

Gippsland Lakes

Coastal **TABLE OF CONTENTS**

Action Plan

EXECUTIVE SUMMARY	6
CHAIRMAN'S MESSAGE	7
THE SCOPE OF THE PLAN	8
PLAN FORMAT	9
RESPONSIBILITY FOR ACTIONS	9
SETTING	9

ACTIONS

SUSTAIN	10
1 WATER QUALITY AND QUANTITY	11
1.1 The Issues	12
1.2 Strategic Directions	15
1.3 Water Quality	15
1.4 Environmental Flows	15
1.5 Lake Salinity	15
1.6 Urban Centres	15
1.7 Boating	16
1.8 Algal Blooms	16
1.9 Recreation And Tourism	16
2 RESEARCH AND COMMUNICATION	17
2.1 The Issues	17
2.2 Strategic Directions	17
2.3 Community Involvement	17
2.4 Communication Strategies	17
2.5 Education and Dissemination of Research	18
2.6 Research And Investigation	18
PROTECT	19
3 ENVIRONMENTAL PROTECTION AND NATURAL RESOURCE MANAGEMENT	20
3.1 The Issues	21
3.2 Strategic Directions	21
3.3 Cormorants	21
3.4 Land Subsidence	21
3.5 Mosquito Control	21
3.6 Dredging	21
3.7 European Carp	22
3.8 Mineral Resource Exploration And Management	22

TABLE OF CONTENTS (CONT'D)

3.9	Urban Strategies	17
3.10	Tourism Development Strategies	17
3.11	Fishing Strategies	18
3.12	Aquaculture	18
3.13	Hunting	18
3.14	Heritage Conservation	18
3.15	Flora And Fauna Conservation	18
4	PARKS AND RESERVES	20
4.1	The Issues	20
4.2	Strategic Directions	20
4.3	General Strategies	20
	DIRECT	22
5	PLANNING SCHEME CONTROLS, ACTS AND REGULATIONS	22
5.1	The Issues	22
5.2	Strategic Directions	22
5.3	Development	23
5.4	Recreation And Tourism	23
5.5	Identification Of Significant Landscapes	23
	DEVELOP	24
6	TOURISM AND RECREATION	24
6.1	The Issues	24
6.2	Strategic Directions	24
6.3	Major Resorts And Tourism Development	24
6.4	Urban Centre Tourism	25
6.5	Recreation	25
6.6	Heritage	25
7	BOATING	26
7.1	The Issues	26
7.2	Strategic Directions	26
7.3	Jetties	26
7.4	Urban Centres	27
7.5	General	27
	IMPLEMENTATION	28
	Coastal Action Plans And The Victorian Coastal Strategy	28
	Coastal Action Plans And Victoria's Planning System	28
	Implementing The Gippsland Lakes Coastal Action Plan	29
	APPENDIX I - BIBLIOGRAPHY	30
	APPENDIX II - AGENCY ABBREVIATIONS	32

Minister's Foreword

The Gippsland Lakes are one of Victoria's most important wetlands. The Lakes system is also a major tourist attraction, recreation centre, and home for an ever expanding population.

This Gippsland Lakes Coastal Action Plan builds on the sound strategic framework established by the Victorian Coastal Strategy. It recognises the need to balance conservation with sustainable development.

The Coastal Action Plan details actions to be undertaken by a wide range of organisations, and also sets the long-term objectives for land managers in the Gippsland Lakes region, and the wider catchment. It was written after extensive community consultation, and with the support of individuals, authorities and government agencies, This is the strength of the document.

The Government of Victoria has now endorsed this Coastal Action Plan. I commend the Plan to you. The challenge before us all is to proceed with implementation as rapidly as possible, knowing that the ecology of the Gippsland Lakes is precariously balanced.

We have now the planning framework, the ability and the commitment to ensure the future of the Gippsland Lakes. Let us not waste the moment.



The Hon Marie Tehan MP
Minister for Conservation and Land Management



Executive Summary

The need for a Coastal Action Plan dealing specifically with the Gippsland Lakes was identified during a review of existing planning and management documents (Martin 1998). The two existing strategic documents for the Gippsland Lakes, the Gippsland Lakes Management Plan and the Gippsland Lakes Strategy, were both nearly ten years old and in need of revision.

The Gippsland Coastal Board commissioned the CSIRO to undertake an environmental audit of the Gippsland Lakes. The CSIRO found that, when compared to other coastal lagoon systems along the east coast of Australia, the Gippsland Lakes system was poised on the edge of significant degradation (CSIRO 1998).

The CSIRO's interim findings have guided the Gippsland Coastal Board in assessing its priority action areas.

The impact of activities in the catchment, particularly the Lake Wellington catchment, remain the most significant issue in terms of water quality, and consequential effects on fish, foreshore vegetation and benthic vegetation. Deterioration of water quality and the reduction of flows to Lake Wellington have drastically altered what once was a predominantly freshwater system. Some profound changes are required to halt what threatens to be an irreversible decline in the ecosystem.

The Gippsland Coastal Board supports a major modelling study of the hydrodynamics of the Gippsland Lakes system, to determine appropriate actions. Programs to reduce the flow of nutrients into the Gippsland Lakes, particularly from the Latrobe and Macalister River catchments, are strongly supported.

The Gippsland Lakes Coastal Action Plan recognises the increasing development pressures that will inevitably arise as the scenic and environmental values of the region become more widely appreciated. As with the Victorian Coastal Strategy, the Gippsland Lakes Coastal Action Plan seeks to provide for and direct development that respects environmental values. Actions to guide development seek consistency between municipal planning schemes, the Victorian Coastal Strategy, and those parts of the Gippsland Lakes Strategy that are still relevant.

Priority action areas have been identified during the preparation of the Gippsland Lakes Coastal Action Plan. The priorities are:

- Identifying management actions for environmental challenges that can be commenced immediately;
- Completing studies into the hydrodynamics of the entire Gippsland Lakes system;
- Promoting appropriate development by encouraging residential, tourism and recreational facilities within a planned framework; and
- Improving coordination of management, educational and information activities.

Implementation of actions identified in the Gippsland Lakes Coastal Action Plan will be coordinated and monitored by a committee made up of representatives of the major stakeholders, and convened by the Gippsland Coastal Board.

Chairman's Message

The Gippsland Coastal Board was formed in 1996. It is one of three regional boards in Victoria operating underneath the umbrella organisation, the Victorian Coastal Council. The Gippsland Coastal Board has responsibility for the coastal zone from Venus Bay in South Gippsland, to the New South Wales border, and includes the Gippsland Lakes.

The Gippsland Coastal Board has this vision for the future of the Gippsland Lakes:

The Gippsland Lakes will continue to offer an outstanding nature-based experience for present and future generations, for visitors and residents alike. The coastal environment will be maintained and enhanced, and a balanced and sustainable approach will be applied to land use and development, in recognition of the Gippsland Lakes' vital role in the regional economy.

Development around the Lakes will provide a wide range of facilities, and will be well designed and sensitively located. Recreation facilities throughout the Lakes will be concentrated in well-defined activity nodes, and will ensure that visitors and residents can enjoy the natural values of the Gippsland Lakes without threatening the natural environment.

The ecology and water quality of Lake Wellington will have been stabilised. The improved foreshore, wetland and benthic vegetation will provide habitat for flora and fauna, and will provide the ideal setting for nature-based tourism and recreation.

Individuals, groups and organisations throughout the catchment will be working together on management activities that have local and downstream environmental and economic benefits.

The Gippsland Lakes will remain an icon for the local, national and international communities.

The Gippsland Lakes are one of Gippsland's primary tourist attraction and are a popular boating, fishing, camping and swimming destination for holidaymakers. Balancing the often-competing demands of development and conservation is never an easy task. This Coastal Action Plan endeavours to provide for future commercial use, without compromising the very environment that makes the Gippsland Lakes so attractive.

In preparing the Gippsland Lakes Coastal Action Plan, the Gippsland Coastal Board undertook a thorough consultative process which incorporated major stakeholder forums, public meetings, the publication of information sheets and issues papers, and the consideration of many written submissions.

Caring for the Gippsland Lakes is a community responsibility. The plan will rely on the support of major stakeholders, user groups and residents to achieve its vision. Future generations will judge our success as custodians of this important estuarine system.

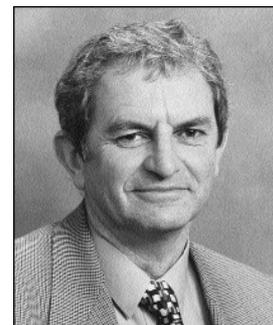
The Gippsland Lakes Coastal Action Plan applies to private and public land. It establishes a consistent approach to managing the future use, protection and development of the Gippsland Lakes system.

The Gippsland Coastal Board's role is strategic in nature. Its charter is to establish management objectives and a long-term planning and development framework, and then guide the community towards these objectives by coordinating, communicating and facilitating the actions of many different stakeholders.

The objectives and actions reflect the Gippsland Coastal Board's aim to preserve and, where possible, improve the environmental values of the Gippsland Lakes, while still providing for their enjoyment by residents and visitors to the region.



Duncan Malcolm
Chairman



The Scope of The Plan

The Gippsland Lakes Coastal Action Plan (the Plan) is the first prepared by the Gippsland Coastal Board (the Board), and accords with the Board's responsibility for strategic planning of the Gippsland Lakes and coast. Coastal Action Plans are prepared under *the Coastal Management Act 1995*. All Coastal Action Plans will reflect the objectives of *the Victorian Coastal Strategy 1997*. Coastal Action Plans will be reviewed after five years.

Under the *Coastal Management Act 1995*, all land managers, including government agencies, must take all reasonable steps to give effect to a Coastal Action Plan.

For the purpose of the Plan, the Gippsland Lakes are defined as the waters, foreshores and surrounding wetlands of Lakes Coleman, Wellington, Victoria, Reeve and King, extending eastwards to the entrance, and incorporating the North Arm and Cunninghame Arm at Lakes Entrance. It includes public and private land, including settlements on the Gippsland Lakes and estuaries under tidal influence.

In preparing the Plan, the Board has considered catchment impacts from the Latrobe, Thomson, Macalister, Avon, Perry, Mitchell, Nicholson and Tambo River systems, and Merriman Creek, in the preparation of the plan. The Coastal Action Plan also acknowledges that the two Catchment Management Authorities, East Gippsland and West Gippsland, have the lead role in addressing catchment management issues.

The Board has developed the Plan by treating the Gippsland Lakes as a complex interrelated system, with the understanding that many issues are linked through a variety of different impacts.

There are many agencies with statutory responsibilities for management of the Gippsland Lakes. The Plan provides for coordination of these agencies' activities.

The Coastal Action Plan will be complemented by other strategic planning documents for the coast, including:

- A Gippsland Regional Boating Strategy (due for completion 1999);
- A Regional Water Quality Coastal Action Plan (due for completion 1999); and
- A region-wide Coastal Action Plan identifying activity nodes and ensuring consistency of approach between planning on both public and private land (due for completion 2000).

Until the preparation of the Plan, the two principal strategic planning documents for the entire Gippsland Lakes system were the Gippsland Lakes Strategy (1990) and the Gippsland Lakes Management Plan (1991). These documents have been used extensively by municipalities and government agencies to determine land use and to guide natural resource management. The recent re-writing of all municipal planning schemes across the state provided the opportunity for Wellington Shire and East Gippsland Shire to incorporate many of the actions and strategies from those documents into the new planning schemes. The balance of actions and strategies which were not incorporated into planning schemes, and which were not obsolete or complete, have been reviewed and included in the Plan. In addition, issues that have arisen since the Gippsland Lakes Strategy and Gippsland Lakes Management Plan were written have been incorporated.

Plan Format

The Plan follows the format of the Victorian Coastal Strategy, the principal Government-endorsed strategic document for Victoria's coastline. Four action areas are identified, and, within these areas, there are seven themes:

Sustain

1. Water Quality and Quantity
2. Research and Communication

Protect

3. Environmental Protection and Natural Resource Management
4. Parks and Reserves

Direct

5. Planning Scheme Controls, Acts and Regulations

Develop

6. Tourism and Recreation
7. Boating

Responsibility for Actions

The actions listed in the following pages have, where possible, been assigned to management agencies for implementation. Where a number of agencies have been listed, coordination of the project will come through the proposed Coordinating Committee. For convenience, agencies are indicated by their usual abbreviations, a full list of which appears as Appendix 1.

Setting

The Lakes, as we know them today, are a recent phenomenon. Before the opening of the Entrance in 1889, the Lakes were a series of coastal lagoons that only opened to the sea after heavy rainfall and run-off from the major catchments. The marine influences would have been small and the system of lakes and marshes populated mainly by freshwater plant and animal species.

The level of the lakes would have fluctuated markedly after rainfall, with the level rising and inundating the freshwater marshes around the open water areas before the flow through the opening scoured out enough sand to lower the level again. Periodic inundation of freshwater marshes is important for the survival and health of these systems.

When the man-made Entrance was opened permanently, the level of the Gippsland Lakes dropped and became more constant. Marine species began to invade; the present ecosystems exhibit a marked marine influence. A period of just over one hundred years is small in relation to the time scales of many ecosystem processes; the Lakes are still changing and responding to the engineering work at the Entrance. Many of the changes that we presently see are part of that ecosystem response.

The loss of Phragmites and other shoreline vegetation has resulted in massive erosion on the Lakes and lower reaches of rivers.

Further changes in the Lakes system are still being wrought by the invasion of species such as European Carp. These fish, which increase turbidity and reduce aquatic plant populations have been introduced to the Lakes areas since the 1960s and are now having significant environmental effects in the Lakes.

Against the background of changes in the hydrology of the Lakes caused by the opening of the Entrance, other changes have taken place in the catchments. Since the advent of European settlement, forests have been cleared, and towns and sewer systems have been built.

The early development of gold mining in the catchments was a particularly important event because of the association of these activities with various forms of pollution, particularly mercury pollution. Similarly, the large-scale development of power generation plants in the Latrobe Valley has implications for the ecology of the Lakes.

Throughout the south-eastern corner of Australia, in the Southern Highlands, clearing of land for agriculture leads to gullying, erosion, and increased exports of nutrients and suspended solids. High stock densities and grazing of stock adjacent to unfenced waterways increases this affect. Consequently, in most cases, waters of rivers and marshes that were clear become more turbid. Increasing salinity and sodicity of soils resulting from agriculture leads to dispersive clays that remain in suspension, reduce the underwater light intensity and lead to the loss of aquatic plants.

Further impacts on the Lakes arise from the building of dams and extraction of water for irrigation. Floods are now less frequent, inundation of the marshes is less common, saltwater intrusions are more frequent and the vegetation is changing.

What were flourishing freshwater marshes are becoming more saline and depauperate as marine influences increase. This situation is further exacerbated by the development of saline areas in the lower Latrobe catchment resulting from deforestation, irrigation and consequent ground water rise. The Lakes ecosystems are changing in response to a whole series of human activities over the last hundred years, so continued change is inevitable. The Lakes system is not, and probably never will be, at steady state.

(This summary has been adapted from the CSIRO's Review of Water Quality and Status of the Aquatic Ecosystems of the Gippsland Lakes, 1998.)

POPULATION

The population of East Gippsland Statistical Division - consisting of the Shires of Wellington and East Gippsland - has grown at an average rate of 1.3% since 1961 (Department of Infrastructure 1997). The population grew by 22,000 people between 1961 and 1991, and is expected to grow by another 16,000 people in the next 25 years.

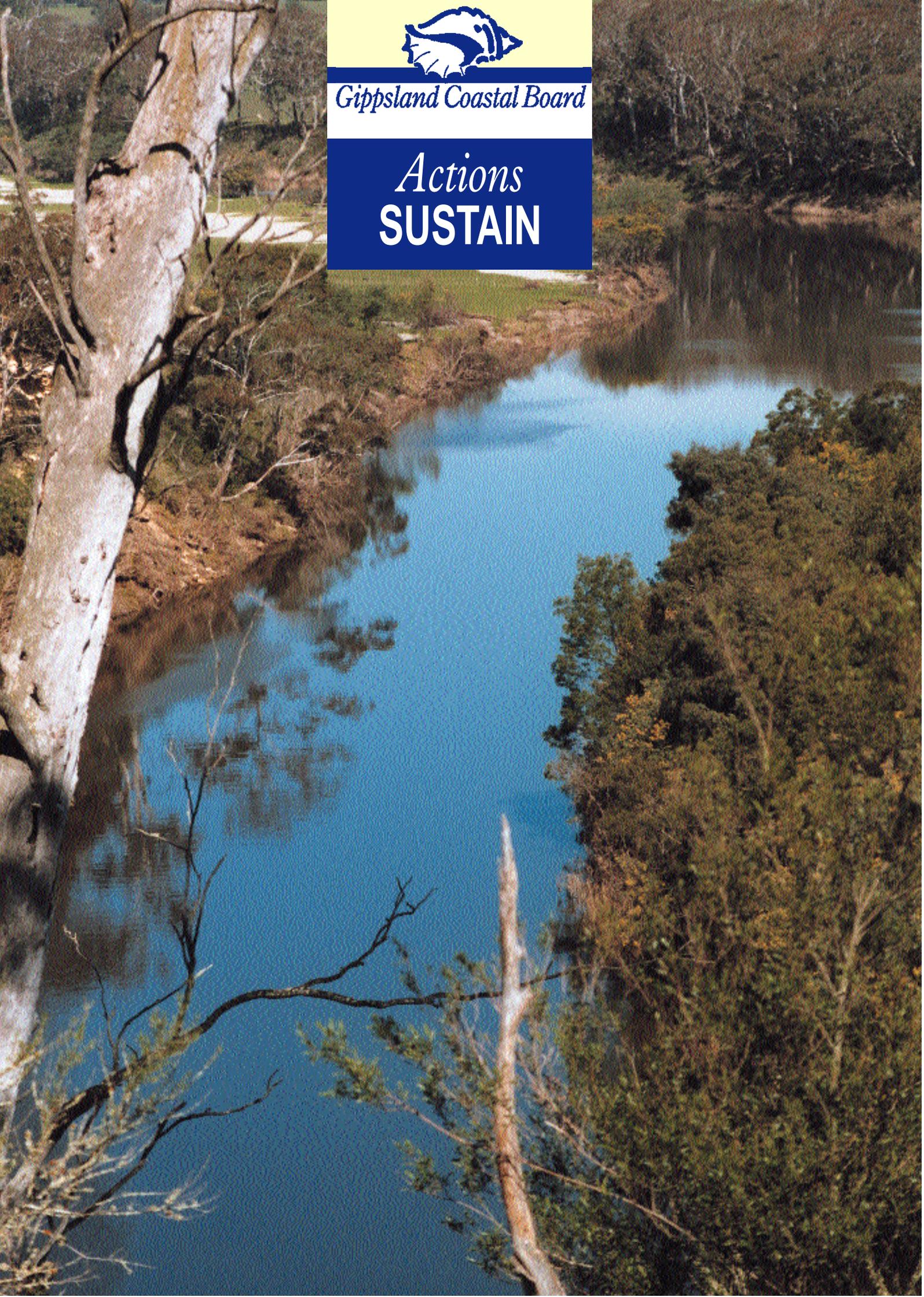
The Department of Infrastructure predicts that East Gippsland's population profile will become increasingly skewed towards older citizens, and that more and more people will live around the Gippsland Lakes. The Gippsland Lakes towns, including Bairnsdale, Paynesville, Lakes Entrance and Metung among others, will grow at a much faster rate than other small rural towns. At the same time, rural areas away from the coast and lakes will show little or no growth.

More and more emphasis is being placed on the future of the tourism and recreation industry as a mainstay of the regional economy. The success of this industry is heavily dependent on retaining the Gippsland Lakes in an ecologically healthy condition.



Gippsland Coastal Board

Actions
SUSTAIN



Objectives

- *To address processes which threaten the Gippsland Lakes environment;*
- *To improve water quality within the Gippsland Lakes and wetlands;*
- *To increase public awareness and public involvement in the protection and enhancement of the Gippsland Lakes; and*
- *To improve and restore the values of the Gippsland Lakes, and so meet Australia's obligations as a signatory to the Ramsar Convention on Wetlands.*

1 WATER QUALITY AND QUANTITY

1.1 The Issues

The catchment of the Gippsland Lakes covers 20,600 sq. km., about nine percent of Victoria's total land area.

The major river systems flowing into the Gippsland Lakes (Latrobe, Avon, Mitchell, Nicholson and Tambo) provide about 10 percent of Victoria's annual stream flow. The catchment is the only one in Victoria where such a large stream flow discharges to a major estuary system before entering Bass Strait.

Water quality within the Lakes system is mainly a function of what happens in the catchment. The rivers are the main source of freshwater for the Lakes. Combinations of historically low minimum flows and high nutrient loads create poor water quality in the Gippsland Lakes.

Nutrients from the catchment are accumulating in the Lakes system. Excessive nutrient levels sometimes lead to algal blooms and fish kills.

There is increasing evidence that the diversion and extraction of water from the rivers, especially the Thomson/Latrobe system, has had an impact on the ecology of the Gippsland Lakes in general, and Lake Wellington in particular. Every effort must be made to ameliorate these impacts, to ensure adequate environmental flows are delivered, and to assess carefully any proposal to increase extractions.

The management of water quality within the catchment is complex because of the combined effect of diverse sources of nutrient and sediment, and fluctuations in stream flow due to floods, drought and human use. The East and West Gippsland Catchment Management Authorities are the key agencies for managing watercourses, and for coordinating activities within the catchment to reduce sediment and nutrient problems.

A critical objective of water quality and quantity management must be to ensure that the Gippsland Lakes continue to provide environmental values appropriate for an internationally recognised wetland, listed under the Ramsar Convention.

Wastewater and sewage discharges to the waters are increasingly regulated, and nutrients from this source have reduced. Nutrients attached to sediments from eroding soils and riverbanks are more difficult to control, and require a whole of catchment approach.

Water quality objectives for the system must incorporate the needs of lakes, related rivers and fringing wetland. The State Environment Protection Policy (Waters of Victoria) (EPA 1988) provides for a high level of protection for natural systems as well as stream flow management and nutrient reduction. This policy emphasises the need to include broad catchment management strategies as well as more specific regulatory actions to control nutrient discharges and water usage.

The estuary also receives seawater inflows via the entrance. Salinity variations occurring throughout the system place a further burden on those ecosystems, which will inevitably be drastically altered by salinity changes. The widespread dieback of lakeshore vegetation is an example.

THE CSIRO AUDIT

The water quality, hydrology and land use of the Gippsland Lakes region of eastern Victoria has been the subject of a number of previous studies and reviews. The CSIRO have reviewed much of that information and have attempted to bring it together into a single authoritative document (CSIRO 1998).

Over the years catchment land use has changed, with the result that nutrient exports to the Lakes have increased, water quality has deteriorated and other impacts on the aquatic ecosystems of the Lakes has occurred.

Much of the scientific work on the water quality of Gippsland Lakes seems to have been done as a result of major algal bloom outbreaks, which have occurred about every ten years. Knowledge about the Gippsland Lakes has therefore advanced in a sporadic manner. In between times state agencies have carried out regular water quality monitoring.

Other work in the Lakes has been the result of monitoring of the fisheries and because of other aquatic ecosystem impacts. There is also much anecdotal information about changes in aquatic macrophyte populations, losses of fringing reed beds and *Melaleuca* swamps, increasing salinity and other effects. All this needs to be placed in a general framework so that the total impact of land use change, agricultural and urban development on the Lakes may be assessed.

About a third of the river flows and over half the nutrient load to the Lakes comes from the Latrobe River system, which enters into, and strongly affects Lake Wellington. The other major impact on Lake Wellington is saltwater intrusion through McLennans Strait.

Lake Victoria and Lake King, the lower two lakes of the system, are much more marine environments than Lake Wellington. Water quality surveys have shown that salinity increases steadily from around a salinity of 5 parts per thousand in Lake Wellington to 25-30 near the Entrance, and a salinity of 35 in Bass Strait. With saltwater incursion greater in the lower lakes, the physical structure is quite complex. Often stratification (layering effect) results in depletion of oxygen from the bottom (saltier) waters, which has a significant impact on the ecosystem.

The picture that emerges is of a series of tidally flushed, coastal embayments, which show marked interannual variability in water quality, and habitat change due to nutrient enrichment. The overall health of the Lakes ecosystem is heavily influenced by freshwater and nutrient inflows from the catchment during wet periods and there is some recovery during dry periods when the water clears and a more marine environment is restored.

The fisheries data seem to indicate that, at present the influence of habitat change and environmental factors (water temperature and salinity) is more severe than the influence of over-fishing.

Algal bloom dynamics in the Lakes are complex. Not only are the nutrient loads to the system from the catchment high enough to stimulate the growth of blooms but also there is a significant internal source of nutrients - phosphorus and ammonia from decomposition in the sediments. It appears that major blooms can be associated with the major climatic patterns, which are measured by indices such as the southern oscillation index (ENSO). Further blooms are linked to minor climatic events (calm periods following storm events).

The usual situation appears to be that nutrients in Lakes Victoria and King are depleted in surface waters as a result of algal growth and that nutrients build up in bottom waters during stratified periods. Vertical mixing will make these nutrients available for subsequent algal growth and a bloom may develop.

Reductions in the rates of nutrient release by the sediments are an important management tool and should be factored in to any nutrient management plan. Marked reduction in catchment loads should result in the control of production, decomposition and sediment nutrient fluxes.

The only long-term solution is to reduce the nutrient loads from the Latrobe system by both restoring the catchment to a more sustainable land use and reducing erosion by replacing riparian vegetation.

The importance of wetlands in reducing nutrient loads to the Gippsland Lakes should not be underestimated. The capacity of existing wetlands, and means for increasing that capacity to reduce the loads, should be investigated and acted upon. Simultaneously, it might be worthwhile to consider engineering large-scale artificial or enhanced natural wetlands at critical points within the catchment and at the river mouths to trap loads of suspended solids and nutrients before they enter the Gippsland Lakes. In addition to reducing nutrient loads, wetlands provide conservation areas of increased biodiversity.

Recent work on sampling for toxicants indicates that, with the exception of mercury (and perhaps selenium), toxicants are not a problem in the Gippsland Lakes. Levels of pesticides and PAHs (polyaromatic hydrocarbons) are, in fact, much lower than in Port Phillip Bay.

The mercury situation requires further investigation, as the evidence indicates that mercury levels in fish and sediment concentrations are approaching alarmingly high levels. Such exceedences imply a likelihood of ecosystem impacts, although it should be pointed out that the presence of high sulfide concentrations would ensure that mercury was present as insoluble mercury sulfide, which is not biologically available. The chemical form of mercury should be verified.

Future management of the Gippsland Lakes environment should be based on the results of ecosystem modelling. A three-dimensional hydrodynamic model of the Lakes needs to be constructed to examine in more detail the precise interactions of freshwater and marine inflows, tidal mixing and Entrance dynamics. The hydrodynamic model could be integrated with an ecological model to provide a synthesis of scientific understanding of the ecosystem.

An integrated model could be used to predict the impacts of management decisions regarding the Lakes, through modelling various nutrient load scenarios. The scenarios could be related to flow control, catchment practices, farm management, urban development, sewerage systems, and the control of boating and fishing activities.

The model could also provide the basis for measuring improvements in the system. The actual results from future water quality monitoring programs and other monitoring programs could be compared with results predicted by the model.

Overall, there is a need for the establishment of management plans accompanied by effective performance monitoring. There is a need to be able to determine what the trends are, how well catchment actions are performing and how much progress has been achieved. In a system which shows strong variation this will not be easy, but it can, and should, be done.

Recent research at Ellinbank Dairy Research Institute indicates that, while revegetation of stream banks and the adoption of buffer zones will have a significant impact on sedimentation and erosion, these actions will be less effective in reducing the amount of soluble phosphorus coming from agricultural lands. The need to continue to implement nutrient reduction programs for irrigated and dryland agriculture is therefore critical.

In addition to the major catchment activities that are causing water quality problems, there are a number of smaller issues around the Gippsland Lakes themselves that require attention. While these may not be major nutrient or sediment sources in terms of total loads, the local impacts - on health, amenity or the environment - are often significant.

(This summary has been adapted from the CSIRO Review of Water Quality and Status of the Aquatic Ecosystems of the Gippsland Lakes, 1998)

1.2 Strategic Directions

- 1.2.1 Initiate catchment management actions with the aim of reducing nutrient loads into the Gippsland Lakes by 50% over the next twenty years (*CMA's, NRE, local government, urban and rural water authorities*)
- 1.2.2 Undertake comprehensive modelling of the Gippsland Lakes system to determine appropriate remediation strategies for water quality deterioration, increased salinity levels in Lake Wellington, and the effects of dredging and the Entrance (*GCB, GP*)
- 1.2.3 Establish a comprehensive water quality monitoring program for the Gippsland Lakes and streams leading to the Gippsland Lakes, as part of a region-wide network and publish the results on a regular basis (*GCB, WGCMA, EGCMA, NRE*)

SPECIFIC ACTIONS

1.3 Water Quality

- 1.3.1 Implement the Macalister Irrigation District Nutrient Reduction Plan (*SRW, WGCMA, NRE*)
- 1.3.2 Investigate and implement management actions to reduce soluble phosphorus losses from agricultural enterprises (*NRE, CMA's*)
- 1.3.3 Establish sediment monitoring programs for the Lakes, and instigate research on sediment nutrient fluxes (*NRE, EPA*)
- 1.3.4 Develop contingency plans to respond to sudden or significant changes detected in water quality (*CMA's, GCB, EPA*)
- 1.3.5 Undertake a comprehensive analysis of long term trends in water quality to determine the rate of degradation in the Gippsland Lakes (*EPA*)
- 1.3.6 Assess the impact of wastewater disposal from the Golden Beach area into Lake Reeve (*WSC, GW*)
- 1.3.7 Implement water quality management strategies and investigations as proposed in the Lakes National Park and Gippsland Lakes Coastal Park draft Management Plan (*PV*)

1.4 Environmental Flows

- 1.4.1 Recognise environmental flow entitlements for rivers entering the Gippsland Lakes in the bulk entitlement process, and in legal agreements allocating water rights (*SRW*)
- 1.4.2 Investigate and formalise environmental water allocations for Dowds, Sale Common, Heart and Clydebank morasses (*NRE, SRW*)
- 1.4.3 Base the determination of environmental flows for the lower Latrobe, Avon, Mitchell, Tambo and Nicholson Rivers on the cumulative impact of reduced flows on the Gippsland Lakes (*SRW, NRE*)
- 1.4.4 Ensure that any future regulation or extraction of water from the river systems of the Gippsland Lakes catchment is preceded by an impact study which quantifies all social, economic and environmental costs and benefits (*SRW*)
- 1.4.5 Deliver environmental flows for the Gippsland Lakes and fringing wetlands that satisfy the intent of the allocation (*SRW*)

1.5 Lake Salinity

- 1.5.1 Undertake a study on the impact of salt water inflows into the Lake Wellington environment, and investigate the feasibility and constructing a restrictive barrier to stop salt water penetration (*GCB*)

1.6 Urban Centres

- 1.6.1 Following confirmation of the need (on environmental and health grounds), identify and install appropriate sewerage and water supply systems for unsewered settlements, with priority for Loch Sport, Seaspray and Banksia Peninsula (*GW, EGW*)

1.6.2 Implement management actions to minimise sediments from streets and drains at coastal settlements, with priority for Eastern Creek (Lakes Entrance) and Tambo Bluff (*EGSC*)

1.6.3 Implement the findings of the Macleods Morass Catchment and Waste Management Working Party (*PV, EGW, NRE, EGSC*)

1.7 Boating

1.7.1 Complete installation of Stage 2 boat sewage pump out facilities and portable toilet disposal points at Bunga Arm, Holland's Landing, Duck Arm, Metung Yacht Club and Nicholson (*GCB, NRE*)

1.7.2 Promulgate regulations that require the fitting of portable tanks or holding tanks to all boats requiring toilet facilities after a one-year education campaign (commencing when installation of Stage 2 facilities is complete) (*EPA*)

1.8 Algal Blooms

1.8.1 Continue long term hydrodynamic, chemistry and algal bloom studies (*EPA, NRE, Universities*)

1.8.2 Continue community education on the cause, effect and management of algal blooms (*GCB, EPA, NRE*)

1.8.3 Continue comprehensive public information programs during algal bloom outbreaks to minimise public health risks and to minimise restrictions on recreational activities (*NRE, GCB, EPA*)

1.8.4 Review and update the Gippsland Lakes Blue-green Algae Emergency Response Plan annually, and act as lead agency for the Plan. (*NRE*)

1.9 Recreation And Tourism

1.9.1 Replace pit toilets with composting toilets, and ensure all new facilities are composting units (*PV, NRE*)

1.9.2 Evaluate and implement the North Arm Foreshore and Estuary Plan (*EGSC, NRE*)

2 RESEARCH AND COMMUNICATION

2.1 The Issues

The Board has a charter to sustain, protect, direct and provide for the development of the Gippsland Lakes, and to coordinate policy affecting the Lakes. Policies for research, education and dissemination of information are part of this charter.

There are many agencies and organisations that have a role in communication. The East Gippsland Catchment Management Authority and West Gippsland Catchment Management Authority are the key organisations for communicating the objectives and activities of catchment activities, and the Department of Natural Resources and Environment, Parks Victoria and the Environment Protection Authority all have vital roles informing the public. All agencies must be actively involved in sponsoring community involvement in implementation of actions, by facilitating establishment of appropriate community-based group structures. Community groups must be encouraged to undertake projects in priority areas.

The provision of accurate information about the Gippsland Lakes is a positive step towards making visitors and residents aware of the impacts of human use on the Lakes.

Education for agencies involved in service provision in or around the Gippsland Lakes is a valuable way of improving environmental work practices in sensitive areas.

Agencies can sometimes work in isolation of each other. The role of the Plan is to establish communication channels, and ensure all groups are working towards common aims.

Research is the key element to understanding the complex nature of the Gippsland Lakes. The recent CSIRO Environmental Audit (CSIRO 1998) highlighted the need to undertake further research so as to enable informed management decisions regarding the Gippsland Lakes.

Publicising progress in implementation of the Plan will be a powerful communication tool. All agencies represented on the Implementation Committee will be able to contribute.

2.2 Strategic Directions

- 2.2.1 Promote the role of the catchment in the health of the Gippsland Lakes (*GCB, EGCMA, WGCMA, NRE*)

SPECIFIC ACTIONS

2.3 Community Involvement

- 2.3.1 Promote participatory activities in nature conservation, in order to create a more informed and active public (*GCB, NRE, EGSC, WSC, BBSC, LSC*)
- 2.3.2 Continue and expand summer nature interpretation programs (*NRE, PV*)
- 2.3.3 Promote waste avoidance, reuse, recycling, cleaner production and litter reduction throughout the catchment, emphasising impacts on the Gippsland Lakes (*EPA*)
- 2.3.4 Promote the importance of native vegetation for landscape and conservation values, particularly in urban areas and on roadsides (*CMAs, NRE, PV, WSC, EGSC*)

2.4 Communication Strategies

- 2.4.1 Publicise the availability of grants for the study of system processes in ecologically significant lakes (*NRE, GCB, DOI, EGSC, WSC*)
- 2.4.2 Continue public awareness campaigns relating to fuel reduction, mosquito control, environmental principles and domestic animals (*NRE, EGSC, WSC*)
- 2.4.3 Publicise listings of sites of biological significance in the Gippsland Lakes, and advise the community on means of protection and management (*NRE, EGSC, WSC*)

- 2.4.4 Undertake awareness campaigns regarding threatened species that are dependent on the lakes system (*NRE, PV, GCB, EGSC, WSC*)
- 2.4.5 Undertake education programs to inform the public about actions in progress to manage processes that are threatening the lakes system (*CMAs, NRE, PV, GCB*)
- 2.4.6 Promote the coordination of educational and research activities between service agencies in the Gippsland Lakes (*ALL AGENCIES*)

2.5 Education and Dissemination of Research

- 2.5.1 Promote environmental education programs at all schooling levels, and encourage institutes to develop programs on the Gippsland lakes and environment (*GCB, NRE, PV*)
- 2.5.2 Conduct public education programs on the importance of fish habitat protection, and threatening processes (*NRE, GCB,*)
- 2.5.3 Investigate and disseminate information on the affect of native title on leasing and licensing of public land, foreshore and waterway areas around the Gippsland Lakes (*NRE, EGSC, WSC*)
- 2.5.4 Maintain, expand and improve reference material for the public on the Gippsland Lakes and its environment (*GCB, TAFE Colleges, Universities, public libraries*)
- 2.5.5 Provide resource management agencies with education support for issues related to the Gippsland Lakes (*GCB*)
- 2.5.6 Develop a communication strategy which promotes the activities of coastal indigenous communities, as well as establishing protocols for improved consultation and involvement with those communities (*AAV, GCB, EGSC, WSC*)
- 2.5.7 Develop environmental education centres at Lakes Entrance and Sale (display and active learning facilities), and develop environmental interpretive centre (display-based) in Lakes Entrance and Bairnsdale (*VEDA, GD, GCB, NRE, WSC*)
- 2.5.8 Develop interpretation material and facilities for sites of natural and heritage significance (*NRE, AAV, EGSC, WSC, PV*)
- 2.5.9 Provide prospective purchasers of land adjacent to National Parks and Crown Reserves with educational material on the implications and responsibilities of such ownership (*NRE, PV, EGSC, WSC*)
- 2.5.10 Improve instructional and educational signage at jetties and foreshore to inform public about facilities (*EGSC, GP, PV, NRE, WSC*)
- 2.5.11 Promote and display instructions on the use and location of boat sewerage pump-out facilities (*NRE, GCB*)
- 2.5.12 Develop and distribute educational literature for boat hirers, including information on navigation rules and anchoring locations (*GP*)
- 2.5.13 Review and improve the content of tourism and recreation literature about the Gippsland Lakes and environment (*GCB, L&WT, TV, PV*)

2.6 Research And Investigation

- 2.6.1 Update and periodically assess information on the effects of climate change on the Gippsland Lakes and catchment (*GCB, EGSC, WSC, NRE*)
- 2.6.2 Encourage research on coastal and Lakes issues and the dissemination of knowledge through seminars, conventions, published papers and community forums (*GCB, NRE, PV, educational institutions*)
- 2.6.3 Continually update and publicise agency roles and relationships (*CMAs, GCB*)
- 2.6.4 Encourage a suitable advisory system for all reserve areas, including consultative mechanisms (*CMAs, GCB, NRE, PV*)
- 2.6.5 Encourage local management of reserves (*GCB, NRE, PV*)
- 2.6.6 Encourage local government to assume an active role in management, including remedial and improvement works, and assistance to community groups (*CMAs, GCB, NRE*)
- 2.6.7 Undertake research into the existing distribution of benthic habitat, and determine the value of the habitat for other purposes such as fish recruitment (*NRE*)
- 2.6.8 Undertake environmental audits of the Gippsland Lakes each time the Plan is reviewed (*GCB, NRE, EPA, DOI, EGSC, WSC*)



Gippsland Coastal Board

Actions
PROTECT



Objectives

- To protect sites and areas of natural, cultural, historic, visual and built significance; and
- To enhance the system of parks and reserves around the Gippsland Lakes

3 ENVIRONMENTAL PROTECTION AND NATURAL RESOURCE MANAGEMENT

3.1 The Issues

The Gippsland Lakes are listed as wetlands of international importance under the Ramsar Convention. The Gippsland Lakes are also listed in both the Japan Australia Migratory Bird Agreement (JAMBA) and China Australia Migratory Bird Agreement (CAMBA). These listings underpin the objectives of this Coastal Action Plan in seeking to maintain an environment worthy of international recognition. The Commonwealth Government's Wetland's Policy, which supports Ramsar objectives, has as its goal "to conserve, repair and manage wetlands wisely" (World Conservation Union 1971).

Introduced fauna such as foxes and carp compete with native species, some of which are rare or endangered. Scarce remnants of plant communities, such as rainforest, freshwater wetlands and seagrass beds, may be threatened by human activity.

The water areas are also sensitive to changes in salinity, nutrients, removal of lakebed vegetation for the development of structures, and to waste inputs from boats, neighbouring settlements and foreshore activities. Loss of benthic and fringe vegetation has resulted in significant erosion of the shoreline, and riverbanks and deltas. In combination, these changes can trigger algal blooms, which cause further pressure on fisheries, tourism and boating activities.

Recent research by the Marine and Freshwater Resources Institute (1998) has supported the CSIRO's findings that environmental and habitat factors are the most significant influences on native fish stocks. While sharing of the fishery (i.e. fish over the legal minimum limit) is a contentious and important issue, the role of this Coastal Action Plan is to ensure that the programs to address the environmental factors that are critical to the species as a whole are implemented.

The CSIRO (1998) has identified high mercury levels in sediments as a cause for concern. As yet, mercury levels in fish are well below levels that would cause health concerns, but further research is needed.

Hunting of wild fowl and deer is an important recreational activity on wetlands and land surrounding the Gippsland Lakes. Management of these hunting resources to ensure sustainable populations will benefit from both habitat management and hunter regulation.

Vegetation cover of the coastal landscape is important for visual appreciation and natural habitat. Vegetation management by fuel reduction burning or for ecological purposes is an important task. Planning controls to retain native vegetation on private land is another element in vegetation conservation.

Much of the original vegetation has been removed on the northern shores of the Lakes. The "creeping backyard" problem has also added exotic vegetation and other pressures to foreshore areas of public land, especially near major centres. Many of the actions listed in this section support Victoria's Biodiversity Strategy, and relevant Native Vegetation Retention planning provisions in Municipal Planning Schemes.

The potential for Municipal Planning Schemes to protect natural and built forms is considerable. Municipalities have the opportunity to apply appropriate policies, zones and overlays to sensitive areas, and will be encouraged to do so.

Significant Aboriginal and post-European settlement sites around the Gippsland Lakes require identification and conservation.

Most of the public land areas around the Lakes are reserved for parks and conservation purposes, but significant areas of natural habitat are in private ownership. While a co-operative approach to the management of native vegetation, wetlands and rainforest on private land is the best approach, native vegetation retention controls may ultimately be necessary.

The Land Conservation Council (1983) has recommended that large parts of the Lake Wellington foreshore should be managed primarily for wildlife habitat conservation, while the other lakes have a stronger recreational focus. This management concept is the basis for the land and water zoning recommended in this Coastal Action Plan.

3.2 Strategic Directions

- 3.2.1 Formulate and implement a catchment-wide streamside revegetation strategy (CMAs,)
- 3.2.2 Investigate the feasibility of lake-edge revegetation with aquatic species (eg. phragmites), and undertake trials (PV, NRE)
- 3.2.3 Develop a lake-edge revegetation plan following trials (PV, NRE)
- 3.2.4 Manage Lake Wellington and its southern shores as a remote natural area, with facilities appropriate for these values (low impact and low density facilities, limited access, emphasis on conserving natural characteristics) (NRE, PV, WSC)
- 3.2.5 Ensure that any effects on fish stocks and other natural resources are adequately addressed prior to approval of major developments such as dam construction or a new entrance configuration (SRW, GP, NRE)
- 3.2.6 Manage any reduction of the Gippsland Lakes commercial fishery so as to minimise personal and economic impacts on the regional community (NRE)

SPECIFIC ACTIONS

3.3 Cormorants

- 3.3.1 Continue investigations into the extent of cormorant predation on Gippsland Lakes fisheries, along with an investigation into the links between European Carp and cormorant numbers. (NRE)

3.4 Land Subsidence

- 3.4.1 Promote informed debate in the wider community on the likely impacts on the Gippsland Lakes of land subsidence resulting from fluid and groundwater extraction from the Latrobe Aquifers (GCB)
- 3.4.2 Investigate and implement appropriate actions to avoid, halt or reverse land subsidence (GCB, NRE)

3.5 Mosquito Control

- 3.5.1 Manage mosquito populations in accordance with agency and municipalities' policies without jeopardising natural systems (NRE, EGSC, WSC)

3.6 Dredging

- 3.6.1 Continue investigations as to whether changes in the entrance channel configuration have altered water exchange between the estuary and ocean in recent years (GP)
- 3.6.2 Improve dredging and spoil disposal, with preference for dredging practices which return spoil to the ocean (GP, NRE)
- 3.6.3 Consult with environmental and community groups when establishing dredge spoil disposal programs (GP, NRE)

- 3.6.4 Review the Trial Dredge Protocol and seek finalisation (*NRE, GP*)
- 3.7 European Carp**
- 3.7.1 Develop a Carp Management Plan for the region, in line with National Carp Management Guidelines currently being produced. (*East Gippsland TAFE, NRE*)
- 3.7.2 Implement a carp industry strategy which avoids the perpetuation of a Carp harvesting industry (*NRE*)
- 3.8 Mineral Resource Exploration And Management**
- 3.8.1 Continue to implement guidelines to reduce the environmental effects of exploration, pipeline construction, infrastructure malfunctions and earth movements associated with mineral extraction (*NRE, EGSC, WSC, EPA*)
- 3.9 Urban Strategies**
- 3.9.1 General**
- 3.9.1.1 Support the ongoing programs by Local Government and the Department of Natural Resources and Environment directed at the problem of "creeping backyards" encroaching on to public foreshore and coastal areas (*NRE, EGSC, WSC*)
- 3.9.1.2 Ensure that private development does not restrict access to public foreshore, or detracts from significant landscape values both to and from the Gippsland Lakes (*EGSC, WSC, NRE,*)
- 3.9.1.3 Implement and enforce planning controls preserving identified valuable vegetation on all Gippsland Lakes foreshores and escarpments, particularly North Arm and Lake Bunga (*EGSC, WSC*)
- 3.9.1.4 Enforce existing penalties for foreshore misuse, and investigate need to increase penalties (*NRE, EGSC, WSC, COMs*)
- 3.9.1.5 Limit coastal reclamation and drainage works to identified activity nodes, and subject any proposed works inside activity nodes to environmental assessment (*NRE, WSC, EGSC*)
- 3.9.2 Loch Sport**
- 3.9.2.1 Develop and implement management strategies for foreshore erosion at Loch Sport (*COM, NRE*)
- 3.9.3 Raymond Island**
- 3.9.3.1 Use appropriate planning overlays to retain bushland character and vegetation (*EGSC*)
- 3.9.3.2 Investigate and review issues of koala population management on Raymond Island (*NRE*)
- 3.9.3.3 Proclaim Crown land as part of the Gippsland Lakes Reserve on Raymond Island as required to conserve and enhance wildlife habitat (*NRE*)
- 3.9.4 Newlands Arm**
- 3.9.4.1 Retain low density development to protect landscape and conservation values on both public and private land (*EGSC*)
- 3.9.5 Seaspray**
- 3.9.5.1 Prepare a concept plan for Seaspray, including:
- * sites for urban extension and commercial development;
 - * integration of the central and northern sections;
 - * balancing recreation and wetland values;
 - * provision of a suitable sewerage system and
 - * development controls on flood prone areas (*WSC, NRE*).
- 3.10 Tourism Development Strategies**
- 3.10.1 Prevent commercial development, which is not coastal dependent, from locating on shoreline sites (*EGSC, WSC, NRE*)
- 3.10.2 Recognise the value of designated wetlands and reserves as a recreation resource for hunting as well as nature conservation, recognising the impact on adjacent areas (*PV, NRE*)

- 3.10.3 Develop appropriate environmental and design development guidelines for tourist development in planning schemes (*DOI, GCB, EGSC, WSC*)
- 3.10.4 Support the principle of user pays for camping and moorings on the basis of revenue being used to maintain these facilities (*PV, GP, NRE, WSC, EGSC*)
- 3.11 Fishing Strategies**
- 3.11.1 Implement recommendations from the Gippsland Lakes Fisheries Management Plan or alternative management strategies endorsed by Government (*NRE*)
- 3.11.2 Improve the drafting of fishing regulations to allow increased community understanding of the intent and mechanisms of the regulations (*NRE*)
- 3.11.3 Monitor catch and effort from both commercial and recreational fishers, as a means of measuring sustainability, and adjust limits to reflect stock viability (*NRE*)
- 3.11.4 Investigate and overcome artificial impediments to fish movement in rivers (*NRE, CMAs*)
- 3.11.5 Continue research on fish yields and catch impacts (*NRE*)
- 3.11.6 Manage the impact of bank fishing (vegetation destruction, erosion, litter, fires) (*NRE, CMAs*)
- 3.11.7 Identify and protect fish spawning sites (*NRE,*)
- 3.11.8 Identify fish breeding areas, and use as a guide to sensitive sites when dredging is proposed (*NRE*)
- 3.11.9 Undertake additional research into mercury sources, sinks and cycling, and investigate interactions between mercury and selenium toxicity (*MAFRI, NRE, EPA*)
- 3.12 Aquaculture**
- 3.12.1 Encourage sustainable and environmentally sensitive aquaculture by implementing the Victorian Aquaculture Strategy (*NRE*)
- 3.12.2 Investigate aquaculture proposals in the context of environmental considerations for the Gippsland Lakes system as a whole (*NRE, EGSC, WSC*)
- 3.12.3 Establish criteria for the location of aquaculture and native fish hatcheries in the Gippsland Lakes region (*NRE*)
- 3.12.4 Encourage the transition of commercial open water fisheries to aquaculture and hatchery ventures in the Lakes, provided appropriate environmental safeguards are put in place (*NRE, GCB*)
- 3.13 Hunting**
- 3.13.1 Continue management planning for hunting on approved wetlands, including strategies for managing impacts on adjoining non-hunting zones (*NRE, PV*)
- 3.13.2 Continue management planning for hog deer hunting, including strategies for managing impacts on adjoining non-hunting zones (*NRE*)
- 3.13.3 Encourage the active participation of hunting groups in the management of game and game habitats (*NRE, PV*)
- 3.14 Heritage Conservation**
- 3.14.1 Consult with AAV regarding need for impact assessments before any ground-breaking activities (*All agencies*)
- 3.14.2 Protect and promote Aboriginal cultural heritage within the wider community, following preparation of an Aboriginal Heritage Plan (*AAV, PV, NRE, EGSC, WSC*)
- 3.14.3 Recognise and preserve significant post-European sites around the Gippsland Lakes (*EGSC, PV, WSC, NRE*)
- 3.15 Flora And Fauna Conservation**
- 3.15.1 Support the purchase or covenanting of significant wetlands and other native vegetation on private land (*CMAs, TFN*)
- 3.15.2 Ensure the Environmental Effects Act is used for significant development proposals that fall outside municipal guidelines or criteria established in Section 6.3.2 (*EGSC, WSC, CMAs, DOI*)
- 3.15.3 Protect the Latrobe River delta, other deltas and foreshore areas generally, from threatening processes such as grazing, by a program of fencing or other management strategies (*WGCMA, NRE, PV*)

- 3.15.4 Encourage community groups to undertake projects in priority areas (*CMA, GCB, NRE*)
- 3.15.5 Protect remnant indigenous vegetation on private land, and support revegetation, through planning controls and incentives such as rebates, grants and other assistance (*CMA, NRE, EGSC, WSC*)
- 3.15.6 Undertake feral predator control programs in priority areas in accordance with threatened species and park management plans, and encourage responsible pet ownership (*CMA, NRE, EGSC, WSC*)
- 3.15.7 Establish programs to increase the public's understanding of, and need for, protection and monitoring of vulnerable habitats, including wetlands, seagrass and salt marsh (*CMA, NRE*)
- 3.15.8 Complete integrated management planning for Ramsar wetlands, and ensure protection is provided (*CMA, NRE, PV*)
- 3.15.9 Continue development of wetlands management plans (*NRE*)
- 3.15.10 Establish a biological monitoring network for the waters of the Gippsland Lakes (*EPA, NRE, PV*)
- 3.15.11 Implement threatened species management programs that are relevant to the Gippsland Lakes, focusing on control of threatening processes (*NRE, PV*)
- 3.15.12 Encourage local government and government authorities to support weed control programs on public and private land (*NRE, PV, Catchment Management Authorities, municipalities*)

4 PARKS AND RESERVES

4.1 The Issues

The parks and reserves of the Lakes system attract about 200,000 visits per year including day-trippers, campers, hunters and recreational boating groups. About half the shoreline of the Lakes system is in parks and reserves, covering an area of about 20,000 ha on the southern shores and about 11,000 ha on the northern shores.

Some reserves (such as wildlife reserves) are left undeveloped. National Parks, Coastal Parks and reserves contain about 300 campsites, 150 day-visitor areas and more than 60 toilet blocks, are generally well sign-posted, and have good access.

The value of the parks and reserves as natural tourism attractions is significant, but they have a primary conservation function, which needs to be balanced with increased visitor use and development. While there may be some uncertainty over where this balance lies, the State Government supports environmentally sustainable development on public land.

Many areas recommended by the Land Conservation Council (1983) for reservation have not yet been proclaimed, although the areas are managed in accordance with the LCC recommendations. Proclamation as reserves will assure the appropriate management, and allow certainty in long-term planning by the land managers.

Park management objectives may conflict with those of adjoining private owners, complicating management. Planning restrictions may apply to adjoining private land, especially if the land is within the park area ("inholding"). Policy is well defined by park management plans, some of which have been recently prepared for the major parks and reserves in the Lakes system.

The new municipal planning schemes include Crown land in various zones. Municipalities, Parks Victoria and the Department of Natural Resources and Environment have key roles in establishing appropriate planning links between public and private land.

There are pressures from rural and residential development, from increased visitor use and from natural forces such as sea level rise or fire.

Opportunities for bush camping areas need to be increased.

The need for a balance between tourism and conservation should be widely communicated to the general public. It is also important that Aboriginal cultural heritage is protected, not only with in parks and reserves, but on private land as well.

Management and policy formulation for public land has to occur at both the management plan level and within local government planning schemes, and must be consistent with, and complementary, to private land planning. The review of coastal Crown land management undertaken by the Victorian Coastal Council has established criteria for management structures, and the most appropriate arrangements will be put in place for the Gippsland Lakes, to ensure consistency of management actions and objectives.

4.2 Strategic Directions

- 4.2.1 Implement the recommendations of the Coastal Crown Land Management Review, maximising opportunities for community involvement (*NRE, GCB*)
- 4.2.2 Review and implement the reservations of land recommended by the Land Conservation Council's Gippsland Lakes Hinterland Study (1983), including implementation of the Gippsland Lakes Reserve (*ECC, NRE*)

SPECIFIC ACTIONS

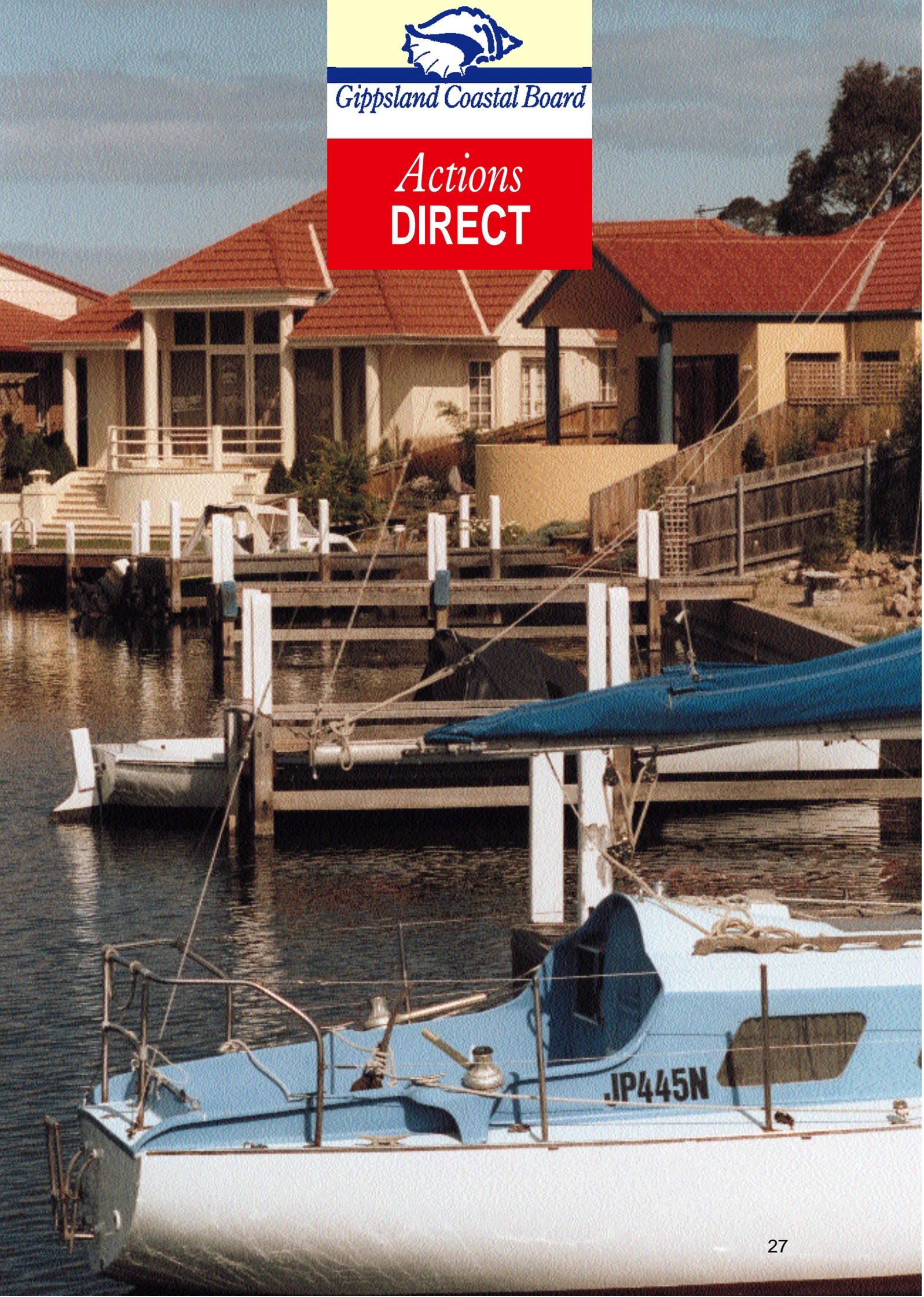
4.3 General Strategies

- 4.3.1 Improve coordination and enforcement of regulations in reserves and river frontages, by increased patrol presence, the use of increased on the spot fines for illegal activities and improved signage (*NRE, EGSC, WSC, CMAs*)
- 4.3.2 Improve river frontage access at appropriate points (*NRE, EGSC, WSC, CMAs*)
- 4.3.3 Acquire Flanagan Island for incorporation in the Gippsland Lakes Coastal Park or Gippsland Lakes Reserve (*NRE*)
- 4.3.4 Prepare management plans for Crown Reserves at Lake Bunga, Lakes Entrance (Entrance to Eastern Beach), Nungurner, Metung, Tambo, Nicholson, Eagle Point, Paynesville, Raymond Island and Marlay Point (*NRE, EGSC, WSC*)
- 4.3.5 Develop a concept plan for McLennan Straits and surrounding foreshore (*NRE, WSC, PV*)
- 4.3.6 Establish strong strategic and open planning linkages between parks and reserves and adjoining private land (*EGSC, WSC, GCB, PV*)
- 4.3.7 Retain funds generated in the Gippsland Lakes parks and reserve system for maintenance funding within that system (*NRE, PV, COM*)
- 4.3.8 Determine visitor service standards across the Gippsland Lakes and review existing and proposed facilities against those standards (*PV*)
- 4.3.9 Communicate the need for balance between tourism and conservation within park areas (*GCB, TV, PV*)
- 4.3.10 Identify and encourage appropriate recreational, eco-tourism and economic opportunities for parks and reserves (*L&WT, PV*)
- 4.3.11 Increase opportunities for bush camping areas in appropriate locations around the Lakes (*TV, PV*)
- 4.3.12 Increase enforcement of regulations in National Parks (*PV*)
- 4.3.13 Prepare (or update if required) management plans for park and reserve management areas (*All agencies*)
- 4.3.14 Revise Loch Sport Foreshore Management Plan following completion of the Coastal Processes Study (*NRE, COM*)
- 4.3.15 Develop a prioritised register of land to be incorporated into Gippsland Lakes Reserve (*PV, NRE, GCB*)
- 4.3.16 Evaluate Rigby Island as a possible addition to the Gippsland Lakes Coastal Park (*PV, NRE*)



Gippsland Coastal Board

Actions
DIRECT



Objectives

- * To coordinate municipal, departmental, catchment management and economic planning processes, to ensure good planning outcomes for the Gippsland Lakes; and
- * To provide a framework for the guidance of future development that reflects the strategic direction of the Victorian Coastal Strategy.

5 PLANNING SCHEME CONTROLS, ACTS AND REGULATIONS

5.1 The Issues

The Board is required to encourage and facilitate environmentally sensitive development around the Gippsland Lakes.

The East Gippsland and Wellington Shire Planning Schemes govern private land use and development in the region, and also affect public land development. Acts relating to Crown land, national parks and reserves control public land usage. It is important these instruments are consistent. The Plan will ensure that the relevant planning instruments are consistent both with each other, and with the Victorian Coastal Strategy.

The Environmental Audit (CSIRO 1998) identifies the need to reduce nutrients entering the Gippsland Lakes from the catchment by 50% as the most important action necessary to improve the environmental condition of the Lakes. The Gippsland Lakes catchment includes rivers, streams and floodplains in East Gippsland, Wellington, La Trobe and Baw Baw Shires. Appropriate land use practices are needed to protect these catchments in order to reduce nutrients flowing into the Lakes; municipal planning schemes can enable these practices to occur.

Geo-climatic effects should be anticipated. Land managers should plan for the impact of climate change on the Gippsland Lakes using the most recent data and predictions. A potentially more critical issue is the possible impact of land subsidence due to fluid extraction from the Latrobe aquifer group; until further research and investigation models the possible impacts better, planning for the Gippsland Lakes and coastal region should be conservative.

The Victorian Coastal Strategy assigns responsibility for the identification of additional activity nodes to Regional Coastal Boards. Activity nodes are defined in the Victorian Coastal Strategy as intensive development areas with identified strategic priorities for improved facilities, or areas that need detailed planning to direct use and future development to suitable locations.

5.2 Strategic Directions

- 5.2.1 Take an adaptive and conservative approach when considering development which may be affected by future climate change or land subsidence (*DOI, WSC, EGSC, NRE*)
- 5.2.2 Identify activity nodes and coastal settlements, to encourage development in suitable locations (*GCB, EGSC, WSC, DOI*)
- 5.2.3 Actively discourage ribbon development by containing activity within defined nodes (*EGSC, WSC*)
- 5.2.4 Review, complete and implement consolidation plans for old and inappropriate subdivisions (*EGSC, WSC*)
- 5.2.5 Review and refine Municipal Planning Schemes to ensure adequate controls for the protection of significant environmental assets and sites in the Gippsland Lakes region (*GCB, DOI, WSC, EGSC*)

SPECIFIC ACTIONS

5.3 Development

- 5.3.1 Prohibit inappropriate development on the islands or outer barrier of the Gippsland Lakes system (*EGSC, WSC*)
- 5.3.2 Develop an overall public open space strategy, including guidelines for the linkages between private and public land set aside for open spaces (*EGSC, WSC*)
- 5.3.3 Investigate and implement appropriate planning controls for developments in and on the waters of the Gippsland Lakes (*GP, DOI, EGSC, WSC*)
- 5.3.4 Undertake township urban design programs (*EGSC, WSC*)
- 5.3.5 Ensure Municipal Planning Schemes include provisions to protect the important geomorphological features of the Gippsland Lakes (*EGSC, WSC, PV, NRE*)
- 5.3.6 Establish mechanisms to ensure appropriate authorities are consulted when considering development near lake edge, including the ability to:
 - * Negotiate increases in public foreshore widths;
 - * Prevent privatisation of public foreshores;
 - * Remove unauthorised structures on public land;
 - * Discourage and take legal action as required to discourage damage to public foreshore vegetation;
 - * Protect important cultural sites;
 - * Phase out grazing on public foreshores; and
 - * Take action as necessary to prevent damage to public foreshore vegetation (*EGSC, WSC, NRE, PV*).
- 5.3.7 Monitor the implementation of new Municipal Planning Schemes in Wellington, East Gippsland, La Trobe and Baw Baw Shires, to ensure appropriate attention is given to catchment environmental issues at the planning stage of development applications. (*DOI, GCB*)
- 5.3.8 Identify Slip Road, Paynesville, as a marine industrial precinct (*EGSC*)
- 5.3.9 Discourage developments which overshadow foreshore areas (*EGSC, WSC*)
- 5.3.10 Actively encourage the relocation of facilities or structures which are inappropriately located on foreshore or frontage areas (*NRE, EGSC, WSC*)
- 5.3.11 Discourage resorts from becoming quasi-residential settlements (*EGSC, WSC*)

5.4 Recreation And Tourism

- 5.4.1 Promote the use of the Victorian Coastal Council's Siting and Design Guidelines by developers and planning authorities (*EGSC, WSC*)
- 5.4.2 Delineate private land boundaries adjacent to Crown foreshore (*NRE, PV, EGSC, WSC*)
- 5.4.3 Prepare a feasibility report on providing improved walking trails and paths including linked networks adjoining, and in the vicinity of, the Gippsland Lakes (*EGSC, WSC, NRE, PV*)
- 5.4.4 Review zoning (both planning and activity) of waters of the Gippsland Lakes for different activities (*GP, GCB, NRE, PV*)

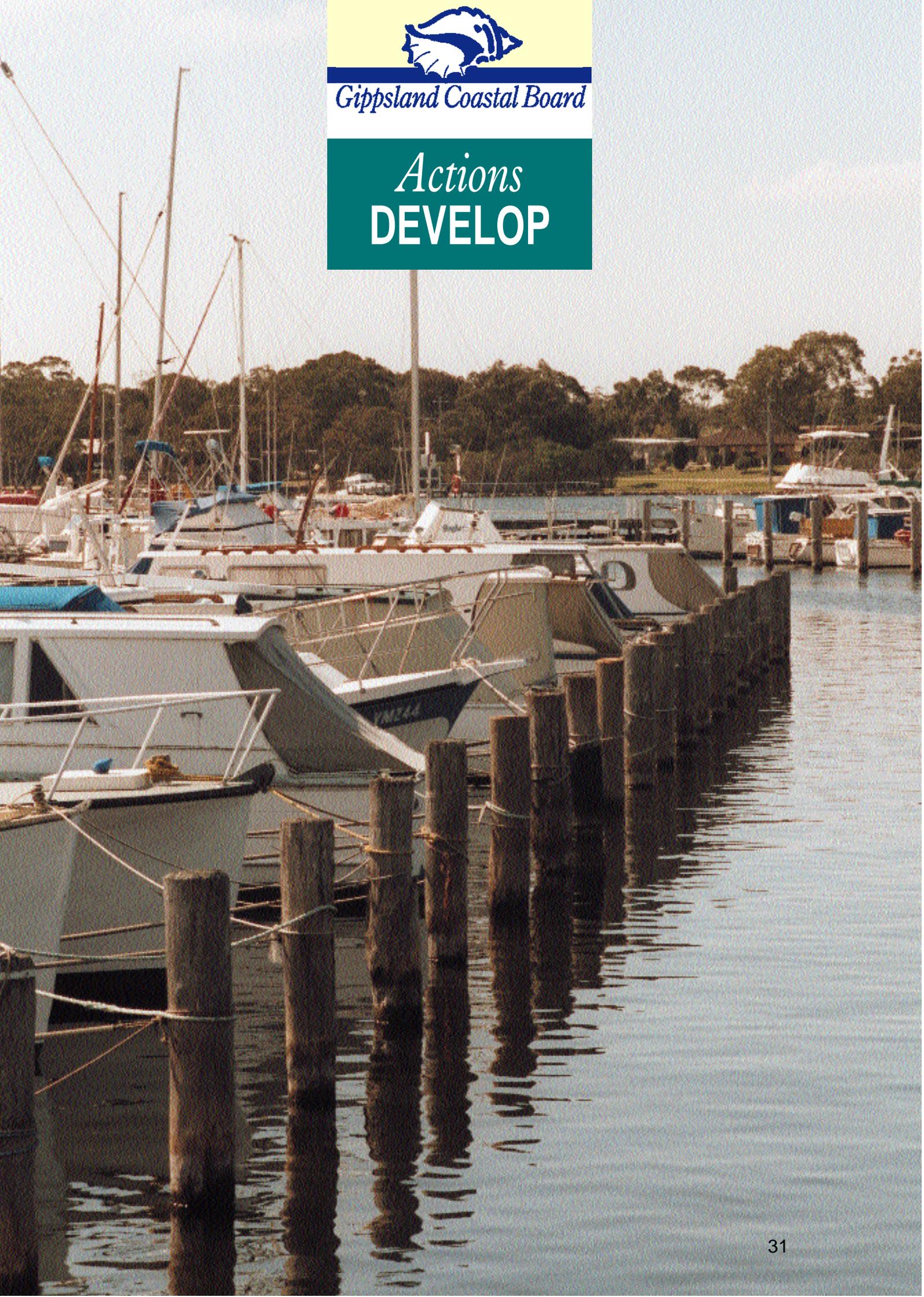
5.5 Identification Of Significant Landscapes

- 5.5.1 Develop guidelines for the determination of landscape values (*EGSC, WSC, NRE, GCB*)
- 5.5.2 Undertake a comprehensive and comparative assessment of important scenic landscape areas around the Gippsland Lakes, and develop complementary planning controls (*NRE, EGSC, WSC, DOI, GCB*)
- 5.5.3 Identify and conserve significant heritage sites associated with the Gippsland Lakes (*NRE, EGSC, WSC, DOI*)



Gippsland Coastal Board

Actions
DEVELOP



Objectives

- To provide a framework for appropriate development around the Gippsland Lakes;
- To establish a cohesive, integrated framework for boating and boating related activities; and
- To provide a clear direction for future development by individuals, groups, businesses and government organisations.

6 TOURISM AND RECREATION

6.1 The Issues

Tourism and recreation are among the most important uses of the Gippsland Lakes, and have a major impact on employment and the economic wealth of the region. The natural setting of the Lakes system is integral to the value of the area as a tourist destination and recreational resource.

Tourism Victoria, regional tourism bodies, municipalities, the Department of Natural Resources and Environment and Parks Victoria play key roles in facilitating development of the tourism industry.

Tourism developments in major lakeside towns is encouraged, while development on islands in the Gippsland Lakes or on the outer coastal barrier should be avoided. Appropriate tourism development will take place in existing footprints where possible, utilising existing infrastructure, and adopting good design practice (e.g. the Victorian Coastal Council Siting and Design Guidelines). Non coastal-dependent development will occur away from the foreshore.

6.2 Strategic Directions

- 6.2.1 Ensure ecologically sustainable tourism is promoted, based on maintaining the long-term health of the Gippsland Lakes biological assets and minimising disruption to native flora and fauna populations (*TV, LWT*)

SPECIFIC ACTIONS

6.3 Major Resorts And Tourism Development

- 6.3.1 Encourage tourism projects with year round use (*TV, EGSC, WSC*)
- 6.3.2 Develop criteria to define suitable sites for large tourism developments. Criteria will be consistent with Municipal Planning Schemes, and will include:
- * Requirement for development to occur within existing activity nodes, or nodes identified by municipalities in conjunction with the Board in the future;
 - * Infrastructure requirements such as proximity to major roads and reticulated services such as power, water and sewerage;
 - * Urban and landscape design criteria;
 - * Drainage requirements;
 - * Water quality implications including protection of aquatic environments;
 - * Special consideration of sites of biological significance as depicted in the Environmental Significance Overlay in the East Gippsland Planning Scheme and areas of important remnant vegetation identified within Wellington Shire; and
 - * Provision of Stormwater Pollution Prevention Plans (*DOI, EGSC, WSC, EPA*).
- 6.3.3 Ensure tourism developments which are not coastal dependent are not located on foreshores (*WSC, EGSC*)

- 6.3.4 Using agreed criteria, list and protect sensitive sites around the Gippsland Lakes that are not suited to development due to natural values and prevailing conditions (*GCB, EGSC, WSC, NRE*)
- 6.3.5 Using agreed criteria, undertake an assessment of public land to identify sites suitable for tourism development (*NRE, PV, GD, VEDA*)

6.4 Urban Centre Tourism

- 6.4.1 Develop town entrances to complement the town's tourism role (*EGSC, LWT, WSC, TV, VicRoads*)
- 6.4.2 Ensure development on Bullock Island reflects the strategically important location and value of the site (*VEDA, DOI, EGSC, NRE*)
- 6.4.3 Implement Urban Design Frameworks for urban centres (*EGSC, WSC*)
- 6.4.4 Implement recommendations of the Foreshore Planning Study for Eagle Point (*EGSC*)
- 6.4.5 Resolve road access pressures in Metung (*EGSC, VicRoads*)
- 6.4.6 Establish stronger planning links and physical access between Bairnsdale and the Mitchell River (*EGSC, PV, NRE*)
- 6.4.7 Establish stronger planning links between Bairnsdale and Macleod's Morass (*EGSC, PV*)
- 6.4.8 Ensure appropriate utilities are available and provided to service development (*EGSC, WSC*)
- 6.4.9 Promote major tourism developments in larger lakeside centres - Lakes Entrance, Bairnsdale, Metung, Paynesville, Loch Sport and Sale (*TV, EGSC, WSC, GD, VEDA*)

6.5 Recreation

- 6.5.1 Undertake a study of recreational demand in the Gippsland Lakes area, including forecasts of future growth and impacts on infrastructure (*TV, EGSC, WSC, LWT, PV, NRE, GP*)
- 6.5.2 Give high priority to the provision of clean beaches for swimming at high use locations (*EGSC, WSC, NRE, PV*)
- 6.5.3 Permit beach creation and limited control of seagrass to provide access to facilities, only within identified activity nodes, and only following appropriate estuarine processes studies (*NRE, PV*)
- 6.5.4 Undertake a feasibility study (having regard to site and management constraints) on the establishment of an eco-tourism circuit of the Gippsland Lakes and barrier, comprising hiking, bush camping, sailing and canoe stages (*PV*)
- 6.5.5 Ensure adequate Surf Life Saving Club facilities are maintained at Lakes Entrance and Seaspray, with any redevelopment according to Victorian Coastal Council Siting and Design Guidelines (*EGSC, NRE*)

6.6 Heritage

- 6.6.1 Recognise tourism values of significant sites and activities of post-European settlement, such as the Gippsland Lakes shipping history and the Entrance, and increase their utilisation (*EGSC, WSC, DOI*)

7 BOATING

7.1 The Issues

The Gippsland Lakes system is Victoria's major boating destination east of Melbourne.

Recreational boating use is a combination of local, wet-berthed boats (such as trawlers, keel yachts and cruisers) plus a seasonal influx of trailer-sailors, powerboats and off-the-beach craft. Paynesville should be recognised as the main focus for recreational boating facilities and services on the Gippsland Lakes, while Metung has developed as a charter boat centre. Future development should build on these characteristics.

Many of Victoria's large cruisers are permanently moored at marinas, jetties and swing moorings throughout the Gippsland Lakes system. Tenure and lease conditions vary depending on the controlling authority, and, if demand for berths continues, existing marinas may need to be extended.

Lakes Entrance is home to the largest offshore commercial fishing fleet in the State, and should be recognised as the principle commercial fishing centre. Strong winds can cause rough and dangerous conditions on the Gippsland Lakes, so safe havens and overnight moorings are important issues for the recreational user. Some boat ramps on open waters are difficult to use in certain winds, restricting retrieval options. There are, on average, about two fatalities and sixty boating accidents per year in the Gippsland Lakes.

By concentrating commercial boating activities in major centres, adverse impacts can be managed, and the use of infrastructure can be optimised.

Unsafe conditions on the Lakes Entrance bar may prevent commercial fishing vessels from departing or returning to port during bad weather. Difficult conditions inside the entrance restrict the ability of pleasure craft to access facilities in Lakes Entrance.

Boat sewage discharge is also an issue, both in the siting of pump-out stations and the installation of boat holding tanks.

Boating pressures increase during public and school holiday periods, peaking in the summer months when congestion of ramps, moorings and shore infrastructure often occurs.

Although registrations of larger boats in Victoria have risen slowly in the past decade, recreational and commercial boating demand will increase with improved economic conditions. To have policy in place ahead of rising demand is a sensible approach for the Lakes system.

The Board, in conjunction with the State Boating Council is coordinating the preparation of the Gippsland Regional Boating Strategy. This strategy will be complementary to, and recognise, the proposed policy directions contained in this plan. If warranted, the Strategy will become the basis of another Coastal Action Plan. The State Boating Council and Marine Board of Victoria will be the key points of reference for boating policy.

7.2 Strategic Directions

- 7.2.1 Provide a safe, navigable and stable entrance to the Gippsland Lakes, catering for the maximum feasible range of boat types, and incorporating environmentally friendly outcomes as far as practicable (*GP*)
- 7.2.2 Finalise the Gippsland Regional Boating Strategy, and implement the actions relevant to the Gippsland Lakes (*GCB*)
- 7.2.3 Develop policies for up-river boating use by implementing recommendations of the Gippsland Coastal Board's Boat Wake Study (*GCB, EGSCMA, WSC, WGCMA, NRE, GP*)

SPECIFIC ACTIONS

7.3 Jetties

- 7.3.1 Assign responsibility for all aspects of management of berthing facilities in the Gippsland Lakes to a single agency, or develop a joint management contract on behalf of agencies (*GP, NRE, EGSC, WSC*)

- 7.3.2 Undertake a review of private jetty allocations in accordance with the Foreshore Boating Facilities Plan (*NRE*)
- 7.3.3 Add references to the Management Plan: Foreshore Boating Facilities. Gippsland Lakes, Lake Tyers, Mallacoota (*NRE 1998*) into municipal planning schemes (*NRE, GCB, WSC, EGSC*)
- 7.3.4 Prohibit the establishment of new jetties on unoccupied foreshore without due consideration of adjoining land impacts (*NRE, EGSC, WSC*)

7.4 Urban Centres

7.4.1 Paynesville

- 7.4.1.1 Improve boat access to Paynesville commercial centre (*EGSC, GP*)
- 7.4.1.2 Expand Slip Bight marina to meet projected demand for berths (*EGSC, GP*)
- 7.4.1.3 Establish a regional boating service centre in McMillan Straits near the Government Slipway (*EGSC, GP*)

7.4.2 Lakes Entrance

- 7.4.2.1 Provide additional recreational boat access and moorings at the town centre (*EGSC, GP*)
- 7.4.2.2 Encourage provision of shower facilities, fuel and short term moorings for visiting recreational boats and yachts (*EGSC, GP*)
- 7.4.2.3 Police the use of short term moorings (*GP*)

7.4.3 Metung

- 7.4.3.1 Provide additional wet berth storage by extensions to the Metung marina (*EGSC*)
- 7.4.3.2 Provide additional short-term boating access to the town centre (*EGSC, GP*)
- 7.4.3.3 Provide appropriate infrastructure for charter boat operations at Metung, both on-shore and in the water (*EGSC, NRE, GP*)

7.4.4 Highway Villages (Nicholson, Swan Reach and Johnsonville)

- 7.4.4.1 Facilitate the establishment of short term boat mooring facilities at each highway village and other "up river" locations, depending on resolution of boat wake impacts, and in addition to other standard permit conditions (*NRE, GP, EGSC*)

7.4.5 Loch Sport

- 7.4.5.1 Resolve management and maintenance options for boat ramps at Loch Sport (*WSC, GP*)
- 7.4.5.2 Accommodate a water safety centre in foreshore planning (*WSC, NRE, Committee of Management*)

7.4.6 Sale

- 7.4.6.1 Establish facilities at Port of Sale in keeping with a major boating destination and as a terminal/transit point for land-based tours and activities (*WSC*)

7.5 General

- 7.5.1 Concentrate long term moorings and facilities so as to efficiently use existing infrastructure (*EGSC, WSC, NRE*)
- 7.5.2 Identify and provide a managed system of boating destination points throughout the Lakes (*GP, NRE, PV*)
- 7.5.3 Identify and establish a network of safe havens for overnight mooring throughout the Gippsland Lakes (*GP, PV*)
- 7.5.4 Improve public knowledge of destination points, safe moorings and dangerous lake conditions (*GP, PV, NRE*)
- 7.5.5 Improve the policing of short-term jetty moorings (*GP, NRE, PV*)
- 7.5.6 Develop a strategy for management of water, air-borne and noise pollution at boat maintenance and repair sites (*EPA, EGSC, WSC, GP, GCB*)
- 7.5.7 Complete a comprehensive recreational boating study of the Gippsland Lakes, including the examination of opportunities for house boats and major passenger vessels (*GCB*)

IMPLEMENTATION

Coastal Action Plans And The Victorian Coastal Strategy

The Victorian Coastal Strategy (Victorian Coastal Council 1997) requires that Coastal Action Plans "provide for coordinated action, decision making and defined outcomes for coastal areas and issues".

The Victorian Coastal Strategy establishes policies for the Victorian coastline, as well as identifying many specific actions. The Plan must be consistent with all policies and actions.

Coastal Action Plans And Victoria's Planning System

The Gippsland Lakes Strategy (1990) is a Ministerial Direction, No. 5, under section 12(2) (a) of the Planning and Environment Act. The direction states:

"When preparing a planning scheme amendment for land within the Gippsland Lakes area a planning authority must have regard to the Gippsland Lakes Strategy, 1990 which forms a part of this direction. An amendment for land within the Gippsland Lakes Strategy area which is submitted for approval must be accompanied by a report demonstrating how the policies and requirements of the Gippsland Lakes Strategy have been addressed."

The statutory power assigned to Coastal Action Plans under the *Coastal Management Act 1995* ensures that the Plan can be applied with equal effectiveness. The Board will apply to the Minister for Planning to have Ministerial Directive No. 5 revoked, so that there is no conflict with the Plan.

The Victorian Coastal Strategy and coastal action plans are referred to in the State Policy and Planning Framework section of the Victorian Planning Provisions. In addition, both the draft Wellington Shire Municipal Planning Scheme and the draft East Gippsland Shire Municipal Planning Scheme refer to the Victorian Coastal Strategy and Coastal Action Plans. Under the *Coastal Management Act 1995*, public land managers must give effect to coastal action plans.

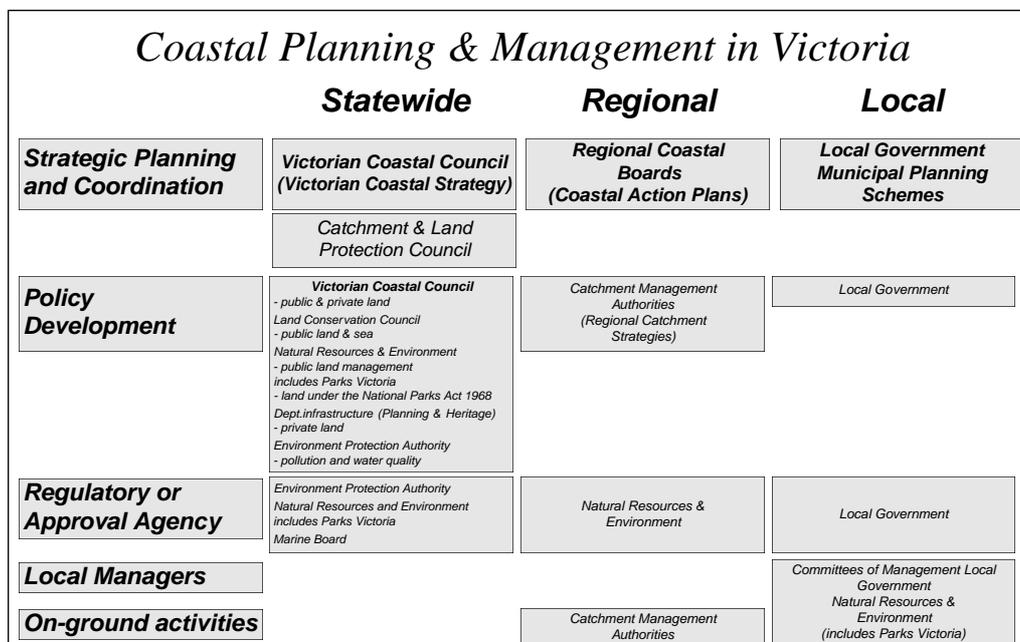


FIGURE 1. COASTAL PLANNING RESPONSIBILITIES

Hence, the Plan is recognised at all levels of the coastal planning system (see Figure 1), as a component of the strategic planning framework for the region.

Implementing The Gippsland Lakes Coastal Action Plan

Many of the actions listed in the Coastal Action Plan require coordination and performance monitoring to ensure implementation.

The Board will coordinate an implementation committee, with membership comprising the major agencies responsible for the identified actions, including:

- East Gippsland Shire Council;
- Wellington Shire Council;
- East Gippsland Catchment Management Authority;
- West Gippsland Catchment Management Authority;
- Gippsland Ports;
- Department of Natural Resources and Environment;
- Environment Protection Authority; and
- Parks Victoria.

The key environmental factor in planning for an improved Gippsland Lakes is the reduction of nutrient inputs. The integrated modelling recommended by the CSIRO should be used to predict the impacts of management decisions that are intended to alter the nutrient loads entering the Lakes. The Implementation Committee can then evaluate options, and decide on the most effective strategies.

The Committee must also establish performance monitoring to identify trends, effectiveness of catchment actions, and the extent of progress.

APPENDIX I - BIBLIOGRAPHY

CSIRO 1998, *Review of Water Quality and the Status of Aquatic Ecosystems of the Gippsland Lakes*, CSIRO Environmental Projects Office, Melbourne and Gippsland Coastal Board, Bairnsdale, Victoria

Department of Conservation and Environment 1991, *Gippsland Lakes Management Plan*, State Government of Victoria, Melbourne, Victoria.

Department of Conservation and Natural Resources 1993, *Blond Bay State Wildlife Reserve Proposed Management Plan*, Department of Natural Resources & Environment, Melbourne, Victoria.

Department of Conservation and Natural Resources 1993, *Loch Sport Foreshore Management Plan*, Department of Natural Resources & Environment, Bairnsdale, Victoria.

Department of Conservation and Natural Resources 1995, *Draft Gippsland Lakes Fisheries Management Plan*, Department of Conservation and Natural Resources, Bairnsdale, Victoria.

Department of Conservation and Natural Resources 1995, *Nutrient Management Strategy for Victorian Inland Waters*, Department of Conservation and Natural Resources, Melbourne, Victoria.

Department of Conservation and Natural Resources, Australian Heritage Commission and Shire of Bairnsdale 1994, *Mitchell River Silt Jetties: Conservation & Management Recommendations*, by Landsmith Pty Ltd. Melbourne Victoria

Department of Natural Resources & Environment (in prep), *Management Plan: Foreshore Boating Facilities*. Gippsland Lakes, Lake Tyers, Mallacoota, Department of Natural Resources & Environment, Bairnsdale.

Department of Natural Resources & Environment and Parks Victoria 1997, *Lake Wellington Wetlands Draft Management Plan*, Parks Victoria, Kew, Victoria.

Department of Natural Resources & Environment and Parks Victoria 1997, *Victoria's Biodiversity - Directions in Management*, Melbourne, Victoria.

Department of Planning and Urban Growth and Department of Conservation and Environment 1990, *Gippsland Lakes Strategy*, State Government of Victoria, Melbourne, Victoria.

East Gippsland Catchment Management Authority 1997, *East Gippsland Regional Catchment Strategy*, East Gippsland Catchment Management Authority, Bairnsdale, Victoria.

East Gippsland Shire Council 1996, *Lakes Entrance: Preparation of a Master Plan for the North Arm Foreshore and Estuary*, NRE Committee of Management Grants and East Gippsland Shire Council, Bairnsdale, Victoria.

East Gippsland Shire Council 1996, *East Gippsland Planning and Development Strategy: Topic paper: Coastal Zone Management (Foreshores and Ports)*, unpublished. East Gippsland Shire Council, Sjerp, E & Willersdorf, R., Bairnsdale, Victoria.

East Gippsland Shire Council 1997, *Draft East Gippsland Planning Scheme*, East Gippsland Shire Council, Bairnsdale, Victoria.

East Gippsland Shire Council 1997, *East Gippsland Shire Planning and Development Strategy*, East Gippsland Shire Council, Bairnsdale, Victoria.

East Gippsland Shire Council, *Native Vegetation Clearance Controls*, Bairnsdale, Victoria.

Environment Protection Authority 1988, *State Environment Protection Policy (Waters of Victoria)*, Victoria Government Special Gazette No. S13, Environment Protection Authority, Melbourne, Victoria.

Environment Protection Authority 1992, *Trial Dredge Protocol*, Publication No.312; Environment Protection Authority Traralgon, Victoria.

Environment Protection Authority 1995, *Protecting Water Quality in Central Gippsland: Schedule F5 - The Latrobe and Thomson River Basins and Merriman Creek Catchment*, Publication No. 444 - Environment Protection Authority, Melbourne, Victoria.

Environment Protection Authority 1996, *Vulnerability of the Gippsland Lakes to Climate Change*, Report No. J5022/R1578 by Lawson & Treloar Pty. Ltd. - Environment Protection Authority, Melbourne, Victoria.

ID&A 1998, *Boat Wake Erosion Study*, Gippsland Coastal Board, Victoria.

Lakes & Wilderness Tourism Association Inc.1997, *Lakes & Wilderness Regional Tourism Development Plan*, Tourism Victoria, Lakes & Wilderness Tourism Association Inc, Country Victoria Tourism Council and Parks Victoria, Victoria.

Land Conversation Council 1983, *Gippsland Lakes Hinterland Study - Final recommendations*, Land Conservation Council, Melbourne, Victoria.

Marine and Freshwater Resources Institute 1998, *Proceedings of the Black Bream Stock Assessment Workshop November 1998* (unpublished). Department of Natural Resources and Environment Bairnsdale Vic.

Parks Victoria 1998, *The Lakes National Park and Gippsland Lakes Coastal Park Management Plan*, Parks Victoria, Melbourne, Victoria.

Shire of Bairnsdale, Department of Conservation, Forests and Land, Ministry for Planning & Environment, Victorian Tourism Commission & Port of Melbourne Authority 1989, *Foreshore Planning Study: Paynesville, Eagle Point, Raymond Island*, by Perrott Lyon Mathieson, Victoria.

Shire of Tambo 1987, *Lakes Entrance Strategy Plan*, by Tract Consultants & Sach and Associates, Bairnsdale, Victoria.

Shire of Tambo 1993, *Metung Local Structure Plan*, by Perrott Lyon Mathieson, Victoria.

Tourism Victoria 1996, *Gippsland Tourism Infrastructure Audit*, Tourism Victoria and Urban Spatial and Economic Consultants Pty Ltd, Melbourne, Victoria.

Tourism Victoria 1997, *Strategic Business Plan 1997-2001*, Tourism Victoria, Melbourne.

Victorian Coastal Council 1997, *Victorian Coastal Strategy*, Victorian Coastal Council and the Department of Natural Resources & Environment, Melbourne, Victoria

Victorian Coastal Council 1998, *Siting and Design Guidelines for Structures on the Victorian Coast*, by Tract Consultants Pty Ltd, Chris Dance Land Design Pty Ltd and the Victorian Coastal Council, Melbourne, Victoria.

Victorian Fisheries & Department of Natural Resources and Environment 1996, *Draft Victorian Aquaculture Strategy*, Department of Natural Resources & Environment, Melbourne, Victoria.

Wellington Shire Council 1997, *Draft Wellington Planning Scheme*, Wellington Shire Council, Sale, Victoria.

World Conservation Union (IUCN) 1971, *Ramsar Convention - List of Wetlands of International Importance*, Ramsar Bureau, Switzerland.

Wellington Shire Council 1997, *Wellington Shire Strategy Plan*, Wellington Shire Council, Sale, V

West Gippsland Catchment and Land Protection Board 1997, *Regional Catchment Strategy*, West Gippsland Catchment and Land Protection Board, Traralgon, Victoria

Strategies currently being prepared:

Lakes Entrance and Paynesville Urban Design Framework Plans

Mitchell River Environs Local Structure and Development Plan

Lakes Entrance and Paynesville Urban Design Framework Plans

Gippsland Regional Boating Strategy