire Prevention Plan 2009-2014 and Township Protection Plans,
Resource Efficiency - Greenhouse - Solid Waste - Urban design - Potable water	National Greenhouse Strategy 2000 National Water Initiative National Minimisation and Recycling Strategy 1992	Our Environment Our Future – Sustainability Action Statement (2006) Victorian Green house Strategy 2002 Our Water Our Future, White Paper 2004 Towards Zero Waste Strategy 2005 Energy Efficiency Action Plan (2006) Renewable Energy Action Plan (2006)	Western Region Sustainable Water Strategy (late 2009) Regional Waste Management Plan Draft 2008 Regional Waste and Litter Education Strategy 2005 – 2008	Waste Management Strategy, 2004 Glenelg Shire Sustainable Water Use Plan, 2006 Waste Reduction Accreditation Plan, 2007 Progressive Portland Landfill Rehabilitation Plan (due for completion in 2007) Waste and Litter Education Plan, 2008-2009 Glenelg Shire's Footprint, 2009 Glenelg's Carbon Reduction Plan, 2009
Targets and transparency		Local Government Act 1989	Climate Change Adaptation: a Framework for Local Action, 2008	Glenelg Shire Council Plan – Embracing the Future, 2009 - 2012



Appendix 2 Park and State Forest Crown land reserves in Glenelg Shire

CROWN LAND RESERVES		Area	Area of Shire
		Ha	%
State Forests in Glenelg Shire			
1	Homerton	1,149	0.2
2	Narrawong	3,103	0.5
3	Annya	10,588	1.7
4	Wataepoolan	213	0
5	Hotspur	6,836	1.1
6	Weecurra	11,002	1.8
7	Strathdownie	26,674	4.3
8	Cobboboonee Forest Park	8,636	1.4
	Other smaller state forest reserves	6,746	1.1
Total State Forests		68,201	11
Parks and Reserves (managed by Parks Victoria)			
1	Lower Glenelg National Park	26,420	
2	Cobboboonee National Park	18,500	
3	Discovery Bay Coastal Park	10,633	
4	Tooloy-Lake Mundi Wildlife Reserve	4,119	
5	Wilkin Flora and Fauna Reserve	3,231	
6	Mount Eccles National Park (Part)	2,230	
7	Mt Richmond National Park	1,736	
8	Narrawong Flora Reserve	1,536	
	Other smaller reserves and conservation areas	12,895	
Total National, State Parks and other Reserves		81,300	13.1
Total area of Park and State Forest Crown land reserves in Glenelg Shire			
		149,501	24.1

Appendix 3 Outcomes from the Securing Our Natural Future 2009 white paper relating to this strategy

Action number	Actions from <i>Securing Our Natural Future</i> , State Government's land and biodiversity white paper
3.1.4	Establishment Natural Resource and Catchment Authorities by June 2011
3.2.3	Release the first Victorian Natural Resource Management Plan by 2010
3.2.4	Include a planning addendum in each new Regional Catchment Strategy by 2012
3.2.6	Provide clear requirements to Natural Resource and Catchment Authorities as part of a strengthened governance framework
3.5.1	Introduce new natural resource management legislation to Parliament by December 2011
3.5.2	Introduce new biodiversity and conservation legislation to Parliament by December 2012
3.5.3	Introduce consolidated public land legislation by 2014
4.3.1	Design a framework that links reforestation projects under the Carbon Pollution Reduction Scheme with biodiversity and ecosystem markets by 2011
5.1.1	Prepare a targeted community education program to increase awareness and encourage actions that improve land, water and biodiversity outcomes by 2010
6.1.1.6	Publish an annual vegetation management summary report with data on permits, offsets and illegal clearing
6.1.1.7	Report on net gain progress as part of the three and six yearly resource condition reports
6.1.2.2	Clarify objectives for stormwater to improve planning and management, in consultation with local government and industry by 2012
6.5.6	Develop decision-making tools and market-based instruments to address climate change impacts on coastal, estuarine and marine ecosystems by 2013
6.5.7	Review and revise coastal committee of management arrangements by 2012
6.5.8	Develop a Victorian Marine Plan, in response to the Victorian Coastal Strategy by 2014
2.3.3	Update the Standards for Revegetation by 2011

Appendix 4 Summary of environmental issues of importance raised during community consultation sessions, early in 2009, used in graph in Figure 2.

Environmental issues relating to	No. of mentions	Includes
Environmental education, empowerment and decision-making	99	Awareness raising about the goods and services provided by healthy ecosystems, local government decision-making, management, setting targets and reporting; need to show leadership; promotion and tourism; resourcing, funding and support of community involvement.
Resources efficiency and management	69	Resource use efficiency: reduced greenhouse gas emissions (6); urban design (17) and urban greening, management of open space areas and natural areas within towns (15); conservation of potable water and energy (11); solid waste management practices and litter issues (13)
Landscape amenity	41	Landscape amenity specifically related to landscape values, land use planning and amenity and planning related issues (also relating to planning for Climate Change)
Biodiversity	35	General biodiversity issues such as habitat quality and connectivity, road side vegetation management practices, revegetation practices
Waterways, lakes and wetlands	31	Water quality and hydrology; drainage practices; conservation of wetlands and waterway and river health
Soils, land management	19	Agricultural and urban land management issues; issues relating to physical land management issues, such as salinity and erosion
Pest plant and animals	13	All pest plant and animal related issues
Coast management	13	Beaches, dunes, urban foreshore areas, river estuaries, marine environment
Fire management	9	Specific issues relating to fire and biodiversity management, native vegetation and weed spread; the location of buildings in areas neighboring Crown land vegetation
Air quality, noise	8	Issues related to dust, fine particles, smoke, odor and chemical air emissions other than greenhouse gases
Cultural heritage	4	Telling the story of Indigenous and European history; Indigenous cultural heritage and natural resource management activities by past and current traditional owners who have managed biodiversity and cared for country
Safety	4	Safety aspects of road-use relating to wildlife, vegetation and roadside clearing and truck transports; conflicting values relating to fire management, conservation of native vegetation and community road safety.

Appendix 5 Profile of Glenelg Shire's natural assets

Glenelg Shire Profile

Glenelg Shire is a coastal Shire located in the far south west of Victoria on the South Australian border, 370 km, or four and half hours drive west of Melbourne. The Shire was proclaimed on 23 September 1994 with the amalgamation of the Shire of Glenelg, Heywood Shire, City of Portland and parts of former Shires of West Wimmera and Southern Grampians. The Shire covers an area of 6,212 square kilometres, with 134 km of Southern Ocean coastline and to the west it shares 155 km of the South Australian state border. It is one of the largest rural shires in Victoria and shares municipal boundaries with Moyne, Southern Grampians and West Wimmera Shires in Victoria and the municipalities of Grant and Wattle Range in South Australia.

The Shire is strongly influenced by physical and topographical features, which impact on urban development, land use and management. It is characterised by a diverse range of environments including rugged coastline, dense native forests and woodlands, rolling rural plains and rivers, lakes and wetlands of significance. In the course of time, these features have contributed to creating distinctive communities with quite different expectations about how their area should develop.

Glenelg Shire acknowledges its unique geographical location and the regional strengths. Its rich natural resources are the basis of these regional strengths which include a natural deep sea port and links with road and rail networks, prosperous fishing and primary production industries in a high rainfall zone with fertile soils.

Natural wonders and unique biodiversity abound. A standout natural feature in the Shire is the Glenelg River and estuary, which together with its tributaries, flows through the Shire from the Grampians, carving deep gorges in the Dundas Tablelands and Glenelg Plain before reaching the Southern Ocean at Nelson. The spectacular landscape of Discovery Bay and three prominent headlands and bays of Cape Bridgewater, Cape Sir William Grant and Cape Nelson; the Budj Bim (Mt Eccles) National Park and Tyrendarra lava flow at

the eastern boundary are a National Heritage Listed landscape, as rich in Indigenous cultural heritage as they are in biodiversity. Kanawinka Geopark, the first UNESCO Geopark of its kind in Australia, extends from Mortlake in the east to Mt. Gambier in South Australia, and encompasses most of Glenelg Shire.

Coastline

The relatively low-lying southern coastline of the Shire is bisected by three prominent capes - Cape Bridgewater, Cape Nelson and Cape Grant. Cape Bridgewater has the highest sea cliffs on the Victorian Coastline, 130m above sea level.

Most of the coastal development is in the east of the Shire, which is bounded by the Tyrendarra lava flow. This development is characterised by a linear pattern along the coast, progressing from Narrawong around Portland Bay to Cape Grant and Cape Nelson just south of Portland.

The remaining coastline to the west is protected by a continuous narrow strip of coastal Crown land park reserve which starts just south of Portland at Blacknose Point and runs west, with the exception of Bridgewater, to the South Australian border. This area comprises endangered, vulnerable or rare plant communities and is habitat for a range of endangered or threatened coastal and marine wildlife species. For example, Point Danger is Australia's only mainland colony of Australasian Gannets, and is located approximately six kilometres south of Portland, while Cape Bridgewater is home to about 650 Australian fur seals.

The Discovery Bay Coastal Park and the Discovery Bay Marine National Park (a Marine Protected Area) are both situated in this area and provide protection for a range of endangered and migratory bird and mammal species⁷⁴.

The Glenelg River flows into the Southern Ocean in the south west corner of the Shire at Nelson. The lower reaches of the river, its estuary, associated wetlands and shoreline have been identified as a high priority conservation value aquatic ecosystem by the Federal Government⁷⁵ and is of national and international significance.

Hinterland

The hinterland to the coast comprises substantial tracts of public land that include state forests (Appendix 2), two national parks and other state parks and reserves which support heathlands, herb-rich or heathy woodlands and forest.

Distinctively rural communities are found along the coast and hinterland in areas of extensive softwood (approximately 10% of Shire area) and hardwood (approximately 5% of Shire area) plantations, native forests and farmland. Agricultural land within the Shire is one of its most significant natural assets and amounts to more than 50% of the Shire's area⁷⁶. The main townships include Heywood, Dartmoor, Nelson, Digby, Merino and Casterton. The main business and service centres are Portland and Heywood in the south and Casterton in the north. The coastal township of Nelson is situated at the estuary of Glenelg River just before the state border.

Bioregions

There are five distinct biogeographic regions, or bioregions⁷⁷, within Glenelg Shire (Figure 4). These are the Glenelg Plain Bioregion, Bridgewater Bioregion, the Victoria Volcanic Plain Bioregion, the Warrnambool Plain Bioregion and the Dundas Tablelands Bioregion. These account for five of the 27 terrestrial bioregions in Victoria. The waters off the coast of Glenelg Shire are part the Otway Marine Bioregion, one of the five Victorian marine bioregions⁷⁸.

Each bioregion captures the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity values. As bioregions reflect underlying environmental features, they can also be related to the patterns of use of land and sea, and support unique plant communities forming part of broader ecosystems. The temperate waters of southern Australia have a great abundance of biodiversity with a high proportion of species that occur only here in these southern waters. However, there are also numerous threatened marine species and a range of introduced marine pest species that impact on these coastal environments.

The Bonney Upwelling⁷⁹, a seasonal upwelling of cold nutrient-rich waters from the Southern Ocean, is a significant phenomenon that occurs offshore from Glenelg Shire. The upwelling stimulates massive blooms of phytoplankton that support a variety and richness of marine life that is unparalleled in the Australian marine environment. Krill feed on the phytoplankton forming red-brown masses in their millions at the surface. The krill are the centre of a rich food web supporting fish, squid, gannets, albatrosses, shearwaters, prions, seals, sharks, sunfish, sea turtles, bottlenose and common dolphins; also numerous whales species, the most commonly seen is the blue whale.

Similarly the land-based bioregions in Glenelg are rich in diversity, and home to plant and animal species or plant communities unique to this region. Parts of Glenelg Shire have been included in Australia's 15 biodiversity hotspots⁸⁰, indicating a high number of species only occurring in this area and that the current or predicted level of threat to biodiversity in the region is high. It is also where the distribution of many western species ends, merging with east Australian flora and fauna.

Glenelg Plain Bioregion covers a large area of the western half of Glenelg Shire. It features long low sandy dune ridges running parallel to the present coastline. The swales between the dune ridges tend to have damper soils dominated by damp sands herb-rich woodland, heathy woodland, herb-rich heathy woodland. The most prominent plant community in the bioregion is heathy woodland, dominated by brown stringybark. In the south east of the bioregion, lowland forest dominates. Large areas of plains grassy woodland, which is a red gum dominated community, have been cleared for agriculture in the north of the bioregion. The Glenelg River is the area's most significant waterway and is listed as a heritage river from south of Dartmoor to its mouth at Nelson. The bioregion includes several smaller rivers with significant biodiversity values, particularly the Crawford, Stokes, Fitzroy and Surry Rivers. There are also wetlands of national significance in the north including Mundi-Selkirk wetlands and Lindsay Werrikoo wetlands.

Bridgewater Bioregion straddles the Victorian-South Australian border, running along the coast to just east of Cape Bridgewater. It is a narrow coastal plain of relatively young sediments. A dune-capped sand ridge stretches along the coastline with gently sloping sandy terrain and lagoonal systems behind. The lagoonal system supports a network of deep-water pools, collapsed caverns or sink-holes. The soils are a combination of siliceous sands on the dunes with underlying calcareous deposits that support the unique plant communities of calcarenite dune woodland and coastal dune scrub. The lagoons cover texture-contrast soils, clays and peats, and support deep freshwater marsh and coastal dune scrub plant communities.

Warrnambool Plain Bioregion extends into the south eastern corner of Glenelg Shire from the east. A small pocket occurs between Heywood and Homerton on the north of the Fitzroy River, and a narrow coastal strip runs along the north of Portland Bay from Allestree to Narrawong. It consists of a distinctive cliffed coastline (seen mainly outside the Shire) and low calcareous dune formations, dissected by rivers, inlets and swamplands and the Tyrendarra lava flow. The sediments and volcanic deposits that dominate the area give rise to sandy soils on the dunes and cliff-lines, and brown earths and texture contrast soils on the flat plain. These soils support lowland forest and herb-rich foothill forest ecosystems.

The soils and fertile peats of the swamplands support a range of unique plant communities, including damp sands herb-rich woodland, damp heathland, damp heathy woodland, damp heath scrub and swamp scrub.

Victorian Volcanic Plain Bioregion ranges from Melbourne to the south eastern section of Glenelg Shire and south of the centre of Portland. It is dominated by relatively recent volcanic deposits. The flat to undulating basaltic plain has stony rises, old lava flows and numerous volcanic cones and old eruption points. Some eruption points have developed into shallow lakes, both salt and freshwater.

Much of the Victorian Volcanic Plain supports temperate native grasslands that are protected under the *Federal Environment Protection and Biodiversity Conservation Act*⁸¹.

This fertile plain also supports plant communities such as plains grassy woodland and plains grassland on soils ranging from red friable earths and acidic texture contrast soils on the higher fertile plain. The intermediate plain has a variety of scoraceous and calcareous material and yellow acidic earths; whilst the low plains have grey cracking clays. The intermediate and low plains support stony knoll shrubland, plains grassy woodland and plains grassy wetland plant communities. The volcanic outcrops and stony earths of the stony rises support stony rises herb-rich woodland, basalt shrubby woodland and herb-rich foothill forest ecosystems.

Dundas Tablelands bioregion is a part of the Victorian midlands and extends into the north east of Glenelg Shire. It is a dissected tableland of tertiary deposits overlaying an ancient plain which is capped with a hard ironstone layer resisting erosion. Streams have cut deep narrow valleys across the tablelands. Black earths dominate the valleys and the dissected Merino Tablelands, yellow texture contrast soils and cracking clays dominate the rest of the table tops.

Of all Glenelg Shire's bioregions, clearing has been most complete in the Dundas Tablelands. The vegetation it supports is a complex mosaic of plains grassy woodland, damp sands herb-rich woodland, grassy woodland and creekline grassy woodland ecosystems.

The state of Shire's Bioregions

The Shire's bioregions have been highly impacted by European settlement, due mainly to clearing and use for agriculture and plantations. Some bioregions have been substantially altered, while others like the Dundas Tablelands have been almost totally modified. As bioregions become modified, there is a loss in biodiversity. The two major direct causes of loss of biodiversity are habitat loss and degradation, and habitat fragmentation. Biodiversity is inseparable from ecosystems function and services they provide – the life support systems we and other species rely on. Maintaining biodiverse landscapes with healthy intact ecosystems is the cornerstone to achieving long-term health and sustainability for our Shire and its communities.

⁸¹ <http://www.bluewhalestudy.com.au/bonney.html>, Friday 7 August 2009

Figure 4 Bioregions in Glenelg Shire



Reserves

As mentioned in chapter three, there are several key land managers within the Glenelg Shire. They are summarised in the below table (Table 3).

Table 3 Public Land Managers of Glenelg Shire

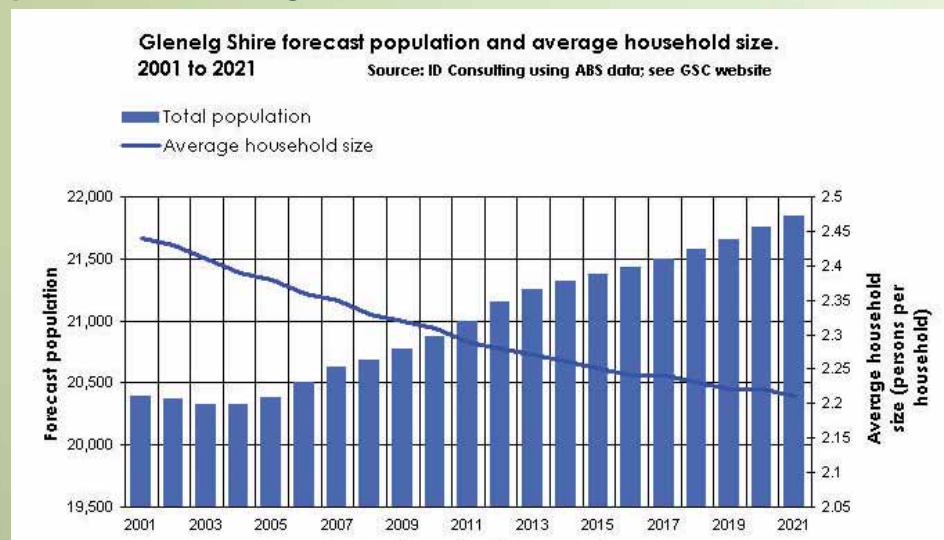
KEY LAND MANAGERS	Number of sites	Estimated area managed	Area of Shire
		Ha	%
Council - owned land ¹	316	995	0.2
Council - management delegated by DSE2 (see also App. 3)	62	408	0.1
Road Reserves (Disused, VicRoads and Council managed) ³		123,832	19.9
DSE - State Forest and Cobboboonee Forest Park ⁴		68,201	11.0
Parks Victoria (effective June) – National and State Parks and reserves ⁵		81,300	13.1
DSE Committees of Management – elected (Public use reserves) ² (App. 4)	79	1093	0.2
DSE Crown land managers other than GSC and elected committees of management ²	69	777	0.1
TOTAL PUBLIC LAND		276,606	45
Remainder - freehold title managed as private land		344,004	55
Total Shire area (= 6212 sq. km)⁶		621,200	100

Data source: 1: Council rates data, as at Aug 2009; 2, DSE Crown land reserves Database; 3, DPI data base; 4, Victorian Resources online interactive mapping - Forest Explorer Online version 4.1 Sept 2009 (see Appendix 3); 5, Parks Victoria personal comm. Don Tumney, May 2009; 6: Glenelg Shire Council Plan 2009 - 2013

Population

Glenelg Shire's population has increased steadily since 2004 reaching 20,644 people in 2007⁸² (Figure 5). The population of the townships⁸³ is: Portland 9,716, Casterton 1,616, Heywood 1,229, Dartmoor 264, Merino 183, Narrawong 179 and Nelson approximately 200. By 2022 the Shire's population is predicted to increase by 1,500 to 21,800. Compared to other coastal Shires closer to Geelong and Melbourne, Glenelg Shire is experiencing less pressure from population growth. By comparison, Surf Coast Shire's population will increase by 15,000 for the same period, a 10-fold factor greater than Glenelg Shire.

Figure 5 Summary of the predicted population growth pattern for Glenelg Shire.



While population is shown to increase, the number of people per household is decreasing, as indicated by the blue line. Both the absolute increase in population, as well as the downward trend in house occupation rates, place increased pressure on all aspects of the environment, but provide particular challenges in the area of resources efficiencies and biodiversity.

Cultural Heritage

Indigenous and non-Indigenous inhabitants have altered and have been influenced by the natural characteristics of the natural environment. Both European and Indigenous settlement patterns were direct results of the characteristics of the environment. This is presented throughout the Shire in the rich archaeology, cultural landscapes and built heritage of both cultures.

Gunditjmara people are the traditional owners in the far south west of Victoria and also care for Buanditj country. The Buanditj traditional lands were to the west of the Glenelg River. Another tribe, the Jardwadjali, inhabited land to the north of the Glenelg River, and along the upper Glenelg River spoke a southern dialect Nundadjali. Dhauwurd Wurrung is the preferred name for the language spoken in the Lake Condah Region⁸⁴.

The Gunditjmara's native title rights were recognised by the Federal Court of Australia in the Gunditjmara Native Title Consent Determination in March 2007. The consent determination covers around 133,000 hectares of Crown land (including National Parks). The area is bounded on the west by the Glenelg River, to the north the Wannon River and extends to the east as far as the Shaw River. It includes Lady Julia Percy Island and coastal foreshore between the South Australian border and the township of Yambuk.

Gunditjmara people continue to care for the country through organisations including the Gunditj Mirring Traditional Owners Aboriginal Corporation and the Winda Mara Aboriginal Corporation. Heywood is the base for both these organisations and has the second largest Indigenous population in Victoria. The local Indigenous community has a strong connection to country and are the key drivers of these organisations.

In partnership with the Gunditjmara, the Winda Mara Aboriginal Corporation initiated the Lake Condah Sustainable Development Project (LCSDP) in 2002. The project aims to sustainably develop the Lake Condah and Tyrendarra district as a national environment and cultural heritage park.

⁸² Threatened Species Scientific Committee, DEHWA (2009). Australian Government ⁸³ Environment Protection and Biodiversity Conservation Act 1999, Policy Statement 3.8, Natural Temperate Grassland of the Victorian Volcanic Plain. The EPBC Act is the Australian Government's central piece of environmental legislation ⁸⁴ Source: ABS 2006; graph from Glenelg Shire Population and household Forecasts, a Forecast.id Report based on ABS 2001 data.

In line with the LCSDP's objectives, the Budj Bim National Heritage Landscape was the first place declared on the new National Heritage List in 2004, recognizing the immense Indigenous heritage and unique natural values of the lava flow, stony woodlands and wetlands. This area includes Mt Eccles which lies in Moyne Shire and the Tyrendarra lava flow in Glenelg Shire.

Along the Budj Bim National Heritage Landscape, archaeologists have found evidence for construction of permanent dwellings and the traditional engineering of extensive aquaculture systems for the farming of eels and other fish^{85,86}. Recent archaeological work has indicated the probable age of the stone aquaculture systems at Lake Condah at around 6,800 years old. Lake Condah itself was returned to the Gunditjmara traditional owners in 2008 and is scheduled for restoration in 2010. Lake Condah and the Condah Swamp were drained in 1954 following the devastating 1946 floods. The restoration of Lake Condah has a national profile and will revitalize the unique natural values and restore the ancient eel aquaculture systems.



The Gunditj Miring and Winda Mara organisations privately own properties along the Budj Bim landscape to directly manage the cultural and natural values. Management work is conducted by the Winda Mara Land Management Crew⁸⁷ through the Budj Bim rangers program.

Over recent years, the Tyrendarra and Kurtonitj properties have been declared Indigenous Protected Areas and recognised by the Commonwealth Government. Indigenous Protected Areas are required to be managed by the local Indigenous community in line with International Conservation Union for Nature (ICUN) guidelines.

The Glenelg Shire has a rich layer of Indigenous heritage sites throughout the Shire particularly along the coast and waterways⁸⁸. There are many excellent examples of midden sites dating back at least 11,000 years⁸⁹ and well-preserved sites in the Discovery Bay Coastal Park, whilst many other sites occur on private land across the shire. Fostering sustainable environmental and land management practices which protect Indigenous heritage and acknowledge traditional land-use methods, can benefit all communities across the Glenelg Shire. As well, the events and stories surrounding early European and Indigenous contact must be preserved and told.

⁸⁵ 2006 census data ⁸⁶ <http://www.vaclang.org.au>, as at 18 Feb 2010 ⁸⁷ Builth, H. 2002. 'The Archaeology and Socio-economy of the Gunditjmara: a Landscape Analysis in Southwest Victoria, Australia'. Unpublished Ph.D Thesis, Department of Archaeology, Flinders University of South Australia: Adelaide ⁸⁸ Builth, H. 2004 'The Mt Eccles Lava Flow and Gunditjmara: A Landform for all Seasons' in 'Environmental history of the Newer Volcanic Province of Victoria': (Eds) Peter Kershaw and Meredith Orr. A special publication of the Proceedings of the Royal Society of Victoria, Vol 116, No1, November 2004. Melbourne ⁸⁹ Kanawinka Coast Protect Report 2009, Glenelg Shire Council

Table 4 Crown reserves where Glenelg Shire Council is the gazetted committee of management (CLR tenure code 700)

Gazt reserve no	Local Name	Purpose	Location	Area, ha
RS09221	Casterton Aerodrome	Aerodrome	Bahgallah	12.63
RS03739	Henty Park - Portland	Botanical Gardens and Recreation Park	Portland	12.58
RS04137	Memorial Triangle (Soldiers Memorial)	Memorial Reserve	Portland	0.16
RS04994	Almond Tree Reserve - Portland	Public Purposes	Portland	0.16
RS05829	Market Street Reserve - Portland	Public Park and Recreation	Portland	0.31
RS08161	Dutton Way Foreshore Reserve	Foreshore Reserve	Bolwarra	0.66
RS08161	Dutton Way Foreshore Reserve	Foreshore Reserve	Bolwarra	5.31
RS09002	Bridgewater Bay Foreshore Reserve	Foreshore Reserve	Tarragal	0.34
RS09002	Bridgewater Bay Foreshore Reserve	Foreshore Reserve	Tarragal	1.61
RS43089	Portland Foreshore	Public Purposes	Portland	0.52
RS43089	Portland Foreshore	Public Purposes	Portland	18.72
RS43089	Portland Foreshore	Public Purposes	Portland	25.47
RS01418	Portland Foreshore Reserve	Public Purposes Reserve	Portland	5.55
RS01418	Portland Foreshore Reserve	Public Purposes Reserve	Portland	7.44
RS01418	Portland Foreshore Reserve	Public Purposes Reserve	Portland	0.38
RS01418	Portland Foreshore Reserve	Public Purposes Reserve	Portland	5.01
RS01418	Portland Foreshore Reserve	Public Purposes Reserve	Portland	0.33
RS10804	Portland Light House Reserve	Lighthouse Purposes Reserve	Portland	0.71
RS01325	Merino Park - Merino	Public Park	Merino	6.58
RS09091	Graham Husson Fauna Reserve	Public Park	Portland	2.27
RS05918	Magazine Hill - Portland	Plantation	Portland	4.33
RS06150	Fawthrop Lagoon - Portland	Public Park and Recreation	Portland	29.32
RS01418A	Battery Hill - Portland	Public Purposes	Portland	1.11
RS01418A	Battery Hill - Portland	Public Purposes	Portland	0.76
RS08544	Old Friendlys Society Reserve - Portland	Public Purposes	Portland	1.92
RS05424	Walook Swamp - Portland	Public Purposes Reserve	Portland	33.90
RS04600	Alexandra Park - Portland	Public Park and Recreation	Portland	16.63
RS06399	Flinders Park - Portland	Public Park and Recreation	Portland	0.43
RS06399	Flinders Park - Portland	Public Park and Recreation	Portland	3.19
RS06399	Flinders Park - Portland	Public Park and Recreation	Portland	5.77

Gazt reserve no	Local Name	Purpose	Location	Area, ha
RS02290	Hanlon Park - Portland	Public Park and Recreation	Portland	4.08
RS07147	Nelson Park - Portland	Public Park and Recreation	Portland	3.46
RS03901	Yarraman Park - Portland	Public Recreation	Portland	3.07
RS03901	Yarraman Park - Portland	Public Recreation	Portland	0.35
RS03901	Yarraman Park - Portland	Public Recreation	Portland	0.96
RS03901	Yarraman Park - Portland	Public Recreation	Portland	1.97
RS03901	Yarraman Park - Portland	Public Recreation	Portland	0.72
RS03901	Yarraman Park - Portland	Public Recreation	Portland	23.42
RS03821	Island Park - Casterton	Public Recreation	Casterton	16.84
RS03821	Island Park - Casterton	Public Recreation	Casterton	0.20
RS06389	Public Park and Recreation Reserve	Public Park and Recreation	Casterton	5.65
RS01795	Casterton Recreation Reserve	Public Recreation	Casterton	3.61
RS05261	Ess Lagoon - Casterton	Public Recreation	Casterton	5.84
RS09604	Recreation Reserve Adjoining Glenelg River	Public Recreation	Casterton	3.05
RS09604	Recreation Reserve Adjoining Glenelg River	Public Recreation	Casterton	8.22
RS43111	Dartmoor Playground	Public Recreation	Dartmoor	0.27
RS00076	Heywood Recreation Reserve	Public Recreation	Drumborg	5.42
RS07033	Heywood Swimming Pool and Public Park	Swimming Pool	Heywood	0.45
RS08622	South Portland Kindergarten Reserve	Kindergarten	Portland	0.16
RS02809	Portland Library	Library	Portland	0.20
RS12557	Casterton Public Toilets	Public Buildings	Casterton	0.03
RS05019	Portland Water Tower	Public Purposes	Portland	0.23
RS02525	Centenary Park Caravan Park Portland	Public Purposes	Portland	2.38
RS08614	Portland Stadium	Public Recreation	Portland	0.67
RS12034	Portland Municipal Offices	Municipal Offices	Portland	0.13
RS08966	Heywood Elderly Citizens Clubrooms	Municipal Purposes	Heywood	0.24
RS12131	Portland Municipal Offices	Municipal Purposes	Portland	0.40
RS08529	Digby Gravel Reserve	Gravel Reserve	Digby	81.84
RS08933	Goughs Quarry - Killara	Gravel Reserve	Killara	7.68
RS09642	Nangeela Gravel Reserve	Gravel Reserve	Nangeela	13.68
RS05232	Gorae Gravel Reserve	Gravel Reserve	Winyayung	5.03
RS07342	Hotspur Gravel Reserve	Gravel Reserve	Winyayung	3.77
	Total Crown land Reserves	Number Sites =	62	408.09

Table 5 Crown reserves with an annually elected committee of management as delegated by Department of Sustainability and Environment (CLR tenure codes 705 and 710)

Gazetted reserve number	Local committee of management	Purpose	Location	Area, Ha
RS08780	Bolwarra Recreation Reserve	Recreation, Convenience and Amusement of The People	Bolwarra	0.79
RS12482	Wallacedale Recreation Reserve	Public Recreation	Branxholme	9.70
RS08460	Wallacedale Public Hall	Recreation, Convenience or Amusement of The People	Byambynee	0.53
RS01771	Casterton Racecourse	Racecourse	Casterton	56.27
RS00138	Sandford Racecourse and Recreation Reserve	Racecourse and Public Recreation	Casterton	24.07
RS03077	Dunrobin Public Hall Reserve	Public Hall	Casterton	0.18
RS43108	Dunrobin Public Hall Reserve	Public Purposes and Recreation	Casterton	0.36
RS13733	Casterton Courthouse Reserve	Historic Buildings	Casterton	0.03
RS00322	Dartmoor Public Hall and Recreation Reserve	Public Hall and Public Recreation	Dartmoor	0.36
RS00901	Dartmoor Recreation Reserve	Public Recreation	Dartmoor	4.30
RS43004	Dartmoor Lions Park	Public Park	Dartmoor	0.71
RS01583	Digby Mechanics Institute	Mechanics Institute	Digby	0.20
RS10653	Digby Public Hall	Public Hall and Recreation	Digby	0.40
RS00849	Digby Recreation Reserve	Public Recreation	Digby	3.27
RS06784	Winnap Public Hall and Recreation Reserve	Public Hall and Recreation	Drik Drik	2.84
RS01702	Drumborg Hall and Recreation Reserve	Public Hall and Recreation	Drumborg	3.33
RS02045	Heywood Public Gardens Reserve	Public Gardens	Drumborg	0.17
RS02045	Heywood Public Gardens Reserve	Public Gardens	Drumborg	2.21
RS02045	Heywood Public Gardens Reserve	Public Gardens	Drumborg	0.52
RS06906	Lyons Public Hall and Recreation Reserve	Public Hall and Recreation	Glenaulin	4.10
RS04730	Nelson Public Reserves	Caravan Park	Glenelg	4.44
RS04730	Nelson Public Reserves	Caravan Park	Glenelg	8.79
RS04731	Nelson Public Reserve Committee of Management Incorporated	Public Recreation	Glenelg	0.51
RS04731	Nelson Public Reserve committee of Management Incorporated	Public Recreation	Glenelg	0.71
RS04731	Nelson Public Reserve Committee of Management Incorporated	Public Recreation	Glenelg	0.17

Gazetted reserve number	Local committee of management	Purpose	Location	Area, Ha
RS04731	Nelson Public Reserve Committee of Management Incorporated	Public Recreation	Glenelg	1.89
RS04731	Nelson Public Reserve Committee of Management Incorporated	Public Recreation	Glenelg	0.05
RS04725	Nelson Public Reserves	Public Recreation	Glenelg	1.39
RS04725	Nelson Public Reserves	Public Recreation	Glenelg	0.46
RS11862	Nelson Public Reserve Committee of Management Incorporated	Public Recreation	Glenelg	41.73
RS11862	Nelson Public Reserve Committee of Management Incorporated	Public Recreation	Glenelg	0.02
RS09932	Heathmere Recreation and Flora/Fauna Reserve	Recreation, Flora and Fauna Reserve	Gorae	5.60
RS07039	Heathmere Public Hall and Recreation Reserve	Public Hall and Recreation	Gorae	3.50
RS10070	Condah Mechanics Institute	Public Hall	Greenhills	0.19
RS14333	Condah Recreation Reserve	Public Recreation	Greenhills	4.37
RS12175	Heywood Sewerage Authority Pump Station	Public Purposes and Part Public Gardens	Heywood	0.07
RS12175	Heywood Sewerage Authority Pump Station	Public Purposes and Part Public Gardens	Heywood	0.00
RS00385	Heywood Sports Park	Public Recreation	Homerton	60.78
RS08321	Homerton Hall and Recreation Reserve	Public Hall and Recreation	Homerton	0.84
RS10075	Heywood Sewerage Authority Reserve	Sewerage Purposes	Homerton	1.35
RS02442	Hotspur Recreation Reserve	Public Recreation	Hotspur	3.85
RS02113	Hotspur Mechanic's Institute	Mechanics Institute	Hotspur	0.13
RS06674	Mumbannar Recreation Reserve	Public Hall and Recreation	Kinkella	4.10
RS02245	Merino Mechanics Institute	Mechanics Institute	Merino	0.21
RS07273	Gorae West Public Hall and Recreation Reserve Inc	Public Hall and Recreation Reserve	Mouzie	0.42
RS05011	Gorae West Public Purposes Reserve	Public Purposes	Mouzie	7.92
RS04889	Mt Richmond Recreation Reserve	Public Recreation	Mouzie	3.99
RS12667	Myamyn Public Hall	Public Hall	Myamyn	0.09
RS43084	Myamyn Sports And Showground	Sportsgrounds and Showgrounds	Myamyn	10.76
RS07287	Mt Eckersley Recreation Reserve	Public Recreation	Myamyn	2.72
RS06212	Narrawong Camping and Recreation Reserve Corporation	Camping and Recreation	Narrawong	9.35

Gazetted reserve number	Local committee of management	Purpose	Location	Area, Ha
RS06212	Narrawong Camping and Recreation Reserve Corporation	Camping and Recreation	Narrawong	8.46
RS06979	Narrawong Hall	Mechanics Institute	Narrawong	0.21
RS43107	Point Danger, Portland	Public Purposes	Portland	8.76
RS43107	Point Danger, Portland	Public Purposes	Portland	139.28
RS06026	Point Danger Committee of Management Inc	Public Recreation	Portland	42.22
RS12221	Portland Ambulance Station	Ambulance Station	Portland	0.16
RS12075	St John's Ambulance Station Portland	Ambulance Station	Portland	0.02
RS08244	Portland Sewerage Reserve	Sewerage Purposes	Portland	0.05
RS03046	Kyeema Centre For Intellectually Handicapped	Mentally Retarded Children's Centre	Portland	2.02
2014225	Kyeema/Hurd Street Housing Group	Public Purposes	Portland	0.54
RS01272	Sandford Mechanic's Institute Reserve	Mechanics Institute and Library	Sandford	0.10
RS00832	Tahara Recreation Reserve	Public Recreation	Tahara	42.55
RS08461	Tahara Hall Reserve	Recreation Convenience and Amusement of People	Tahara	0.21
RS01427	Market Reserve (Lower Cape Bridgewater)	Market	Tarragal	1.74
RS05236	Lower Cape Bridgewater Public Hall	Public Hall and Recreation Reserve	Tarragal	0.77
RS05236	Lower Cape Bridgewater Public Hall	Public Hall and Recreation Reserve	Tarragal	0.37
RS08274	Trewalla Recreation Reserve	Public Recreation	Trewalla	4.19
RS04408	Cashmore Recreation and Public Hall Res	Public Hall and Recreation	Trewalla	4.25
RS00734	Cashmore Recreation and Public Hall	Public Hall and Recreation	Trewalla	0.21
RS00734	Cashmore Recreation and Public Hall	Public Hall and Recreation	Trewalla	0.22
RS07758	Fitzroy River Public Purposes Reserve	Public Recreation	Tyrendarra	525.95
RS07758	Fitzroy River Public Purposes Reserve	Public Recreation	Tyrendarra	3.67
RS07758	Fitzroy River Public Purposes Reserve	Public Recreation	Tyrendarra	4.48
RS05268	Tyrendarra Hall and Recreation Reserve	Public Hall and Recreation	Tyrendarra	4.25
RS05269	Tyrendarra Public Hall and Rec'n Reserve	Public Hall and Recreation	Tyrendarra	0.14
RS05839	Wando Vale Hall Reserve	Public Hall Reserve	Wando	0.40
RS08047	Strathdownie Public Hall and Rec Reserve	Public Recreation	Werrikoo	2.41
RS06142	Strathdownie Hall and Recreation Reserve	Public Hall and Public Recreation	Werrikoo	0.34
		Number of committees of management =	79	1,092.72



Customer Service Centres Office Hours

Casterton 9am to 5pm
67 Henty Street, Casterton
Ph (03) 5554 2444 **Fax** (03) 5581 2216

Heywood 9am to 5pm
77 Edgar Street, Heywood
Ph (03) 5527 0666 **Fax** (03) 5527 1099

Portland 9am to 5pm
71 Cliff Street, Portland
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