Companion Document to the

Natural Resources Report Card 2006

Gippsland Integrated Natural Resources Forum
June 2006

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Contents

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Introduction

The Gippsland Integrated Natural Resources Forum (GINRF) is pleased to present the fourth Natural Resources Report Card for the Gippsland Region. The 2006 Report Card indicates what has been achieved over the past twelve months and incorporates feedback provided on the previous three Report Cards. Eighteen of Gippsland's natural assets have been selected to represent the richness and diversity of the Gippsland region. The Latrobe Group Aquifer has been selected as a new asset for 2006, and Wilsons Promontory has been separated from Corner Inlet, forming two assets instead of one combined.

The assets are rated both for their environmental condition and stewardship; that is, how well government, industry and community are responding to protect and enhance these assets. This document serves as a companion to the Natural Resources Report Card, providing more detailed information about condition and stewardship of each asset, in addition to information about the Report Card methodology.

The Natural Resources Report Card represents the collective challenge that faces government, industry and the community in the Gippsland region. An integrated effort is required to care for and manage our most precious natural assets. Most of the Gippsland region is in good environmental shape, providing a good base for economic and social wellbeing. This is a great reason to work together to protect and improve Gippsland's catchment health.

What has changed since the 2005 Report Card was published?

- The East Gippsland Regional Catchment Strategy has been renewed.
- The first environmental flows for the Thomson River have been released; a part of the Victorian Government White Paper initiative.
- Cattle grazing has been removed from the Alpine National Park
- Marine National Parks Plans in the region have been finalised
- The Draft Central Region Sustainable Water Strategy has been developed.
- The second Energy Summit was held in June 2005, reflecting the region's commitment to discussing the big issues about brown coal technologies, renewable energy and greenhouse gas abatement. A third summit will be held in June 2006.
- The Latrobe Valley 2100 Coal Resources Project was launched

- The January 2006 Moondarra fire in the central Gippsland area burned through 15,211 hectares of forest, plantations and grassland, with a perimeter of 140 kilometres. A multi-agency team is now working on environmental recovery of this area.

- The Omeo region bore the brunt of a massive outbreak of Australian Plague Locusts in Autumn 2005 – the worst infestation in Victoria in 50 years. The Department of Primary Industries (DPI) launched a comprehensive locust control campaign in cooperation with landholders and other agencies.

- The Climate Change Impacts and Adaptations in Gippsland project worked through a number of different engagement processes to identify the potential impacts of climate change on specific aspects of the Gippsland region.

- An environmental study was commissioned by Gippsland Coastal Board and conducted by CSIRO on Corner Inlet.

- Gippsland's Water Quality Action Plan was finalised

- East and West Gippsland River Health Strategies finalised

- The State of the Gippsland Lakes Report completed

- Water Authorities, Government Agencies and Waterwatch combined under the GINRF banner to host a one day conference for regional stakeholders 'Who does what in Water?'

- Schools have been working in partnership with natural resource management agencies on projects of local environmental significance. Schools will present the results on World Environment Day 2006 at a conference – "Action in Our Catchments"

- A draft Coastal Action Plan has been developed for Gippsland Estuaries

- A Total Channel Control project has begun to improve the efficiency of the distribution of irrigation water in the Macalister Irrigation District.

- The Gippsland Water factory development has commenced. Stage 1 of the project will treat all domestic and industrial wastewater that is currently discharged into the Regional Outfall Sewer, allowing re-use of a portion by local industry and the odour-free discharge of the remainder into the sewer.

- The Morwell River has been successfully diverted over the Yallourn Open Cut mine, extending the mine's life to 2032, and preserving endangered flora, fauna and local wetlands.

- Australian Paper made the decision to extend its paper manufacturing facilities in Gippsland with the building of a new $260 million elemental chlorine-free bleaching plant at Maryvale.

Major Challenges for the year ahead

- Developing the Gippsland Region Sustainable Regional Water Strategy
- Continuing the discussion about climate change impacts, adaptation and mitigation
- Energy policy for Gippsland, including renewable energy such as wind.
- Development of a Land and Water Plan for the Macalister Irrigation District.
- Completion of the Gippsland water resources project as lead up to the Gippsland Region Sustainable Water Strategy
- Development of the Gippsland Weed Plan
- Defining environmental flows for the Latrobe River
- Environmental Management Systems and Market Based Instruments for agriculture

2006 Report Card in Focus

Condition Rating System

An assessment is made about the overall environmental condition of each natural asset by measuring against land, water, biodiversity and air indicators. Both the immediate location of the asset and offsite impacts are considered.

Rating	Description	Definition
A	Excellent	Environmental values are in good to excellent condition. No adverse offsite impacts.
B	Good	Most environmental values are good. Minimal offsite impact
C	Reasonable	Some environmental values are indicated as poor, but are recoverable. Some offsite impacts.
D	Poor	Many environmental values are poor. Improvement of assets needs addressing. Several adverse offsite impacts.
F	Degraded	Natural values are degraded. Extensive offsite impacts.

For more detail on indicators and rating method for environmental condition, refer to section "Condition and Stewardship in Detail"

Stewardship Rating System

Stewardship may be defined as: "The careful and responsible management of the natural asset by the range of government, industry and community stakeholders entrusted with its care". Stewardship performance for each asset is measured against a simple adaptive management process (planning, implementing, evaluating and improving) and level of partnership activity across community, government and industry.

Rating	Description	Definition
*****	Fully integrated	Stewardship process is complete with high quality, significantly impacting the asset condition. High level of government, community and industry engagement.
****	Mostly integrated	Complete with average/good quality of most parts of the stewardship process, having potential to improve the asset condition. Some evidence of partnership arrangements.
***	Some integration	Most parts of the stewardship process complete with average/poor quality, having unclear impacts on the condition. Government, community and industry engagement may be fragmented. Weak partnerships.
**	Little integration	Gap in one or more of the processes and low quality is hampering effective stewardship of the natural asset. There is danger of contributing to asset condition decline.
*	No integration	Significant gaps in the stewardship process. Contributing to decline in asset condition

Condition and Stewardship Summaries

Eighteen natural assets of Gippsland were chosen as the focus for this report card:

Asset	Condition Rating				Stewardship Rating			
	03	04	05	2006	03	04	05	2006
The Gippsland Lakes	C	C+	C+	**C+**	★★	★★★	★★★	★★★1/2
Corner Inlet	B	B	B-	**C**	★★★	★★★	★★★	★★
Wilson's Promontory				**A**				★★★★
Coastal Parks of Far East Gippsland	A	A	A	**A**	★★★	★★★	★★★	★★★
Alpine National Park	B	B-	B-	**B-**	★★★	★★★	★★★	★★★★
Snowy River	C	C	C	**C**	★★★	★★★★	★★★★	★★★★
Mitchell River	B	B	B	**B**	★★★	★★★	★★★	★★★
Thomson River	C-	C-	C-	**C-**	★★★	★★★	★★★1/2	★★★★
Forests of East Gippsland	B	B	B	**B**	★★★★	★★★★	★★★★	★★★★
Coastal Living	C	C	C	**C**	★★	★★	★★	★★
Macalister Irrigation District	D-	D	D+	**D+**	★★★	★★★	★★★1/2	★★★★
Non-irrigated Dairy Farming of West and South Gippsland	C	C	C	**C**	★★★	★★★	★★★	★★★
Brown Coal based Energy Industry	D	D	D	**D**	★★★★	★★★★	★★★★	★★★★
Latrobe River		D	D	**D**		★★★	★★★	★★★
Batuluk Cultural Trail		B	B	**B**		★★★	★★★	★★★
Ninety Mile Beach		B	B	**B**		★★★	★★★	★★★
Strzelecki Ranges			C	**C**			★★★	★★★
Latrobe Group Aquifer				**F**				★★

These natural assets are recognisable and represent Gippsland's rich, diverse natural landscape. This approach focuses on integration of the natural resources themselves and the agencies, communities and processes involved in managing these assets.

The Gippsland Lakes

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
C	C+	C+	C+	★★	★★★	★★★	★★★1/2

Asset description

The Gippsland Lakes are a large coastal lake system situated on the south-eastern coast of Victoria, Australia. Comprising three main lakes - Lake Wellington in the west, Lake Victoria, and Lake King in the east, the Lakes are the largest navigable estuarine lagoon system in Australia. The Lakes are approximately 70km long and 10km wide at the widest point and separated from Bass Strait by Ninety Mile Beach and foredune system. Up until 1889 the Lakes were predominantly a freshwater and marsh system. Since then a permanent opening to the sea has been established, increasing salinity and decreasing average lake levels by about 60cm. (Gippsland Lakes and Catchments Taskforce 2004)

Fresh water enters the lakes from six major river catchments: the Latrobe, Thomson-Macalister, Avon, Mitchell, Nicholson and Tambo, which drain a catchment area of 20,600 km2. These rivers are the main source of fresh water to the Lakes and provide an important role in flushing the Lakes. This fresh water is also the source of most of the nutrient and sediment inputs to the Lakes.

The Gippsland Lakes maintains high recreation and tourism values based on the extensive and contiguous natural system of waterways. The area is listed as a Ramsar wetlands site, giving international recognition to the natural values and giving some indication of its ecological significance.

Bioregion reference: Gippsland Plain

Condition summary

An environmental audit by CSIRO in 1999 concluded that the Gippsland Lakes were poised on the edge of significant and possibly irreversible degradation, with severe and frequent algal blooms being the most noticeable symptom. (SKM 2003) There are high sediment and nutrient levels entering the Lakes system, some degradation of hinterland flora and fauna, and some indication of decline in fish numbers and seagrass (SKM 2003). Land values on the Lakes' shores are threatened by the high risk of wind erosion on the eastern margin of Lake Wellington and some dryland salinity in low lying areas around Lake Wellington (Bengworden, Area, Kilmany/Pearsondale and Lake Coleman) (SKM 2003).

Data for the period 1999-2003 shows that while some water quality parameters are meeting State policy guidelines, SEPP guidelines for nutrients entering the Lakes are still not being met. (Gippsland Lakes and Catchments Taskforce 2004) The last two years of dryer conditions and on-farm water savings appear to have reduced the nutrient input to the Lakes system, with resulting fewer algal blooms.

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Reasonable	10	Shoreline Erosion	Shore Erosion and Reveg Strategy 2002	No recent monitoring, slow rate of decline
Water	Reasonable - Good	50	Water Quality Data – including algal blooms (1999-2003) Wetland Health Data (1999-2004)	State of the Gippsland Lakes Report 2004	Missing water quantity and biological water quality data
Biodiversity	Poor	40	Commercial Fish Stocks, Seagrass (1997) and Carp numbers	State of the Gippsland Lakes Report 2004	Missing recent seagrass and collated data for birds. More information about fish and the links to ecological health and habitat would be useful.
Air	NA	0			

Key condition summary points

- Water quality improved but nutrient levels still high by State policy standards.
- Fewer algal blooms.

Stewardship summary

The findings of the CSIRO audit prompted the Victorian Government funded Gippsland Lakes Rescue Package - $12.8 million and the development of the Gippsland Lakes Future Directions and Actions Plan. The Gippsland Lakes and Catchments Taskforce has been co-ordinating the implementation of this plan during the past four years. The Taskforce has membership of government agencies and statutory authorities with responsibility in the Gippsland Lakes catchment. The implementation of the Future Directions and Actions Plan has recently been independently evaluated by URS Australia: *"During its short period of operation the Plan has achieved considerable progress in understanding nutrient and sediment generation processes and distributions with the Gippsland Lakes catchment. There has also been significant progress in understanding the dynamics of the Lakes themselves; and in raising community awareness and involvement. The Plan has also lead to increased cooperation between Government Agencies although there appears to remain considerable room for improvement in this area."* (URS, 2006)

The Gippsland Lakes area is shared by both East and West Gippsland Catchment Management Authority areas. Both East and West Gippsland Regional Catchment Strategies acknowledge that integrated catchment management is required to care for and protect the Gippsland Lakes. (WGCMA 2004), (EGCMA 2005)

During 2004, the State of the Gippsland Lakes report was developed, the first update on environmental condition of the Lakes since the CSIRO environmental audit. The report concludes that while currently available data gives some indication of Lakes health, a more integrated and consistent monitoring program is required to gain a

better picture of the environmental condition of the Gippsland Lakes. (Gippsland Lakes and Catchments Taskforce 2004)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Good	- Gippsland Lakes Future Directions & Actions Plan (2002) - Schedule F3 – SEPP Waters of Victoria – Gippsland Lakes and Catchment (1998) - Gippsland Lakes Ramsar Site – Strategic Management Plan (2003) - Long Term Management Plan for Dredging Lakes Entrance 2005-2015 (2005) - Gippsland Ports Safety & Environmental Management Plan – East Gippsland Ports (2005) - The Lakes National Park and Gippsland Lakes Coastal Park Management Plan (1998) - Gippsland's Water Quality Action Plan (2005)
Implement	Reasonable	Projects funded by Gippsland Lakes Rescue Package $12.8 million over 5 years (plus leverage of private/other funding in the range of $0.85 – $1.35 for every $1 of State Government funding) Environmental Water Reserve – Gippsland Lakes
Evaluate	Reasonable	State of the Gippsland Lakes Report 2004 Future Directions and Actions Plan Evaluation (2006). EPA Monitoring program (ongoing)
Improve	Good	Gippsland Lakes Research Program
Partnerships	Good	Gippsland Lakes & Catchment Taskforce

Key Stewardship Summary Points

- Independent evaluation shows good progress towards understanding nutrient impacts on Lakes, dynamics of the Lakes themselves; and in raising community awareness.
- More work to be done on the monitoring program, on-ground works and maintaining partnerships through the Gippsland Lakes & Catchment Taskforce

For more information

Gippsland Coastal Board www.gcb.vic.gov.au or contact Gippsland Lakes Planning Officer at Gippsland Coastal Board (03) 5152 0451, email: enquiries@gcb.vic.gov.au

Corner Inlet

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
B*	B*	B-*	C	★★★*	★★★*	★★★*	★★

* Includes Wilsons Prom rating in previous years

Asset Description

Corner Inlet is listed as a Ramsar wetland and has been declared a biosphere reserve under UNESCO's 'Man and the Biosphere' program. (SKM 2003) Corner Inlet Marine National Parks.

Corner Inlet has been separated from Wilsons Promontory for the 2006 Report Card. The area assessed includes Corner Inlet and Nooramunga coastal area, as covered by the Ramsar wetland boundary.

Bioregion reference: Wilson's Promontory and Gippsland Plain

Condition Summary

Recent monitoring has recorded some sediments and nutrients entering Corner Inlet and there is real concern about the impacts of sea walls on fish breeding and habitat. (SKM 2003) Some decline in sea grass and the presence of environmental weeds such as Spartina threaten biodiversity values (SKM 2003) Indigenous cultural values are partly protected by Parks plans. (SKM 2003) The recent CSIRO environmental audit confirms the need to reduce nutrient and sediment loads to Corner Inlet. (CSIRO 2005, p52)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Reasonable	10		Assumed	No data found
Water	Reasonable	50	Index of Stream Condition for reaches entering Corner Inlet & Nooramunga (2004) NEW! Water Quality (2002) – nutrients poor, other parameters excellent (Turbidity, DO, Ph)	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report West Gipspland Waterwatch Data Report (2003)	Method different to 1999 ISC, not directly comparable. Reach # 20, 21, 25, 27, 28, 33, 36 in SG Basin Interpreted data from monitoring stations leading into Corner Inlet
Biodiversity	Good	40	Shoreline Vegetation &	Corner Inlet Ramsar Site Strategic Plan	Description

			Seagrass Marine Invertebrates Marine Pests – Spartina Fish NEW!!	(1999) Parks Victoria Corner Inlet Marine National Park Management Plan (2005) Parks Victoria /WGCMA partnership Spartina control program FCC Annual Report 03/04 & 04/05	Description Catch & Effort Data for Commercial species past 20 years
Air	NA	0			

Key Condition Summary Points

- Reasonable environmental condition evidenced by fish stocks and some water quality parameters
- Serious concerns about nutrients and sediments entering Corner Inlet and the presence of environmental weeds (Spartina).

Stewardship Summary

This area falls within the boundaries of South Gippsland Shire Council and West Gippsland Catchment Management Authority. The Corner Inlet Marine National Park Management Plan has been completed. (Parks Victoria 2005) This plan has emphasis on a collaborative approach to planning and management with the range of responsible organisations, both in the immediate location and the catchments. The plan recognises the West Gippsland Regional Catchment Strategy (WGCMA 2004) and Integrated Coastal Planning for Gippsland - Coastal Action Plan (Gippsland Coastal Board 2002) as the two mechanisms to achieve integrated outcomes. In addition, the West Gippsland River Health Strategy identifies Corner Inlet and Nooramunga Marine and Coastal Park as high priority areas (WGCMA 2005)

The CSIRO environmental audit makes recommendations about better planning to improve land use management practices, drainage planning and improved monitoring and mapping of Corner Inlet (CSIRO 2005, p52)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Reasonable	- Corner Inlet Marine National Park Management Plan (2005) - Corner Inlet Ramsar Site Strategic Management Plan (2002) - West Gippsland River Health Strategy (2005) - Gippsland's Water Quality Action Plan (2005) - Gippsland Ports Safety and Environmental Management Plan – South Gippsland (2005) - Draft Gippsland Estuaries Coastal Action Plan (2006) - South Gippsland Stormwater Management Plan - Corner Inlet Fisheries Habitat Association Environmental Management Plan (2004)
Implement	Reasonable	- Spartina mapping and spraying - partnership project

		between Parks Victoria and West Gippsland CMA, have sprayed over 150 ha in the last 12 months $50 000 annually - River Health On-ground works program – South Gippsland - Achieving Water Quality Outcomes in South Gippsland though nutrient extension with dairy farmers
Evaluate	Poor	Corner Inlet Environmental Audit (2005) West Gippsland Waterwatch Nooramunga Corner Inlet Volunteer Monitoring Project Seagrass Monitoring project - Statewide Sea Search monitoring program
Improve	Poor	
Partnerships	Poor	Coastal Agencies Liaison Group Spartina control program – Parks Victoria and West Gippsland CMA

Key Stewardship Summary Points

- Urgent need for co-ordinated monitoring planning and implementation effort to protect values and manage threats
- Environmental Audit recommends improved monitoring and reduction of nutrient and sediment loads.

For more information

- Parks Victoria Foster (03) 5683 9007 or visit www.parkweb.vic.gov.au
- West Gippsland Catchment Management Authority (03) 5175 7800 or www.wgcma.vic.gov.au

Wilson's Promontory

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
B*	B*	B-*	A	★★★*	★★★*	★★★*	★★★★

* Includes Corner Inlet rating in previous years

Asset Description

The southernmost point of the Australian mainland, Wilsons Promontory (affectionately known to Victorians as 'the Prom') is arguably the most loved national park in Victoria. Its 130 km coastline is framed by granite headlands, mountains, forests and fern gullies. Tidal River, 30 km inside the park boundary, is the focus for tourism and recreation. The park contains the largest coastal wilderness area in Victoria. (Parks Vic website)

Wilsons Promontory has been separated from Corner Inlet for the 2006 Report Card

Bioregion reference: Wilson's Promontory

Condition Summary

The long standing national park status of Wilson's Promontory has preserved 100% of pre-European vegetation in many areas and no less than 83% in other locations.

On April 1st 2005 a fire near Tidal River in Wilsons Promontory National Park reignited ten days after a planned burn was conducted. Unseasonal extreme weather conditions contributed significantly to the spread of the fire. During the following three days the fire burnt from Tidal River to Waterloo Bay in the East and the Lightstation to the South. Approximately 6200 hectares of the park was burnt leaving 87% of the park untouched by fire. The fire has created a mosaic of burnt and unburnt vegetation. (Parks Victoria 2005)

Generally, 90% of the fire affected area is regenerating very well. Vegetation regeneration in some areas is a little slower, such as Norman Point, due to the exposure to harsh weather conditions.

Monitoring for post fire recovery is being undertaken at key sites including, the back of Oberon Bay, which is dominated by Coastal Dune Scub Mosaic. Coastal Banksia Woodland EVC is also being monitored due to slower regeneration, however this ECV appears to be declining across the state. Coastal Tea-tree Scrub is also being monitored to help provide direction on vegetation management on the Yanakie Isthmus. Bird and small mammal monitoring plots have also been established.

Condition Evidence Summary

Indicator	Score	Weight	Key Evidence	Evidence Source	Data Comment

Theme		%			
Land	Excellent	30		Assumed	
Water	Good	30	Index of Stream Condition for Tidal River and Barry Creek (2004) NEW! Barry Creek measures for EC, pH, Phos & Turbidity (2003)	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. West Gippsland Waterwatch Data Report (2003)	Method different to 1999 ISC, not directly comparable. Reach # 23, 24 in SG Basin
Biodiversity	Excellent	40	Extent of Native Vegetation with reference to pre-1750 Fish Mammals	SKM (2003) Renewal of the West Gippsland Regional Catchment Strategy – State of the Catchment	From 2002 Parks Victoria Wilsons Promontory Park Management Plan
Air	NA	0			

Key Condition Summary Points

- The long standing national park status has preserved 100% of pre-European vegetation in many areas and no less than 83% in other locations.
- Good post-fire recovery of environmental assets

Stewardship Summary

Wilson's Promontory is mostly managed by Parks Victoria. The Park management plan was renewed in 2002, with an increased focus on integrated management and honouring Victorian Government commitments to prevent further commercial development in the park. (Parks Victoria 2002) The Wilsons Promontory Marine Protected Areas Plan (Parks Victoria 2004) is in draft form. Both drafts have some emphasis on a collaborative approach to planning and management with the range of responsible organisations, both in the immediate location and the catchments. The draft plans recognise the West Gippsland Regional Catchment Strategy (WGCMA 2003) and Integrated Coastal Planning for Gippsland - Coastal Action Plan (Gippsland Coastal Board 2002) as the two mechanisms to achieve integrated outcomes.

A range of management activities have been initiated or intensified post the 2005 fire at the Prom. Monitoring for post fire recovery is being undertaken at key sites and partnerships with indigenous community have been strengthened.

The Prom will be a Centre of Excellence, developing best practices in park management systems, including on ground environmental management actions, staff training and education, nature based tourism, research and monitoring.

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence

Plan	Good	Draft Wilsons Promontory Marine National Park, Marine Park & Marine Reserve Management Plan (2004) Wilson's Promontory National Park Management Plan (2002) Wilsons Promontory National Park Ecological Burn Plan (in development)
Implement	Good	Parks Victoria annual environmental planning and works program. (Environmental Action Plan) Parks Victoria Fox control ($200 000 over 5 years) Parks Victoria rabbit control (Wilsons Promontory Rabbit control action plan 2003-2006)
Evaluate	Reasonable	Post Fire key vegetation community Monitoring with South Gippsland Conservation Society. Vital attribute data collection Dec 2005
Improve	Good	Centre of Excellence - developing best practices in park management systems, including on ground environmental management actions, staff training and education, nature based tourism, research and monitoring Scientific Workshop for Wilsons Promontory National Park (July 2005) – direction for post fire monitoring.
Partnerships	Good	Post Fire Recovery Indigenous Working group

Key Stewardship Summary Points

- Strengthened monitoring and partnerships post-fire
- Centre of Excellence for National Park management

For more information

– Parks Victoria Information Centre 13 1963 or visit www.parkweb.vic.gov.au

Coastal Parks of Far East Gippsland

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
A	A	A	**A**	★★★	★★★	★★★	★★★

Asset Description

The main feature of this area is the Croajingalong National Park, which is recognised for protecting a significant representation of East Gippsland's diverse lowland forest, heath and coastal ecosystems. The park is part of a designated biosphere reserve under the UNESCO 'Man and the Biosphere' program. (Parks Victoria 2000) The Point Hicks Marine National Park adjoins Croajingalong NP. This area also contains one of several Natural Catchment Areas identified in East Gippsland and has a high concentration of near pristine estuarine areas. (DNRE 2001) (DNRE 2002)

Bioregion reference: East Gippsland Lowlands

Condition Summary

Available data indicates excellent stream condition a significant proportion of river length in this area, reflecting the 'heritage' and 'ecologically healthy' status of many of the streams. (EGCMA 2004) Land and biodiversity values are also high due to the relatively undeveloped nature of the area and the high proportion of public land in parks and reserves. The Coastal Heathland vegetation community is extremely species rich covering up to 10% of Croajingalong National Park. Habitats supporting 43 species of Threatened native fauna including the Little Tern, Ground Parrot, Eastern Bristle bird, Eastern Broad Nosed Bat and Australian Fur Seal. Croajingalong National Park contains one third of Victoria's and one quarter of Australia's recorded bird species. It contains highly significant coastal streams and catchments which are relatively undisturbed with an absence of introduced fish species and good populations of native fish. (EGCMA 2004) Pest plants and animals are regarded as the major threat to ecological health. (Parks Victoria 2000)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Excellent	30	Wind erosion	East Gippsland RCS – Appendix 3, State of the Regional Environment	Descriptive evidence. No evidence for soil condition, salinity, acidity, contaminants or land use suitability
Water	Excellent	30	Index of Stream Condition for lower Bemm, Cann, Thurra, Wingan and Betka Rivers (2004) NEW!	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition.	Method different to 1999 ISC, not directly comparable. Reach # 2, 3, 12, 24, 26, 29 in EG Basin

Biodiversity	Excellent	40	Extent & Quality of Native Veg (1996) Birds (1996) Pest Plants and Animals	Croajingalong National Park Management Plan (1996) East Gippsland RCS – Appendix 3, State of the Regional Environment	Descriptive evidence.
Air	NA	0			

Key Condition Summary Points

- Near pristine estuarine areas
- Very good water quality

Stewardship Summary

Parks Victoria plays a major role in the management of this area, working from National Park management plans. The draft East Gippsland Regional Catchment Strategy refers to this area in the Parks asset class, and the Croajingalong National Park asset management area. (EGCMA 2004) The Draft East Gippsland Regional River Health Strategy gives priority to the control of weeds in this area, to prevent them from spreading to currently weed-free areas. (EGCMA 2004)

The draft Gippsland Estuaries Coastal Action Plan recommends high priority actions for Yeerung River, Dock, Sydenham and Tamboon Inlets, Thurra, Mueller, Wingan and Betka River estuaries and Mallacoota Inlet. (GCB & WGCMA, 2006)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Reasonable	- Croajingalong National Park Management Plan (1996) - Cape Conron Coastal Park Management Plan (2006) - Draft Cape Howe Marine National Park Management Plan - Draft Point Hicks Marine National Park Management Plan - East Gippsland Regional River Health Strategy (2005) - Draft Gippsland Estuaries Coastal Action Plan (2006)
Implement	Good	Southern Ark predator control program
Evaluate	Reasonable	Water quality monitoring
Improve	Reasonable	
Partnerships	Reasonable	Parks Victoria, NSW National Parks Service, Southern Rivers CMA (NSW) and East Gippsland CMA are currently undertaking cross boarder works to control feral pigs and weeds.

Key Stewardship Summary Points

- Management intensity is low due to minimal human impact – main protection activity is pest plant and animal control.

For more information

– Parks Victoria Information Centre 13 1963 or visit www.parkweb.vic.gov.au
- East Gippsland Catchment Management Authority, (03) 5152 0600, www.egcma.com.au

Alpine National Park

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
B	B-	B-	B-	★★★	★★★	★★★	★★★★

Asset Description
The Alpine National Park covers an area of 646,000 ha. This Report Card mostly focuses on the Wonnangatta-Moroka and Bogong Units of the Alpine National Park. (approximately 380,000ha). These areas boast several Wilderness Zones, Heritage Rivers and Natural Catchment Areas. (Parks Victoria 2000).

Bioregion reference: Victorian Alps and Highlands – Southern Fall

Condition summary

Between 70% and 100% of remnant tree cover remains intact (Victorian Catchment Management Council 2002) Issues for maintaining the land, water and biodiversity values of the park include controlling the high number of pest plant and animals, and managing for wildfire. (Parks Victoria 2000) The removal of grazing aims to improve protection of threatened vegetation communities and species.

The 2003 Eastern Victorian Fires burnt a combined total of 1.3million hectares of National Park, State Forest and private land in the North Eastern and East Gippsland regions of Victoria and Southern New South Wales. Approximately 500 000 hectares of National Park including 60% of the Alpine National Park were affected. (Victorian Government 2003) The impact of the fires was widespread, including potential to reduce water quality and yield, fragment vegetation, increase erosion and threaten endangered species in Gippsland's catchments. The main types of natural environments that have been affected are the eucalypt forests of the upper and lower slopes and the alpine grassland, shrubland, heathland and sphagnum bog vegetation communities at higher altitudes. (Fire and the environment: http://www.nre.vic.gov.au). Thirty two vegetation types have been affected by fire – some have been totally burnt. Approximately 70 threatened flora species have had 90-100 per cent of their known Victorian distribution affected by fire. While much of the vegetation and plant species will respond well to the impact of fire, alpine environments will not. Eight threatened fauna species have had 90-100 per cent of their known Victorian habitat affected. (Ministerial Taskforce on Bushfire Recovery 2003)

The recovery status of streams and catchments in the upper reaches of the Tambo, Mitchell and Snowy River basins is slower than anticipated due to climatic and fire behaviour influences. The catchment and streams are still at risk of sediment and nutrient movement due to this slow recovery. The contributing factors of intense fire activity, the regional extent of the fire event and subsequent low rainfall have

effectively deferred the expected regional erosion activities expected. It is clear that the major repercussions of the 2003 Bogong fire complex are yet to be realised. (SKM 2004) The Environment Protection Authority continues to monitor river health; the next report is due in June 2006. (EPA 2004)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Good	25	Soil erosion risk - water	SKM (2004), Recovery Status of Streams and Catchments in East Gippsland Affected by 2003 Fires	Post 2003 fire
Water	Poor	25	Water Quality – Phospherous & Turbidity	Report: SKM (2004) as above.	Post 2003 fire
Biodiversity	Good - Excellent	50	Native vegetation extent and quality, fauna, pest plants & animals	Parks Victoria (2000) State of the Parks, Groves (1998) Grazing in the high country SKM (2004) as above	New State of the Parks due out later in 2006
Air	NA	0			

Key Condition Summary Points

- Good to excellent condition due to large area that has been protected for a long period of time.
- Recovery from 2003 fire is occurring but is slow, having some impact on water quality and the risk of soil erosion

Stewardship Summary

Parks Victoria has responsibility for management of the Alpine National Park. Park management plans are in place for all four management units, dated 1992. (Parks Victoria 2000)

The East Gippsland Regional Catchment Strategy refers to Alpine National Park in the Parks asset class, noting that it is timely to update park management plans following the 2003 fires. (EGCMA 2005)

A Strategic Plan has been approved for the Australian Alps national parks Co-operative Management Program (2004 – 2007), providing integrated management across Victorian, NSW and ACT Alpine National Parks. (Australian Alps National Parks 2004)

The Victorian Government made the decision to remove cattle grazing from the Alpine National Park in May 2005. The Alpine Grazing Taskforce found significant damaging impacts and no overall benefits for the environment from cattle grazing in the Alpine National Park. (Alpine Grazing Taskforce, May 2005)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Good	- Fresh start – a healthy future - removal of grazing from the Alpine NP (2005) & High Country Initiatives Package - Alpine National Park Fire Recovery Plan (2003) - Strategic Plan 2004-2007 for the Australian Alps National Parks Cooperative Management Program (2004) - Alpine National Park – Bogong, Wonnangatta-Moroka, Dartmouth, Cobberas-Tinagaringy Management Plans (1992)
Implement	Good	- Parks Victorian environmental works program (Wonnangatta Environmental Action Plan 2003) - Fire recovery plan implementation completed 2005 - tasks included: significant catchment rehabilitation, pest plant and animal control, and threatened species programs across the entire fire effected area. - $2.2million will be spent over 3 years on pest plant and animal management in response to removal of grazing - Alpine Bog Restoration project - English Broom control partnership - 1500ha treated over the last 18 months ($380 000) - Feral Horse Management Program (PV with Alpine Brumby Management Association) - 98km's of creekline and river (Bogong Management Unit) have been treated for mature plants (exceeding the expected target of 50km), and an area of approximately 20 Ha has been searched for seedlings. Approximately 9500 seedlings have been hand pulled. ($123 000 + 1100 volunteer hours)
Evaluate	Reasonable	Post Fire - 13 monitoring projects - 7 fauna and 6 flora concentrating on high values.
Improve	Good	DSE & PV October 2005 Post Wildfire Indigenous Heritage Survey – Summary Report - Improving future land management practices
Partnerships	Good	- PV & DSE 2005 DVD - Dancing and the Devil Fire – Uncovering the hidden History of the Alps - English Broom control - Parks Victoria, Department of Sustainability and Environment, Department of Primary Industries, Friends of the Mitta Mitta, High Country Landcare Network, and private landholders

Key Stewardship Summary Points

- Cattle grazing removed from the Alpine National Park. Alpine grazing still occurs on public land in State Forests and private land.
- Largest fire recovery program planned and implemented in Australia – monitoring is on-going.

For more information

– Parks Victoria Information Centre 13 1963 or visit www.parkweb.vic.gov.au
- Australian Alps National Parks www.australianalps.deh.gov.au

Snowy River

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
C	C	C	C	★★★	★★★★	★★★★	★★★★

Asset Description

From the slopes of Mount Kosciusko in NSW to Marlo on the East Gippsland coast in Victoria, the Snowy River flows for over 500km through a broad range landscapes. Reduced river flows due to construction in the 1960s of the Snowy Mountains Hydro-electric Scheme, together with past land management practices have significantly altered the Snowy River's ecology over recent decades. (East Gippsland Catchment Management Authority & Department of Sustainability and Environment 2003)

Bioregion reference: East Gippsland Uplands and East Gippsland Lowlands

Condition Summary

Rivers and creeks in the Snowy River basin have 66% of length in excellent or good condition, and 32% in moderate to poor condition. (ISC2) Most of the moderate to poor readings apply to the condition of the Snowy River itself, largely due to significantly reduced flows from the upstream extraction of water for the Snowy Hydro-electric Scheme. (Victorian Government; Victorian Catchment Management Council 2002).

Reduction of natural flows and the effect throughout the catchment of other human activities has had a significant adverse impact on the ecological condition of the Snowy River in Victoria. Several studies have found all river health components of the Snowy to be degraded due to altered flow regimes, reduced in-stream values, reduced riparian values, reduced wetland values and reduced water quality. (East Gippsland Catchment Management Authority & Department of Sustainability and Environment 2003) The Snowy River National Park protects natural values along part of the river's length in East Gippsland and it is listed as a heritage river in the Victorian River Health Strategy. The 2003 Eastern Victorian Fires also impacted upon the upper reaches and Snowy River National Park.

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Good	10	Assumed		
Water	Reasonable	60	Index of Stream Condition for Snowy River (2004) NEW! All reaches are moderate to poor (1 very poor due to fires)	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition.	Method different to 1999 ISC, not directly comparable. 2003 Fires have affected ISC scores for upper reaches.

			Water Quantity – flows - poor Water Quality – attainment of SEPP – nutrients:low, turbidity/suspended solids & physical parameters: high	Assumed Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report	Note this is pre-fire data.
Biodiversity	Good	30	Assumed		
Air	NA	0			

Key Condition Summary Points

- Extremely modified flow regimes
- Water quality poor in reaches affected by 2003 fires and Willow infestation.

Stewardship Summary

In December 2000, the Victorian, New South Wales and Commonwealth Governments agreed to increase Snowy River flows to 21% over next 10 years, promised to increase to 28% in the longer term. (East Gippsland Catchment Management Authority & Department of Sustainability and Environment 2003) In 2001, the Victorian Government committed to implementing a 10 year program of rehabilitation works on the Snowy River within Victoria. Snowy River Rehabilitation is a multifaceted, integrated program of rehabilitation works. It encompasses a diverse range of projects that will be implemented co-operatively by Government agencies, community groups and landowners. Snowy River Rehabilitation brings existing plans and strategies together with new initiatives aimed at improving the ecological health of the Snowy River. Considerable work has already been completed by the former Snowy River Improvement Trust and more recently by the East Gippsland Catchment Management Authority, including riparian revegetation, bank stabilisation, willow removal, and establishment of an in-stream rehabilitation trial administered by the Trial Project Management Committee.(East Gippsland Catchment Management Authority & Department of Sustainability and Environment 2003)

Priority is given to the rehabilitation of the lower Snowy River in the draft East Gippsland Regional River Health Strategy, associated with the continued return of an appropriate flow regime. (EGCMA 2004)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Excellent	- Snowy River Rehabilitation Project - East Gippsland River Health Strategy (2005) - Draft Gippsland Estuaries Coastal Action Plan (2006) - Gippsland Ports Safety and Environmental Management Plan – East Gippsland (2005)
Implement	Good	- Snowy River fencing & off-stream watering incentive project - Removal of Deddick Catchment Willows (Major tributary of the Snowy) Lower Snowy River Riparian Restoration Project Snowy River Australian Bass stocking

		East Gippsland Catchment Protection (erosion rehabilitation) Waterway Management in the Snowy Basin
Evaluate	Good	Lower Snowy River Riparian Restoration Project
Improve	Reasonable	Lower Snowy River Riparian Restoration Project
Partnerships	Excellent	Snowy River Rehabilitation Project Snowy River interstate Landcare Facilitation

Key Stewardship Summary Points

- High level of interstate and interagency cooperation
- Rehabilitation work is showing early signs of improving environmental condition

For more information

- East Gippsland Catchment Management Authority, (03) 5152 0600, www.egcma.com.au
- Department of Sustainability and Environment, Orbost (03) 5156 1311
- Snowy Project Team, Department of Sustainability and Environment 13 6186

Mitchell River

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
B	B	B	**B**	★★★	★★★	★★★	★★★

Asset Description

The Mitchell River is one of two heritage river systems in Victoria recognised as having very high value, due to high conservation value, high level of naturalness of flows, relative intactness throughout the entire river system and significance for the Gippsland Lakes. (DNRE 2002) The Mitchell River basin also includes other rivers and creeks of significance such as Wongungarra River, Wonnangatta River, Dargo River and Wentworth River.

Bioregion reference: Highlands – Southern Fall and Gippsland Plain

Condition Summary

Of all rivers and creeks in the Mitchell River basin, 70% of the stream length is in excellent to good condition. (ISC2) (Victorian Catchment Management Council 2002). Index of Stream Condition results are poor on the lower reaches of the Mitchell where flow regimes have been altered due to extraction for irrigated horticulture and urban use. Tunnel erosion, sediment and nutrient impacts in parts of the lower catchment have real implications for the Mitchell's ability to contribute to the health of the Gippsland Lakes. The impacts of the 2003 Alpine fires are also evident in the upper reaches of the Mitchell.

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Good	10	Assumed		
Water	Good - Excellent	60	Index of Stream Condition for Mitchell River Basin (2004) NEW! Stream condition % length: 27% Excellent 43 % Good 25 % Moderate 5% Poor Water Quality – attainment of SEPP – nutrients:low, turbidity/suspended solids: high & physical parameters:	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report	Method different to 1999 ISC, not directly comparable. 2003 Fires have affected ISC scores for upper reaches. Note this is pre-fire data.

			medium		
Biodiversity	Good	30	Assumed		
Air	NA	0			

Key Condition Summary Points

- Heritage river system with 70% of stream length in good or excellent condition.
- Altered flow regime in lower reaches has implications for river health and the Gippsland Lakes.

Stewardship Summary

The Mitchell river has been identified by Southern Rural Water as a priority for developing a Streamflow Management Plan, necessary to protect its ecological integrity. The Gippsland Water Quality Action Plan targets nutrient reduction from forest and pasture land uses in the catchment (EGCMA & WGCMA 2005) The East Gippsland Regional River Health Strategy gives priority to all actions in the Lower Mitchell, with a view to improving water quality flows into the Gippsland Lakes. (EGCMA 2005) The Mitchell River appears under the Catchments asset class in the East Gippsland Regional Catchment Strategy. (EGCMA 2005)

Stewardship Evidence Summary

Indicator Theme	**Score**	**Key Evidence**
Plan	Reasonable	Gippsland's Water Quality Action Plan (2005) East Gippsland River Health Strategy (2005) Mitchell River National Park Management Plan (1998)
Implement	Reasonable	Rehabilitation of cleared land to enhance threatened Mitchell River habitats Willow control work
Evaluate	Good	Water Quality monitoring
Improve	Poor	
Partnerships	Good	Gippsland Regional Water Monitoring Partnership

Key Stewardship Summary Points

- Work continues on the lower Mitchell to improve riparian condition
- Streamflow management plan to be developed

For more information

- East Gippsland Catchment Management Authority, (03) 5152 0600, www.egcma.com.au

Thomson River

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
C-	C-	C-	C-	★★★	★★★	★★★1/2	★★★★

Asset Description

The Thomson River extends from Mt Gregory (3,196 m) to Sale, where it joins the Latrobe River. The Thomson Reservoir is the largest structure in the catchment, with a capacity of over 1,100 GL. From the Thomson Reservoir to Cowwarr Weir, the Thomson River is a fast flowing stream with a rock, gravel and sand bottom, flowing in a confined valley through steep forested country. The major natural features of the river in this section are the Narrows, where a gorge has been formed by the river, and the inflow of the Aberfeldy River. Downstream of Cowwarr Weir, the river flows through flatter undulating country. Cowwarr Weir marks a major regulation point, with flows divided between two river channels – the 29 km Old Thomson channel, and the shorter 14 km section of Rainbow Creek – and diversion channels. Rainbow Creek was formed due to a channel avulsion during floods in 1952. Rainbow Creek and the Old Thomson River rejoin near Heyfield. From Cowwarr Weir to the LaTrobe River, agriculture dominates the landscape, with several rural towns and major population centres lower in the catchment.

Bioregion reference: Highlands-Southern Fall and Gippsland Plain

Condition Summary

The Thomson is classed as a heritage river (between Thomson Dam and Cowwarr Weir), exhibiting good water quality, generally good stream substrate and instream habitat and high quality riparian vegetation in the upper reaches. (Sadlier and Doeg 1998) The middle to lower reaches indicate high levels of phosphorus and turbidity, with increasing salinity (EC) in the lower reaches. Significant loss of riparian vegetation has occurred in the lower reaches, and there are some issues about water course and bed/bank stability. (SKM 2003) The Thomson Macalister Environmental Flows Task Force concluded that health of the Thomson and Macalister Rivers has been degraded by human activity. This is evident from the reduction in abundance and distribution of native fish species throughout the catchment, reductions in the in-stream and riparian habitats, reductions in water quality in downstream reaches and increases in the abundance and distribution of exotic fish species. (Thomson Macalister Environmental Flows Task Force 2004)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Reasonable	10	Assumed		
Water	Reasonable - Poor	60	Index of Stream Condition for Thomson River	DSE (2004) ISC2: Index of Stream Condition: The	Method different to 1999 ISC, not directly comparable.

			Basin (2004) NEW! Stream condition % length: 22 % Good 55 % Moderate 5% Poor 7% Very Poor Water Quality – attainment of SEPP – nutrients:low, turbidity/suspended solids & physical parameters: medium to high	Second Benchmark of Victorian River condition. Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report	
Biodiversity	Reasonable	30	Assumed		
Air	NA	0			

Key Condition Summary Points

- First environmental flows released.
- Benchmark of environmental condition taken and ongoing monitoring planned to assess impact of flows.

Stewardship Summary

In 2004, the Thomson Macalister Task Force concluded that river health will further decline if no management changes are implemented; and that conditions are unlikely to improve under current management practices. (Thomson Macalister Environmental Flows Task Force 2004) The Task Force identified the environmental water requirements of the Thomson and Macalister Rivers and made recommendations about flows for the Thomson and Macalister systems. (Thomson Macalister Environmental Flows Task Force 2004)

The Victorian Government responded in the White Paper "Securing our Water Future Together" 2004:
The Government will aim to provide an average of 25,000 megalitres of additional environmental flows annually to improve the health of the Thomson River, Macalister River and Gippsland Lakes. The Government will also restore critical river and wetland habitat.
The additional environmental flows will be provided in two stages:
1. In the short term an additional:
- 10,000 megalitres will be provide for the Thomson River as a bulk entitlement for the environment; and
- 5,000 megalitres will be provided for the Macalister River, by the end of 2006. This will be recovered through a $5 million project to improve distribution infrastructure in the Macalister Irrigation District.

2. Within the next 10 years a further:
- 8,000 megalitres will be provided for the Thomson River. This will be recovered from system savings. The process and schedule for recovery of this water will be determined in the 2005 Central Region Sustainable Water Strategy; and
- 2,000 megalitres will be provided for the Macalister River. This will be recovered through water efficiency savings and the Government has committed $3 million to

the recovery of this water through improvements and modernising the water supply system of the Macalister Irrigation District. (DSE 2004)

The West Gippsland River Health Strategy has given highest priority to the protection of two (of four) reaches of the Upper Thomson, covering 20km of the river. (WGCMA 2004)

The first environmental flows were released at Thomson Dam in early 2006. Baseline monitoring was completed for a range of environmental indicators including water quality, fish and macroinvertebrates. This monitoring will be continued periodically to track changes in environmental condition, post release of environmental flows.

Stewardship Evidence Summary

Indicator Theme	**Score**	**Key Evidence**
Plan	Good	Draft Central Sustainable Water Strategy (2006) West Gippsland Regional River Health Strategy (2005) Securing our Water Future Together – White Paper (2005) Gippsland's Water Quality Action Plan (2005)
Implement	Good	Improving environmental flows in the Thomson and Macalister Rivers - $782 000 River Health On-ground Works Program – Thomson Basin $846 000
Evaluate	Good	Water Quality and Quantity monitoring
Improve	Reasonable	Thomson Macalister Environmental Flows
Partnerships	Reasonable	Thomson Macalister Environmental Flows Taskforce

Key Stewardship Summary Points

- First environmental flows released.
- Benchmark of environmental condition takenand ongoing monitoring planned to assess impact of flows

For more information

- West Gippsland Catchment Management Authority (03) 5175 7800 or www.wgcma.vic.gov.au
- Melbourne Water www.melbournewater.com.au
- Southern Rural Water www.srw.com.au/

East Gippsland Forests

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
B	B	B	B	★★★★	★★★★	★★★★	★★★★

Asset Description

The area used to describe the forests of East Gippsland is the Forest Management Area (also used for the Regional Forest Agreement). The 1.2 million hectares of mostly forested area includes seven National Parks: Alpine (Cobberas – Tingaringy Unit), Snowy River, Errinundra, Coopracambra, Croajingalong, Alfred and Lind. (CRA 1996)

Bioregion reference: Victorian Alps, East Gippsland Uplands, East Gippsland Lowlands and Monaro Tablelands

Condition summary

Coopracambra National Park is recognised as one of the largest areas of high quality wilderness in southeastern Australia. (Parks Victoria 2000) Other natural values in the Forest Management Area are protected in Special Protection Zones. Some 350,000 hectares of State Forest is available for harvesting in the General Management Zone. (CRA 1996) Logging now occurs in these areas under the Regional Forest Agreement and the Code of Forest Practices (1989). The Victorian State Government's 'Our Forests Our Future' policy of 2002 reduced the estimated annual sustainable biological yield in the East Gippsland Forest Management Area by 43% in the light of updated forest inventory data. (State of Victoria 2002)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Good - Excellent	40	Assumed		
Water	Excellent	20	Index of Stream Condition for East Gippsland Basin (2004) NEW! Stream condition % length: 69% Excellent 30 % Good 1 % Moderate	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition.	Method different to 1999 ISC, not directly comparable.
Biodiversity	Good -	40	Assumed		

	Excellent				
Air	NA	0			

Key Condition Summary Points

- High proportion of forested area maintains land, water and biodiversity values
- Several ecosytems in pristine condition protected by National Parks and Special Protection Zones

Stewardship Summary

Department of Sustainability and Environment is responsible for managing the public native forest in the East Gippsland Forest Management Area for multiple uses, working from the 1995 Forest Management Plan. Many actions from the East Gippsland Forest Management Plan have been completed and most actions on-going, with some zoning amendments made to reflect improved mapping. (DSE 2004) VicForests commenced operations on 1 August 2004. VicForests is responsible for the sustainable harvest and commercial sale of Victoria's forest timber, as well as forest rehabilitation and silviculture.

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Good	East Gippsland Forest Management Plan (1995) Coopracambra National Park Management Plan (1998) Errinundra National Park Management Plan (1996) VicForests Sustainable Forest Management Policy (2005) Our Forests, Our Future (2002)
Implement	Good	DSE Forests Vicforests
Evaluate	Good	Victoria's State of the Forest Report (2005) Monitoring Annual Harvest Performance 03/04 (Expert Independent Advisory Panel, May 2005) East Gippsland Environment and Heritage Report - Prepared for Regional Forest Agreement process. (1996)
Improve	Good	Monitoring Annual Harvest Performance Code of Forest Practice for Timber Production (under review) Environment Policy for Victoria's State Forests (ISO 14001 Cert under development)
Partnerships	Reasonable	DSE, VicForests, Parks Victoria

Key Stewardship Summary Points

- Very high proportion of public land.
- Changes to the institutional and governance arrangements have occurred during the past three years.

For more information

- Department of Sustainability and Environment www.dse.vic.gov.au/
- VicForests www.vicforests.com.au/

Both Bairnsdale (03) 5152 0600

Coastal Living

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
C	C	C	C	★★	★★	★★	★★

Asset Description

The Coastal Living asset includes Phillip Island and other coastal settlements such as San Remo, Wonthaggi, Cape Paterson, Inverloch and Venus Bay. It also includes important coastal natural assets such as Bunurong Marine National Park, Churchill Island Marine National Park, Anderson Inlet and Cape Liptrap Coastal Park

Bioregion reference: Gippsland Plain and Strzelecki Ranges

Condition summary

Coastal living areas of Bass Coast and Phillip Island hold many natural values but increases in permanent and seasonal population brings with it pressure for development, potentially threatening land, water and biodiversity values. The current environmental values and features found at Cape Liptrap Coastal Park indicate good condition.(SKM 2003) Some dryland salinity has been mapped in the Wonthaggi/Inverloch area (5500 Ha) with 12000 Ha of very high risk or high risk of salinity (SKM 2003). The main concern for development of this area is the management of wastewater, stormwater and sewerage.(SKM 2003) Fragmentation of vegetation and dune erosion are also of concern. (Phillip Island and San Remo Design Framework 2003)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Reasonable	40	Assumed		
Water	Poor	30	Index of Stream Condition for Bass and Powlett Rivers (2004) NEW! All reaches in the Moderate to Very Poor range. Water Quality Bass River – attainment of SEPP – nutrients:low, turbidity/suspended solids: high & physical parameters: low	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report	Method different to 1999 ISC, not directly comparable.
Biodiversity	Reasonable-	30	Assumed		

	Good				
Air	NA	0			

Key Condition Summary Points

- Water quality poor
- High population growth and development pressures threaten land water and biodiversity values.

Stewardship

The stewardship task is very complex and urgent for this asset. It is complex due to the location and the multiple boundaries of various responsible agencies such as Catchment Management Authorities, Government departments and Shire Councils. It is urgent because of the rapid urban development and the range of potentially competing interests and impacts on the natural environment.

Bass Coast Shire Council has developed a Strategic Framework for Coastal Towns, design frameworks for urban settlements and is participating in the National Sea Change initiative. The Victorian Government Coastal Spaces project recommends that appropriate aspects of the various settlement plans be included in the local planning scheme, and that a comprehensive land use supply and demand study be undertaken for Bass Coast Shire. (Victorian Coastal Council, 2006) The council also conducts and reviews a successful Land Management Biodiversity Incentive Scheme for private landholders. (Bass Coast Shire Council 2004) The Bass Coast Shire Council Municipal Strategic Statement review recognises the both the Port Phillip & Westernport Catchment Management Authority and the West Gippsland Catchment Management Authority. It recommends that the Bass Coast MSS be amended in consultation with the two catchment management authorities to achieve better integration between the MSS and the Regional Catchment Strategies. (Bass Coast Shire Council 2003)

The Gippsland Coastal Agencies Liaison Group provides a professional network for staff involved in the management of natural assets around the Gippsland coast. The group serves an important information sharing role for the management of the Coastal Living asset.

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Reasonable	Bass Coast Strategic Framework for Coastal Towns (2005) Review of the Municipal Strategic statement – Bass Coast Shire (2003) Bunurong Marine National Park Draft Management Plan (2005)
Implement	Reasonable	Coast Action/Coastcare Programs Land Management Biodiversity Incentive Scheme
Evaluate	Reasonable	Coastal Spaces Recommendations Report (2006) Land Management Biodiversity Incentive Scheme Review
Improve	Poor	
Partnerships	Poor	Coastal Agencies Liaison Group

Key Stewardship Summary Points

- Requires integrated land use planning and environmental management by community, industry and government.
- Local planning scheme amendments and land demand/supply study will help protect natural values

For more information

- Bass Coast Shire Council www.basscoast.vic.gov.au/ (03) 5671 2211
– Parks Victoria Information Centre 13 1963 or visit www.parkweb.vic.gov.au
- West Gippsland Catchment Management Authority (03) 5175 7800 or www.wgcma.vic.gov.au
- Port Phillip and Westernport Catchment Management Authority (03) 9785 0183 www.ppwcma.vic.gov.au/

Macalister Irrigation District

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
D-	D	D+	D+	★★★	★★★	★★★1/2	★★★1/2

Asset Description

The Macalister Irrigation District (MID) is the largest irrigation area south of the Great Dividing Range. The MID is located in central Gippsland, and takes its name from the Macalister River, the main source of the district's irrigation water. The MID extends around the river for 53,000 Ha from Lake Glenmaggie to near Sale. Approximately 33,500 ha is currently used for irrigation, and of this 90% is under pasture.
The main town in the MID and its business heart is Maffra, the Murray Goulburn Cooperative processes much of the milk produced by the MID's dairy farmers. Other important centres are Stratford, Heyfield and Sale.

Bioregion reference: Gippsland Plain

Condition Summary

Intensive irrigated dairy farming in the Macalister Irrigation District has resulted in poor environmental quality on site and significant offsite impacts including high nutrient loads entering lower reaches of Macalister, Thomson and Latrobe Rivers. Significant irrigation induced salinity exists (50000 HA with water table of 2m or less), exacerbated by extensive clearing and draining of wetlands. Water quality is poor with elevated turbidity levels, upward trend in conductivity and increasing acidity. (SKM 2003) (Victorian Catchment Management Council 2002) The combined effect of on-farm water savings, dairy effluent reduction and dry weather conditions has reduced nutrient loads from the Macalister Irrigation District.

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Poor	40	Risk of Soil Erosion – water & wind Area affected by salinity	SKM, Renewal of the West Gippsland Regional Catchment Strategy, State of the Catchment (2003) SKM, WGCMA West Gippsland Salinity Management Plan (2005) figure 6, page 22 Creating Gippsland's Future	From Map

			Land suitability for purpose	(2003)	
Water	Poor	40	Index of Stream Condition for Macalister River (2004) NEW! All reaches in the Moderate to Poor range. Defined Environmental Flows Water Quality Macalister River – attainment of SEPP – nutrients:low, turbidity/suspended solids: medium & physical parameters: high Offsite impact – poor 23% of P loads discharged into Gippsland Lakes is from MID, from less than 3% of catchment area	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. Thomson Macalister Environmental Flows Task Force (2004) Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report West Gippsland Waterwatch Data report (2003) EPA, MID Dairy Farms (2003)	Method different to 1999 ISC, not directly comparable.
Biodiversity	Poor	20	Native Vegetation Extent with reference to pre 1750	Assumed	
Air	NA	0			

Key Condition Summary Points

- Most natural values are poor with high several offisite impacts due to the highly modified landscape and intensive irrigated farming
- The combined effect of on-farm water savings, dairy effluent reduction and dry weather conditions has reduced nutrient loads from the Macalister Irrigation District.

Stewardship

The Macalister Irrigation District Nutrient Reduction Plan was developed in 1998 and a review of the plan was conducted in July 2004 and finalised in November 2004. The review found that State Environment Protection Policy nutrient reduction targets

have been met for the last two financial years (GHD 2004). Approximately 250 farms have participated in incentive scheme to reduce offsite impacts from the Macalister Irrigation district by installing re-use dams or converting to spray irrigation. There have also been a large number of whole farm plans completed in the district. The review looked at two alternatives for the future which included a Neighbourhood Environment Improvement Plan and a Land and Water Management Plan.

A Land and Water Management Plan is now currently being developed for the Macalister Irrigation District and surrounding areas as the next step forward from the Review of the MID NRP. The primary goal of the Macalister Land and Water Management Plan is to integrate the management of natural resource issues impacting on priority assets within and surrounding the area. The plan will aim to design a sustainable landscape that takes into account the current land use and off-site impacts on priority assets with the implementation of management actions and mechanisms. The Gippsland Lakes will continue to be a key consideration within the plan and its development.

Southern Rural Water has automated the Macalister Irrigation District's Main Northern Channel as part of its Total Channel Control project - Stage 2. The Victorian Government, through the Victorian Water Trust program, has funded most of the $7 million project. This channel system covers 20% of the district, was automated following the successful automation of the Valencia Creek channel – completed as Stage 1. Stages 1 and 2 aim for 5000 megalitres of savings which will go to environmental flow reserves.

Stewardship Evidence Summary

Indicator Theme	**Score**	**Key Evidence**
Plan	Reasonable	Macalister Land and Water Management Plan (in development) West Gippsland Salinity Management Plan (2005) MID 2030 Infrastructure Plan (in development) MID Nutrient Reduction Plan (1998)
Implement	Good	Incentives and Extension activities – implementation of the MID NRP Development of Whole Farm Plans Groundwater pumping Total Channel Control project 41.25 ha of willows removed and 26 km of land revegetated during 2005
Evaluate	Reasonable	Effluent Management Compliance for dairy production systems in the MID – EPA Auditing 'An overview of Whole Farm Planning programs in irrigation areas in Victoria' Mid Term review into Water Smart Farms Funding (2005) Reuse Monitoring by DPI
Improve	Good	Research on Phosphorus Stores within the Macalister Irrigation District Drain Sediments Nutrient Loads per Drain Catchment Area released from the MID Hydraulic Loading on farms Development of Irrigation Guidelines

		MID 2030 papers and projects on areas including: ▪ Climate change ▪ Water trading outlook ▪ SRW Supply System ▪ On Farm Irrigation ▪ Drain system pollutant control ▪ Pricing finance model ▪ Alternative Supply Options ▪ Economics of region ▪ Adjustments to water security
Partnerships	Reasonable	Nutrient Technical Working Group

Key Stewardship Summary Points

- Total Channel Control project has returned water savings to environment
- Strategic Plans in development for future of MID

For more information

- Department of Primary Industries, Maffra (03) 51470800
- West Gippsland Catchment Management Authority (03) 5175 7800 or www.wgcma.vic.gov.au
- Southern Rural Water (03) 5139 3100 www.srw.com.au

Non-irrigated Dairy Farming of West and South Gippsland

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
C	C	C	C	★★★	★★★	★★★	★★★

Asset Description

Covering the western rolling hills of the Strzelecki ranges, this asset area includes farming districts and townships of Warragul, Drouin, Leongatha, Korumburra, Mirboo North, Thorpdale and Meeniyan. It has a high natural annual rainfall so is not generally irrigated for pasture. Most agricultural land is used for dairy farming with some horticulture and viticulture. An increasing proportion is also being used for rural living as the metropolitan fringe extends eastwards from Melbourne.

Bioregion reference: Strzelecki Ranges and Gippsland Plain

Condition Summary

A long history of extensive clearing has left only between 10-50% of remnant vegetation in this area. (Victorian Catchment Management Council 2002) Most of the land in this area is privately owned and primarily used for non-irrigated dairy farming and some horticulture. Urban growth is also a feature of this area as the metropolitan fringe extends further towards Gippsland. Water quality varies across this area but there are several river reaches showing poor condition. (ISC2 2004). There is a high risk of water erosion and some evidence of soil contamination (Victorian Catchment Management Council 2002) (SKM 2003)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Reasonable	40	Soil Erosion – Wind and Water	VCMC The health of our Catchments (2002)	
Water	Poor - Reasonable	40	Index of Stream Condition for Tarwin River East & West Branches, Fish Creek & Tarago River (2004) NEW! All reaches in the Moderate to Poor range (2 very poor reaches). Water Quality – Tarwin River attainment of SEPP	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. Water Ecoscience (2002) Victorian Water	Method different to 1999 ISC, not directly comparable.

			– nutrients:low, turbidity/suspended solids: high & physical parameters: high Lower Tarago River – low attainment of all SEPP	Quality Monitoring Annual Report	
Biodiversity	Poor	20	Native Vegetation Extent with reference to pre 1750	VCMC The health of our Catchments (2002)	From DSE GIS corporate database. Interpretation of map showing remnant cover by bioregion.
Air	NA	0			

Key Condition Summary Points

- Little remnant vegetation resulting in poor biodiversity values and high risk of erosion
- Water quality poor with degraded riparian zones

Stewardship Summary

This area mostly falls within the West Gippsland CMA region, with some falling within the Port Phillip and Westernport CMA region. South Gippsland and Baw Baw Shire Councils both have responsibilities in this area. The West Gippsland Regional Catchment Strategy recognises the dairying industry as part of the key 'Production' asset for the region and also refers to the agricultural uses of land and water. (WGCMA 2003)
Gippsdairy has developed a 'Regional Natural Resource Action Plan' for the Gippsland dairy industry as part of the national project: "Sustaining our Natural Resources – Dairying for Tomorrow" (NRM Consulting & Terry Makin & Associates 2001). The action plan identifies whole farm planning, land use change and local planning, sustainable productivity, water use efficiency, nutrient management, effluent management, biodiversity and land protection as the key issues for action.

The Gippsland Dairy Riparian Project is designed to demonstrate productive and sustainable management of rivers and riparian areas by the dairy industry. This project is supported by GippsDairy, Dairy Research and Development Corporation (DRDC), Department of Primary Industries (DPI), West Gippsland Catchment Management Authority (CMA), Land and Water Australia. Waterwatch and Melbourne University also assist with monitoring water quality at the sites, and developing the triple bottom line cost: benefit analysis. (Gippsdairy 2004)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Reasonable	GippsDairy Regional Natural Resource Action Plan (2001 under review)
Implement	Good	River Health On-ground works program – South Gippsland GipRIP project (established 2002 – ongoing)
Evaluate	Reasonable	Water quality monitoring EPA Dairy Effluent Auditing GipRIP project (established 2002 – ongoing)

Improve	Reasonable	EMS (Beef and Lamb) DPI Ellinbank nutrient research program GipRIP project (established 2002 – ongoing)
Partnerships		GipRIP project (established 2002 – ongoing) Dairy Effluent (DPI, EPA)

Key Stewardship Summary Points

- GipRIP project demonstrates potential of integrated approach to environmental care on dairy farms
- Potential for broader integration and partnerships between management agencies

For more information

DPI Ellinbank (03) 5624 2222
Gippsdairy (03) 5622 6014, www.gippsdairy.org.au

Brown Coal based Energy Industry

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
D	D	D	D	★★★★	★★★★	★★★★	★★★★

Asset Description

This asset is based in the Latrobe Valley, producing around 90% of Victoria's total electricity generation, with coalfields extending over the Latrobe City and Wellington Shire municipal boundaries. Three electricity generation companies operate in this area: Loy Yang Power, TRUEnergy Yallourn, and International Power, Hazelwood.

Bioregion reference: Strzelecki Ranges and Gippsland Plain

Condition Summary

Brown coal fired power stations in the Latrobe Valley account for over half of Victoria's total greenhouse gas emissions. (SKM 2003) Trends for air quality in the region indicate that harmful air pollutants are remaining at acceptable levels. Visibility-reducing particles remain an issue but have been decreasing over the past 20 years and are often dependent on the incidence of fires and the prevailing weather conditions. (SKM 2003) Power stations are high users of both surface water and deep groundwater from Latrobe Group Aquifer (approx 25000ML/yr), along with offshore gas and oil miners, potentially resulting in land subsidence. (SKM 2003)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Poor	25	Subsidence	SKM (2003) Renewal of West Gippsland Regional Catchment Strategy – State of the Catchment	Description
Water	Poor	25	Index of Stream Condition for Morwell River, Traralgon Creek, Flynns Creek (2004) NEW! All reaches in the Moderate to Poor range. Groundwater Quantity - poor	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. CSIRO (2004) *Falling Water levels in the Latrobe Aquifer, Gippsland Basin*	Method different to 1999 ISC, not directly comparable. Reach # 4, 18, 15, 11 8
Biodiversity	Poor	10	Assumed		
Air	Poor	40	Greenhouse Gas emissions – 85% of	National Carbon Accounting System	Uses CO^2 equivalent measure

			Gippsland's emissions, 67% of Victoria's emissions from stationary energy production Air Quality	(NCAS) (2002)	

Key Condition Summary Points

- High users of surface and ground water with potential land subsidence implications
- Main contributor to Gippsland and Victoria's greenhouse gas emissions.

Stewardship Summary

The three electricity generation companies in the Gippsland region operate under accredited licences and Environmental Management Systems. The West Gippsland Regional Catchment Strategy refers to the brown coal based energy industry across three assets: Land, Atmosphere and Climate, and Production. (WGCMA 2003) The Regional Catchment Strategy draws targets related to greenhouse gas emissions from the Victorian Greenhouse Strategy (DNRE 2002). As part of the Australian Government's Regional Minerals Program, the Latrobe Valley 2100 Coal Resource project (LV 2100) has developed a strategy to guide planning and sustainable mine development practices for brown coal in the Latrobe Valley. (DPI 2005)

Energy Summits were held in May 2004 and June 2005, as part of the Gippsland Energy Challenge project, to explore changes to the energy industry and their potential impacts on the Gippsland region. The priority areas that were identified at the summit include: Future of Brown Coal, Greenhouse, Geo sequestration of CO2, Investment in New Energy plant, Gippsland's preparedness for expansion, Gippsland Engagement and Future Energy Summit. An Energy Policy for the Gippsland region has recently been endorsed by the Gippsland Local Government Network.

Loy yang Power is the recent winner of a Gold Strzelecki Award for Industry Best Practice. Loy Yang Power has developed and implemented an Environmental Management System which meets international standards, and which sets out an environmental policy, objectives and targets, and programs for environmental management.

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Good	Gippsland Energy Policy LV2100 Coal Resources Project
Implement	Good-Reasonable	Traralgon Creek Rehabilitation Project Morwell River Diversion
Evaluate	Good-Excellent	Latrobe Valley Air Quality Monitoring Network Gippsland Regional Water Monitoring Partnership
Improve	Good-Excellent	Environmental Management Systems
Partnerships	Reasonable	Community partnerships such as Waterwatch Water and Air quality monitoring partnerships

Key Stewardship Summary Points

- Electricity generation companies operate under accredited licences and Environmental Management Systems

For more information

- Powerworks Energy Technology Centre www.powerworks.com.au
- Loy Yang Power www.loyyangpower.com.au
- TRUEnergy Yallourn www.truenergy.com.au/Production/Yallourn/index.xhtml
- International Power, Hazelwood www.hazelwoodpower.com.au
- Latrobe City www.latrobe.vic.gov.au/

Latrobe River

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
	D	D	D		★★★	★★★	★★★

Asset Description

The Latrobe River Basin includes the Latrobe, Tanjil, Tyers, Moe, Morwell, and Traralgon river systems. Rivers of the Latrobe rise on the southern side of the Great Dividing Range and the northern side of the Strzelecki Ranges and drain to Lake Wellington the westernmost of the interconnected Gippsland Lakes. Rivers of the Latrobe Basin are characterised by their large size and capacity, forested upper reaches, extensive floodplain areas in the middle reaches and connectivity with freshwater marshes and the Gippsland Lakes Ramsar wetland environment in the lower reaches.

Bioregion reference: Highlands- Southern Fall, Gippsland Plain

Condition Summary

The Latrobe River has been identified as a stressed river system (WGCMA 2004) Index of Stream Condition indicates moderate or poor condition for 65% of the length of the Latrobe River and reaches. (DSE, 2005) (Victorian Government) The draft West Gippsland River Health Strategy identifies several very high and high risks to the river health of Latrobe including: bed instability, bank erosion, channel modification, flow deviation, water quality, exotic flora, degraded riparian vegetation, stock access, loss of in-stream habitat, wetland connectivity and introduced fauna. (WGCMA 2004)

Significant economic value is generated through the supply of water for residential areas, power and paper production and water for irrigation purposes. The Upper Latrobe River sub-catchment is recognised as a representative river within the Victorian River Health Strategy. (WGCMA 2004)

The entire Latrobe system has a significant influence on the Ramsar listed Gippsland lakes area. There is high risk to river and lake health from regulation on environmental flows and outflows from Thomson and Macalister river systems. (WGCMA 2004)

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Poor	10	Assumed		
Water	Poor	60	Index of Stream Condition for Latrobe River (2004) NEW! Stream condition % length: 5% Excellent 30 % Good	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition.	Method different to 1999 ISC, not directly comparable.

			35 % Moderate 30 % Poor Water Quality – Latrobe River attainment of SEPP – nutrients:low, turbidity/suspended solids: medium & physical parameters: medium-high	Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report	
Biodiversity	Poor	30	Assumed		
Air	NA	0			

Key Condition Summary Points

- Flow stressed river due to multiple domestic, industrial and agricultural uses
- Poor water quality

Stewardship Summary

The management task involves several large, intensive users including industry, residents and farmers. Some management plans and programs have achieved improvement in environmental condition, particularly through management of sewerage, waste water and urban run-off. However, further integrated management effort is required to address the 'stressed river' status of the Latrobe.

The draft West Gippsland River Health Strategy gives high priority to five of the eleven reaches (total of 115km) in the Lower Latrobe, three of seven reaches (total of 60km) in the Upper Latrobe in addition to reaches on the Morwell River and Traralgon Creek, and Lake Wellington. An environmental flow assessment for the Latrobe downstream of Tanjil River confluence including Dowd and Heart Morasses and the Sale Common, is under review. The draft Central Sustainable Water Strategy allows for a temporary allocation of 10 000ML per year for environmental flows from unallocated share of Blue Rock and unused entitlement at Lake Narracan pending further research. (DSE, 2006)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Reasonable	Draft Central Sustainable Water Strategy (2006) West Gippsland Regional River Health Strategy (2005) Securing our Water Future Together – White Paper (2005) Gippsland's Water Quality Action Plan (2005)
Implement	Good	River Health On-ground Works Program – Latrobe Basin $1.5 million over two years
Evaluate	Reasonable	Environmental Flow Assessment (under review) Gippsland Regional Water Monitoring Partnership
Improve	Reasonable	Central Region Sustainable Water Strategy
Partnerships	Reasonable	Gippsland Regional Water Monitoring Partnership

Key Stewardship Summary Points

- Environmental flow assessment under review
- Further integrated management effort is required to address the 'stressed river' status of the Latrobe

For more information

- West Gippsland Catchment Management Authority (03) 5175 7800 or www.wgcma.vic.gov.au

Bataluk Cultural Trail

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
	B	B	**B**		★★★	★★★	★★★

Asset Description

The Bataluk Cultural Trail follows routes that Koorie people of East Gippsland have been travelling along for over 18000 years. The Trail extends from Sale through to Cape Conran, with eleven points that highlight indigenous cultural heritage in the Gippsland region. Established to maintain and promote key examples of aboriginal heritage, the trail winds its way through places such as The Knob Reserve, Den of Nargun, Howitt Park, Krowathunkooloong, Aboriginal Keeping Place and Museum, Legend Rock, Buchan Caves, Burnt Bridge Reserve and Moogji Aboriginal Council.

Condition Summary

Indigenous cultural heritage values are recognised by the high concentration of sites that include artefact scatters, shell middens, scarred trees, massacre sites and axe grinding grooves. (Bataluk Cultural Trail Brochure) Most of the cultural values are intact, but must be protected. Environmental condition is assumed to be good due to the protected locations of most of the Trail's sites. Although threats that apply to other protected areas such as pest plants and animals, human impact and fire would apply.

Key Condition Summary Points

- Good environmental condition due to protected locations of most sites
- High cultural values mostly intact

Stewardship Summary

Management arrangements are in place but there is a need to clarify responsibility and provide resources. Development of the Bataluk Cultural Trail was a joint initiative of the Far East Gippsland Aboriginal Corporation, Gippsland and East Gippsland Aboriginal Co-operative, Lake Tyers Aboriginal Trust, Moogji Aboriginal Council, Ramahyuck Aboriginal Corporation, Wellington Shire Council and East Gippsland Shire Council. The Trail cuts through West and East Gippsland Regional Catchment Management Areas and covers a range of public land types, potentially requiring the cooperative management effort of a number of Government departments. (Bataluk Cultural Trail Brochure)

Ramahyuck District Aboriginal Corporation in collaboration with Athlete Development Australia, the Adventure Australia Foundation and the Bounce Back Foundation has secured funding for undertaking the Youth Leadership Program enroute the Bataluk Cultural Trail, commenced in February 2004 and operating for the next two years. The project is the first of its kind and aims at bringing the youth from Indigenous and non-Indigenous backgrounds on a common platform to undertake a study of the

Gunai and Kurnai cultures of Gippsland while undergoing Leadership training in the great outdoors from leading Australian Athletes. (http://www.ramahyuck.org/bataluk/bataluk.html)

Key Stewardship Summary Points
Potential to improve partnerships

For more information

Ramahyuck District Aboriginal Corporation (03) 5143 1644,
www.ramahyuck.org/bataluk/bataluk.html

Krowathunkooloong, the Keeping Place (03) 5152 1891

http://www.gippslandinfo.com.au/Aboriginal/#

Ninety Mile Beach

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
	B	B	B		★★★	★★★	★★★

Asset Description

The Ninety Mile Beach extends from McLaughlin's Beach in the south to Lakes Entrance in the north. It is comprised of coastal dunes separating the ocean from the Gippsland Lakes, Jack Smiths Lake and Lake Denison, and agricultural land.

Bioregion Reference: Gippsland Plain and Twofold Shelf

Condition Summary

Generally, the Ninety Mile Beach and the immediate hinterlands have had very little disturbance and are in very good condition. The subtidal sand community along Ninety Mile Beach has found to be the most species-rich of its type in the world. (Parks Victoria, 2005 – Draft Marine NP Management Plan) (Parks Victoria 2004) Some protection of values occurs through the Lakes National Park, Gippsland Lakes Coastal Park and Ninety Mile Beach Marine National Park.

There is concern about potential coastal subsidence from reduced aquifer pressures, with studies suggesting that the amount of subsidence over the next 70 years is likely to be between 0.09 metres and 4 metres, with a 90% chance that subsidence will be greater than 98mm in the Yarram area. (SKM 2003) Offshore gas and oil miners extract approximately 95,000 ML/year from the Latrobe Group Aquifer (Latrobe Valley Mines approx. 25,000 ML/yr, irrigators 5000 ML/yr) for an estimated sustainable yield of 100 000 ML/yr. There are also risks to coastal settlements and environments from higher sea levels and more intense storm events related to global warming.

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Good	30	Salinity and Acidity mapping	SKM (2003) Renewal of the West Gippsland Regional Catchment Strategy – State of the Catchment	
Water	Good - Reasonable	40	Index of Stream Condition (2004) NEW! for lower Bruthen Creek (moderate - very poor), Monkey Creek (good), Merriman Creek (moderate)	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition.	Method different to 1999 ISC, not directly comparable.

			Water Quality data 2002, Merriman Creek, physical parameters (high), suspended solids/turbidity (medium) Groundwater Quantity	Water Ecoscience (2002) Victorian Water Quality Monitoring Annual Report CSIRO Report (2004) Latrobe Aquifer	
Biodiversity	Good - Excellent	30	Birds Fish Marine Mammals Marine Invertebrates Marine Flora Foreshore Vegetation	Ninety Mile Beach Marine National Park – Draft Management Plan, (2005)	Collated from various studies – no formal monitoring program
Air	NA	0			

Key Condition Summary Points

- Generally good condition due to little disturbance
- Concern about the potential for coastal subsidence due to reduced aquifer pressures

Stewardship Summary

The challenge to protect the environmental values of the Ninety Mile Beach is complex due to the mix of influences from both private and public sectors. Ninety Mile Beach Marine National Park Management Plan is in draft form, facilitated by Parks Victoria. The Integrated Coastal Planning for Gippsland - Coastal Action Plan makes recommendations relevant to planning and development on the Ninety Mile Beach. Ninety Mile Beach hosts a number of key infrastructure for the Gippsland region including Delray Beach Ocean Outfall, Saline Waste Outfall Pipeline to McGaurans Beach, Tasmanian Natural Gas Pipeline, Bass Strait oil/gas pipelines, and Basslink.

The recent Coastal Spaces project supports the Wellington Coast Subdivision Strategy recommendations to address the problem of old and inappropriate subdivisions along the Ninety Mile Beach. The strategy involves focussing development on the existing coastal settlements of Golden Beach/Paradise Beach and returning the areas in-between to either public land or management as large rural conservation lots. (DSE, 2006 – Coastal Spaces Recommendations Report)

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Reasonable	Draft Ninety Mile Beach Marine National Park Management Plan (2005) Wellington Coast Subdivision Strategy (2005) Coastal Spaces Project (2006) Country Towns Water Supply and Sewerage Program (2006) Draft Gippsland Estuaries Coastal Action Plan

		(2006)
Implement	Reasonable	River Health On-ground works program – South Gippsland (Merriman Creek) 38,000 trees planted at Jack Smith Lake by Green Fleet in 2005 Jack Smith Lake fox & rabbit control Dune preservation works
Evaluate	Reasonable	Coastal Processes study - investigate primary and secondary dune erosion along the Ninety Mile Beach Climate Change Impacts Study for the Gippsland Coast
Improve	Reasonable	Wellington Coast Subdivision Strategy (2005) Coastal Spaces Project (2006) Country Towns Water Supply and Sewerage Program (2006)
Partnerships	Reasonable	Coastal Agencies Liaison Group

Key Stewardship Summary Points

- Stronger partnerships will protect environmental values through appropriate land use planning.
- Planning needs to factor in climate change risk and potential for coastal subsidence

For more information

– Parks Victoria Information Centre 13 1963 or visit www.parkweb.vic.gov.au
- Gippsland Coastal Board (03) 5152 0451 www.gcb.vic.gov.au

Strzelecki Ranges

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
		C	C			★★★	★★★

Asset Description

The Strzelecki Ranges asset is a subset of the Strzelecki Ranges Bioregion, due to geographic overlap with the Dryland Dairy report card asset. Much of the region is private freehold dominated by rural residential, agricultural and private forestry pursuits and there are small blocks of public land.

Tarra Bulga National Park (covers an area of 1522 ha), is recognised for its important remnant vegetation, characteristic of the Strzelecki Ranges prior to 1750; including fern gullies, excellent examples of mature forest and Cool Temperate Rainforest remnants. (Parks Victoria 2000)

Bioregion Reference: Strzelecki Ranges

Condition Summary

Large scale clearing has left approximately 26% of vegetation cover, with less than 2% of the bioregion in formal reserves. (Biodiversity Action Planning, 2004) There is high risk of water erosion (SKM 2003). Water quality is generally good but with high nutrient loads recorded, having potentially significant offsite impact on rivers in the lower catchment and Corner Inlet and the Gippsland Lakes. (WATER ECOscience Pty Ltd 2002) (James and Blersch 2004)

Remnant vegetation is generally poor, threatened flora good, threatened fauna poor, pest plants and animals poor (Boyle and Lowe 2004) A small amount of remnant vegetation is well reserved in Tarra Bulga National Park.

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Reasonable	30	Water Erosion – high risk	SKM (2003)	
Water	Reasonable-Good	30	Index of Stream Condition (2004) NEW! for upper Franklin Creek, Albert, Jack & Tarra Rivers, Merriman & Bruthen Creeks, Upper Morwell river, middle Creek, Traralgon Creek (good to moderate) Water Quality data 2002, Upper Tarra River, nutrients (low), physical parameters	DSE (2004) ISC2: Index of Stream Condition: The Second Benchmark of Victorian River condition. Water Ecoscience (2002) Victorian Water Quality	Method different to 1999 ISC, not directly comparable. Reaches 22, 26, 30, 32, 35, 41, 38 in South Gippsland Basin Reaches 20, 22, 12 in Latrobe Basin

			(high), suspended solids/turbidity (high)	Monitoring Annual Report	
Biodiversity	Reasonable-Poor	40	Remnant vegetation (poor), Threatened flora (good), Threatened fauna (poor), Pest plants and animals (poor)	Boyle & Lowe (2004) Biodiversity Action Planning Strategic Overview for the Strzelecki Ranges Bioregion -Draft	
Air	NA	0			

Key Condition Summary Points

- Extensive clearing over the past century has resulted in land erosion.
- Area is crucial catchment for Corner Inlet and Gippsland Lakes
- A small amount of remnant is well reserved in Tarra Bulga

Stewardship Summary

The Strzelecki Ranges Bioregion Action plan is in draft form, providing a comprehensive regional overview of planning and management of native biodiversity. The draft plan also outlines management responses for public land (including State forest), local government and private land. More detailed action planning will need to occur at the landscape and local area scales for this action plan to take effect. (Boyle and Lowe 2004)

Partnership projects between private forestry, Greening Australia, private landholders and Monash University are making progress in restoration and protection. In addition, Hancock Victorian Plantations (HVP) has become the first major forest manager in Australia to receive Forest Stewardship Council certification, which recognises high standards and continuous improvement in forest management and environmental performance.

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence
Plan	Reasonable	Strzelecki Bioregion Action Plan (Draft) (2004) Tarra Bulga National Park Management Plan (1996)
Implement	Reasonable	Revegetation of Steep Slopes project $676 000 over 4 years. South Gippsland Indigenous Seedbank
Evaluate	Reasonable	Revegetation of Steep Slopes project
Improve	Reasonable	Hancock Victorian Plantations Forest Stewardship Council certification
Partnerships	Reasonable	Revegetation of Steep Slopes project

Key Stewardship Summary Points

- Private landholders, the private forestry industry and Government are working together to revegetate steep slopes.

For more information

– Parks Victoria Information Centre 13 1963 or visit www.parkweb.vic.gov.au

– Grand Ridge Plantations (03) 5134 3433 www.hancockvicplantations.com.au

- Greening Australia (South East Region – Victoria) (03) 5662 5201

The Latrobe Group Aquifer

Condition Rating				Stewardship Rating			
03	04	05	2006	03	04	05	2006
			F				★★

Asset description

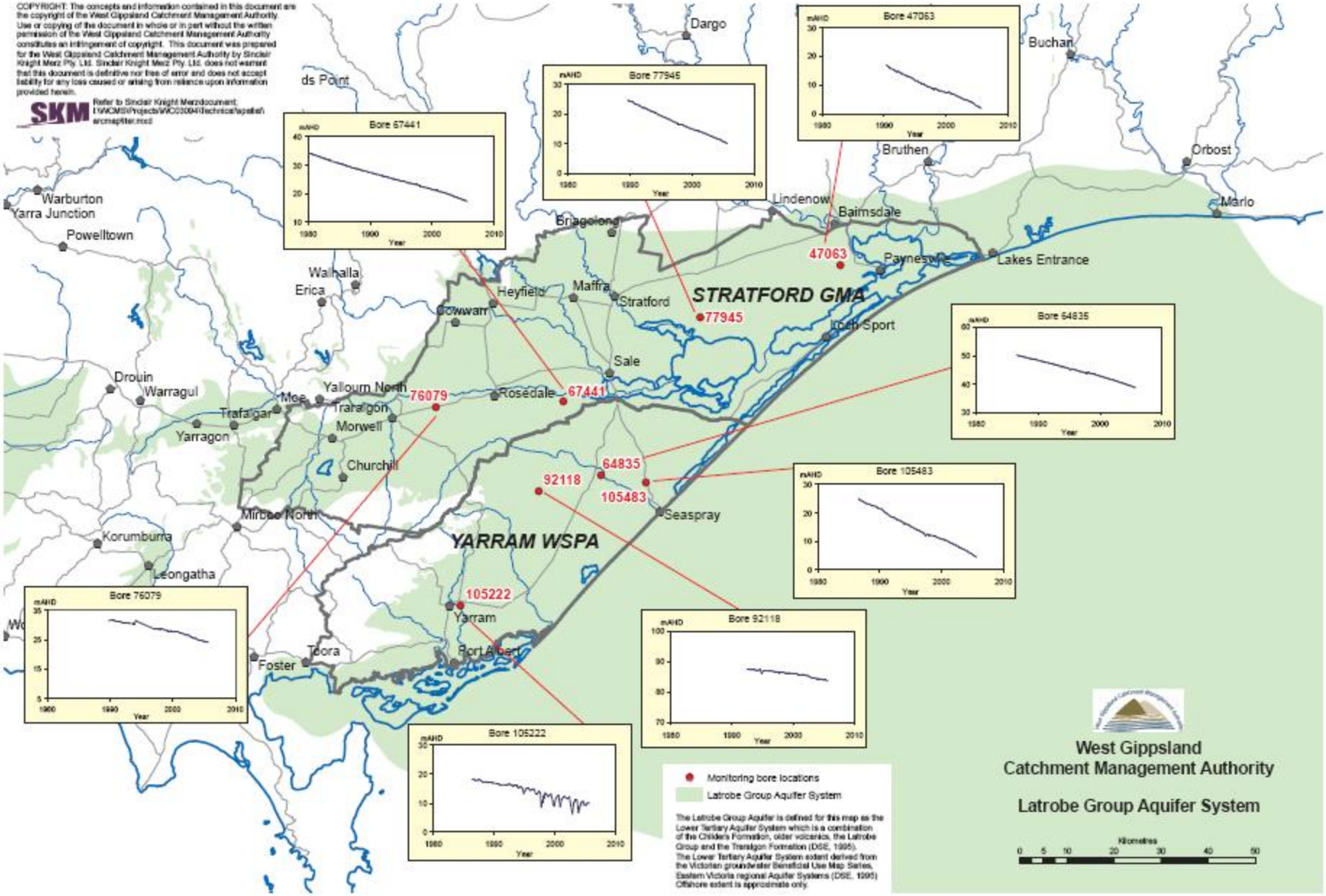
The Latrobe Group Aquifer is the deepest of a thick series of groundwater bearing units within the Gippsland sedimentary basin. The on-shore extent of the aquifer is shown in Figure 1. The aquifer also extends off-shore and is the main source of oil and gas in the Bass Strait oil fields.

The Latrobe Group comprises Late Cretaceous to Early Tertiary aged unconsolidated sand, silts, clays, coal and minor volcanics. The aquifer directly overlies basement rocks and the geometry of the aquifer is heavily influenced by faulting and folding of the basement rocks. Over most of the region, the Latrobe Group Aquifer is relatively deep reaching a maximum depth of approximately 900 metres near the centre of the Gippsland Basin. However, in the Yarram region, the aquifer is relatively close to the surface with the top of the aquifer only approximately 40 metres from the surface (SKM, 2001a). The Latrobe Group Aquifer has hydraulic connection to a variety of overlying aquifers especially the Balook Formation in the Yarram region.

Aquifer Characteristics:
The Latrobe Group Aquifer contains good quality groundwater onshore and massive hydrocarbon resources offshore (Holdgate, 2003). The salinity of the groundwater within the aquifer is typically below 500mg/L making it suitable for most uses. Bore yields vary between 5 and 100 litres per second. Significant groundwater recharge to the Latrobe Group occurs where it outcrops around the northern and western margins of the Gippsland Basin. Recharge to the aquifer also occurs through vertical leakage from overlying aquifers (e.g. Balook Formation).

Current Uses:
The Latrobe Group aquifer supports a variety of industries across South and Central Gippsland. Total groundwater extraction from the aquifer is approximately 120,000ML/year. The largest portion of this stems from offshore oil and gas production, with extraction rates of approximately 90,000ML/year. Offshore oil and gas production in the area is expected to cease by the year 2023. Extraction rates associated with coal mine dewatering in the Latrobe Valley range from 20,000 to 30,000ML/year. In the Yarram area, approximately 5,000ML per year is pumped from the aquifer for irrigation purposes. A further 3,500ML/year is used for consumptive purposes.

FIGURE 1: Extent of Latrobe Group Aquifer and Groundwater Management Areas and magnitude of groundwater level decline



Condition summary

Over the past 30 years, groundwater levels in the Latrobe Group Aquifer have declined by an average of approximately 1.1 meters per year (SKM, 2004). The hydrographs shown in Figure 1 illustrate this long term decline which is relatively consistent across the area and over time. This decline is due to the extraction rate exceeding the rate of recharge to the aquifer. CSIRO (2004) estimate recharge to be 80,000ML/year while total extraction is approximately 120,000ML/year.

Research into the relative influence of extraction for irrigation, mine dewatering and offshore oil/gas production on regional groundwater level declines has been undertaken by SKM (1999) using a numerical model to simulate aquifer behaviour. The results indicate that onshore extraction for irrigating and consumptive use has only a small impact on regional groundwater level declines. Extraction associated with coal mine dewatering centred around the Moe area is generally localised, but studies indicate that its impact has extended east of Sale (CSIRO, 2004). However, it is difficult to attribute rapidly falling water levels in the Yarram region to mine dewatering. A 2004 study by the CSIRO found that the magnitude and change in water levels in the Latrobe Group aquifer are "clearly associated to some large but geographically variable degree with off shore oil and gas production".

Impacts of groundwater level decline

Groundwater quality

There is potential for inducing a downwards flow of saline water from overlying aquifers into the Latrobe Group Aquifer, if the rate of groundwater level decline continues. The groundwater pressures in the Latrobe Group Aquifer are currently at or below the pressures of overlying aquifers indicating a potential for downwards flow. The vertical hydraulic relationship between the various aquifers is not well understood so it is difficult to determine the volumes of vertical flow potentially induced by a further decline in Latrobe Group Aquifer pressures. CSIRO (2004) estimate that the downward vertical flow to the Latrobe Group Aquifer may be as much as 20,000ML per year.

The groundwater salinity in the overlying aquifers is generally similar or of poorer quality than the Latrobe Group Aquifer. This is especially the case close to the coast where groundwater salinities can be as high as 1,500 mg/L (Warragul 1:250,000 hydrogeology map).

Economic Impacts on the Yarram Irrigation Industry

In the Yarram area, declining water levels in the Latrobe Aquifer result in the need to deepen or replace existing irrigation supply bores. This also results in an increased cost of pumping. SKM (2001c) estimated that the total monetary cost to irrigators over the next 30 years for these adverse impacts is likely to be in the range of $3.8M to $5.3M (present value).

Impacts on groundwater-surface water interaction

In recharge areas at the margins of the Gippsland Basin where the Latrobe Group outcrops or subcrops near the surface, a decline in groundwater levels could potentially lead to a reduction in baseflow in streams crossing the near-surface Latrobe Group and Balook Formation. The loss of base flow during the summer months has the potential to be a significant issue because loss of flow during low flow periods can impact significantly on river ecology. It could also impact on the reliability of surface water supplies for urban, stock and domestic and irrigation purposes. SKM (2005) identified the loss of base flow in the 46km of rivers and streams that cross the Latrobe Group recharge areas at the base of the Strzelecki Ranges as a likely impact of declining groundwater levels in the region. Wetlands associated with these rivers within the recharge area would also be affected by reduced base flow. More specifically, SKM (2005) suggests declining groundwater levels in the region is likely to have contributed to the calculated 75% reduction in baseflow in the Tarra River since the early 1950s.

Salt water intrusion

Previous studies (e.g. SKM 2004) have identified the coastal area between Port Albert and Port Welshpool as being at risk of saline intrusion due to the aquifer pressures being lowered below sea level. Although the potential for sea water intrusion has been identified, a lack of observation bore data in the area precludes an analysis of whether it is actually occurring. It has been recommend that a number of new observation bores be constructed in the area for the purposes of collecting groundwater quality and level data along the coast.

Land Subsidence

With the falling groundwater levels in the Latrobe Group Aquifer, there is the potential for the compaction of overlying clay layers resulting in land subsidence. Localised subsidence is measured and well documented in the vicinity of the Latrobe Valley mining operations with up to 2.3m of subsidence measured in the region (Hatton et al., 2004). Subsidence is difficult to measure given the lack of stable benchmarks and the long period of time involved. The Department of Primary Industries is currently co-ordinating a program of measuring land subsidence over the costal region with a baseline study conducted in 2003 and follow up measurements in late 2005. The recent monitoring shows no evidence of subsidence relative to the baseline results although longer period of records are required for any definitive conclusion on the amount of actual subsidence (if any). Modelling to predict subsidence levels vary widely depending on the geographic area and method used. SKM (2001b) predicted that at Yarram, there is 50% chance subsidence will be greater than 290mm by cessation of oil and gas production in 2023 and a 90% chance the subsidence will exceed 100mm. The Gippsland coast is considered to be particularly vulnerable to subsidence, since the Gippsland Lakes are separated from the ocean by a narrow, low sand barrier.

Condition Evidence Summary

Indicator Theme	Score	Weight %	Key Evidence	Evidence Source	Data Comment
Land	Poor to Reasonable	10	Potential subsidence	Comparison of 2005 survey results to 2002 baseline survey undertaken by * on behalf of Department of Primary Industries	Time between data measurements is relatively small compared to length of time anticipated for subsidence to occur. Need a longer period of record to determine long term subsidence rates. Modelling suggests there is a high risk of at least some subsidence over the next 25 years.
Water	Degraded	90	Sustained groundwater level decline averaging 1.1m/year across the region	Water level data from State Observation Bore Network	Spread of observation bores is adequate to conclude the groundwater level decline is sustained both spatially and temporally.
Biodiversity	NA	0			
Air	NA	0			

Key condition summary points

- Groundwater level decline in the Latrobe Group Aquifer averaging approximately 1.1m per year for last 25 years.
- Groundwater level decline impacts on groundwater based irrigators in the Yarram region, is likely to result in reduced baseflow to streams in the Tarra River area and has the potential to cause land subsidence (only detected so far around Latrobe Valley Mines)

Stewardship summary

On-shore management of aquifer and land subsidence

The Victorian approach to the management of State's groundwater resources is to define 'Groundwater Management Areas (GMA)' for aquifers with either a high use or a potential for high use. A geographic boundary and a vertical depth extent define GMAs. Each GMA is assigned a 'Permissible Annual Volume (PAV) which is loosely a measure of the sustainable yield from the given aquifer. The PAV is based on the net annual recharge to the aquifer, which is usually calculated as the vertical recharge for "unconfined aquifers" connected to surface processes, and the volume of throughflow for "confined aquifers" separated from surface processes. The PAV is a difficult parameter to estimated and there is generally a high degree of associated uncertainty.

The Rural Water Authorities use the PAV values to define the maximum allowable groundwater allocation within any one GMA. In some cases, the PAV figures were calculated too late to restrict allocations, resulting in some GMAs being over 100% allocated. When the allocation in a GMA reaches 70% of the PAV, a 'Water Supply Protection Area (WSPA)' can be declared. A WSPA requires a government appointed management committee to compile a Groundwater Management Plan for the region to ensure long term sustainability of the resource.

The useable part of the Latrobe Group Aquifer has been covered by the Stratford GMA in the north and the Yarram WSPA in the south (see Figure 1 for location). The Yarram WSPA was declared in November 2002 as a step towards the protection of the aquifer from the emerging threats of over-use. The Yarram WSPA extends from Port Welshpool in the south-west to Golden Beach in the north-east. It covers all depths, except for where the Giffard GMA occurs (covering the overlying Boisdale Formation) where is begins at a depth of 200m. The Stratford GMA lies directly north of the Yarram GMA, approximately extending from Morwell in the west to Metung in the east. The depth criteria for the Statford GMA is variable across the GMA, ranging from 150m to greater than 350m.

Southern Rural Water is the agency responsible for the issuing and management of groundwater licences for on-shore extraction. As with all groundwater extraction in Victoria, any bore extracting for purposes other than stock or domestic use are required to be licensed. Currently, no new groundwater licences are being issued by Southern Rural Water for either the Yarram WSPA or the Stratford GMA, with the PAV set at current allocation (26,234ML and 12,474ML respectively). The managing and licensing of off-shore extraction is the responsibility of the Department of Primary Industries.

Under the direction of the Department of Sustainability and Environment, Southern Rural Water is also responsible for developing a formal groundwater management plan for the Yarram Water Supply Protection Area. This plan is currently being prepared by the Government appointed management committee although the completion date for the plan is uncertain. The plan is likely to result in restrictions on trading to protect the aquifer from the threat of unsustainable use, sea water intrusion and local bore interference. In addition, the Department of Sustainability and Environment are investigating the impacts of declining groundwater levels on Yarram groundwater irrigators.

No formal management plan is being compiled for the Stratford GMA due to the users mainly being restricted to the coal mine activities. The key current management actions for the Stratford GMA is the ban on any new licences being issued and the yearly and five yearly reporting requirements of the Latrobe Valley Mines to investigate and document the effects of their groundwater extraction activities.

The Department of Primary Industries is currently co-ordinating a program of measuring land subsidence over the costal region with a baseline study conducted in 2003 and follow up measurements in late 2005. Another round of measurements is planned for the 2006/07 financial year.

Off-shore management of aquifer

The management of off-shore gas, oil and groundwater extraction is a joint Commonwealth/ State responsibility under the Commonwealth Petroleum Submerged Lands Act which covers the area greater than three nautical miles off-shore. The Department of Primary Industries is the State Government authority responsible for administering the State responsibilities as part of this Act. There is no known formal management plan or investigation work being undertaken to address the off-shore contribution to the observed on-shore decline in groundwater levels.

Stewardship Evidence Summary

Indicator Theme	Score	Key Evidence	Comment
Plan	Reasonable to Poor	Groundwater Management Plan currently being developed for the Yarram WSPA.	No formal management plan to manage effects of off-shore extraction. No formal management plan for Stratford GMA
Implement	Poor	Current actions restricted to freeze on additional licence in Yarram and Stratford GMAs.	No actions to mitigate effects of off-shore gas and oil extraction on the observed on-shore decline in groundwater levels
Evaluate	Reasonable	Adequate groundwater monitoring network. Commencement of subsidence monitoring with baseline survey in 2003 and follow up survey in late 2005.	
Improve	Poor	Monitoring used to assess the sustainability of the current extraction and potential for subsidence.	
Partnerships	Poor	Yarram WSPA community based committee formed and begun to develop the Yarram Groundwater Management Plan	

Key Stewardship Summary Points

- Groundwater Management Plan currently being developed for the Yarram WSPA by a Government appointed community and agency group;
- Monitoring program established to determine the amount of coastal land subsidence;
- Department of Sustainability and Environment is currently reviewing the impact of declining groundwater levels on Yarram groundwater irrigators

For more information

On-shore:

Groundwater management:

Southern Rural Water: (03) 5139 3100

Department of Sustainability and Environment: (03) 9637 8000

Subsidence:

Department of Primary Industries: (03) 9637 8000

Gippsland Coastal Board www.gcb.vic.gov.au (03) 5152 0451

Off-shore:

Department of Primary Industries: (03) 9637 8000

Report Card Purpose and Process

Purpose of the Natural Resources Report Card

The production of an annual report card is one of six strategic goals developed by the Reference Group of GINRF. The purpose of the report card is threefold:

1. Foster the strategic integration of natural resource management
    - Focus thinking, planning and action on collective natural assets that transcend organisational and geographical boundaries.
    - Provide a whole-of-Gippsland view of natural resource management
    - Evaluate the quality of existing strategic, management and research partnerships and identify synergies that would benefit from new partnership arrangements.

2. Provide a credible, independent and regular evaluation of natural resource management in Gippsland
    - Give an independent perspective on natural resource management in Gippsland
    - Provide accurate and timely information to members and other stakeholders
    - Identify gaps in knowledge, data, strategy and action

3. Cultivate a strong regional identity for Gippsland based on natural resources
    - Draw together existing information and present it in a useful and accessible format
    - Give a whole-of-Gippsland evaluation of performance against state, national and international indicators
    - Promote Gippsland's clean, green image to outsiders and to Gippslanders themselves

Key Stakeholders/Audience for the Report Card

- Members of the Gippsland Integrated Natural Resources Forum
- Victorian and Australian Government
- Investors in natural resource management in Gippsland
- Gippsland community
- Victorian community

Report Card Development Process

A small working party was formed to develop the first Natural Resources Report Card in March 2003, from open invitation to GINRF Reference Group members. Report card development followed an eight step process outlined in Environment Australia's "A Framework for Public Environmental Reporting", the Australian interpretation of the Global Reporting Initiative. The eight steps follow a plan, measure, report and review cycle. The review phase informed the development of the 2004 Report Card, adding

three new assets and more detail to the condition and stewardship components of the companion document.

The 2005 and 2006 Report Card development has followed the MERGe Framework developed by regional stakeholders to address monitoring, evaluation and reporting for Gippsland's natural resources. (SKM 2004)

See more detail about how the condition and stewardship ratings are determined in the Detail section of this document.

About the Gippsland Integrated Natural Resources Forum

The Gippsland Integrated Natural Resources Forum is a whole-of-Gippsland approach to the management of the region's natural resources under the slogan *Catchment Health – Gippsland's Wealth.* The role of the Forum is to achieve a cooperative and strategic approach to natural resource management in the region.

The vision of the Forum is to: *"Unify the efforts of Gippsland's natural resource managers, to ensure the cultural, economic and social activity of Gippsland is conducted in harmony with its environment."*

The Forum has a membership of some sixty organisations including government departments, catchment management authorities, municipal councils, rural and urban water authorities, universities, private industry, regional development bodies, community based groups (such as Landcare), and cross agency groups (such as Gippsland Research Coordination Group). An Executive is drawn from the broader Forum membership, with a chair who is independent from member organisations: Keith Hamilton.

Plans for the Future

Natural resource managers in the Gippsland region understand the importance of good information for good decision making. Project MERGe is addressing the information needs by implementing a Monitoring, Evaluation and Reporting Framework. The Framework has informed the development of this Report Card and the State of the Gippsland Lakes Report, and will be implemented over the next twelve months. For the 2007 Report Card, we can look forward to a more comprehensive coverage of natural resources information.

Feedback

The Gippsland Integrated Natural Resources Forum welcomes feedback on the report card development process.

Written submissions can be mailed to:

Gippsland Integrated Natural Resources Forum
16 Hotham Street
Traralgon 3844

Email:

Carol.Jeffs@ginrf.org.au

Phone:

Carol Jeffs
GINRF Executive Officer
(03) 5175 7800

Condition and Stewardship in Detail

Stewardship

1. Stewardship Defined

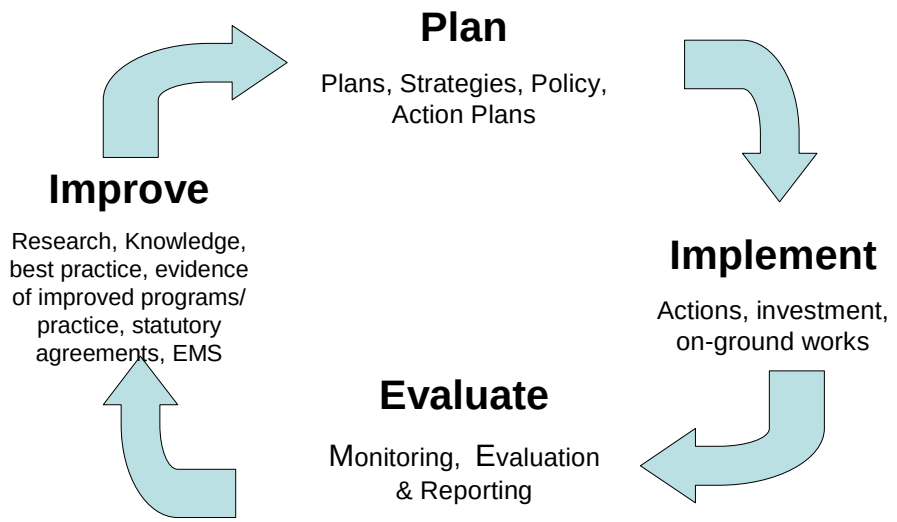
The careful and responsible management of the natural asset by the range of community, industry and government stakeholders entrusted with its care.

2. Rating Definitions

Rating	Description	Definition
*****	Fully integrated	Complete with high quality stewardship process, significantly impacting the asset condition. High level of government, community and industry engagement.
****	Mostly integrated	Complete with average/good quality of most parts of the stewardship process, having potential to improve the asset condition. Some evidence of partnership arrangements.
***	Some integration	Most parts of the stewardship process complete with average/poor quality, having unclear impacts on the condition. Government, community and industry engagement may be fragmented. Weak partnerships.
**	Little integration	Gap in one or more of the processes and low quality is hampering effective stewardship of the natural asset. There is danger of contributing to asset condition decline.
*	No integration	Significant gaps in the stewardship process. Contributing to decline in asset condition

3. Rating Method

Our stewardship performance is measured against four phases of an adaptive management cycle: Planning, Implementing, Evaluating and Improving.



For each of these four phases, there are three measurement elements:

1. Is it in place/has it been done?
2. Is it of acceptable quality?
3. Has it been done in partnership with community, industry and government?

4. Some questions to guide stewardship rating of natural assets

Plan	
Done	Is there a plan or strategy in place for this asset?
Quality	Is the plan relevant/timely or is it too old to be useful?
	Does it consider the appropriate range of values? Env, Social, Economic, Cultural
	Does it (or combination of plans) consider the full range of attributes for asset class? Land, Water, Biodiversity, Air
	Is the plan linked to the relevant regional catchment strategy?
	Is the plan linked to a relevant State or Australian government policy?
Partnerships	Have community, industry and government been consulted during the planning process?
Implement	
Done	Is there investment in this asset?
	Is there action to address condition?
Quality	Is the action/investment linked to plans and policies
	Is the investment enough to make a difference? Is the extent of the activity/investment appropriate for outcomes required?

	Is the action/investment targeted to achieve asset outcomes?
	Is there an appropriate level of awareness?
Partnerships	Is the activity coordinated/aligned between community, industry and government?
	Are there active partnerships to deliver outcomes?
Evaluate	
Done	Is there Monitoring Evaluation & Reporting activity for this asset?
Quality	Is monitoring, evaluation and reporting linked to plans/objectives?
	Has Implementation made a difference to the asset? Has it done what we thought it would do?
	Do the evaluation results give a clear indication of what to do next in either plan or implementation?
Partnerships	Is MER activity co-ordinated between community, industry and government?
	Is MER activity for this asset aligned with MER activity for other relevant assets?
Improve	
Done	Have we applied learnings from Evaluate step to Planning and Implementation?
Quality	Have we considered new/updated thinking (research outcomes) for this asset in our decision making?
	Have we updated our understanding of how the ecosystem works?
	Has this better understanding resulted in better decisions for better natural resource outcomes?
	Are we adopting best practice to the management of this asset?
	Have we committed to statutory/legislative processes such as EMS, covenants etc?
	Has legislation, policy been changed to improve outcomes for this asset?
Partnerships	Are there formal agreements to act in the collective interest?

Condition

1. Condition Defined

An assessment is made about the overall environmental condition of each natural asset by measuring against indicators relating to land, water, biodiversity and air values. Both the immediate location of the asset and offsite impacts are considered.

2. Condition Rating Definitions

Rating	Description	Definition
A	Excellent	Environmental values are in good to excellent condition. No adverse offsite impacts.
B	Good	Most environmental values are good. Minimal offsite impact
C	Reasonable	Some environmental values are indicated as poor, but are recoverable. Some offsite impacts.
D	Poor	Many environmental values are poor. Improvement of assets needs addressing. Several adverse offsite impacts.
F	Degraded	Natural values are degraded. Extensive offsite impacts.

3. Condition Indicators

Land

Indicators that will tell us about the ability of the land to: sustain ecosystems and/or productive systems; for current and future generations; both in the immediate location and offsite.

Need to know: the health of the soil, the nature and rate of decline in this soil, given these two things - is the current land use appropriate - how does this affect water, biodiversity and air?

Condition themes	Condition Indicators
Erosion	Soil erosion - wind Soil erosion - water
Soil condition	Soil carbon content Biological Health - microbes Nutrient Levels
Salinity	Area of rising water tables Area affected by salinity Groundwater salinity
Acidity	Area affected by acidity Acid sulphate soils
Contaminants	Exeedence of the maximimum residue levels in food & produce

	Residual pesticides
Land use/capability	Abandoned Land Land suitability for purpose
Water yield	
Groundwater recharge	
Plant species support	
Subsidence	

Water

Indicators that will tell us whether: the quantity and quality of water is sufficient to sustain ecosystems and/or productive systems; for current and future generations; both in the immediate location and offsite.

Need to know: quantity, quality and supporting natural infrastructure (beds, banks, wetlands etc), plus impact on land, biodiversity and air

Condition themes	Condition Indicators
Index of Stream Condition	
Water Quantity	Defined environmental flows
Water Quality (Exceedence of surface water quality guidelines)	pH Phosphorus EC Nitrogen Turbidity DO Temperature
Biological Health (Check what SEPP WoV includes)	Macroinvertibrates Fish stocks
Wetland Health	Exent of regionally signficant wetlands Condition of regionally significant wetlands
Aquatic Vegetation	
Groundwater Quantity	
Groundwater Quality	
Riparian Vegetation	
River physical structure	
Riparian Vegetation	

Floodplains	
Marine pests	

Biodiversity

Indicators that will tell us whether: the extent, quality and diversity of flora and fauna is sufficient to sustain ecosystems and/or productive systems; for current and future generations; both in the immediate location and offsite.

Need to know: quantity, quality and diversity of flora and fauna, plus impact on land, water and air

Condition themes	Condition Indicators
Native Vegetation	Extent with reference to pre 1750 distribution
	Quality
	Threatened flora
	Conservation status
	Riparian Vegetation
Fauna	Birds
	Fish
	Mammals
	Reptiles
	Invertebrates

Air

Indicators that inform us of atmospheric and air conditions both in the immediate location and offsite (extending to global impact in the case of greenhouse gases)

Condition themes	Condition Indicators
Greenhouse Gas emissions	Annual Greenhouse gas emissions
	Greenhouse gas atmospheric concentrations
Air quality	Exceedences of NEPM Air Quality Standards for carbon monoxide, ozone, lead nitrogen dioxide, sulphur dioxide and particles concentrations

4. Rating Method

1. Decide on the broad weighting of condition themes for that particular asset (land water biodiversity air) (adding up to 100 for asset condition)
2. Decide on indicator weightings within each condition theme (adding up to 100 within each broad theme)
3. Rate asset's performance against each indicator - (Excellent – scores 3, Good – scores 2, Poor – scores 1)
4. Determine relative performance out of total possible score
5. Multiply this by the indicator weighting
6. Add up total score for each condition theme
7. Moderate for broad weightings decided in 1.
8. Determine rating (F = below 50, D = 50-59, C=60-75, B=76-90, A=90-100)

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