

Appendices

Appendix one – Legislation and Policy	2
Appendix two – Roles and responsibilities	3
Appendix three – Learnings from the RHS	6
Appendix four – Regional goals and intent statements	8
Appendix five – High value waterways	10
Appendix six – Supporting tools	18
Appendix seven – Regional goals and prioritisation results	19
Appendix eight – RCS and Waterway Strategy priorities	31
Appendix nine – Limits of Acceptable Change for the Corner Inlet Ramsar Site	33
Appendix ten – Detailed method for Ramsar Site planning	37
Appendix eleven – Corner Inlet Ramsar site LACs and Monitoring Requirements	43
Appendix twelve – Communications and Engagement Activities and Outcomes	50

Appendix one – Legislation and Policy

Federal and state government legislation, policies and agreements relevant to the preparation of the West Gippsland Waterway Strategy and considered during the development of this strategy are shown below.

Legislation	Policies, strategies and agreements
Aboriginal Heritage Act 2006	China-Australia Migratory Birds Agreement (CAMBA), 1986
Catchment and Land Protection Act 1994	Convention on Migratory Species (Bonn Convention, 1983)
Climate Change Act 2010	Convention on Wetlands of International Importance (Ramsar Convention, 1971)
Coastal Management Act 1995	Directory of Important Wetlands of Australia, 2001
Conservation, Forests and Lands Act 1987	Gippsland Lakes Environment Strategy, 2013
Environment Protection Act 1970	Gippsland Lakes Ramsar Site Strategic Management Plan, 2003
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)	Intergovernmental Agreement on a National Action Plan for Salinity and Water Quality, 2000
Fisheries Act 1995	Japan–Australia Migratory Birds Agreement (JAMBA), 1974
Flora and Fauna Guarantee Act 1988	National Water Initiative, 2004
Heritage Rivers Act 1992	National Water Reform, 1994
National Parks Act 1975	Republic of Korea-Australia Migratory Birds Agreement (ROKAMBA), 2007
Native Title Act 1993	State Environment Protection Policy (Waters of Victoria), 2002
Planning and Environment Act 1987	Victorian Biodiversity Strategy, 1997
Sustainable Forests (Timber) Act 2004	Victorian Coastal Strategy, 2008
Traditional Owner Settlement Act 2010	
Water Act 1989	
Wildlife Act 1975	

Appendix two – Roles and responsibilities

Partners and their roles and responsibilities in waterway management

	Partners	Roles and responsibilities / links with waterways
State Government Agencies and statutory	Department of Environment and Primary Industries	The Department of Environment and Primary Industries (DEPI) is the lead agency for waterway management. It is responsible for the development of waterway policy, co-ordination of regional delivery and prioritisation of Government investment in waterways. DEPI is also responsible for other aspects of natural resource management that are of relevance to waterways, including:
bodies	industries	sustainable management of Victoria's water resources
		 overseeing the catchment planning framework to promote integrated catchment management throughout Victoria
		management of biodiversity
		• management of public land, including Crown frontages. It is responsible for their administration, including their licensing for riparian management and for grazing and ensuring compliance with licence conditions. It also has a direct on ground responsibility for unlicensed Crown frontages and is responsible for some aspects of waterways on public land.
		bushfire management on public land
		• delivery of sustainability and environment services at the regional level, including some services that relate to waterway management
		 manage fisheries and recreational fishing in waterways to optimise economic and social value while ensuring the sustainability of resources
		 invest in and delivers farming programs on private land where waterways occur
		 oversee the management of biosecurity, including aquatic invasive species.
	Environment Protection	The EPA Victoria is an independent body responsible for the protection and improvement of Victoria's environment by establishing environmental standards, regulating and working with organisations to meet these standards. Their roles and responsibilities include;
	Authority Victoria	• identifying the beneficial uses of water environments and the level of environmental quality needed to protect them through the State Environmental Protection Policy (Waters of Victoria)
		 setting statutory standards for acceptable water quality and indicators of water quality
		 investigating water quality incidents classified as 'pollution'
		 using mandatory and regulatory mechanisms, such as licensing and other discretionary tools to assist in the achievement of water quality objectives
		 acting in partnership with DEPI and regional bodies to monitor water quality and waterway health, and enables problem solving approaches and independent audits of impacts on the environment and the protection of beneficial uses.

Partners and their roles and responsibilities in waterway management continued

	Partners	Roles and responsibilities / links with waterways
	Parks Victoria	Parks Victoria manages parks and conservation reserves in which many waterways are located, including national, State, wilderness, metropolitan and regional parks, marine national parks and sanctuaries and conservation and natural features reserves. They create, manage and maintain visitor sites and manage a range of assets, including visitor facilities and access points, piers and jetties, sporting facilities and navigation aids, many of which are associated with waterways.
	Gippsland Coastal Board	The Gippsland Coastal Board is one of three regional coastal boards formed under the Coastal Management Act 1995 reporting to the Minister for Environment and Climate Change. The Gippsland Coastal Board's principal role is to implement the Victorian Coastal Strategy, provide advice to the minister and the Victorian Coastal Council, and prepare and implement regional coastal plans. Another key activity is facilitating improved coastal management through liaison with industry, government and the community.
	Victorian Environmental Water Holder	The Victorian Environmental Water Holder is appointed under the <i>Water Act 1989</i> to manage Victoria's environmental water entitlements. The Victorian Environmental Water Holder works with the waterway managers, Commonwealth Environmental Water Holder, Murray–Darling Basin Authority. Storage operators and land managers to ensure environmental water entitlements are used to achieve the best environmental outcomes.
National/ other state authorities	Murray– Darling Basin Authority	The Murray–Darling Basin Authority was established under the federal <i>Water Act 2007</i> as an independent, expertise based statutory agency. The primary roles of the Authority as outlined in the <i>Water Act 2007</i> (Cth) include:
authorities	Authority	preparing and reviewing the Basin Plan
		 measuring, monitoring and recording the quality and quantity of the Basin's Water resources
		 supporting, encouraging and conducting research and investigations about the Basin's Water Resources
		developing equitable and sustainable use of Basin water resources
		disseminating information about the Basin's water resources
		 engaging and educating the Australian community about the Basin's water resources.
Water Corporations	Southern Rural Water, Gippsland Water	Water corporations in Victoria are established under the <i>Water Act 1989</i> and provide a range of water services to customers within their service areas. Southern Rural Water, South Gippsland Water and Gippsland Water provide a combination of irrigation services, domestic and stock services, bulk water supply services and urban water and wastewater services in the region. Their link with the Waterway Strategy includes;
	and South	broader catchment health and improved water quality links to water supply
	Gippsland Water	water reform, operational role in environmental water management.

Partners and their roles and responsibilities in waterway management continued

	Partners	Roles and responsibilities / links with waterways
Local Government	Baw Baw Shire Council, Bass Coast Shire Council, South Gippsland Shire Council, Latrobe City Council, Wellington Shire Council	Councils are involved in the management of waterways in Victoria through their role as responsible planning authorities, managers of stormwater drainage and onsite domestic wastewater systems, users of integrated water systems, land managers, emergency management bodies, and supporters of community groups. Specifically with regard to waterways, local government have the following roles and responsibilities: incorporate waterway and catchment management objectives, priorities and actions into strategic and statutory planning processes undertake elements of floodplain management in accordance with the renewed Victorian Floodplain Management Strategy develop and implement urban stormwater plans manage on-site domestic wastewater systems manage sections of waterways where formal agreements are in place manage rural drainage where appropriate.
Traditional Owners	Traditional Owner Boards/ Councils	Traditional Owners with recognised native title rights or formal agreements with the State are important in land and water management. Joint management co-operative management agreements can involve establishment of majority Traditional Owner boards or councils that prepare management plans and/or provide advice about the management of specific areas.
Community	Landholders	Landholders are vital to successful implementation of this strategy, as most works are on privately owned land or affect areas that require private co-operation, and their land management practices have a vital role in catchment health. Under the Catchment and Land Protection Act 1994 landholders are required to; • protect water resources • avoid causing or contributing to land degradation which causes or may cause damage to land of another owner • conserve soil • eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds • prevent the spread of, and as far as possible eradicate, established pest animals.
	Individuals	Community members have an important role in protecting waterway health by avoiding and reporting pollution, reducing resource consumption and contributing to environmental management processes.
	Community Groups	Community groups (such as Landcare, Waterwatch, EstuaryWatch, 'Friends of' groups) participate in regional planning, priority setting and the implementation of regional works programs, participate in monitoring waterways condition and undertake projects in priority areas.
	Industry	Industry can assist in the protection and improvement of waterways by managing its activities in accordance with the principles of ecologically sustainable development and minimising impact on the environment by the implementation of best practices, in accordance with 'duty of care' responsibilities and good corporate citizenship.

Appendix three – Learnings from the RHS

Over the RHS implementation period the West Gippsland region was subject to climatic extremes, with bushfires and floods affecting the Thomson and Macalister catchments in 2006–2008 and bushfires in the Latrobe and South Gippsland catchments during 2008–09.

From 2006 significant effort went into rehabilitating damage in the Upper Macalister, Lower Avon and Thomson rivers. In 2009-10 a bushfire recovery program started in the Traralgon Creek catchment to address major risks from budhfire. The Addendum process resulted in a change in focus to future management actions. In many of these reaches the focus has been on securing this investment through maintenance activities such as weed spraying. Concurrently, new works have been targeted towards undamaged parts of these catchments to protect remaining high value areas.

The 13 years of drought has focused environmental water reserve management on contingency planning and addressing the pressure for consumptive water supply in the Latrobe, Thomson and South Gippsland basins. Long-term planning for the Gippsland Lakes through the Gippsland Lakes Environmental Water Requirements Scoping Study and the determination of environmental water needs of systems such as the Avon, Tarra, Powlett and Tarwin rivers were completed to inform future Environmental Water Reserve management and also provided valuable technical information for complementary waterway management actions.

Management of the Environmental Water Reserve has focussed on securing existing environmental water commitments to enhance the ecological condition of the Thomson, Macalister and Latrobe Rivers. Through the Addendum and delivery of funding from the Large Scale River Restoration Program this area of river health management has been successfully accompanied by planning and implementation of complementary riparian, in stream and wetland protection and rehabilitation works. This work has aimed to protect high value assets and drought refuges and confer resilience in these systems into the future.

Finally, new information and knowledge further refined the river health program. In the years since the RHS was finalised the following pieces of work were completed and have been used to inform the annual planning (and now the Waterway Strategy):

- The West Gippsland Wetlands Plan, accompanied by a wetland inventory and mapping program has identified priority management actions for wetland protection and enhancement across the region.
- Investment through the Coastal Catchment Initiative has enabled identification of sediment and nutrient sources into the Corner Inlet Ramsar Site. The Decision Support System and Water Quality Improvement Plan has further refined the activities required to protect this water quality hotspot and flagship area from water quality threats.
- Board funding contributed to improved knowledge of the sediment and nutrient sources in the Tarwin catchment.
- Completion of environmental flow studies and related investigations has determined the water requirements for the Tarra, Avon, Tarwin and Powlett river systems.

- Determining the environmental water requirements of the Gippsland Lakes has defined and identified priority mega habitats under a range of climatic futures and is developing a water balance and infrastructure design for fringing wetlands along the lower Latrobe River.
- The Latrobe River research program has established a vision and management principles for the long term health and management of the Latrobe River system.
- Identification and mapping of refuge habitat areas and flora and fauna surveys within the Thomson, Macalister and Latrobe River systems.
- The INFFER assessment for the Gippsland Lakes has reinforced riparian fencing and revegetation activities on the Latrobe River as beneficial for nutrient and sediment reduction in the Gippsland Lakes.
- Implementing the Environmental Flows Assessment Program on the Thomson and Macalister rivers.

Appendix four – Regional goals and intent statements

Maintain and improve the habitat and condition of waterways to support water dependent animals and plants.

This goal recognises the condition of waterways is critical in providing habitat for waterway dependent plants and animals. It uses the Index of Stream Condition and Wetland Condition data to identify waterways that meet this goal.

The criterion used to identify a waterway of relevance to this goal is: an ISC or IWC rating of moderate to excellent.

Reduce future impacts to public infrastructure resulting from physical changes to a waterway associated with floods and storms

This goal recognises that waterways are dynamic in nature and change over time is part of a natural process. It aims to reduce the long term potential risk or impact of accelerated rates of river channel erosion and sedimentation resulting from flooding and natural waterway processes. The goal uses locations of public infrastructure together with river bed and bank stability and condition to consider where risk or impact could be addressed. Public infrastructure is defined by the VMWS as structures, facilities, buildings or areas of land used for public or community purposes and are located in, across or adjacent to waterways.

Maintain the ecological character of significant wetlands and estuaries

This goal recognises the values of significant wetlands and estuaries. It aims to maintain the 'ecological character', that is the components, processes and values for which wetlands and estuaries were formally recognised. This includes providing breeding, feeding and resting habitat for migratory and resident birds, fish as well as other biota. The goal uses formal recognition including Ramsar and Directory of Important Wetlands, Flyway Sites and EPBC listed wetland communities to define the relevant wetlands and estuaries.

Provide system connectivity between rivers, estuaries and wetlands

This goal recognises the importance of connectivity for rivers, wetlands and estuaries both laterally with the floodplain and longitudinally through vegetation and water flow. It aims to maintain or improve habitat and flow connectivity along and within waterways, and with floodplains where there is opportunity to build on past investment or natural features exist. The goal uses measures of:

- Existing riparian and wetland vegetation cover and condition; ranked as 'medium connectivity'. These areas have the best potential to create connected landscapes in the short to medium term.
- Connectivity with a mapped floodplain extent based on known levels of floodplain inundation.
- Presence of barriers to fish migration, which if addressed would provide longitudinal connectivity along a waterway.

Improve the condition of urban waterways in partnership with Local Government

This goal recognises that urban areas across the region are often centred around a waterway which has high social value. It aims to provide the appropriate environmental conditions to improve community use. The goal uses recreational activities and amenity values where there are high levels of community use to identify urban waterways.

Maximise the ecological outcomes from the available environmental water

This goal recognises that existing and future access to environmental water is critical to maintain or improve the health of waterways across the region. Specifically this relates to entitlements held in the Latrobe, Thomson and Macalister rivers and environmental water provisions within the Powlett River system. These entitlements provide for environmental water to benefit these rivers and their associated wetlands and estuary. In the Thomson and Macalister systems there is also potentially the ability to deliver water to the Avon River and its estuary. The goal aims to ensure that this environmental water is used effectively and efficiently and is supported by complementary on-ground works. The goal is focussed on the values associated with environmental watering objectives including, native fish (population and movement), vegetation condition (in-stream and beside waterway), physical form (bed and banks) and water quality.

Support community use, participation, advocacy and stewardship in the region's waterways

This goal recognises there is a sense of stewardship of our waterways across the region. It aims to identify, improve and support such uses. The goal uses recreational uses (beside and within the waterway) and the presence of active community groups to define these waterways. It also encompasses the uses and values that Traditional Owners have of the region's waterways. Constructed water storages are not considered in this Strategy, they have their own site based management plans and they aren't managed in the same ways as rivers, estuaries and wetlands.

Maintain and improve the values of Heritage Rivers

This goal recognises Heritage Rivers, specifically the Thomson and Aberfeldy rivers. It aims to protect the values for which these rivers were formally listed. The goal uses values of beside and within waterway including canoeing, camping visual amenity and European heritage as well as significant flora and fauna values.

Provide appropriate environmental conditions to support the economic values of waterways in the region

This goal recognises that the region's economy is driven by quality services and productive industries. This includes providing water and wastewater services and other industries such as agriculture, fishing, plantation and power production. It aims to demonstrate the important role water plays within the waterway or when the waterway supports service delivery or the sustainability of these industries. The goal links to waterways across the region through the presence or absence of these services or industries and their reliance on a particular reach of waterway. Issues associated with short term impacts to waterway values from high flow and storm events, floods, and bushfire is not within the scope of this Strategy and is not addressed by this goal.

Appendix five – High value waterways

					Enviro	nmental			Soc	ial		Econ	omic
Basin –	Waterway Name	Formally	Representative	Rare or the species/co	nreatened ommunities	Natura	Iness		Activity		People	Water Use	Other
Reach No		Recognised		Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage			Resources
B27-R209	Screw Ck estuary		n.a			n.a							
B25-R219	Avon and Perry River estuaries		n.a	~	~	n.a		~	~		~		
B26-R201	Latrobe River estuary	✓	n.a	✓	✓	n.a	✓	✓	✓	✓	✓		
B27-R203	Bourne Creek estuary		n.a			n.a	✓		✓				
B27-R204	Wreck Creek estuary		n.a			n.a			✓				
B27-R205	Powlett River estuary	✓	n.a	~	~	n.a		~	✓	✓	~	~	
B27-R206	Shallow Inlet	✓	n.a	✓	✓	n.a	✓	~	✓	✓	~		
B27-R207	Old Hat Creek estuary	~	n.a		✓	n.a				✓	✓		~
B27-R208	Stockyard Creek	✓	n.a		~	n.a		~	✓	✓			~
B27-R210	Anderson Inlet	~	n.a	~	~	n.a	~	~	~	~	~		~
B27-R211	Darby River estuary	~	n.a	~	✓	n.a	✓	~	✓		✓		
B27-R213	Sealers Creek estuary	✓	n.a	~		n.a	✓	~	~	✓			
B27-R214	Miranda Creek estuary	✓	n.a			n.a	✓		✓	✓			
B27-R218	Jack Smith Lake	~	n.a	~		n.a		~	✓	✓	✓		
B27-R220	Bennison Creek estuary	✓	n.a		~	n.a				✓			~
B27-R221	Franklin River estuary	✓	n.a	~	✓	n.a	✓	~	✓	✓		✓	~
B27-R223	Tidal River estuary	~	n.a	~		n.a	✓	~	~	✓	✓		
B27-R225	Agnes River estuary	✓	n.a	~	~	n.a	~	~	~	~	~	~	~
B27-R227	Nine Mile Creek estuary	✓	n.a			n.a	~	~				~	
B27-R228	Albert River estuary	~	n.a	~	~	n.a	~	~	~		~	~	~
B27-R233	Tarra River estuary	~	n.a	~		n.a	~	~	~	~	~	~	~

					Enviror	nmental			Soc	ial:		Economic	
Basin –	Waterway Name	Formally	Representative		nreatened ommunities	Natura	lness		Activity		People	Water Use	Other
Reach No	natorna, namo	Recognised	noprocontativo	Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage	Тоорю	mator ooo	Resources
B27-236	Bruthen Creek estuary	✓	n.a			n.a		✓	✓	✓			✓
B27-239	Merriman Creek estuary		n.a			n.a		~	~	~	~		
B25-R1	Thomson River – Macalister R to Latrobe R			~	~	~	~	~	~	~	~	~	
B25-R2	Thomson River – Rainbow Ck to Macalister R			~	~	~	~	~	~		~	~	
B25-R3	Thomson River – Cowwarr Weir to Rainbow Ck			~	~	~	~	~	~		~	~	
B25-R4	Thomson River – Aberfeldy R to Cowwarr Weir	~		~	~	~	~	~	~	~	~	~	
B25-R5	Thomson River – Thomson Dam to Aberfeldy R	~				~	~	~	~	~	~	~	
B25-R6	Jordan River	~				✓	✓	✓	✓	✓	✓	✓	
B25-R7	Macalister River – Bellbird Corner to Thomson River			~	~	~	~	~	~		~	~	
B25-R8	Macalister River – Glenmaggie Weir Wall to Bellbird Corner			~	~	~	~	~	~		~	~	
B25-R9	Macalister River – Hickeys Ck to Glenmaggie Weir Wall					~	~	~	~		~	~	
B25-R1	Macalister River – Burgoyne Gap to Hickeys Ck			~		~		~	~		~	~	
B25-R11	Macalister River – Licola to Burgoyne Gap					~		~	~		~	~	
B25-R12	Macalister River – upstream of Licola	~			~	~		~	~	~	~	~	
B25-R13	Barkly River				~			~	✓		✓	✓	

					Enviro	nmental			Soc	ial		Economic	
Basin –	Waterway Name	Formally	Representative		nreatened ommunities	Natura	Iness		Activity		People	Water Use	Other
Reach No	,	Recognised		Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage	. 554.5		Resources
B25-R14	Glenmaggie Creek – downstream of Back Creek Rd				~		~	~	~		~	~	
B25-R15	Glenmaggie Creek – upstream of Back Creek Rd				~		~	~	~		~	~	
B25-R16	Boggy Creek				~		~	~	~			~	
B25-R17	Rainbow Creek			~	~		~	~	~		~	~	
B25-R18	Aberfeldy River	~				~	~	~	~	~	~		
B25-R19	Avon River – Knob Reserve to Lake Wellington			~	~	~	~	~	~		~	~	
B25-R2	Avon River – Freestone Ck to Knob Reserve			~	~	~	~	~	~		~	~	
B25-R21	Avon River – Wombat Bridge to Freestone Ck			~	~	~	~	~	~		~	~	
B25-R22	Avon River – upstream of Wombat Flat bridge	~		~	~	~	~	~	~		~		
B25-R23	Perry River – Princes Hwy to Lake Wellington	~		~	~		~	~	~	~	~	~	
B25-R24	Perry River – upstream of Princes Hwy					~	~	~	~		~	~	
B25-R25	Fiddlers Creek								~			~	
B25-R26	Blackall Creek			~	~		~	~	~		~	~	
B25-R27	Freestone Creek – downstream of Delta Bridge				~	~	~	~	~		~	~	
B25-R28	Freestone Creek – upstream of Delta Bridge				~	~	~	~	~		~	~	

					Enviror	nmental			Soc	Economic			
Basin –	Waterway Name	Formally Rep	Representative		hreatened ommunities	Natura	Iness		Activity		People	Water Use	Other
Reach No		Recognised		Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage			Resources
B25-R29	Valencia Creek – One Tree Hill Tk to Avon River				~		~	~	~		~	~	
B25-R3	Valencia Creek – upstream of One Tree Hill Tk				~		~	~	~		~	~	
B25-R31	Ben Cruachan Creek					~	~	~	~		~	~	
B26-R2	Latrobe River – Rosedale to Swing Bridge			~	~	~	~	~	~	~	~	~	
B26-R3	Latrobe River – Thoms Bridge to Rosedale			~	~	~		~	~		~	~	
B26-R4	Latrobe River – Moe Drain to Thoms Bridge	· ~		~	~	~	~	~	~	~	~	~	
B26-R5	Latrobe River – Willow Grove to Moe Drain			~	~	~	~	~	~		~	~	
B26-R6	Latrobe River – Noogee to Willow Grove		~	~		~	~	~	~		~	~	
B26-R7	Latrobe River – Upstream of Noogee		~		~	~	~	~	~		~	~	
B26-R8	Flynns Creek			~	~			~	~		~	~	
B26-R9	Eaglehawk Creek – downstream of Traralgon- Maffra Road			~	~		~	~	~			~	
B26-R1	Eaglehawk Creek – upstream of Traralgon- Maffra Road				~			~	~				
B26-R11	Traralgon Creek – downstream of Taylor's Rd Bridge			~	~	~	~	~	~	~	~	~	

					Enviro	nmental			Soc	Economic			
Basin –	Waterway Name	Formally	Representative		Rare or threatened species/communities		Naturalness		Activity		People	Water Use	Other
Reach No		Recognised		Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage			Resources
B26-R12	Traralgon Creek – upstream of Taylor's Rd Bridge				~	~		~	~		~		
B26-R13	Rintoul Creek – downstream of Fitzgibbons Rd				~			~	~		~	~	
B26-R14	Rintoul Creek – upstream of Fitzgibbons Rd			~	~		~	~	~		~	~	
B26-R15	Waterhole Creek			~	~	✓		~	~	~	~		
B26-R16	Tyers River – downstream of Moondarra Res				~	~	~	~	~	~	~	~	
B26-R17	Tyers River – upstream of Moondarra Res	~		~	~	~	~	~	~	~	~	~	
B26-R18	Morwell River – Morwell Bridge to Latrobe			~	~			~	~	~	~	~	
B26-R19	Morwell River – Boolarra to Morwell Bridge			~	~	~	~	~	~	~	~	~	
B26-R2	Morwell River – upstream of Boolarra			~	~	~	~	~	~		~	~	
B26-R21	Middle Creek – downstream of Budgeree				~		~	~	~		~	~	
B26-R22	Middle Creek – upstream of Budgeree				~			~	~		~	~	
B26-R23	Tanjil River – Blue Rock Lake to Latrobe River			~	~	~	~	~	~		~	~	
B26-R24	Tanjil River – upstream of Blue Rock Lake and east branch					~	~	~	~		~	~	

					Enviror	nmental			Soc	ial		Economic	
Basin –	Waterway Name	Formally	Representative		nreatened ommunities	Natura	Iness		Activity		People	Water Use	Other
Reach No		Recognised		Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage			Resources
B26-R25	Tanjil River West Branch	✓		✓	✓	✓		✓		✓	✓	✓	
B26-R26	Narracan Creek				✓	✓	✓	✓	✓	✓	~	✓	
B26-R27	Moe River – Shady Ck to Latrobe River			~	~			~	~		~	~	
B26-R28	Moe River – upstream of Shady Ck				~		~		~		~	~	
B26-R29	Shady Creek						~	~	~		~	~	
B26-R3	Loch River				✓	✓		✓	~		✓	✓	
B27-R5	Powlett River – downstream of Lance Creek (Includes Lance Creek)	~		~	~	~	~	~	~	~	~	~	
B27-R6	Powlett River – upstream of Lance Creek			~	~	~		~	~		~	~	
B27-R7	Foster Creek – downstream of Burndale				~	~		~	~			~	
B27-R8	Foster Creek – upstream of Burndale				~	~		~	~		~	~	
B27-R9	Screw Creek				✓	✓	✓	✓	✓	✓	✓	✓	
B27-R1	Tarwin River – downstream of A Brownes Road			~	~	~	~	~	~	~	~		
B27-R11	Tarwin River West Branch – Wilkur Creek to A Brownes Road			~	~	~	~	~	~		~	~	
B27-R12	Tarwin River West Branch – upstream of Wilkur Creek	~		~	~	~	~	~	~		~	~	
B27-R13	Fish Creek – downstream of Cherokee Creek				~	~		~	~				

				Enviro	nmental			Soc	Economic				
Basin –	Waterway Name	Formally	Representative		nreatened ommunities	Natura	lness		Activity		People	Water Use	Other
Reach No		Recognised		Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage	. 004.0		Resources
B27-R14	Fish Creek – upstream of Cherokee Creek				~	~	~	~	~				
B27-R15	Tarwin River East Branch – Mirboo to Sth Gipps Hwy			~	~	~	~	~	~	~	~	~	
B27-R16	Tarwin River East Branch – upstream of Mirboo			~	~	~		~	~		~	~	
B27-R17	Coalition Creek			~	~	~		~	~		~	~	
B27-R18	Wilkur Creek				~	~	~	~	~			~	
B27-R19	Berrys Creek				~	✓	~	~	~		~	✓	
B27-R2	Bennison Creek				~	~		~	~	~	~		
B27-R21	Franklin River – Mount Best Road to Port Franklin Road			~	~	~	~	~	~	~	~	~	
B27-R22	Franklin River – upstream of Mount Best Road			~	~		~	~	~		~		
B27-R23	Tidal River	~			~	~	~	~	~		~	~	
B27-R24	Barry Creek	~			~	~	~	~	~				
B27-R25	Agnes River – Downstream of Devil's Pinch Rd			~	~	~	~	~	~	~	~	~	
B27-R26	Agnes River – Upstream of Devil's Pinch Rd			~	~	~		~	~		~	~	
B27-R27	Nine Mile Creek				~	~		~	~	~		~	
B27-R29	Albert River – Sexton's Rd to Sloping Bridge			~	~	~	~	~	~		~	~	
B27-R3	Albert River – Upstream of Sexton's Rd			~	~	~	~	~	~	~	~		

					Enviror	nmental			Soc	cial		Econ	omic
Basin –	Waterway Name	Formally	Representative		hreatened ommunities	Natura	lness		Activity		People	Water Use	Other
Reach No	natornay namo	Recognised	портосопианто	Significant Fauna	Significant Flora	Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage	ι σορίο	mator 600	Resources
B27-R31	Jack River – downstream of Pound Road				~	~	~	~	~		~	~	
B27-R32	Jack River – upstream of Pound Road				~	~	~	~	~		~		
B27-R33	Tarra River – Downstream of Sth Gipps Hwy	~		~	~	~	~	~	~	~	~	~	
B27-R34	Tarra River – SGW Offtake to Sth Gipps Hwy		~		~	~	~		~		~	~	
B27-R35	Tarra River – upstream of SGW offtake	~	~	~	~	~		~	~	~	~	~	
B27-R36	Bruthen Creek – Woodside to McLoughlin's Beach			~	~	~		~	~		~		
B27-R37	Bruthen Creek – Carrajung Rd to Woodside			~	~	~		~	~		~		
B27-R38	Bruthen Creek – upstream of Carrajung Rd			~	~	~			~		~		
B27-R39	Merriman Creek – Willung to Seaspray			~	~	~	~	~	~		~	~	
B27-R4	Merriman Creek – Calingnee Sth to Willung			~	~	~	~	~	~		~	~	
B27-R41	Merriman Creek – upstream of Calingnee Sth				~			~	~		~	~	
B27-R42	Monkey Creek				~	~	~		~		~	~	

Note – the assessment of high value waterways has not been extended to Wetlands due to a lack of comprehensive data in AVIRA on individual wetlands. The values of wetlands were assessed as part of the West Gippsland Wetlands Plan 2007 and this information has been used to inform the Strategy prioritisation process.

Appendix six – Supporting tools

Supporting tools used to help with the prioritisation are outlined in this section.

AVIRA

A key foundation tool to develop the Strategy is the Aquatic Values Identification and Risk Assessment (AVIRA) database. AVIRA identifies the environmental, social and economic values and associated risks to these values for waterways across the region. This information has been used to identify high value waterways and has been used to undertake a risk assessment to inform the priority setting process.

Strategic Directions for Waterway Management

The Strategic Directions for Waterway Management was an internal document (unpublished) completed in late 2012 in preparation of and to guide the development of this Strategy. The intent of the Strategic Directions was to develop the vision and regional goals for waterway management, to provide a synthesis of the knowledge of waterways and finally identify broad directions to help with development of targets for priory waterways.

Waterway Benefit: Cost Scoring Tool

The Waterway Benefit: Cost Scoring (WBCS) tool is a modified version of the Investment Framework for Environmental Resources (INFFER) Benefit: Cost Ratio. It uses information collected in AVIRA and supporting processes (Natural Decisions, 2013). The WBCS is a way of comparing the relative benefits of waterways and was used to refine the priority waterways.

Existing plans and strategies

The data in AVIRA for wetlands only covers a limited set of wetlands for the region. A more comprehensive prioritisation was completed for the West Gippsland Wetlands Plan (2008). The prioritisation process completed for this plan is consistent with the approach used for the Strategy.

A review of the priorities of the West Gippsland Wetlands Plan against the goals for the Strategy was completed and where there was alignment, the wetland priorities were included. Information about nationally threatened wetland communities (Alpine Peatlands and Seasonal Herbaceous Wetlands) was also incorporated into the prioritisation.

The recently completed West Gippsland Regional Catchment Strategy (2013) (RCS) provides clear direction regarding priority landscape areas. The information developed as part of the RCS has also been considered in identifying high value waterways.

There are a large number of assets in the region requiring prioritisation to develop an achievable eight year works program for the Strategy. The prioritisation process is described in detail in the next section.

Appendix seven – Regional goals and prioritisation results

Key to regional goals

- A. Maintain and improve the habitat and condition of waterways to support water dependent animals and plants
- B. Reduce future impacts to public infrastructure resulting from physical changes to a waterway associated with floods and storms
- C. Maintain the ecological character of significant wetlands and estuaries
- D. Provide system connectivity between rivers, estuaries and wetlands
- E. Improve the condition of urban waterways in partnership with Local Government
- F. Maximise the ecological outcomes from the available environmental water
- G. Support community use, participation, advocacy and stewardship in the region's waterways
- H. Maintain and improve the values of Heritage Rivers
- I. Provide appropriate environmental conditions to support the economic values of waterways in the region

Basin –	Waterway Name		Presenc	e of wate	rway value	s and feat	ures linked	d to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	I.	(Y / N)	Туре
B25-R1	Thomson River – Macalister R to Latrobe R	~			~	~	~			~	Υ	Threat reduction
B25-R10	Macalister River – Burgoyne Gap to Hickeys Ck	~						~		~	Υ	Maintaining values / past works
B25-R11	Macalister River – Licola to Gurgoyne Gap	~	~					~		~	N	Not priority
B25-R12	Macalister River – upstream of Licola	~						~		~	Υ	Threat reduction
B25-R13	Barkly River	~								~	Υ	Maintaining values / past works

Basin –	NA/adamana Nama		Presenc	e of water	rway value	s and feat	ures linked	l to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	l.	(Y / N)	Type
B25-R14	Glenmaggie Creek – downstream of Back Creek Rd	~								~	N	Not priority
B25-R15	Glenmaggie Creek – upstream of Back Creek Rd	~								~	N	Not priority
B25-R16	Boggy Creek				✓					~	N	Not priority
B25-R17	Rainbow Creek	~	~		~		~			~	Υ	Threat reduction
B25-R18	Aberfeldy River	~						~	~	~	Υ	Threat reduction
B25-R19	Avon River – Knob Reserve to Lake Wellington	~	~				~	~		~	Υ	Threat reduction
B25-R2	Thomson River – Rainbow Ck to Macalister R	~			~		~	~		~	Υ	Threat reduction
B25-R20	Avon River – Freestone Ck to Knob Reserve	~	~			~	~			~	Υ	Threat reduction
B25-R201	Thomson River Estuary			~			~	~			Υ	Maintaining values / past works
B25-R21	Avon River – Wombat Bridge to Freestone Ck	~						~		~	Υ	Threat reduction
B25-R219 and B25-223	Avon and Perry River estuaries	~		~			~	~			Υ	Threat reduction
B25-R22	Avon River – upstream of Wombat Flat bridge	~			~			~		~	Υ	Threat reduction
B25-R23	Perry River – Princes Hwy to Lake Wellington	~	~		~						Υ	Threat reduction
B25-R24	Perry River – upstream of Princes Hwy	~	~		~					~	Υ	Threat reduction

Basin –	W-4N		Presenc	e of wate	rway value	s and feat	ures linked	l to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	l.	(Y / N)	Type
B25-R25	Fiddlers Creek	~								~	Υ	Maintaining values / past works
B25-R26	Blackall Creek				~					~	N	Not priority
B25-R27	Freestone Creek – downstream of Delta Bridge	~			~			~		~	N	Not priority
B25-R28	Freestone Creek – upstream of Delta Bridge	~						~		~	Υ	Threat reduction
B25-R29	Valencia Creek – One Tree Hill Tk to Avon River	~								~	Υ	Threat reduction
B25-R3	Thomson River – Cowwarr Weir to Rainbow Ck	~			~	~	~			~	Υ	Threat reduction
B25-R30	Valencia Creek – upstream of One Tree Hill Tk	~			~					~	Y	Maintaining values / past works
B25-R31	Ben Cruachan Creek	~			~			~		~	Υ	Maintaining values / past works
B25-R4	Thomson River – Aberfeldy R to Cowwarr Weir	~			~		~	~	~	~	Υ	Threat reduction
B25-R5	Thomson River – Thomson Dam to Aberfeldy R	~					~	~	~	~	Υ	Threat reduction
B25-R6	Jordan River	~			~			~		~	Υ	Maintaining values / past works
B25-R7	Macalister River – Bellbird Corner to Thomson River	~	~		~	~	~			~	Υ	Threat reduction
B25-R8	Macalister River – Glenmaggie Weir Wall to Bellbird Corner	~	~		~		~	~		~	Υ	Threat reduction

Basin –	Western and Name		Presenc	e of wate	rway value	es and feat	ures linked	to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	l.	(Y / N)	Туре
B25-R9	Macalister River – Hickeys Ck to Glenmaggie Weir Wall	~	~					~		~	N	Not priority
B25-R99	Thomson River – Upstream Thomson Reservoir	~									Υ	Maintaining values / past works
	Stringers Creek					~					Υ	Threat Reduction
	Flooding Creek			~		~					YMerriman	Maintaining values / past works
	Hazel Creek						~		~		Υ	Threat reduction
	Wetlands of the Lower Avon River				~						Υ	Threat reduction
	Wetlands of the Perry River				~						Υ	Threat reduction
	The Billabong flora and fauna reserve	~			~						N	Not priority
	Lake Tarli Karng			~					~		Υ	Maintaining values / past works
	Caledonia Fen			~							Υ	Maintaining values / past works
	Wetlands of the Upper Thomson River			~							Υ	Maintaining values / past works
	Wetlands of the Upper Latrobe River			~							Y	Maintaining values / past works

Basin –	Wetanian Name		Presenc	e of wate	rway value	s and feat	ures linked	l to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	Н.	l.	(Y / N)	Туре
	Wetlands of Upper Macalister River			~							Υ	Maintaining values / past works
B26-R10	Eaglehawk Creek – upstream of Traralgon-Maffra Road	~			~					~	N	Not priority
B26-R11	Traralgon Creek – downstream of Taylor's Rd Bridge	~	~		~	~				~	Υ	Threat reduction
B26-R12	Traralgon Creek – upstream of Taylor's Rd Bridge	~			~			~		~	Υ	Maintaining values / past works
B26-R13	Rintoul Creek – downstream of Fitzgibbons Rd	~	~		~					~	Υ	Threat not feasible
B26-R14	Rintoul Creek – upstream of Fitzgibbons Rd	~			~			~		~	Υ	Maintaining values and past works
B26-R15	Waterhole Creek				~	~				~	Υ	Threat reduction
B26-R16	Tyers River – downstream of Moondarra Res	~			~		~	~		~	Υ	Maintaining values / past works
B26-R17	Tyers River – upstream of Moondarra Res	~						~		~	Υ	Threat reduction
B26-R18	Morwell River – Morwell Bridge to Latrobe		~		~					~	N	Not priority
B26-R19	Morwell River – Boolarra to Morwell Bridge	~	~		~	~				~	N	Not priority
B26-R2	Latrobe River – Rosedale to Swing Bridge				~		~	~		~	Υ	Threat reduction
B26-R20	Morwell River – upstream of Boolarra	~			~			~		~	Υ	Threat reduction

Basin –	Waterway Name		Presenc	e of wate	rway value	s and feat	ures linked	l to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	l.	(Y / N)	Туре
B26-R201	Thomson and Latrobe River Estuary			~			~	~			Υ	Threat reduction
B26-R21	Middle Creek – downstream of Budgeree	~			~					~	Υ	Threat reduction
B26-R22	Middle Creek – upstream of Budgeree	~								~	N	Not priority
B26-R23	Tanjil River – Blue Rock Lake to Latrobe River	~	~		~		~	~		~	Υ	Threat reduction
B26-R24	Tanjil River – upstream of Blue Rock Lake and east branch	~						~		~	Υ	Threat reduction
B26-R25	Tanjil River West Branch	~			~					~	Υ	Threat reduction
B26-R26	Narracan Creek	~			~	~				~	N	Not priority
B26-R27	Moe River – Shady Ck to Latrobe River		~		~					~	N	Not priority
B26-R28	Shady Creek	~	~		~					~	Υ	Threat reduction
B26-R29	Shady Creek	~								~	Υ	Maintaining values / past works
B26-R3	Latrobe River – Thoms Bridge to Rosedale				~		~	~		~	Υ	Threat reduction
B26-R30	Loch River	~						~		~	Υ	Maintaining values / past works
B26-R4	Latrobe River – Moe Drain to Thoms Bridge				~	~	~			~	Υ	Threat reduction
B26-R5	Latrobe River – Willow Grove to Moe Drain	~	~		~	~				~	Υ	Threat reduction

Basin –	Waterway Name		Presenc	e of water	rway value	s and feat	ures linked	d to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	I.	(Y / N)	Туре
B26-R6	Latrobe River – Noogee to Willow Grove	~				~				~	Υ	Threat reduction
B26-R7	Latrobe River – Upstream of Noogee	~			~			~		~	Υ	Threat reduction
B26-R8	Flynns Creek	~			~					~	N	Not priority
B26-R9	Eaglehawk Creek – downstream of Traralgon-Maffra Road	~	~							~	Υ	Threat reduction
	Wetlands of Lake Wellington			~	~						Υ	Threat reduction
	Lake Wellington			~	~				~		n.a	Ramsar Plan
	Heart Morass			~	✓						n.a	Ramsar Plan
	Lake Coleman & Tucker Swamp			✓	~						n.a	Ramsar Plan
	Wetlands of Lower Macalister River			~	~						Υ	Threat reduction
	Wetlands of Lower Thomson River			~	~						Υ	Threat reduction
	Wetlands of Lower Latrobe River			~	~						Υ	Threat reduction
B27-R10	Tarwin River – downstream of A Brownes Road	~			~			~		~	Υ	Threat reduction
B27-R11	Tarwin River West Branch – Wilkur Creek to A Brownes Road	~			~	~				~	Υ	Threat reduction
B27-R12	Tarwin River West Branch – upstream of Wilkur Creek	~			~			~		~	Υ	Threat reduction
B27-R13	Fish Creek – downstream of Cherokee Creek	~	~		~	~					Υ	Threat reduction
B27-R14	Fish Creek – upstream of Cherokee Creek	~			~						Υ	Maintaining values / past works

Basin –	Westerness Name		Presenc	e of water	rway value	s and feat	ures linked	to regiona	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	l.	(Y / N)	Туре
B27-R15	Tarwin River East Branch – Mirboo to Sth Gipps Hwy	~			~			~		~	Υ	Threat reduction
B27-R16	Tarwin River East Branch – upstream of Mirboo	~			~			~		~	Υ	Maintaining values / past works
B27-R17	Coalition Creek	~			~					~	Υ	Maintaining values / past works
B27-R18	Wilkur Creek	~			~					~	Υ	Maintaining values / past works
B27-R19	Berrys Creek				~					~	Υ	Maintaining values / past works
B27-R20	Bennison Creek	~			~			~			Υ	Threat reduction
B27-R203	Bourne Creek Estuary										N	Not priority
B27-R204	Wreck Creek Estuary										N	Not priority
B27-R205	Powlett River estuary		~	~	~		~	~		~	Υ	Threat reduction
B27-R206	Shallow Inlet		~	~	~			~			Υ	Threat reduction
B27-R207	Old Hat Creek estuary			~						~	Υ	Threat reduction
B27-R208	Stockyard Creek			~				~		~	Υ	Threat reduction
B27-R209	Screw Ck estuary										N	Not priority
B27-R21	Franklin River – Mount Best Road to Port Franklin Road	~	~		~			~		~	Υ	Threat reduction

Basin –	Matamara		Presenc	e of water	rway value	s and feat	ures linked	d to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	l.	(Y / N)	Type
B27-R210	Anderson Inlet (includes Pound Creek estuary and part of the Tarwin River estuary)	~	~	~	~	~		~		~	Υ	Threat reduction
B27-R211	Darby River estuary							~			N	Not priority
B27-R213	Sealers Creek estuary							~			N	Not priority
B27-R214	Miranda Creek estuary										N	Not priority
B27-R218	Jack Smith Lake			✓				~			N	Not priority
B27-R22	Franklin River – upstream of Mount Best Road	~								~	Υ	Threat reduction
B27-R220	Bennison Creek estuary	~		~	~					~	Υ	Threat reduction
B27-R221	Franklin River estuary	~		~		~				~	Υ	Threat reduction
B27-R223	Tidal River estuary	~						~			Υ	Threat reduction
B27-R225	Agnes River estuary	~		~				~		~	Υ	Threat reduction
B27-R227	Nine Mile Creek estuary	~		~						~	Υ	Threat reduction
B27-R228	Albert River estuary (part of)	~	~	~	~			~		~	Υ	Threat reduction
B27-R229	Albert River estuary (part of)	~	~		~						Υ	Maintaining values / past works
B27-R23	Tidal River	~						~			Υ	Threat reduction
B27-R233	Tarra River estuary	~		~				~		~	Υ	Threat reduction

Basin –	NA/		Presenc	e of water	rway value	s and featu	ıres linked	d to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	I.	(Y / N)	Туре
B27-R236	Bruthen Creek estuary	~	~	~				~		~	Υ	Threat reduction
B27-R239	Merriman Creek estuary	~				~					Υ	Threat reduction
B27-R24	Barry Creek	✓									N	Not priority
B27-R25	Agnes River – Downstream of Devil's Pinch Rd	~	~		~			~		~	Υ	Threat reduction
B27-R26	Agnes River – Upstream of Devil's Pinch Rd	~			~					~	Υ	Threat reduction
B27-R27	Nine Mile Creek	~			~			~		~	Υ	Threat reduction
B27-R29	Albert River – Sexton's Rd to Sloping Bridge	~	~		~			~		~	Υ	Threat reduction
B27-R30	Albert River – Upstream of Sexton's Rd	~			~			~		~	Υ	Threat reduction
B27-R31	Jack River – downstream of Pound Road	~			~			~		~	Υ	Threat reduction
B27-R32	Jack River – upstream of Pound Road	~			~			~		~	Υ	Maintaining values / past works
B27-R33	Tarra River – Downstream of Sth Gipps Hwy	~	~		~	~				~	Υ	Threat reduction
B27-R34	Tarra River – SGW Offtake to Sth Gipps Hwy	~			~					~	Υ	Threat reduction
B27-R35	Tarra River – upstream of SGW offtake	~			~			~		~	N	Not priority
B27-R36	Bruthen Creek – Woodside to McLoughlin's Beach	~	~		~						N	Not priority
B27-R37	Bruthen Creek – Carrajung Rd to Woodside	~	~		~						N	Not priority

Basin –	\M_++		Presenc	e of wate	rway value	s and feat	ures linked	l to region	al goals		Priority	Priority
Reach	Waterway Name	A.	В.	C.	D.	E.	F.	G.	H.	l.	(Y / N)	Туре
B27-R38	Bruthen Creek – upstream of Carrajung Rd	~	~		~					~	Υ	Maintaining values / past works
B27-R39	Merriman Creek – Willung to Seaspray	~			~			~		~	Υ	Threat reduction
B27-R40	Merriman Creek – Calingnee Sth to Willung				~			~		~	N	Not priority
B27-R41	Merriman Creek – upstream of Calingnee Sth	~								~	Υ	Maintaining values / past works
B27-R42	Monkey Creek	~								~	Υ	Maintaining values / past works
B27-R5	Powlett River – downstream of Lance Creek (Includes Lance Creek)						~	~		~	Υ	Threat reduction
B27-R6	Powlett River – upstream of Lance Creek				~			~		~	N	Not priority
B27-R7	Foster Creek – downstream of Burndale	~			~			~		~	Υ	Maintaining values / past works
B27-R8	Foster Creek – upstream of Burndale	~			~					~	N	Not priority
B27-R9	Screw Creek				~			~			Υ	Threat reduction
	Wetlands of the Lower Powlett River				~						Υ	Threat reduction
	Wetlands of the Lower Tarwin River				~						Υ	Threat reduction

Appendix seven – **Regional goals and prioritisation results**

Basin –	Waterway Name	Presence of waterway values and features linked to regional goals							Priority	Priority		
Reach		A.	В.	C.	D.	E.	F.	G.	H.	I.	(Y / N)	Type
B27-R9 cont.	Wetlands of the Screw Creek, Pound Creek & Anderson Inlet				~						Υ	Threat reduction
	Wetlands of Waratah Bay				~						Υ	Threat reduction
	Wetlands of the Lower Tarra River				~						Υ	Threat reduction
	Wetlands of Stockyard Creek				~						Υ	Threat reduction
	Bald Hills Wetland				~							Maintain values / past works
	Corner Inlet	~		~					~	~	Υ	Ramsar Plan
	Wetlands of the Franklin River				~						N	Not priority
	Wetlands of the Nine Mile Creek				~						N	Not priority
	Wetlands of Merriman Creek			~	~						Υ	Threat reduction
	Wetlands of the Bruthen Ck & Giffard Plain			~	~						N	Not priority
	Bald Hills Wetland			~					~		Υ	Maintaining values / past works
	Wetlands of Wilsons Promontory										N	Not priority
	Stockyard Creek						~		~		Υ	Threat Reduction

Appendix eight – RCS and Waterway Strategy priorities

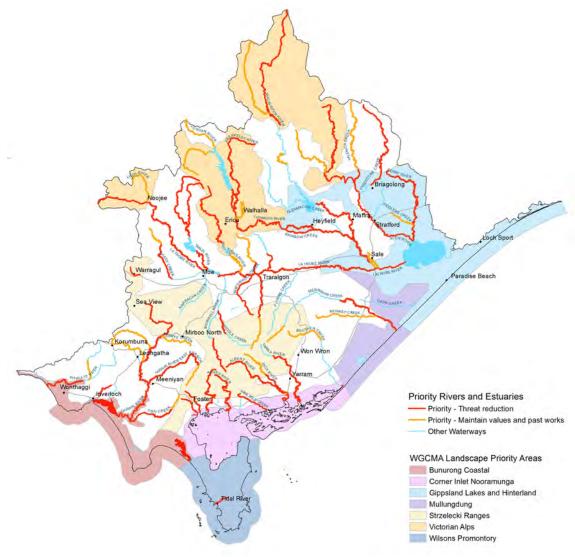


Figure 1 RCS Landscape Priority Areas and Waterway Strategy priorities (rivers and estuaries)

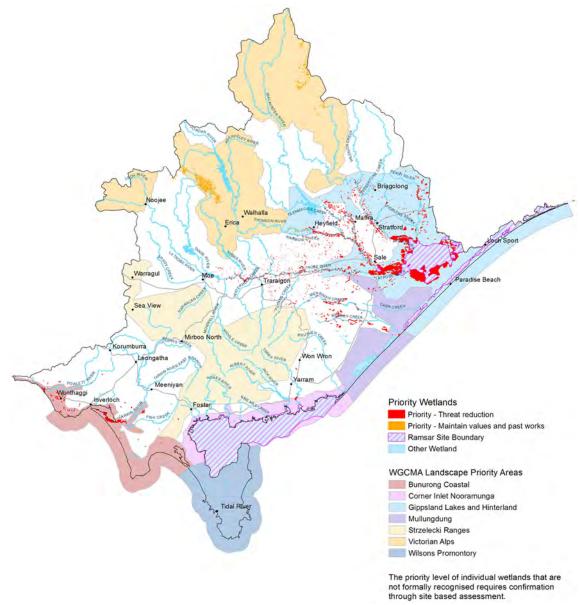


Figure 2 RCS Landscape Priority Areas and Waterway Strategy priorities (wetlands)

Appendix nine – Limits of Acceptable Change for the Corner Inlet Ramsar Site

This table sets out the benchmark condition and LCAs for the critical components, processes and services/benefits of the Corner Inlet Ramsar sites.

Benchmark descriptions and limits of acceptable change for critical components/processes/services within Corner Inlet (BTM WBT 2011a) and current status (DEPI 2011)

Indicator for Critical Component/ Process/Service for the LAC	Benchmark Description and Limit(s) of Acceptable Change		Current Statu nsar Site Rollin DEPI 2011)		Extent to which management actions within the Ramsar site or surrounding catchment can	
	3	Does not exceed LAC	Exceeds LAC	Insufficient data or no LAC set	influence the condition of the indicator	
Critical components						
Seagrass extent	Total mapped extent of dense Posidonia will not decline by greater than 10 percent of the baseline value outlined by Roob et al. 1998 at a whole of site scale (baseline = 3050 hectares; LAC = mapped area less than 2745 hectares) on any occasion. (Note: the small degree of allowable change recognises that this seagrass species is a critical habitat resource and generally shows low natural variability)			Insufficient Information	Management actions to reduce sediment and nutrient run-off from the catchment can be effectively addressed	
	 Total mapped extent of the dense and medium density Zosteraceae will not decline by greater than 25 percent of the baseline values outlined by Roob et al. 1998 at a whole of site scale on two sampling occasions within any decade. 					
	• Dense Zostera – Baseline = 5743 hectares (LAC = mapped area less than 4307 hectares)					
	 Medium Zostera – Baseline = 1077 hectares (LAC = mapped area less than 807 hectares) 					
	Roob, R., Morris, P. and Werner, G., 1998. Victorian Seagrass Habitat Database: Corner Inlet/Nooramunga Seagrass Mapping. Report 10. Marine and Freshwater Resources Institute: Queenscliff.					

Benchmark descriptions and limits of acceptable change for critical components/processes/services within Corner Inlet (BTM WBT 2011a) and current status (DEPI 2011) continued

Indicator for Critical Component/ Process/Service for the LAC	Benchmark Description and Limit(s) of Acceptable Change		Current Statu nsar Site Rolli DEPI 2011)	~	Extent to which management actions within the Ramsar site or surrounding catchment can	
		Does not exceed LAC	Exceeds LAC	Insufficient data or no LAC set	influence the condition of the indicator	
Critical components						
Mangrove extent	Based on EVC mapping, it is estimated that mangroves presently cover an area of 2137 hectares within the site. A 10 percent reduction in the total mapped mangrove area, observed on two sampling occasions within any decade, is an unacceptable change. (LAC – mapped area less than 1924 hectares). (Note: the small degree of allowable change recognises that mangroves are a critical habitat resource and generally shows low natural variability)			Insufficient Information	Protection work (fencing, revegetation and weed control) can be effectively addressed Limited effectiveness of managing impacts of sea level rise on mangrove extent	
Saltmarsh extent	Based on EVC mapping, it is estimated that intertidal marshes presently cover an area of 6500 hectares within the site. A 10 percent reduction in the total mapped saltmarsh area, observed on two sampling occasions within any decade, is an unacceptable change (LAC – mapped area less than 5850 hectares). (Note: the small degree of allowable change recognises that saltmarsh is a critical habitat resource and generally show low natural variability)			Insufficient Information	Protection work (fencing and revegetation) can be effectively addressed Limited effectiveness of managing impacts of sea level rise on saltmarsh extent	
Extent of subtidal channel	A greater than 20 percent reduction in the extent of sub tidal channel (areas mapped by NLWRA = 16 349 hectares), observed on two sampling occasions within any decade, will represent a change in ecological character (LAC – mapped area less than 13 079 hectares). (Note: the moderate degree of allowable change recognises that shallow sub tidal waters represent a critical habitat resource, generally show low natural variability, but data reliability is low)			Insufficient Information	Weed infestation (i.e. spartina) and dredging impacts can be effectively addressed Limited effectiveness of managing climate change impact on subtidal channel extent	

Benchmark descriptions and limits of acceptable change for critical components/processes/services within Corner Inlet (BTM WBT 2011a) and current status (DEPI 2011) continued

Indicator for Critical Component/	Benchmark Description and Limit(s) of Acceptable Change		Current Statu nsar Site Rolli DEPI 2011)	-	Extent to which management actions within the Ramsar site or surrounding catchment can	
Process/Service for the LAC	benefitially bescription and Emiliary of Acceptable change	Does not exceed LAC	Exceeds LAC	Insufficient data or no LAC set	influence the condition of the indicator	
Critical components						
Extent of saline wetland-intertidal flats	A greater than 20 percent reduction in the extent of permanent saline wetland – intertidal flats (areas mapped by DSE = 40 479 hectares, see Figure 3-1), observed on two sampling occasions within any decade, will represent a change in ecological character (LAC – mapped area less than 36 431 hectares). (Note: the moderate degree of allowable change recognises that intertidal flats represent a critical habitat resource and generally show low natural variability. A loss of intertidal flat would also result in changes in seagrass)			Insufficient Information	Weed infestation (i.e. spartina) and dredging impacts can be addressed Limited effectiveness of managing climate change impact on wetland-intertidal flats	
Waterbird abundance	Mean annual abundance of migratory bird species – Birds Australia (2009) note that a maximum annual abundance of migratory species of 42,811 birds, with a mean annual abundance of migratory species being 31,487 birds (deriving from 28 years of data collection to September 2008). The annual abundance of migratory shorebirds will not decline by 50 per cent of the long-term annual mean value (that is, must not fall below 15,743 individuals) in three consecutive years. Mean annual abundance of migratory species that meet the one per cent criterion will not be less than 50 per cent of the long-term annual mean value in five years of any ten year period. These values are follows: • curlew sandpiper – LAC = 1294 birds • bar tailed godwit – LAC = 4863 birds • eastern curlew – LAC = 985 birds • pied oystercatcher – LAC = 446 birds • sooty oystercatcher – LAC = 142 birds • double-banded plover – LAC = 261 birds There are insufficient baseline data for fairy tern and Pacific gull.	X			Local impacts from foxes, human disturbance and habitat degradation can be effectivelly addressed. Threats to northern hemisphere breeding grounds and stopover sites in the East Asian-Australian Flyway (e.g. wetland loss from development and land use intensification) and climate change are difficult to address	

Benchmark descriptions and limits of acceptable change for critical components/processes/services within Corner Inlet (BTM WBT 2011a) and current status (DEPI 2011) continued

Indicator for Critical Component/	Benchmark Description and Limit(s) of Acceptable Change	Current Status (from Ramsar Site Rolling Review, DEPI 2011)			Extent to which management actions within the Ramsar site or surrounding catchment can	
Process/Service for the LAC	g	Does not exceed LAC	Exceeds LAC	Insufficient data or no LAC set	influence the condition of the indicator	
Critical components						
Waterbird breeding	Abandonment or significant decline (greater than 50 per cent) in the productivity of two or more representative breeding sites (based on two sampling episodes over a five year period) within any of the following site groupings:	X			Local impacts from foxes, human disturbance and habitat degradation can be addressed.	
	 Clomel Island – fairy tern, hooded plover, Caspian tern, crested tern Dream Island – fairy tern, hooded plover, crested tern 					
Threatened species	For orange-bellied parrot and growling grass frog, an unacceptable change will have occurred should the site no longer support these species. For Australian grayling, an unacceptable change will have occurred should all of the drainage lines that drain into Corner Inlet no longer support these species.	LAC not exceeded for Orange Bellied Parrot Unknown for growling grass frog and Australian grayling			A range of threats outside the Ramsar site and surrounding catchment may be difficult to address.	
Fish abundance	An unacceptable change will have occurred if the long term (greater than five years) median catch falls below the 20th percentile historical baseline values in standardised abundance or catch-per unit effort of five or more commercially significant species (relative to baseline) due to altered habitat conditions within the site. The 25th percentile prelisting baseline commercial catch per unit effort values for the site are as follows (units are tonnes per annum per number of boats):	Х			Human impacts can be effectively addressed.	
	 Australian salmon 379 Rock flathead 316 Southern sand flathead 373 Greenback flounder 514 Southern garfish 1452 Yelloweye mullet 740 					
	Gummy shark 167King George whiting 1347					

Appendix ten – Detailed method for Ramsar Site planning

INFFER method for identification of asset (their values), threats, risk and management response

The Investment Framework for Environmental Assets (INFFER) was applied to the Corner Inlet Ramsar site to assist with identifying and prioritising assets (and their values) and threats across the Ramsar site, assessing levels of risk, setting appropriate long term condition targets and developing management actions. As part of the analysis, two workshops were held with key stakeholders (WGCMA, DEPI, PV, Landcare, TfN, Birdlife Australia). These workshops were guided by the critical components, services and processes as outlined in the Corner Inlet ECD.

Workshop 1

Workshop participants were asked to nominate the most significant assets within the Corner Inlet Ramsar site. In doing so they were guided by the following instructions.

- 1. the asset must be fundamentally biological/ecological/physical in nature;
- 2. it must be able to be defined spatially.

A total of 12 assets were identified and subsequently assessed. It is acknowledged that there are many additional assets within the site, for example individual threatened species, but the group felt that the listed assets aligned well with key components of the Ecological Character Description.

The 12 assets were then filtered using a discussion and consensus approach. The assessment approach considered a set of criteria including asset significance and threat, together with a series of pre-assessment factors examining the asset focus and cost-effectiveness of management actions.

The core purpose of the assessment process was to identify assets for detailed benefit: cost analysis. Given this, it was necessary to focus on assets of exceptional significance, with the greatest degree of threat, where it appears feasible (according to technical, socio-economic and institutional considerations) to achieve a 'SMART' goal (i.e. specific, measurable, achievable, relevant and time-bound).

Assessing significance

Each asset was assessed for significance according to the following question:

How important or valuable is this asset? Specifically, how significant would it be if in good condition.

In making this assessment participants were asked to think at the scale of the entire Ramsar site and to consider ecological, socio-cultural and economic values. The level of asset significance was scored as Exceptional, Very High, High or Moderate.

Assessing threat

Threat was assessed according to the following question:

Without a major new threat reduction project for this asset, how damaged will the asset be in 20 years' time?

- Very high 76-100% loss of asset value (VH)
- High 51-75% (H)
- Medium 26-50% (M)
- Low 0-25% loss of asset value (L)

Four assets of exceptional significance were identified, namely:

- 1. Migratory shorebirds these are EPBC listed species of mostly small to medium sized waders such as sandpipers, knots, curlews, plovers, dotterels and godwits. These birds use specific migratory flyways from the northern hemisphere and New Zealand. Different species use different parts of the Ramsar site. Key threats are in northern hemisphere breeding grounds and in the East Asian-Australasian Flyway (e.g. wetland loss from development and land use intensification) and climate change, with local threats from foxes, human disturbance and habitat degradation. Over the past 20 years, some species have increased but majority have decreased, for example Curlew Sandpiper has suffered an 80% decline since 1980's.
- 2. The bed and profile of the embayment due to the low threat and likely inability to develop a SMART goal this asset was not deemed suitable for further assessment
- 3. Seagrass communities (Zostera and Posidonia), including species associated with different areas of the Ramsar site the poorly understood nature of threats to these communities make it difficult to assess feasibility of interventions for seagrass. This, and the fact that land based actions in the Corner Inlet Water Quality Improvement Plan will be implemented to reduce sediment and nutrient inflows to the site suggest that this asset be not recommended for further assessment.
- 4. Saltmarsh (wet and dry), mangrove and hinterland vegetation communities included Melaleuca and Banksia woodland [coastal vegetation assemblage]. This vegetation occurs along a gradient from tidal to terrestrial habitats. This vegetation provides habitat of migratory and resident bird populations. It is scattered around the margins of Corner Inlet and associated islands. Key threats include Spartina and possible emerging threat from tall wheat grass, Sicilian lavender together with levee banks/altered hydrology and grazing.
- 5. Intertidal mud and sand flats these areas face threats from Spartina, dredging and elevated silt loads resulting from catchment inflows and increased storm surges and damage to the barrier islands. Intertidal sand and mud flats support benthic invertebrates that are an important food source for fish and birds and provide appropriate conditions for seagrass to establish. Changes to the benthic ecosystem alter the food chains and are fundamentally linked to bird (and fish) populations.

Three of the five exceptional assets, migratory shorebirds, the coastal vegetation assemblage and the intertidal mud and sand flats, were identified as being suitable for detailed analysis.

While the beach nesting birds asset was assessed of slightly lower significance, they were considered during the subsequent assessment of migratory shorebirds, where the threats and management actions overlap.

Workshop 2

For the three exceptional assets identified in the first workshop, information from a desktop review of publications and reports, and consultation with the community and relevant experts, was collected on: asset significance, threats, project goal, works and actions, time lags, effectiveness of works, private adoption of actions, delivery mechanisms and costs. These outcomes have been used to help inform some of the management outcome targets and management activities outlined in the work plan in Section C.

In addition, a risk assessment was conducted for the threats identified through both the INFFER process and ECD. These threats and their potential impacts to Corner Inlet are detailed in Table 1. The expected timing, likelihood and consequence of each on Corner Inlet have been estimated, with risk identified through the matrix presented in Table 2. The results presented in Table 3 have also been used to inform the management outcome targets and activities outlined in the Work Plan in Section C.

Table 1 Threats and their potential impacts to Corner Inlet

Threat	Details and potential impacts to Corner Inlet			
Pollutant (sediment and nutrients) affecting water quality	The main threats to the Corner Inlet Ramsar wetlands in terms of water quality are increased inputs of sediment and nutrients from the surrounding catchment (WGCMA, 2013). Catchment land uses, particularly farming and forestry, but to a lesser extent activity in urban areas, impact on the levels of sediment and nutrient at the site.			
	This movement of pollutants into Corner Inlet has the potential to impact on seagrass condition and extent as well as mudflat productivity, thereby disturbing the delicate balance of organisms that rely on these habitats. Over recent years, changes in local seagrass condition and distribution, and the presence of algae have been of concern.			
Oil spills and other incidents	Proposals to develop industrial estates, port facilities and marinas at locations such as Barry Beach, Port Welshpool and Port Albert may increase the risk of spills of oils or other toxicants (Ecos unpublished), leading to injury/fatality of marine species and communities.			
Recreational Activities	Boating is a popular recreational activity and poses a number of threats to Corner Inlet, particularly seagrass beds including:			
	 navigation across shallow seagrass beds at low tide resulting in direct physical damage 			
	discharges of sewage, oil or litter			
	bow wash			
	anchoring in sensitive seagrass areas.			
	Fishing, hunting, wind surfing and jet skiing may cause disturbance to fauna species, particularly roosting, feeding and breeding waterbirds.			

Table 1 Threats and their potential impacts to Corner Inlet continued

Threat	Details and potential impacts to Corner Inlet					
Natural Resource Utilization	Licensed grazing of stock occurs on 10% of the Corner Inlet Ramsar Site (including parts of Snake Island, Hunter Island, Bullock Island and Do Island. Additional areas of the Ramsar site are also grazed by sheep and cattle from the adjacent freehold land due to inadequate fencing and an ill-defined public land boundary (DNRE, 2004)					
	Grazing can destroy and hinder regeneration of indigenous flora, and increase the risk of invasion by weed species. Grazing close to waterways and wetlands also degrades water quality.					
	Recreational angling, commercial net fishing and bait digging for worms have potential to disturb fish habitat and alter fish stock abundance. Activities may also disturb migratory waders and shorebirds.					
Urban development and	Future development impacts include vegetation destruction, altered hydraulic regimes and habitat fragmentation.					
encroachment	Estimates suggest urban growth and development in the catchment over the next 30 years will be minimal, averaging around 2.3% (Ipsos-Eureka, 2010).					
Habitat isolation Seawalls represent a key agent leading to fragmentation and isolation of littoral habitats from adjacent marine waters (Carey et a Habitat isolation due to the presence of existing seawalls are thought to represent an existing threat to breeding success of gum green-back flounder. However, it is thought that the threat level has stabilized over time and that tighter planning controls would likelihood of new seawalls being constructed.						
Dredging	Dredging to improve navigational channels has occurred at Corner Inlet since the 1690's. Key sites include Lewis Channel, Barry Beach Marine Terminal as well as access channels to Port Franklin and Port Albert (DNRE, 2004). The activities have the potential to impact on marine specie and communities.					
	Dredging proposals are evaluated by DEPI and the EPA, having regard to best practices to minimize environmental impacts. Dredging activities require the consent of the relevant Minister for Environment.					
Acid sulfate soils	Corner Inlet contains soil types classified as acid sulfate prone, most notably tidal flats and recent marine sediments around Black Swamp Yanakie, Old Hat Road Foster, Toora foreshore and Port Albert (CSIRO 2005).					
	Disturbance of these soils and the mobilization of sulphuric acid can be caused by excavations for urban development, construction of foreshore facilities, and drainage of coastal swamps.					
	Impacts include deterioration in water quality, impacts on fish and crustaceans, reduce biodiversity in surrounding wetlands.					
Invasive flora	Weeds can have adverse ecological impacts, including displacement of native flora and reduced habitat suitability for fauna species. A total of 93 introduced plant species are known to occur within the Ramsar site (DSE 2003).					
	Most notable is the introduced grass <i>Spartina</i> , which is a perennial aquatic grass that invades mudflats and sandy shores on sheltered coastal bays and estuaries. It is declared as a noxious pest under Victorian legislation.					
	African box-thorn, blackberry, sea spurge, English Broom, Ragwort, Spear Thistle and California Thistle also threaten coastal vegetation communities					

Table 1 Threats and their potential impacts to Corner Inlet continued

Threat	Details and potential impacts to Corner Inlet					
Invasive animals – terrestrial	Introduced fauna species at the site include black rat, house mouse, common starling, house sparrow, common blackbird, rabbit, red fox, cat and domestic dog.					
	Comparatively higher threats to fauna habitat values are linked to the presence of foxes and cats. Threats include disturbance to birds on their breeding grounds, roost and breeding sites, and predation of birds, their chicks and eggs.					
	The poor usage of pied oystercatchers within what appears to be suitable nesting habitats on both Snake Island and Little Snake Island is thought to be largely influenced by the presence of foxes (Taylor and Minton 2006).					
Invasive animals – marine	Three key invasive marine pest animals have been identified as potential threats in the Corner Inlet Ramsar site: Northern Pacific seastar, European shore crab and Mediterranean fanworm (Ecos unpublished).					
Climate change	Sea level rise of seven to 55 centimetres is predicted across the Western coastal regions of Gippsland by 2070. Coastal retreat as a result of this could impact on the size of some islands in the Nooramunga precinct in particular. Changes in the distribution and extent of habitats due to altered water levels could also occur. In particular, the loss of saltmarsh and mangrove vegetation arising from the restriction of landward movement and long term survivability caused by levee banks, seawalls, embankments and public infrastructure. Impacts to coastal habitats and communities could also be associated with an increase in the frequency of storm surges.					
	Other potential climate impacts include:					
	• increased extreme rainfall events associated with climate change given the dominant contribution to extreme water levels and water chemistry due to elevated stream flow					
	lower freshwater inputs					
	• increased drought and high temperature between major rainfall events leading to an increase in evaporation, which could expose and oxidise acid sulphate soils and exacerbate salinity in the shallow marsh environments.					
Altered hydrology	The magnitude, timing, frequency and duration of freshwater inflows can influence water quality and water regimes in the estuaries and embayment's of Corner Inlet and Nooramunga, and therefore their dependent ecological values.					
	Currently there is no specific environmental flow allocation for the waterways that enter Corner Inlet Ramsar Site or the embayment itself. No direct environmental water holdings exist in the area, as there are no major storages on any of the inflowing waterways. While limits on licensed consumptive use from the inflowing waterways do in effect provide 'environmental flows' to the system, the basis for these limits have not always explicitly considered the environment's need for water (e.g. minimum passing flows).					

Table 2 Likelihood and consequent matrix used to identify the risk of each threat to Corner Inlet

		Consequence			
		Minor	Moderate	Major	
	High	Medium	High	High	
Likelihood	Medium	Low	Medium	High	
	Low	Low	Low	Medium	

Table 3 Risk of each threat to Corner Inlet

Threat	Likelihood	Consequence	Risk
Pollutant (sediment and nutrients) inputs affecting water quality	High	Moderate	High
Oil spill and other incidents	Low	Major	Low
Recreational activities	Medium	Moderate	Medium
Natural resource utilisation	Medium	Moderate	Medium
Urban development and encroachment	Medium	Moderate	Medium
Habitat isolation	Medium	Moderate	Medium
Dredging	Medium	Moderate	Medium
Acid sulfate soils	Low	Moderate	Low
Invasive plants	High	Moderate	High
Invasive animals – terrestrial	Medium	Moderate	Medium
Invasive animals – marine	High	Moderate	High
Altered hydrology	Medium	Major	High
Climate Change	Medium	Moderate	High

Appendix eleven – Corner Inlet Ramsar Site LACs and Monitoring Requirements

Under the Ramsar rolling review, reporting for the Corner Inlet Ramsar site will focus on the LACs but may also include critical components, processes or services where knowledge gaps exist or key threats as identified in the Ecological Character Description (ECD).

The Ramsar site manager will be responsible for updating the Rolling Review database for the Corner Inlet Ramsar Site every three years.

Indicator for Critical Component / Process/Service for the LAC	Limit(s) of Acceptable Change (from BMT WBM 2011a)	Spatial scale/ temporal scale of measurements	Underpinning baseline data*	Suggestions for future monitoring
Seagrass extent	Total mapped extent of dense <i>Posidonia</i> will not decline by greater than 10 percent of the baseline value outlined by Roob <i>et al.</i> (1998) at a whole of site scale (baseline = 3050 hectares; LAC = mapped area less than 2745 hectares) on any occasion. (Note: the small degree of allowable change recognises that this seagrass species is a critical habitat resource and generally shows low natural variability) Total mapped extent of the dense and medium density Zosteraceae will not decline by greater than 25 percent of the baseline values outlined by Roob <i>et al.</i> (1998) at a whole of site scale on two sampling occasions within any decade. • Dense <i>Zostera</i> – Baseline = 5743 hectares (LAC = mapped area less than 4307 hectares) • Medium <i>Zostera</i> – Baseline = 1077 hectares (LAC = mapped area less than 807 hectares) (Note: the moderate degree of allowable change recognises that these seagrass species generally show moderate degrees of natural variability)	Sampling to occur at least twice within the decade under consideration. Note that the seagrass assessment by Hindell (2008) did not produce mapping but did use similar sampling sites to Roob et al.	Level B – Recent quantitative data describes seagrass condition at various sites but over a limited timeframe. It is thought that the Roob et al. (1998) study under-estimated the total available seagrass habitat (J. Stevenson, Parks Victoria, pers. comm. February 2011), hence a 10% change from this baseline value would represent a larger actual change from the true baseline. Note: Prior to declaration, Posidonia covered approximately 44 per cent (119 square kilometres) of the site (Poore 1978). Morgan (1983) estimated that Posidonia meadows covered 119 square kilometres in 1965, 35 per cent of the site in 1976 and 90 to 95 square kilometres in 1983-84. There is significant uncertainty regarding these mapping data and it is not recommended that empirical LACs are based on these data.	Routine monitoring and mapping of seagrass (focusing on <i>Posidonia</i> , but also other more transient species) across the site. Improved quantification of the links between nutrient and sediment loads from all sources and their impacts on seagrass condition and extent including re-suspension aspects

Indicator for Critical Component / Process/Service for the LAC	Limit(s) of Acceptable Change (from BMT WBM 2011a)	Spatial scale/ temporal scale of measurements	Underpinning baseline data*	Suggestions for future monitoring
Mangrove forest extent	Based on EVC mapping, it is estimated that mangroves presently cover an area of 2137 hectares within the site. A 10 percent reduction in the total mapped mangrove area, observed on two sampling occasions within any decade, is an unacceptable change. (LAC – mapped area less than 1924 hectares). (Note: the small degree of allowable change recognises that mangroves are a critical habitat resource and generally shows low natural variability)	Sampling to occur at least twice within the decade under consideration.	Level B – No available data to determine changes in extent over time. It is unlikely that this has changed markedly since Ramsar listing. Note that there are uncertainties regarding the quality of existing mapping, and therefore the baseline value should be considered as indicative only.	Mangrove and saltmarsh community condition, including trends in vegetation patterns.
Saltmarsh extent	Based on EVC mapping, it is estimated that intertidal marshes presently cover an area of 6500 hectares within the site. A 10 percent reduction in the total mapped saltmarsh area, observed on two sampling occasions within any decade, is an unacceptable change (LAC – mapped area less than 5850 hectares). (Note: the small degree of allowable change recognises that saltmarsh is a critical habitat resource and generally show low natural variability)	Sampling to occur at least twice within the decade under consideration.	Level B – No available data to determine changes in extent over time. It is unlikely that this has changed markedly since Ramsar listing. The note regarding data quality for mangroves applies also to saltmarsh.	Mangrove and saltmarsh community condition, including trends in vegetation patterns.
Shallow subtidal waters	A greater than 20 percent reduction in the extent of subtidal channel (areas mapped by NLWRA = 16 349 hectares), observed on two sampling occasions within any decade, will represent a change in ecological character (LAC – mapped area less than 13 079 hectares). (Note: the moderate degree of allowable change recognises that shallow subtidal waters represent a critical habitat resource, generally show low natural variability, but data reliability is low)	Sampling to occur at least twice within the decade under consideration.	Level B – NLWRA mapping data describes wetland extent. This is coarse scale mapping and should be considered as indicative only.	There is a need to develop a condition-based LAC for this critical component. While some water quality data exists, this is presently insufficient to derive a LAC (i.e. whether a change in water quality represents a true change in ecological character of the wetland)

Indicator for Critical Component / Process/Service for the LAC	Limit(s) of Acceptable Change (from BMT WBM 2011a)	Spatial scale/ temporal scale of measurements	Underpinning baseline data*	Suggestions for future monitoring
Inlet waters (intertidal flats)	A greater than 20 percent reduction in the extent of permanent saline wetland – intertidal flats (areas mapped by DSE = 40 479 hectares, see Figure 3-1), observed on two sampling occasions within any decade, will represent a change in ecological character (LAC – mapped area less than 36 431 hectares). (Note: the moderate degree of allowable change recognises that intertidal flats represent a critical habitat resource and generally show low natural variability. A loss of intertidal flat would also result in changes in seagrass)	Sampling to occur at least twice within the decade under consideration.	Level B – VMCS mapping data describes wetland extent. This is coarse scale mapping and should be considered as indicative only.	There is a need to develop a condition-based LAC for this critical component. While some water quality data exists, this is presently insufficient to derive a LAC (i.e. whether a change in water quality represents a true change in ecological character of the wetland)
Abundance and of waterbirds	Mean annual abundance of migratory bird species – Birds Australia (2009c) note that a maximum annual abundance of migratory species of 42 811 birds, with a mean annual abundance of migratory species being 31 487 birds (deriving from 28 years of data collection to September 2008). The annual abundance of migratory shorebirds will not decline by 50 per cent of the long-term annual mean value (that is, must not fall below 15 743 individuals) in three consecutive years. (Note: the large degree of allowable change recognises that these species can show high levels of natural variability, and that limitations of existing baseline data)	At least four annual surveys (summer counts) within the decade under consideration.	Level A	Continuation of current monitoring.

Indicator for Critical Component / Process/Service for the LAC	Limit(s) of Acceptable Change (from BMT WBM 2011a)	Spatial scale/ temporal scale of measurements	Underpinning baseline data*	Suggestions for future monitoring
	Mean annual abundance of migratory species that meet the one per cent criterion will not be less than 50 per cent of the long-term annual mean value in five years of any ten year period. These values are follows:	At least five annual surveys (summer counts) within the decade under consideration.	Level A	Continuation of current monitoring.
	 curlew sandpiper – baseline = 2588 birds, LAC = 1294 birds 			
	 bar tailed godwit – baseline = 9727 birds, LAC = 4863 birds 			
	 eastern curlew – baseline = 1971 birds, LAC = 985 birds 			
	 pied oystercatcher – baseline = 893 birds, LAC = 446 birds 			
	 sooty oystercatcher – baseline = 285 birds, LAC = 142 birds 			
	 double-banded plover – baseline = 523 birds, LAC = 261 birds 			
	There are insufficient baseline data to determine long-term average abundance of fairy tern and Pacific gull.			
	(Note: the large degree of allowable change recognises that these species can show high levels of natural variability, and that limitations of existing baseline data)			

Indicator for Critical Component / Process/Service for the LAC	Limit(s) of Acceptable Change (from BMT WBM 2011a)	Spatial scale/ temporal scale of measurements	Underpinning baseline data*	Suggestions for future monitoring
Waterbird breeding	 Abandonment or significant decline (greater than 50 per cent) in the productivity of two or more representative breeding sites (based on two sampling episodes over a five year period) within any of the following site groupings: Clomel Island – fairy tern, hooded plover, Caspian tern, crested tern Dream Island – fairy tern, hooded plover, crested tern 	Recommended baseline monitoring program should comprise a minimum two annual sampling periods separated by at least one year (and within a five year period).	Level C – The use of the site by these species is well documented. However, there are no empirical data describing breeding rates.	Baseline data will need to be collected to assess this LAC.
Threatened Species	For orange-bellied parrot and growling grass frog, an unacceptable change will have occurred should the site no longer support these species.	Based on multiple targeted surveys at appropriate levels of spatial and temporal replication (at least four annual surveys in preferred habitats) over a 10 year period.	Level C – Most site records are based on opportunistic surveys	More targeted surveys of the threatened flora and fauna species (perhaps on a five year or ten year basis) to assess presence/absence or population changes of noteworthy species or communities identified in the critical components. Specifically this should target presence and usage of the site (at various spatial scales) by growling grass frog, orange-bellied parrot and Australian grayling

•	-				
Indicator for Critical Component / Process/Service for the LAC	Limit(s) of Acceptable C WBM 201		Spatial scale/ temporal scale of measurements	Underpinning baseline data*	Suggestions for future monitoring
	For Australian grayling, an una have occurred should all of the into Corner Inlet no longer sup	e drainages that drain	Based on multiple targeted surveys at appropriate levels of spatial and temporal replication (at least four annual surveys in preferred habitats) over a 10 year period.	Based on four annual surveys in a 10 year period at multiple sites located in all major catchments.	Level C – This species has been recorded in the major drainages that drain into the site. There are no data describing the population status of the species in the site. Abundance data available for drainages that discharge into the site (Ecowise 2007; O'Connotet al. 2009). O'Connotet al. (2007) notes that collection of this species is difficult and requires targeted survey techniques. Few targeted empirical surveys have been undertaken in the site's drainages to date.
Fish abundance (using fish catch of key species as a surrogate)	An unacceptable change will have occurred if the long term (greater than five years) median catch falls below the 20th percentile historical baseline values in standardised abundance or catch-per unit effort of five or more commercially significant species (relative to baseline) due to altered habitat conditions within the site. The 25th percentile pre-listing baseline commercial catch per unit effort values for the site are as follows (units are tonnes per annum per number of boats – see Table 3-8): Australian salmon 379 rock flathead 316 southern sand flathead 373 greenback flounder 514 southern garfish 1452 yelloweye mullet 740 gummy shark 167 King George whiting 1347		Annual fish catch measured over a greater than five year period.	Level A – Commercial fish catch data. Note that there are presently no fisheries-independent baseline data (collected using empirical, systematic methods) describing patterns in the distribution and abundance of key species. Therefore, the limits of acceptable change should be treated with caution, noting socioeconomic factors should be taken into account when assessing catch data underpinning this LAC.	

*Characterising Baseline Information

In characterising the baseline information used in deriving LACs, the following typology has been used:

Level A - This LAC has been developed from data and/or information (such as bird count data, fisheries catch data or similar) that has been reviewed by the authors of the ECD and deemed to be sufficient for setting the LAC. This type of LAC is typically derived from long-term monitoring data.

Level B – This type of LAC is derived from empirical data, but is unlikely to d3escribe the range of natural variability in time. This can include tow sub-types:

- repeated measurements but over a limited temporal context
- single measurements (no temporal context) of the extent of a particular habitat type, abundance of a species or diversity of an assemblage.

Level C – This type of LAC is not based on empirical data describing patterns in natural variability. This can include two sub-types:

- based on a published or other acceptable source of information, such as personal communication with relevant scientists and researchers, or is taken from referenced studies as part of management plans, journal articles or similar documents.
- where there is no or limited data sets and a lack of published information about the parameter and the LAC has been derived based on the best professional judgement of the

Appendix twelve - Communications and Engagement Activities and Outcomes

Project Stage	High Level Activity	C&E Purpose	Approach and audience	Method	Date	Outcome
Planning, Analysis & Engagement	Review the Regional River Health Strategy	To collect information to enable a review of the RHS.	Involve & Collaborate – WGCMA Staff, external agencies.	Various – Email, meetings, surveys, literature review	2009 & 2012	The following organisations/groups were consulted via survey monkey: Parks Victoria, Southern Rural Water, and Gippsland Water, South Gippsland Water, EPA, Local Governments, Coast care, DPI, DSE, Landcare Networks, Gippsland Coastal Board, VRfish, Waterwatch, individual landholders, and WGCMA staff. People were encouraged to distribute the survey through their networks.
						Several WGCMA staff were interviewed.
						All agencies that appear in the WGRHS were contacted to populate the status of MATs that were listed as their responsibility.
	Populate AVIRA	To collect information to populate AVIRA	Inform and consult – WGCMA staff; Various (dependent on the measure being populated – see 'outcomes' column)	Various – Email, meetings, surveys, literature review	2011-2013	The following organisations/groups were consulted to assist with the population of AVIRA measures relating to their area of responsibility/ knowledge: Parks Victoria, Southern Rural Water, Gippsland Water, South Gippsland Water, EPA, Gippsland Ports, Canoe Clubs, Latrobe Valley Field Naturalist Club, Field and Game, DSE, DPI, Local Government, BirdLife, local birdwatcher, Landcare, Waterwatch, WGCMA local knowledge, JARR, Estuarywatch, Fisheries Victoria, Angling clubs, tourism information centres and regional tourism associations.

Project Stage	High Level Activity	C&E Purpose	Approach and audience	Method	Date	Outcome
	Raise awareness of the Strategy	To inform stakeholders and	Inform – various agencies and	Information Flyer	June 2013	Hard copies of flyer made available at Traralgon and Leongatha office reception.
	and the project	the community of the Strategy	, , , , , ,			Content of flyer used to populate initial website.
		process, its progress and outcomes				55 introductory letters sent to various stakeholders and community groups, which included a link to the Strategy website. Registrations were recorded so that updates could be provided throughout the life of the project.
						Letters sent to the following organisations Landcare (Network Coordinators); Agencies (PV; DSE; DPI; EPA); Water Authorities (SRW; Gippsland Water; South Gippsland Water; Melbourne Water); Local Government (Wellington Shire; South Gippsland Shire; Latrobe City; Baw Baw Shire; Bass Coast Shire); Traditional Owners* (GLaWAC; Bunurong; Boon Wurrung); Gippy Lakes Ministerial Committee; Industry – Agriculture (Gipps Dairy, MLA), Forestry (HVP, VicForests), Fisheries (TBC)
			Inform – Internal: WGCMA Board; WGCMA	Briefings at forums and meetings	June/July 2013	CAG briefings 4th & 7th June. Board papers presented at June & July meetings of 2013.
			Staff (team leaders); WGCMA			Email to all WGCMA staff 10th July 2013.
			Community Advisory Groups (CAG)			Landcare Coordinators sent introductory letter (see above).
			External: Landcare – Regional Landcare forum			

Project Stage	High Level Activity	C&E Purpose	Approach and audience	Method	Date	Outcome
			Inform – General Community	Website	June 2013	Content and design complete 9 July 2013.
			Consult - Landcare (Network Coordinators); Agencies (PV; DSE; DPI; EPA); Water Authorities (SRW; Gippsland Water; South Gippsland Water; Melbourne Water); Local Government (Wellington Shire; South Gippsland Shire; Latrobe City; Baw Baw Shire; Bass Coast Shire); Traditional Owners* (GLaWAC; Bunurong; Boon Wurrung); Gippy Lakes Ministerial Committee; Industry - Agriculture (Gipps Dairy, MLA), Forestry (HVP, VicForests), Fisheries (TBC)	Introductory letter (follow- up briefings if needed)	June/July 2013	Introductory letters sent in July All 20 partner organisations (listed in the Audience column) that were contacted nominated staff to be their point of contact for further communication and involvement in the Strategy process. Seven of 35 additional stakeholders who were contacted expressed interest in being updated throughout the Strategy process and/or receiving a draft of the Strategy for comment. Briefings held: South Gippsland Water 14th June 2013 (in conjunction with Southern CAG); Parks Victoria 13th June 2013 (re. Strategy & Ramsar Plan). A meeting was held with Gippsland Water and South Gippsland Water re. protection of potable water supply catchments on 24/9/2013. It was very well received and helped to clarify the source of their previous frustration enormously. Workshop on 21/10/13 with GLaWAC and with Boon Wurrung on 31/10/13. Resulted in the sharing of knowledge and identified common priorities for waterway management. Briefing on Strategy given to SRW management team on 25/10/13.

Project Stage	High Level Activity	C&E Purpose	Approach and audience	Method	Date	Outcome
Prioritisation	Draft priority waterways defined & paper developed for review and for testing with key stakeholders	To test priority waterways with key stakeholders	Involve & Collaborate With – Water Authorities; Parks Victoria; Local Government; CAG's & CMA Board. Other – Traditional Owners*; WGCMA Staff	One on One Meetings CAG Forum Board Meeting	Late November/ early December 2013	One on one contact with relevant people undertaken as required during initial prioritisation (e.g. urban water corporations – see above; WGCMA staff; GLMAC, PV, DEPI). Workshop with DEPI and recreational fishing groups to identify key recreational fishing management priorities held on 12/11/13. Three workshops held in Early December 2013, 24 attendees from partner organisations, refined regional goals, and identified additional values to link to goals for prioritisation. INFFER workshop held on 12/2/2014, to assess threats for Corner Inlet Ramsar Site and identify priority assets for work program.
	To inform key stakeholder of Strategy Progress	To inform stakeholders and the community of the Strategy	Inform –General Community	Website	December 2013	Webpage updated 10 December 2013. Info included on the Strategy page. Page updated in late March with Goals and Priorities and then again in June with the draft Strategy.
		Y process, its progress and outcomes	Inform – All key internal and external stakeholders	WGCMA Stakeholder Newsletter	December 2013	CAG briefing on 22/10/2013. Update provided in WGCMA stakeholder newsletter on 12/12/2013 to 78 recipients
Action Planning & Draft Development	Action planning and development of draft work programs for activities	To develop draft work programs for priority water ways	Involve and collaborate with – Key WGCMA Staff (water/stat planning/p & e); Landcare Staff Other: Traditional Owners*;	Workshops	March 2014	Workshops held with Delivery Team and EWR Staff on 12th, 31st March, 1st, 2nd and 4th April to develop targets and work program for priority waterways

Project Stage	High Level Activity	C&E Purpose	Approach and audience	Method	Date	Outcome
	Ramsar site planning	To develop work program the Corner Inlet Ramsar Site	Involve and collaborate with – Key WGCMA Staff, Parks Victoria, DEPI, Yarram Yarram Landcare Network, Phillip Island Nature Park, BirdLife Australia, Australian Government	Workshops	February and March 2014	INFFER workshops held on 3/3/2014, 4/4/2014 to develop work program/s for Corner Inlet Ramsar Site. Subsequent review of Draft work programs in March, May and June by Parks Victoria staff.
	Draft Strategy finalisation	To sign off on draft for public consultation phase	Consult – WGCMA Board	Board Paper	May 2014	Draft Strategy presented to board 26/5/2014 Steering Group sign off on draft 6/6/2014
Public Consultation and Strategy	and input on the draft Strategy t	To provide the wider community the opportunity to provide comment on the draft Strategy	Consult – General Community	Website	June 2014	Website updated 17/6/2014 with draft Strategy, discussion papers and appendices. Link from the home page established to provide direct access to the page
finalisation			Consult – General Community	Media Release	June 2014	Media release issued late June to advise the draft Strategy is available and encourage feedback and comment. Release issued to all local print and electronic media. Newsletter article written in Catchment Snapshot and sent
						to more than 130 recipients featuring the Draft Waterway Strategy as the lead story.
			Consult – General Community	WGCMA Foyer Display	June 2014	Hard copy plans available in Traralgon and Leongatha.
			Consult – various (partners and stakeholders)	Direct Contact – send draft copies to key stakeholders	June 2014	Letter sent to 70 partner agencies and key stakeholders 18/6/2014
						Verbal feedback also received from Field and Game Victoria by telephone on the 25/6 2014

Project Stage	High Level Activity	C&E Purpose	Approach and audience	Method	Date	Outcome
		To provide partners with the opportunity to	(SGW, GW), South	Workshops / feedback sessions; invitation sent to all partner organisations to participate.	July 2014	Partner feedback sessions held on 30/6 and 1/7 2014 with Gippsland Water, South Gippsland Water and South Gippsland Shire Council.
		provide comment on the draft Strategy	Council, WGCMA staff, Board and			WGCMA and Landcare Staff and Board and CAGs session held on the 7/7/2014.
		CAG members.	CAG members.			Submissions received from 8 organisations and 3 individuals. Board comments received in July and August 2014.
						Feedback collated and responses prepared for July board meeting. Approach to Strategy finalisation enforced.
	Seek endorsement on the final Draft Strategy		Approve – WGCMA board	Presentation / review of final Draft Strategy.	August 2014	Final draft Strategy sent to WGCMA board 25/8/2014 for endorsement to enable final draft to be sent to DEPI for final review and ministerial approval.