



PART E

Appendices

Photo: Taggerty River, GB CMA

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Appendix A: Partners and their roles and responsibilities in waterway management

Agency and purpose	Roles and responsibilities for waterway management
Catchment Management Authorities (Goulburn Broken)	<p>The Goulburn Broken Catchment Management Authority is the peak natural resource management body in the catchment. It develops and oversees the implementation of the Regional Catchment Strategy.</p> <p>The Authority works in partnership with the community to ensure land and water resources are protected and enhanced as well as improving the region's social wellbeing, environmental quality and productive capacity in a sustainable manner. GB CMA, as the "Caretaker of River Health", "Manager of the Environmental Water Reserve" and "Waterway Manager" for the region, will be the lead agency for implementing the Goulburn Broken Waterway Strategy. The strategy will be implemented as a sub-strategy of the Regional Catchment Strategy, through established partnerships involving:</p> <ul style="list-style-type: none"> • agencies with water management, land management or other relevant legislated responsibilities; • communities; and • other stakeholders such as non-government organisations, Landcare and other community groups.
The Department of Environment and Primary Industries is responsible for agriculture, fisheries, forestry, public land and the environment	<p>The Department of Environment and Primary Industries (DEPI) is responsible for the efficient and practical management of land, water and agricultural services. The DEPI is the lead agency for the development of policy regarding water resource management and waterway management. DEPI is also responsible for other aspects of natural resource management that are relevant to waterways, including:</p> <ul style="list-style-type: none"> • delivery of services at a regional level, including some services that relate to waterway management; • management of fisheries and recreational fishing in waterways to optimise economic and social value while ensuring the sustainability of resources; • management of biosecurity, including aquatic invasive species; • oversight of the catchment planning framework to promote integrated catchment management throughout Victoria; • management of biodiversity; • management of public land, including waterways and bushfire management on public land; and • improvement of agricultural productivity. <p>DEPI is also responsible for Crown frontages in Victoria. It is responsible for their administration, including their licensing for riparian management and for grazing and ensuring compliance with licence conditions. DEPI also has a direct onground responsibility for unlicensed Crown frontages.</p>
The Environment Protection Authority Victoria is an environmental regulator and authority on environmental impacts.	<p>The Environment Protection Authority (EPA) Victoria:</p> <ul style="list-style-type: none"> • identifies 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); • provides specific direction on the management of various activities that affect water quality; • uses mandatory and regulatory processes, such as licensing and other discretionary tools to assist in the achievement of water quality objectives; and • acts in partnership with the DEPI and regional bodies to monitor water quality and waterway condition and enables problem solving approaches and independent audits of impacts on the environment and the protection of beneficial uses.
Parks Victoria manages	Parks Victoria:

Agency and purpose	Roles and responsibilities for waterway management
national, wilderness, state and regional parks, Melbourne's metropolitan parks and open space network as well as selected ports and waterways	<ul style="list-style-type: none"> 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; and creates, manages and maintains visitor sites and manages 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.
Transport Safety Victoria is responsible for determining standards and procedures for navigation and maritime safety on state waters	<p>Transport Safety Victoria:</p> <ul style="list-style-type: none"> determines standards and procedures for navigation and maritime safety on all inland waters, rivers, creeks, canals, lakes and reservoirs, as well as coastal waters up to three nautical miles offshore; and assists Marine Safety Act (2010) waterway managers in their duties, who are appointed by the Minister for Ports and are responsible for regulating vessel operations and on water activities by waterway users on selected waterways under their control.
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 and the Commonwealth Environmental Water Holder, to ensure environmental water entitlements are used to achieve the most efficient and effective environmental outcomes.
Victorian Catchment Management Council	The Victorian Catchment Management Council is appointed under the <i>Catchment and Land Protection Act 1994</i> and advises the Minister for Environment and Climate Change and the Minister for Water on land and water management issues. The Council reports annually on the operation of the <i>Catchment and Land Protection Act 1994</i> and, every five years, on the environmental condition and management of Victoria's land and water resources, through the Victorian Catchment Management Council Catchment Condition Report.
Victorian Environment Assessment Council	The Victorian Environment Assessment Council is appointed under the <i>Victorian Environmental Assessment Council Act 2001</i> . The Council conducts investigations that are requested by the Government relating to the protection and ecologically sustainable management of the environment and natural resources on public land.
Essential Services Commission	The Essential Services Commission is the economic regulator of the Victorian water sector appointed under the <i>Essential Services Commission Act 2001</i> . The Commission regulates prices and monitors service standards and market conduct of the Victorian water sector. The sector is comprised of water corporations, established under the <i>Water Act 1989</i> , providing bulk and retail water and waste water services to all of Victoria's urban and rural irrigation customers.
Commissioner for Environmental Sustainability	The Commissioner for Environmental Sustainability is appointed under the <i>Commissioner for Environmental Sustainability Act 2003</i> to report on Victoria's environment. The Commissioner's objectives are to report on the condition of the natural environment, encourage decision-making that facilitates ecologically sustainable development, enhance knowledge in these areas and encourage sound environmental practice by the Victorian Government and local government.

National/other state authorities

Murray-Darling Basin Authority	<p>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:</p> <ul style="list-style-type: none"> • 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; and • engaging and educating the Australian community about the Basin's water resources.
Water Corporations Rural Water and Rural Water Corporations	<p>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. Goulburn Murray Water provide a combination of irrigation services, domestic and stock services, bulk water supply services and Goulburn Valley Water and North East Water provide urban water and wastewater services in the region. Their link with the RWS includes;</p> <ul style="list-style-type: none"> • broader catchment health and improved water quality links to water supply; and • water reform, operational role in environmental water management.
Local Government Shires, Cities and Rural Cities	<p>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.</p> <p>Specifically with regard to waterways, local government have the following roles and responsibilities:</p> <ul style="list-style-type: none"> • incorporate waterway restoration and catchment management objectives, priorities and actions into statutory planning processes; • undertake floodplain management and flood warning in accordance with the Victoria Flood Management Strategy; • develop and implement urban stormwater plans; • manage on-site domestic wastewater systems; • manage adjoining waterways under Committees of Management; and • manage rural drainage schemes where appropriate.
	<p>Strathbogie Shire Council is the Waterway Manager under the <i>Marine Safety Act 2010</i> for the waters of the Goulburn River from Hughes Creek to Goulburn Weir including Lake Nagambie.</p> <p>Council operates a boating safety service to meet its obligations as set out in the powers and functions of waterway managers in Section 216 of the <i>Marine Safety Act 2010</i>.</p> <p>The <i>Marine Safety Act 2010</i> provides for the principle of equity for all waterway users, the establishment of vessel operating rules and a regulatory role in ensuring compliance. To a lesser extent the Act refers to a role in minimising risk to the environment.</p>
Traditional Owners Traditional Owner Boards/Councils	<p>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.</p>

In addition to the above State partnerships, regional roles and responsibilities of partners are summarised below.

Regional Partner	Roles and responsibilities for waterway management
Community Landholders	<p>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 <i>Catchment and Land Protection Act 1994</i> landholders are required to:</p> <ul style="list-style-type: none"> • 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; and • prevent the spread of, and as far as possible eradicate, established pest animals.
Individuals	<p>Community members have an important role in protecting waterway health by avoiding and reporting pollution, reducing resource consumption and contributing to environmental management processes.</p>
Community Groups	<p>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.</p>
Industry	<p>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.</p>

Appendix B: Values and threats of waterways considered in the regional priority setting process

Table B.1 – Summary of Environmental Values within AVIRA

Rivers	Wetlands
Formally recognised significance National Significance Living Murray Icon Sites National Heritage Sites State Significance Heritage Rivers Icon Rivers Essentially Natural Catchments Victorian Parks and Reserves Victorian Heritage Sites	Formally recognised significance International Significance Ramsar Sites East Asian-Australasian Flyway Sites National Significance Nationally Important Wetlands Living Murray Icon Sites National Heritage Sites State Significance Heritage Rivers Essentially Natural Catchments Victorian Parks and Reserves Victorian Heritage Sites
Representativeness Representative Rivers	Representativeness Representative Wetlands (TBD)
Rare or threatened species/communities Significant fish (migratory) Significant fish (non-migratory) Significant birds (riparian) Significant birds (waterway) Significant amphibians Significant invertebrates (aquatic) Significant invertebrates (terrestrial) Significant reptiles (aquatic) Significant reptiles (riparian) Significant mammals Significant flora (aquatic) Significant flora (terrestrial) Significant riparian Ecological Vegetation Communities	Rare or threatened species/communities Significant fish Significant birds Significant amphibians Significant invertebrates Significant reptiles (aquatic) Significant reptiles (riparian) Significant mammals Significant flora Significant wetland Ecological Vegetation Communities
Naturalness Aquatic invertebrate community condition Native fish Riparian vegetation condition	Naturalness Aquatic invertebrate community condition (TBD) Native fish (TBD) Wetland vegetation condition
Landscape features Drought refuges Important bird habitats Biosphere reserves	Landscape features Drought refuges Important bird habitats Biosphere reserves

Table B.2 – Summary of Social Values within AVIRA

Rivers	Wetlands
Activity Recreational fishing Non-motor boating Motor boating Camping Swimming Beside water activities Game hunting	Activity Recreational fishing Non-motor boating Motor boating Camping Swimming Beside water activities Game hunting
Place Landscape	Place Landscape
People Community groups Use of flagship species	People Community groups Use of flagship species

Table B.3 - Cultural values

Rivers	Wetlands
Heritage Aboriginal cultural heritage Post-European cultural heritage	Heritage Aboriginal cultural heritage Post-European cultural heritage

Table B.4 – Summary of Economic Values within AVIRA

Rivers	Wetlands
Water Urban/Rural township water sources Rural water sources for production Water storages Water carriers Wastewater discharges	Water Urban/Rural township water sources Rural water sources for production Water storages Water carriers Wastewater discharges
Power generation Hydroelectricity	Power generation Hydroelectricity
Other resources Commercial fishing Extractive industries Timber harvesting and firewood collection	Other resources Commercial fishing Extractive industries Timber harvesting and firewood collection

Table B.5 – Summary of Threat Values within AVIRA

Rivers	Wetlands
ALTERED WATER REGIMES Altered Flow Regimes Increase in Low Flow Magnitude Reduction in High Flow Magnitude Increase in Proportion of Zero Flow Change in Monthly Streamflow Variability Altered Streamflow Seasonality	ALTERED WATER REGIMES Changed Water Regime
ALTERED PHYSICAL FORM Bank Instability Bed Instability (Degradation)	ALTERED PHYSICAL FORM Reduced Wetland Area Altered Wetland Form
POOR WATER QUALITY Degraded Water Quality Thermal Water Pollution Disturbance of Acid Sulphate Soils	POOR WATER QUALITY Changed Water Properties Disturbance of Acid Sulphate Soils
DEGRADED HABITATS Degraded Riparian Vegetation Large Trees Loss of Instream Habitat Large Wood Sedimentation Livestock Access	DEGRADED HABITATS Soil Disturbance
INVASIVE FLORA AND FAUNA Invasive Flora (Riparian) Trees Shrub Layer Ground Layer Invasive Flora (Aquatic) Invasive Fauna (Terrestrial) Invasive Fauna (Aquatic)	INVASIVE FLORA AND FAUNA Invasive Flora (Wetland) Invasive Fauna (Terrestrial) Invasive Fauna (Aquatic)
REDUCED CONNECTIVITY Barriers to Fish Migration Reduced Riparian Connectivity Longitudinal Continuity Vegetation Width Reduced Floodplain Connectivity	REDUCED CONNECTIVITY Reduced Wetland Connectivity

Appendix C: AVIRA Metrics / Categories to be used to identify High Value waterways.

Value Type	High Value Category	AVIRA Score/ category
Environmental Values		
Formally Recognised – Int. Significance	Ramsar Sites (wetlands only)	Yes
	East Asian-Australasian Flyway sites (wetlands/estuaries only)	Yes
Formally Recognised – National Significance	Nationally Important Wetlands	Yes
	Living Murray Icon Sites	Yes
	National Heritage Sites	Yes
	Heritage Rivers	Yes
	Icon Rivers	Yes
	Essentially Natural Catchments	Yes
	Victorian Parks and Reserves	Yes
	Victorian Heritage Sites	Yes
Representativeness	Representative Rivers	Yes
Rare or threatened species/communities	Significant fish	4-5
	Significant birds	4-5
	Significant amphibians (rivers/wetlands only)	4-5
	Significant invertebrates (rivers and wetlands only)	4-5
	Significant reptiles	4-5
	Significant mammals (rivers and wetlands only)	4-5
	Significant flora	4-5
	Significant riparian EVCs (rivers only)	5
	Significant wetland EVCs (wetlands only)	4-5
	Significant estuarine EVCs (estuaries only)	4-5
Naturalness	Aquatic invertebrate community condition (rivers/ wetlands only)	4-5
	Native fish communities (rivers only)	4-5
	Riparian vegetation condition (rivers only)	4-5
	Wetland vegetation condition (wetlands only)	4-5
	Drought refuges	3,5
	Important bird habitat	5
	Biosphere Reserves	Yes

Value Type	High Value Category	AVIRA Score/ category
Social Values		
Activity	Recreational fishing	5
	Non-motor boating	4-5
	Motor boating	4-5
	Camping	4-5
	Swimming	5
	Beside Water Activities:	5
	• walking, hiking, cycling	5
	• sightseeing	5
	• picnics/barbecues	5
	Game hunting	5
People	Heritage:	Known
	• Aboriginal cultural heritage	
	• Post-European heritage)	
	Landscape	3-5
People	Community groups	5
	Use of Flagship species	5
Economic Values		
Water	Urban/rural township water sources	3-5
	Rural water sources for production	3-5
	Water carriers (rivers/wetlands only)	5
	Waste water discharges	5
	Water storages (rivers/wetlands only)	3-5
Power Generation	Hydro-electricity (rivers/wetlands only)	3-5
Other Resources	Commercial fishing	5
	Extractive industries	5
	Timber harvesting and firewood collection	3,5

Appendix D: Index of Stream Condition results (1999, 2004 and 2010) and Stream States by Social Ecological System

Name	Basin Reach	Length	Social Ecological System	ISC 1999	Rating	ISC 2004	Rating	ISC 2010	Rating (b)	Stream State
Broken River	4-1	41413	Agricultural Floodplains	21	Poor	20	Moderate	19	Poor	Highly Modified
Goulburn River	5-1	41399	Agricultural Floodplains	22	Poor	15	Poor	32	Moderate	Sustainable Working
Broken River	4-2	33882	Productive Plains	18	Very Poor	23	Moderate	24	Poor	Sustainable Working
Goulburn River	5-2	35484	Agricultural Floodplains	22	Poor	16	Poor	26	Moderate	Sustainable Working
Broken River	4-3	24748	Productive Plains	21	Poor	18	Poor	27	Moderate	Sustainable Working
Goulburn River	5-3	45934	Agricultural Floodplains	22	Poor	14	Poor	32	Moderate	Sustainable Working
Broken River	4-4	35101	Upland Slopes	19	Very Poor	20	Moderate	27	Moderate	Sustainable Working
Goulburn River	5-4	19396	Agricultural Floodplains	22	Poor	18	Poor	38	Good	Ecological Healthy
Broken River	4-5	21639	Upland Slopes	29	Marginal	18	Poor	25	Moderate	Sustainable Working
Goulburn River	5-5	16188	Agricultural Floodplains	20	Poor	16	Poor	34	Moderate	Sustainable Working
Broken River	4-6	26574	Upland Slopes	31	Marginal	16	Poor	31	Moderate	Sustainable Working
Goulburn River	5-6	20589	Productive Plains	20	Poor	16	Poor	32	Moderate	Sustainable Working
Five Mile Creek	4-7	44785	Productive Plains	27	Marginal	20	Moderate	32	Moderate	Sustainable Working

Name	Basin Reach	Length	Social Ecological System	ISC 1999	Rating	ISC 2004	Rating	ISC 2010	Rating (b)	Stream State
Goulburn River	5-7	19558	Productive Plains	24	Poor	17	Poor	37	Good	Ecological Healthy
Five Mile Creek	4-8	8894	Productive Plains		N/A	20	Moderate	39	Good	Ecological Healthy
Goulburn River	5-8	34366	Productive Plains	21	Poor	19	Moderate	30	Moderate	Sustainable Working
Lima East Creek	4-9	16536	Upland Slopes	23	Poor	22	Moderate	32	Moderate	Sustainable Working
Goulburn River	5-9	30289	Productive Plains		N/A	15	Poor	29	Moderate	Sustainable Working
Lima East Creek	4-10	10989	Upland Slopes	29	Marginal	24	Moderate	37	Good	Ecological Healthy
Goulburn River	5-10	20525	Productive Plains	19	Very Poor	9	Very Poor	28	Moderate	Sustainable Working
Sawpit Creek	4-11	13658	Upland Slopes	30	Marginal	18	Poor	26	Moderate	Sustainable Working
Goulburn River	5-11	24099	Commuting Hills	8	Very Poor	10	Very Poor	23	Poor	Sustainable Working
Goulburn River	5-12	26886	Commuting Hills	18	Very Poor	13	Poor	19	Very Poor	Highly Modified
Holland Creek	4-13	14657	Productive Plains	32	Marginal	25	Moderate	26	Moderate	Sustainable Working
Goulburn River	5-13	37946	Upland Slopes	21	Poor	15	Poor	25	Moderate	Sustainable Working
Holland Creek	4-14	38237	Upland Slopes	33	Marginal	23	Moderate	29	Moderate	Sustainable Working
Goulburn River	5-14	49985	Upland Slopes	22	Poor	16	Poor	32	Moderate	Sustainable Working
Holland Creek	4-15	18608	Upland Slopes		Excellent	38	Excellent	30	Moderate	Sustainable Working
Goulburn River	5-15	37851	Southern Forests	44	Excellent	34	Good	35	Good	Ecological Healthy
Ryans Creek	4-16	28074	Upland Slopes	30	Marginal	16	Poor	37	Good	Ecological Healthy

Name	Basin Reach	Length	Social Ecological System	ISC 1999	Rating	ISC 2004	Rating	ISC 2010	Rating (b)	Stream State
Goulburn River	5-16	48272	Southern Forests	34	Marginal	36	Good	42	Excellent	Ecological Healthy
Ryans Creek	4-17	26848	Upland Slopes	43	Excellent	41	Excellent	32	Moderate	Ecological Healthy
Seven Creeks	5-17	38464	Productive Plains	31	Marginal	25	Moderate	28	Moderate	Sustainable Working
Sam Creek	4-18	23943	Upland Slopes	27	Marginal	12	Very Poor	29	Very Poor	Sustainable Working
Seven Creeks	5-18	26251	Productive Plains	27	Marginal	25	Moderate	26	Moderate	Sustainable Working
Watchbox Creek	4-19	22111	Upland Slopes	28	Marginal	24	Moderate	34	Very Poor	Sustainable Working
Seven Creeks	5-19	30243	Productive Plains	29	Marginal	26	Moderate	28	Moderate	Sustainable Working
Winton Creek	4-20	18781	Productive Plains	24	Poor	22	Moderate	34	Very Poor	Sustainable Working
Seven Creeks	5-20	30777	Productive Plains	32	Marginal	24	Moderate	31	Moderate	Sustainable Working
Broken Creek	4-21	23558	Agricultural Floodplains	25	Poor	26	Moderate	25	Moderate	Sustainable Working
Faithfulls Creek	5-21	46346	Productive Plains	25	Poor	23	Moderate	33	Moderate	Sustainable Working
Broken Creek	4-22	37273	Agricultural Floodplains	22	Poor	25	Moderate	21	Poor	Sustainable Working
Honeysuckle Creek	5-22	49709	Productive Plains	31	Marginal	26	Moderate	29	Moderate	Sustainable Working
Broken Creek	4-23	42881	Agricultural Floodplains	20	Poor	28	Moderate	26	Moderate	Sustainable Working
Honeysuckle Creek	5-23	34638	Productive Plains	26	Marginal	23	Moderate	28	Moderate	Sustainable Working
Broken Creek	4-24	38536	Agricultural Floodplains	21	Poor	20	Moderate	26	Moderate	Sustainable Working
Sheep Pen Creek	5-24	31587	Productive Plains	26	Marginal	10	Very Poor	25	Moderate	Sustainable Working

Name	Basin Reach	Length	Social Ecological System	ISC 1999	Rating	ISC 2004	Rating	ISC 2010	Rating (b)	Stream State
Broken Creek	4-25	23874	Agricultural Floodplains	21	Poor	20	Moderate	21	Poor	Sustainable Working
Castle Creek	5-25	57706	Productive Plains	30	Marginal	22	Moderate	14	Very Poor	Highly Modified
Broken Creek	4-26	22302	Productive Plains	20	Poor	18	Poor	24	Poor	Sustainable Working
Castle Creek	5-26	27995	Productive Plains	29	Marginal	18	Poor	20	Poor	Highly Modified
Broken Creek	4-27	37692	Productive Plains	18	Very Poor	18	Poor	22	Poor	Sustainable Working
Creightons Creek	5-27	49673	Productive Plains	34	Marginal	24	Moderate	21	Poor	Sustainable Working
Nine Mile Creek	4-28	40664	Agricultural Floodplains	31	Marginal	27	Moderate	27	Moderate	Sustainable Working
Creightons Creek	5-28	27573	Productive Plains	30	Marginal	19	Moderate	23	Poor	Sustainable Working
Nine Mile Creek	4-29	45845	Productive Plains	27	Marginal	16	Poor	29	Moderate	Sustainable Working
Pranjip Creek	5-29	31855	Productive Plains	33	Marginal	18	Poor	20	Poor	Highly Modified
Pine Lodge Creek	4-30	40838	Agricultural Floodplains	25	Poor	15	Poor	25	Moderate	Sustainable Working
Cornella Creek	5-30	21236	Agricultural Floodplains	30	Marginal	20	Moderate	15	Very Poor	Highly Modified
Pine Lodge Creek	4-31	17977	Agricultural Floodplains	27	Marginal	16	Poor	23	Poor	Sustainable Working
Cornella Creek	5-31	43386	Productive Plains	31	Marginal	24	Moderate	15	Very Poor	Highly Modified
Boosey Creek	4-32	45634	Agricultural Floodplains	26	Marginal	19	Moderate	26	Moderate	Sustainable Working
Yallagallorrah Creek	5-32	12359	Productive Plains	25	Poor	8	Very Poor	14	Very Poor	Highly Modified
Boosey Creek	4-33	31455	Productive Plains	26	Marginal	21	Moderate	22	Poor	Sustainable Working
Goborup Creek	5-33	32516	Productive Plains	33	Marginal	25	Moderate	26	Moderate	Sustainable Working

Name	Basin Reach	Length	Social Ecological System	ISC 1999	Rating	ISC 2004	Rating	ISC 2010	Rating (b)	Stream State
Boosey Creek	4-34	13946	Productive Plains	14	Very Poor	22	Moderate	19	Very Poor	Highly Modified
Deep Creek	5-34	36629	Agricultural Floodplains	33	Marginal	26	Moderate	22	Poor	Sustainable Working
Sandy Creek	4-35	19761	Productive Plains	29	Marginal	17	Poor	39	Excellent	Highly Modified
Major Creek	5-35	60129	Productive Plains	38	Good	19	Moderate	28	Moderate	Sustainable Working
Tullah Creek	4-36	37887	Agricultural Floodplains			11	Very Poor	41	Excellent	Ecological Healthy
Bylands Creek	5-36	31478	Productive Plains	41	Good	22	Moderate	31	Moderate	Sustainable Working
Deep Creek	4-37	11540	Productive Plains					30	Moderate	Sustainable Working
Hughes Creek	5-37	21266	Productive Plains	33	Marginal	16	Poor	30	Moderate	Sustainable Working
Hughes Creek	5-38	16462.5	Productive Plains	27	Marginal	21	Moderate	31	Moderate	Sustainable Working
Hughes Creek	5-39	41365.8	Productive Plains	31	Marginal	21	Moderate	31	Moderate	Sustainable Working
Whiteheads Creek	5-40	18904.9	Productive Plains	28	Marginal	14	Poor	20	Poor	Highly Modified
Sugarloaf Creek	5-41	22556.8	Commuting Hills	31	Marginal	17	Poor	24	Poor	Sustainable Working
Mollison Creek	5-42	25028.0	Commuting Hills	35	Good	14	Poor	25	Moderate	Sustainable Working
Mollison Creek	5-43	26835.0	Commuting Hills	20	Poor	9	Very Poor	16	Very Poor	Highly Modified
Cameron Creek	5-44	9404.4	Commuting Hills		N/A	17	Poor	14	Very Poor	Highly Modified
Sunday Creek	5-45	29414.3	Commuting Hills	29	Marginal	26	Moderate	24	Poor	Sustainable Working
Sunday Creek	5-46	25434.0	Commuting Hills	33	Marginal	27	Moderate	16	Very Poor	Highly Modified
Sunday Creek	5-47	6956.1	Commuting Hills		N/A	37	Excellent	24	Poor	Sustainable Working

Name	Basin Reach	Length	Social Ecological System	ISC 1999	Rating	ISC 2004	Rating	ISC 2010	Rating (b)	Stream State
Dry Creek	5-48	33338.2	Commuting Hills	42	Excellent	23	Moderate	28	Moderate	Sustainable Working
Dabyminga Creek	5-49	13886.8	Commuting Hills	33	Marginal	25	Moderate	26	Moderate	Sustainable Working
Dabyminga Creek	5-50	27439.4	Commuting Hills	33	Marginal	30	Good	29	Moderate	Sustainable Working
King Parrot Creek	5-51	41898.7	Commuting Hills	33	Marginal	22	Moderate	29	Moderate	Sustainable Working
King Parrot Creek	5-52	15054.9	Commuting Hills	33	Marginal	32	Good	30	Moderate	Sustainable Working
Dairy Creek	5-53	14858.0	Commuting Hills	25	Poor	9	Very Poor	21	Poor	Sustainable Working
Yea River	5-54	25435.1	Upland Slopes	25	Poor	24	Moderate	17	Very Poor	Highly Modified
Yea River	5-55	16332.8	Commuting Hills	39	Good	29	Good	30	Moderate	Sustainable Working
Yea River	5-56	20083.9	Commuting Hills	36	Good	32	Good	30	Moderate	Sustainable Working
Yea River	5-57	24554.6	Commuting Hills	37	Good	31	Good	34	Moderate	Sustainable Working
Murrindindi River	5-58	16954.3	Commuting Hills	33	Marginal	14	Poor	25	Moderate	Sustainable Working
Murrindindi River	5-59	17497.3	Commuting Hills	45	Excellent	29	Good	31	Moderate	Sustainable Working
Home Creek	5-60	27630.1	Upland Slopes	32	Marginal	17	Poor	23	Poor	Sustainable Working
Spring Creek	5-61	27908.8	Upland Slopes	28	Marginal	16	Poor	24	Poor	Sustainable Working
Acheron River	5-62	57546.6	Upland Slopes		N/A	27	Moderate	35	Good	Ecological Healthy
Acheron River	5-63	20744.9	Southern Forests	42	Excellent	33	Good	41	Excellent	Ecological Healthy
Taggerty River	5-64	31852.3	Southern Forests	42	Excellent	36	Good	38	Good	Ecological Healthy
Rubicon River	5-65	16800.5	Southern Forests	37	Good	28	Moderate	36	Good	Ecological Healthy
Rubicon River	5-66	23949.3	Southern Forests		N/A	41	Excellent	44	Excellent	Ecological Healthy

Name	Basin Reach	Length	Social Ecological System	ISC 1999	Rating	ISC 2004	Rating	ISC 2010	Rating (b)	Stream State
Big River	5-67	36563.0	Southern Forests	45	Excellent	36	Good	44	Excellent	Ecological Healthy
Big River	5-68	21988.1	Southern Forests	47	Excellent	42	Excellent	44	Excellent	Ecological Healthy
Howqua River	5-69	8365.8	Southern Forests	44	Excellent	29	Good	35	Good	Ecological Healthy
Howqua River	5-70	55765.6	Southern Forests	40	Good	38	Excellent	42	Excellent	Ecological Healthy
Delatite River	5-71	32402.2	Southern Forests	31	Marginal	32	Good	22	Poor	Sustainable Working
Delatite River	5-72	23041.5	Southern Forests		N/A	32	Good	36	Good	Ecological Healthy
Ford Creek	5-73	26359.3	Upland Slopes	23	Poor	11	Very Poor	19	Very Poor	Highly Modified
Brankeet Creek	5-74	25461.4	Upland Slopes	30	Marginal	24	Moderate	31	Moderate	Sustainable Working
Merton Creek	5-75	21638.7	Upland Slopes	19	Very Poor	20	Moderate	26	Moderate	Sustainable Working
Honeysuckle Creek	5-76	30753.3	Productive Plains					29	Moderate	Sustainable Working
Burnt Creek	5-77	19319.4	Productive Plains					23	Poor	Sustainable Working
Kurkuruc Creek	5-78	35963.7	Commuting Hills					21	Poor	Sustainable Working
Godfrey Creek	5-79	22331.8	Commuting Hills					29	Moderate	Sustainable Working
Wormangal Creek	5-80	32063.6	Productive Plains					31	Moderate	Sustainable Working
Yea River	5-81	10484.7	Commuting Hills					15	Very Poor	Highly Modified

Appendix E: High value waterways and their associated values in the Goulburn Broken catchment, by landscape

Waterway			Environmental Values					Social Values			Economic Values		
SES	Name	No.	Formally Recognised Significance	Representativeness	Rare or Threatened Species/Communities	Naturalness	Landscape Features	Activity	Place	People	Water	Power Generation	Other Resources
Agricultural Floodplains	Broken River	4~01			x	x	x	x		x	x		
Productive Plains	Broken River	4~02			x	x	x	x		x	x		
Productive Plains	Broken River	4~03			x	x	x	x		x	x		
Upland Slopes	Broken River	4~04			x	x	x	x		x	x		
Upland Slopes	Broken River	4~05			x		x	x		x	x		
Upland Slopes	Broken River	4~06			x	x	x	x		x	x		
Productive Plains	Five Mile Creek	4~07			x	x	x	x					
Productive Plains	Five Mile Creek	4~08			x	x		x					
Upland Slopes	Lima East Creek	4~09			x	x	x	x		x			
Upland Slopes	Lima East Creek	4~10			x	x		x					
Upland Slopes	Sawpit Creek	4~11			x	x	x	x					
Productive Plains	Holland Creek	4~13			x	x	x	x		x			
Upland Slopes	Holland Creek	4~14			x	x	x	x		x			
Upland Slopes	Holland Creek	4~15			x	x	x	x		x			
Upland Slopes	Ryans Creek	4~16			x	x	x	x		x			x
Upland Slopes	Ryans Creek	4~17			x	x	x	x		x	x		

Waterway			Environmental Values					Social Values			Economic Values		
SES	Name	No.	Formally Recognised Significance	Representativeness	Rare or Threatened Species/Communities	Naturalness	Landscape Features	Activity	Place	People	Water	Power Generation	Other Resources
Upland Slopes	Sam Creek	4~18			x		x	x					
Upland Slopes	Watchbox Creek	4~19			x	x	x	x					
Productive Plains	Winton Creek	4~20			x		x						
Agricultural Floodplains	Broken Creek	4~21	x		x	x	x	x		x	x		
Agricultural Floodplains	Broken Creek	4~22			x	x	x	x		x	x		
Agricultural Floodplains	Broken Creek	4~23			x	x		x		x	x		
Agricultural Floodplains	Broken Creek	4~24			x	x	x	x			x		
Agricultural Floodplains	Broken Creek	4~25	x		x	x		x		x			
Productive Plains	Broken Creek	4~26	x		x	x	x	x		x	x		
Productive Plains	Broken Creek	4~27	x		x		x	x		x	x		
Agricultural Floodplains	Nine Mile Creek	4~28	x		x	x		x			x		
Agricultural Floodplains	Nine Mile Creek	4~29			x								
Agricultural Floodplains	Pine Lodge Creek	4~30			x								
Agricultural Floodplains	Pine Lodge Creek	4~31			x								
Agricultural Floodplains	Boosey Creek	4~32	x		x	x		x					
Productive Plains	Boosey Creek	4~33			x	x	x						
Productive Plains	Boosey Creek	4~34	x		x	x	x						
Productive Plains	Sandy Creek	4~35			x		x						
Agricultural Floodplains	Tullah Creek	4~36	x		x	x	x						
Agricultural Floodplains	Deep Creek	4~37			x								
Agricultural Floodplains	Goulburn River	5~01	x		x	x	x	x		x	x		
Agricultural Floodplains	Goulburn River	5~02	x		x	x	x	x		x	x		

Waterway			Environmental Values					Social Values			Economic Values		
SES	Name	No.	Formally Recognised Significance	Representativeness	Rare or Threatened Species/Communities	Naturalness	Landscape Features	Activity	Place	People	Water	Power Generation	Other Resources
Agricultural Floodplains	Goulburn River	5~03	x		x	x	x	x		x	x		
Agricultural Floodplains	Goulburn River	5~04	x		x	x	x	x		x	x		
Agricultural Floodplains	Goulburn River	5~05	x		x	x	x	x		x	x		
Productive Plains	Goulburn River	5~06	x		x	x	x	x		x	x		
Productive Plains	Goulburn River	5~07	x		x	x	x	x		x	x		
Productive Plains	Goulburn River	5~08	x		x	x	x	x		x	x		
Productive Plains	Goulburn River	5~09	x		x	x	x	x		x	x		
Productive Plains	Goulburn River	5~10	x		x	x		x		x	x		
Commuting Hills	Goulburn River	5~11	x		x	x		x		x	x		
Commuting Hills	Goulburn River	5~12	x		x			x	x	x	x		
Upland Slopes	Goulburn River	5~13	x		x		x	x	x	x	x		
Upland Slopes	Goulburn River	5~14	x		x		x	x		x	x	x	
Southern Forests	Goulburn River	5~15			x	x	x	x		x	x	x	
Southern Forests	Goulburn River	5~16			x	x	x	x		x	x	x	
Productive Plains	Seven Creeks	5~17			x	x	x	x		x			
Productive Plains	Seven Creeks	5~18			x		x			x			
Productive Plains	Seven Creeks	5~19			x		x	x		x	x		
Productive Plains	Seven Creeks	5~20			x	x	x	x		x	x		
Productive Plains	Faithfull Creek	5~21			x		x		x	x			
Productive Plains	Honeysuckle Creek	5~22			x					x	x		
Productive Plains	Honeysuckle Creek	5~23			x			x			x		
Productive Plains	Sheep Pen Creek	5~24			x								

Waterway			Environmental Values					Social Values			Economic Values		
SES	Name	No.	Formally Recognised Significance	Representativeness	Rare or Threatened Species/Communities	Naturalness	Landscape Features	Activity	Place	People	Water	Power Generation	Other Resources
Productive Plains	Castle Creek	5~25			x		x						
Productive Plains	Castle Creek	5~26			x		x						
Productive Plains	Creightons Creek	5~27			x		x			x			
Productive Plains	Creightons Creek	5~28			x		x			x			
Productive Plains	Pranjip Creek	5~29			x		x						
Agricultural Floodplains	Cornella Creek	5~30			x		x						
Productive Plains	Cornella Creek	5~31			x		x	x					
Productive Plains	Yallagallorrah Creek	5~32			x								
Productive Plains	Goborup Creek	5~33			x			x					
Agricultural Floodplains	Deep Creek	5~34			x			x					
Productive Plains	Major Creek	5~35			x	x	x						
Productive Plains	Bylands Creek	5~36			x	x	x						
Productive Plains	Hughes Creek	5~37			x	x	x	x		x			x
Productive Plains	Hughes Creek	5~38			x	x	x	x		x			
Productive Plains	Hughes Creek	5~39			x	x	x	x					x
Commuting Hills	Whiteheads Creek	5~40			x								
Commuting Hills	Sugarloaf Creek	5~41			x	x	x						
Commuting Hills	Mollison Creek	5~42			x						x		x
Commuting Hills	Mollison Creek	5~43									x		
Commuting Hills	Kurkurac Creek	5~44			x					x			
Commuting Hills	Sunday Creek	5~45			x		x			x			
Commuting Hills	Sunday Creek	5~46			x		x	x			x		

Waterway			Environmental Values					Social Values			Economic Values		
SES	Name	No.	Formally Recognised Significance	Representativeness	Rare or Threatened Species/Communities	Naturalness	Landscape Features	Activity	Place	People	Water	Power Generation	Other Resources
Commuting Hills	Sunday Creek	5~47			x	x		x	x				
Commuting Hills	Dry Creek	5~48			x	x							
Commuting Hills	Dabyminga Creek	5~49			x		x		x				
Commuting Hills	Dabyminga Creek	5~50			x	x		x	x				
Commuting Hills	King Parrot Creek	5~51			x	x	x	x	x	x			
Commuting Hills	King Parrot Creek	5~52	x			x	x	x	x	x			
Commuting Hills	Dairy Creek	5~53			x		x						
Upland Slopes	Yea River	5~54	x	x	x	x	x	x		x			
Commuting Hills	Yea River	5~55		x	x	x	x	x		x			
Commuting Hills	Yea River	5~56	x	x	x		x	x		x			
Commuting Hills	Yea River	5~57	x	x	x	x	x	x		x			x
Commuting Hills	Murrindindi River	5~58		x	x		x	x		x			
Commuting Hills	Murrindindi River	5~59		x	x	x		x	x	x			
Upland Slopes	Home Creek	5~60			x		x			x			
Upland Slopes	Spring Creek	5~61			x		x			x			
Upland Slopes	Acheron River	5~62		x	x	x	x	x		x			
Southern Forests	Acheron River	5~63		x	x	x		x		x			
Southern Forests	Taggerty River	5~64			x	x	x	x	x	x			x
Southern Forests	Rubicon River	5~65			x	x	x	x		x		x	
Southern Forests	Rubicon River	5~66			x	x	x	x	x	x		x	x
Southern Forests	Big River	5~67	x		x	x	x	x	x	x	x	x	
Southern Forests	Big River	5~68	x			x	x	x		x	x	x	x

Waterway			Environmental Values					Social Values			Economic Values		
SES	Name	No.	Formally Recognised Significance	Representativeness	Rare or Threatened Species/Communities	Naturalness	Landscape Features	Activity	Place	People	Water	Power Generation	Other Resources
Southern Forests	Howqua River	5~69	x		x	x	x	x	x	x	x	x	
Southern Forests	Howqua River	5~70	x		x	x	x	x		x	x	x	
Southern Forests	Delatite River	5~71			x	x	x	x	x	x	x	x	
Southern Forests	Delatite River	5~72			x	x		x	x	x	x	x	
Upland Slopes	Ford Creek	5~73			x		x		x		x	x	
Upland Slopes	Brankeet Creek	5~74			x	x		x	x	x	x	x	
Upland Slopes	Merton Creek	5~75			x		x		x		x	x	
Productive Plains	Honeysuckle Creek	5~76			x		x						
Productive Plains	Burnt Creek	5~77			x								
Commuting Hills	Kurkurac Creek	5~78			x								
Commuting Hills	Godfrey Creek	5~79			x		x						
Productive Plains	Wormangal Creek	5~80			x								
Commuting Hills	Yea River	5~81			x		x						

Appendix F: High value wetlands by Social Ecological System (landscape)

				ENVIRONMENTAL						SOCIAL			ECONOMIC						
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources			
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)							
Wetland ID	AVIRA ID	Name	Social Ecological System																
4~20~WS1	4-20-WS1	Winton Wetland Complex	Productive Plains			x	x											yes	yes
64556	5-14-WS1	Lake Eildon	Upland Slopes	x				x		x				x				yes	
5~34~W1	5~34~W1	Barmah Site 23	Agricultural Floodplains	x			x											yes	
5~64~W1	5~64~W1	CHP_3	Southern Forests	x						x								yes	
5~66~W1	5~66~W1	CHP_1	Southern Forests	x				x		x						x		yes	
60118	6~1~W1	Gaynors Swamp	Agricultural Floodplains	x		x	x											yes	yes
60205	5~1~W4	Kaynapella Basin	Agricultural Floodplains	x			x		x	x			x					yes	yes
60207	5~1~W5	Goulburn River Wetland Reach 1	Agricultural Floodplains	x			x	x										yes	
60223	4~21~W2	Billabong east of Barmah Township	Agricultural Floodplains	x					x				x					yes	
60225	5~1~W6	Yambuna A Lower Goulburn	Agricultural Floodplains	x			x											yes	
60231	5~1~W7	Simpson Sandhill Billabong		x														yes	
60232	5~1~W8	Yambuna B Lower Goulburn	Agricultural Floodplains	x			x											yes	

				ENVIRONMENTAL						SOCIAL			ECONOMIC				High Value Waterway	Priority Wetland
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources		
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)						
Wetland ID	AVIRA ID	Name	Social Ecological System															
60233	4~21~W7	Picola-Barmah Road Wetland Lower Broken Creek	Agricultural Floodplains	x					x				x					yes
60237	5~1~W10	Greiners Lagoon	Agricultural Floodplains	x			x											yes
60240	5~1~W9	Greiners Lagoon	Agricultural Floodplains	x		x	x											yes
60253	5~1~W1	South Stewarts Bridge Road Wetland Lower Goulburn	Agricultural Floodplains	x			x											yes
60254	5-8-WS1	Greens Lake	Agricultural Floodplains			x	x							x				yes
60257	5~1~W2	North Stewarts Bridge Road Wetland Lower Goulburn	Agricultural Floodplains	x			x							x				yes
60260		Deviation Road/ Pineo Road wetland Corop	Agricultural Floodplains															no
60265	6~1~W2	Mansfield Swamp	Agricultural Floodplains	x		x	x											yes
60268	5~1~W3	Waratah Wetland Lower Goulburn	Agricultural Floodplains	x			x											yes
60269		Wallenjoe	Agricultural Floodplains															no
60706~1	4~21~W1	Barmah site 106	Agricultural Floodplains	4		x	x	x	x	x			x					yes
60706~2	4~21W5	Barmah site 9	Agricultural Floodplains	x		x	x											yes
60706~3	4~21~W4	Barmah site 107	Agricultural	x		x	x	x										yes

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
			Floodplains													
60706~4	4~21~W8	Barmah site 15	Agricultural Floodplains	x		x	x									
60709~1	4~21~W6	Barmah site 12	Agricultural Floodplains	x		x	x									
60709~2	4~36~W2	Barmah site 85	Agricultural Floodplains	x			x	x								
60714	4~21~W9	Barmah site 16	Agricultural Floodplains	x		x	x									
60717	4~21~W3	Barmah site 91	Agricultural Floodplains	x			x									
60718	4~36~W1	Barmah site 3	Agricultural Floodplains	x			x									
60928		Crosses whiteheads road at whitehead creek	Commuting Hills													
60950		Near Trawool	Commuting Hills													
60954		Greenslopes Road Trawool	Commuting Hills													
60961		Near Gardners Road Kerrisdale	Commuting Hills													
61006		Homewood Swamp Wildlife reserve	Commuting Hills													
61033		Near McCrackens Road Ghin Ghin	Upland Slopes/ Commuting Hills													
61056		Between highlands and Switzerland road	Upland Slopes/ Commuting Hills													

High Value Waterway	Priority Wetland
yes	
yes	
yes	
yes	
yes	
yes	
no	
no	
no	
no	
no	
no	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
61067		Near Killingworth	Upland Slopes/ Commuting Hills													
61903		Near Puckapunyal	Productive Plains													
61908		Near Puckapunyal	Productive Plains													
61910		Billabong at Mitchellstown	Productive Plains													
61918		Tahbilk Lagoon	Productive Plains													
61919	5~8~WS2	Waranga Reservoir	Agricultural Floodplains			x								x		
61950		Near intersection of Mullers Rd and Terrara Lane Tahbilk	Productive Plains											x		
61955	5~8~WS3	Goulburn Weir	Productive Plains	x		x	x							x		
62010	5~8~W1	Doctors Swamp	Agricultural Floodplains			x	x	x	x	3				x		
62023	5~8~W2	Finlay Road Wetland A	Productive Plains	x												
62024	5~8~W3	Finlay Road Wetland B	Productive Plains	x			x							x		
62027	5~8~W4	Finlay Road Wetland C	Productive Plains	x												
62036		Intersection of Ballantynes and Wormangal-Wharing Rd Nagambie	Productive Plains													
62038	5~8~W5	Orchard Lagoon	Productive Plains	x			x			x						
62040	5~8~W6	Earnshaw Lagoon	Productive Plains	x			x									

High Value Waterway	Priority Wetland
no	
no	
no	
no	
no	
yes	
yes	
yes	
yes	yes
yes	
yes	
yes	
no	
yes	
yes	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
62045	5~8~W7	Blacks Track Lagoon	Productive Plains	x			x									
62062		Murchison Violet Town road and Cassidys road Murchison East	Agricultural Floodplains													
62079		Deanes Rd and Dargalong Rd Wahring	Productive Plains/ Agricultural Floodplains													
62147		Cnr Howells and Carters Road Molka	Productive Plains													
62175		Kerrs Road Wetland	Productive Plains													
62900		Stockyard Plain	Agricultural Floodplains													
62905	5~2~W1	Powers Creek Wetland	Agricultural Floodplains	x			x									
62906	5~2~W2	Yambuna C Lower Goulburn	Agricultural Floodplains	x			x									
62933	5~2~W3	Blacks Rd Wetland	Agricultural Floodplains	x												
62937	5~2~W4	Kotupna A Wetland Lower Goulburn	Agricultural Floodplains	x			x									
62941	5~2~W5	Kotupna B Wetland Lower Goulburn	Agricultural Floodplains	x			x									
62943	5~2~W6	Mitchells Lagoon	Agricultural Floodplains	x			x									
62948	5~2~W7	Hagans Lagoon	Agricultural Floodplains	x		x										

High Value Waterway	Priority Wetland
yes	
no	
no	
no	
no	
no	
yes	
yes	
yes	
yes	
yes	
yes	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
62966	5~2~W8	Magnusson Bend Billabong	Agricultural Floodplains	x			x									
62980	4~22~W1	Tinklers Road Wetland Lower Broken Creek	Agricultural Floodplains	x		x			x				x			
63001	5~2~W9	Hanlons Lane Lagoon Lower Goulburn	Agricultural Floodplains	x												
63018	4~22~W2	Wetland west of Nathalia Lower Broken Creek	Agricultural Floodplains	x			x		x				x			
63024	5~3~W1	Booths Road Lagoon Lower Goulburn	Agricultural Floodplains	x			x									
63037	4~23~W1	Murray Valley Highway Lower Broken Creek	Agricultural Floodplains	x					x				x			
63058		Hooper and Manly Road Wetland Mooroopna North West	Agricultural Floodplains													
63069	5~3~W2	Black George	Agricultural Floodplains	x			x									
63073	4~23~W2	Carlands Swamp Lower Broken Creek	Agricultural Floodplains	x			x		x				x			
63077	4~23~W3	Blacksmiths Road Wetland Lower Goulburn	Agricultural Floodplains	x			x		x				x			
63079	5~3~W3	O'Briens Road Wetland	Agricultural Floodplains	x			x									

High Value Waterway	Priority Wetland
yes	
yes	
yes	
yes	
yes	
yes	
no	
yes	
yes	
yes	
yes	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
63088	4~23~W4	Baxters Road Wetland Lower Broken Creek	Agricultural Floodplains	x					x				x			
63104	5~3~W4	Bunyip Swamp	Agricultural Floodplains	x			x									
63129	5~3~W5	Pullar Swamp	Agricultural Floodplains	x			x		x							
63136	5~4~W1	Levee Bank Hole	Agricultural Floodplains	x												
63138																
63145	5~6~W1	Garners Swamp	Agricultural Floodplains	x					x							
63149	5~6~W4	Pouges Lagoon	Agricultural Floodplains	x												
63150	5~4~W2	Alexander Swamp/'Coo	Agricultural Floodplains	x		x	x		x							
63152	5~6~W2	Garner Billabong	Agricultural Floodplains	x		x	x									
63153	5~6~W3	Arcadia Downs Wetland Lower Goulburn	Agricultural Floodplains	x			x									
63155	5~6~W5	Daunts Bend	Agricultural Floodplains	x			x									
63156	5~5~W1	Gemmills Swamp	Agricultural Floodplains	x		x	x		x	x			x			
63157	5~4~W3	Double Lagoon	Agricultural Floodplains	x			x									
63168	5~4~W4	McCracken Bend	Agricultural Floodplains	x			x	x								
63169		Daunts Bend	Agricultural													

High Value Waterway	Priority Wetland
yes	
yes	
yes	
yes	
no	
yes	
yes	
yes	
yes	
yes	yes
yes	
yes	
no	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
			Floodplains													
63171	5~4~W5	Pump Swamp	Agricultural Floodplains	x			x									
63173	5~4~W6	Reedy Swamp	Agricultural Floodplains	x		x	x		x	3						
63177	5~6~W6	Long Lagoon	Agricultural Floodplains	x												
63203	4~30~W1	Black Swamp	Agricultural Floodplains			x	x		x	x			x			
63206	4~24~W1	Kinnairds Swamp	Agricultural Floodplains			x	x		x	3			x			
63208	4~30~W2	Sellicks Road Broken Creek Wetland	Agricultural Floodplains	x		x	x		x				x			
63903	4~36~W4	Barmah site 5	Agricultural Floodplains	x		x	x									
63907	4~36~W3	Barmah site 30	Agricultural Floodplains	x		x	x									
63915		Minchins Lane Picola West	Agricultural Floodplains													
63921	4~36~W8	Barmah site 2	Agricultural Floodplains	x			x									
63922	4~36~W7	Barmah site 56	Agricultural Floodplains	x			x									
63969~1	4~36~W12	Barmah site 21	Agricultural Floodplains	x		x	x									
63969~2	4~36~W21	Barmah site 19	Agricultural Floodplains	x		x	x			x						
63971~1	4~36~W11	Barmah site 4	Agricultural Floodplains	x		x	x									

High Value Waterway	Priority Wetland
yes	
yes	yes
yes	
yes	yes
yes	yes
yes	
yes	
no	
yes	
yes	
yes	
yes	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
63971~2	4~36~W15	Barmah site 18	Agricultural Floodplains	x		x	x									
63971~3	4~36~W17	Barmah site 10	Agricultural Floodplains	x		x	x									
63971~4	4~36~W20	Barmah site 8	Agricultural Floodplains	x		x	x									
63971~5	4~36~W5	Barmah site 55	Agricultural Floodplains	x		x	x									
63971~6	4~36~W6	Barmah site 11	Agricultural Floodplains	x		x	x									
63971~7	4~36~W9	Barmah site 6	Agricultural Floodplains	x		x	x	x								
63984~1	4~36~W13	Barmah site 17	Agricultural Floodplains	x		x	x									
63984~2	4~36~W14	Barmah site 20	Agricultural Floodplains	x			x									
63984~3	4~36~W16	Barmah site 24	Agricultural Floodplains	x		x	x									
64003		Freemans Road Yalca	Agricultural Floodplains													
64013	4~36~W19	Barmah site 29	Agricultural Floodplains	x			x									
64014~1	4~36~W18	Barmah site 25	Agricultural Floodplains	x		x	x									
64014~2	4~36~W22	Barmah site 22	Agricultural Floodplains	x		x	x									
64039	4~36~W10	Barmah site 13	Agricultural Floodplains	x			x									
64418		Near Molesworth	Upland Slopes/ Commuting Hills													

High Value Waterway	Priority Wetland
yes	
yes	
yes	
yes	
yes	
yes	
yes	
yes	
yes	
no	
yes	
yes	
yes	
yes	
no	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
64424		Molesworth Wildlife Reserve (north)	Upland Slopes/ Commuting Hills													
64445		Near Whanregarwen	Upland Slopes/ Commuting Hills													
64500		The Breakaway	Upland Slopes/ Commuting Hills													
64537		Near Taggerty-Thornton Road	Southern Forests/ Upland Slopes													
64541		Near Rollasons Road	Southern Forests/ Upland Slopes													
64547		Near Thornton	Southern Forests/ Upland Slopes													
64556	5-14-WS1	Lake Eildon	Upland Slopes			x	x							x	x	
65401		Dobson Road Benalla	Upland Slopes											x		
66906	4~32~W8	Sampys Swamp	Agricultural Floodplains			x	x			x			x			
66911	4~32~W9	Taylors Swamp	Agricultural Floodplains			x	x						x			
66921	4~32~W10	Fishers Swamp	Productive Plains			x	x						x			
66923	4~32~W7	Tungamah Wetland Boosey Creek	Productive Plains							x			x			
66924	4~32~W6	Quinane Road Wetland	Agricultural Floodplains				x						x			
66949		Intersection of Keallys Road and Martins Road Caniambo	Productive Plains													

High Value Waterway	Priority Wetland
no	
no	
no	
no	
no	
no	
yes	
yes	
yes	yes
yes	yes
yes	
yes	
yes	
no	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
66958		Lake Rowan	Productive Plains													
67009	4~24~W2	Barnes Road Muckatah Depression	Agricultural Floodplains	x									x	x		
67044		Yourarang Road Wetland Yourarang	Productive Plains													
67053		Moodies Swamp	Productive Plains													
67086	4~32~W2	Kennedys Swamp	Agricultural Floodplains				x						x			
67091	4~32~W4	Mulquiney Road Wetland	Agricultural Floodplains			x							x			
67092	4~32~W1	Wren Road Upper Boosey Creek Anabranh St James	Productive Plains				x						x			
67093	4~32~W3	Stacey Road Wetland	Agricultural Floodplains			x							x			
67096	4~32~W5	Kels Swamp	Agricultural Floodplains			x							x			
67137	4~2~W1	Broken River Reach 2	Productive Plains	x			x		x							
67149	4~1~W1	Broken River Reach 1	Productive Plains	x			x		x							
67424		Bott Road/ Racecourse Road Cobram	Agricultural Floodplains													
67804	4~4~WS1	Lake Nillahcootie	Upland Slopes			x	x							x		
67812	4-16-WS1	Loombah Weir	Upland Slopes			x								x		
67904	4~24~W3	Inchbolds	Productive Plains	x		x	x							x		

High Value Waterway	Priority Wetland
no	
yes	
no	
no	
yes	
yes	yes
yes	
yes	
yes	
yes	
no	
yes	
yes	
yes	

Wetland ID	AVIRA ID	Name	Social Ecological System	ENVIRONMENTAL						SOCIAL			ECONOMIC			
				Formally Recognised	Representative	Rare or threatened species / communities		Naturalness		Activity			People	Water Use	Hydro Electric	Other Resources
						Significant Fauna	Significant Flora	High Naturalness	Special Features	Recreation	Indigenous Heritage	Heritage (excl indig)				
67905	4~24~W4	Dowdle Swamp	Productive Plains	x		x	x		x	x						
67909~1		Winton Swamp	Productive Plains													
67909~2		Winton Swamp	Productive Plains													
67909~3		Winton Swamp	Productive Plains													
67925		Ashmeads Swamp	Productive Plains													
67926		Bill Friday Swamp	Productive Plains													
67929		Humphries Swamp	Productive Plains													
67932		Lindsays Swamp	Productive Plains													

High Value Waterway	Priority Wetland
yes	yes
no	
no	
no	
no	
no	
no	
no	

Appendix G: Priority waterways¹

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WATERWAY
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
4~1	Broken River	x							x
4~2	Broken River								
4~3	Broken River	x		x					x
4~4	Broken River	x		x					x
4~5	Broken River		x	x					x
4~6	Broken River		x						x
4~7	Five Mile Creek								
4~8	Five Mile Creek							x	x
4~9	Lima East Creek								
4~10	Lima East Creek							x	x
4~11	Sawpit Creek		x						x
4~13	Holland Creek			x					x
4~14	Holland Creek			x					x
4~15	Holland Creek								

¹ High Value Waterways with values that match regional goals

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WATERWAY
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
4~16	Ryans Creek			x					x
4~17	Ryans Creek		x	x					x
4~18	Sam Creek								
4~19	Watchbox Creek								
4~20	Winton Creek								
4~21	Broken Creek	x		x					x
4~22	Broken Creek	x		x					x
4~23	Broken Creek	x							x
4~24	Broken Creek			x					x
4~25	Broken Creek								
4~26	Broken Creek								
4~27	Broken Creek								
4~28	Nine Mile Creek								
4~29	Nine Mile Creek								
4~30	Pine Lodge Creek								
4~31	Pine Lodge Creek								
4~32	Boosey Creek			x					x
4~33	Boosey Creek								
4~34	Boosey Creek			x					x
4~35	Sandy Creek								
4~36	Tullah Creek			x					x
4~37	Deep Creek								

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WATERWAY
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
5~1	Goulburn River	x				x			x
5~2	Goulburn River	x				x			x
5~3	Goulburn River	x				x			x
5~4	Goulburn River	x		x		x			x
5~5	Goulburn River	x		x		x			x
5~6	Goulburn River	x		x		x			x
5~7	Goulburn River	x				x			x
5~8	Goulburn River	x		x		x			x
5~9	Goulburn River	x		x		x			x
5~10	Goulburn River					x			x
5~11	Goulburn River	x				x			x
5~12	Goulburn River					x			x
5~13	Goulburn River					x			x
5~14	Goulburn River	x		x		x			x
5~15	Goulburn River	x	x	x				x	x
5~16	Goulburn River	x	x	x				x	x
5~17	Seven Creeks			x					x
5~18	Seven Creeks			x					x
5~19	Seven Creeks		x	x					x
5~20	Seven Creeks		x	x					x
5~21	Faithfull Creek								

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WATERWAY
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
5~22	Honeysuckle Creek			x					x
5~23	Honeysuckle Creek			x					x
5~24	Sheep Pen Creek								
5~25	Castle Creek								
5~26	Castle Creek								
5~27	Creightons Creek								
5~28	Creightons Creek								
5~29	Pranjip Creek								
5~30	Cornella Creek								
5~31	Cornella Creek								
5~32	Yallagalorrah Creek								
5~33	Goborup Creek								
5~34	Deep Creek								
5~35	Major Creek								
5~36	Bylands Creek								
5~37	Hughes Creek			x					x
5~38	Hughes Creek			x					x
5~39	Hughes Creek			x					x
5~40	Whiteheads Creek								
5~41	Sugarloaf Creek								
5~42	Mollison Creek		x						x
5~43	Mollison Creek		x						x

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WATERWAY
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
5~44	Kurkurac Creek								
5~45	Sunday Creek								
5~46	Sunday Creek								
5~47	Sunday Creek		x	x					x
5~48	Dry Creek								
5~49	Dabyminga Creek								
5~50	Dabyminga Creek								
5~51	King Parrot Creek			x					x
5~52	King Parrot Creek								
5~53	Dairy Creek								
5~54	Yea River								
5~55	Yea River			x					x
5~56	Yea River			x					x
5~57	Yea River								
5~58	Murrindindi River								
5~59	Murrindindi River								
5~60	Home Creek								
5~61	Spring Creek								
5~62	Acheron River							x	x
5~63	Acheron River							x	x
5~64	Taggerty River							x	x
5~65	Rubicon River							x	x

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WATERWAY
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
5~66	Rubicon River			x				x	x
5~67	Big River		x	x		x		x	x
5~68	Big River		x			x		x	x
5~69	Howqua River		x			x		x	x
5~70	Howqua River		x	x		x		x	x
5~71	Delatite River		x	x					x
5~72	Delatite River		x					x	x
5~73	Ford Creek		x						x
5~74	Brankeet Creek		x						x
5~75	Merton Creek		x						x
5~76	Honeysuckle Creek								
5~77	Burnt Creek								
5~78	Kurkurac Creek								
5~79	Godfrey Creek								
5~80	Wormangal Creek								
5~81	Yea River								
									64

Appendix H - Priority wetlands

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
4~20~WS1	Lake Mokoan		x	x			x		x
5~14~W1	CHP_2						x		x
5~34~W1	Barmah site 23				x		x		x
5~64~W1	CHP_3						x		x
5~66~W1	CHP_1						x		x
60118	Gaynor Swamp			x			x		x
60205	Kanyapella Basin						x		x
60207									
60223									
60225									
60231									
60232									
60233									

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
60237									
60240	Yambuna Bridge Rd			x					x
60253									
60254	Greens Lake		x	x					x
60257									
60260									
60265	Mansfield Swamp			x			x		x
60268									
60269	Wallenjoe Swamp						x		x
60706~1	Barmah site 106	x		x	x		x		x
60706~2	Barmah site 9			x	x		x		x
60706~3	Barmah site 107			x	x		x		x
60706~4	Barmah site 15			x	x		x		x
60709~1	Barmah site 12			x	x		x		x
60709~2	Barmah site 85				x		x		x
60714	Barmah site 16				x		x		x

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
60717	Barmah site 91				x		x		x
60718	Barmah site 3				x		x		x
60928									
60950	Praetemissa Wetland								
60954	Horseshoe Lagoon						x		x
60961	The Haven								
61006	Homewood Swamp								
61033	McCrackens Wetland								
61056									
61067	Molds Billabong								
61903									
61908									
61910									
61918	Tahbilk Lagoon						x		x

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	WETLAND
61919	Waranga Reservoir		x	x					x
61950									
61955	Goulburn Weir		x	x					x
62010	Doctors Swamp			x			x		x
62023									
62024									
62027									
62036									
62038									
62040									
62045									
62062									
62079									
62147									
62175									
62900	Stockyard Plain								

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
62905									
62906									
62933									
62937									
62941									
62943									
62948									
62966									
62980									
63001									
63018									
63024									
63037									
63058									
63069									
63073									

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
63077									
63079									
63088									
63104	Bunyip Swamp								
63129	Pullar Swamp								
63136									
63138									
63145									
63149									
63150	Alexander Swamp								
63152									
63153									
63155									
63156	Gemmills Swamp			x			x		x
63157									
63168									

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
63169									
63171									
63173	Reedy Swamp			x			x		x
63177									
63203	Black Swamp						x		x
63206	Kinnairds Wetland			x					x
63208									
63903	Barmah site 5			x	x		x		x
63907	Barmah site 30			x	x		x		x
63915									
63921	Barmah site 2				x		x		x
63922	Barmah site 56				x		x		x
63969~1	Barmah site 21			x	x		x		x
63969~2	Barmah site 19			x	x		x		x
63971~1	Barmah site 4			x	x		x		x
63971~2	Barmah site 18			x	x		x		x

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
63971~3	Barmah site 10			x	x		x		x
63971~4	Barmah site 8			x	x		x		x
63971~5	Barmah site 55			x	x		x		x
63971~6	Barmah site 11			x	x		x		x
63971~7	Barmah site 6			x	x		x		x
63984~1	Barmah site 17			x	x		x		x
63984~2	Barmah site 20				x		x		x
63984~3	Barmah site 24			x	x		x		x
64003									
64013	Barmah site 29				x		x		x
64014~1	Barmah site 25			x	x		x		x
64014~2	Barmah site 22			x	x		x		x
64039	Barmah site 13				x		x		x
64418	Zerby's								
64424	Molesworth State Wildlife Reserve								

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
64445	Cremona Park								
64500	The Breakaway								
64537									
64541	Evans Wetland								
64547	Taylors Breakaway								
64556	Lake Eildon		x	x					x
65401									
66906	Sampys Swamp			x					x
66911	Taylors Swamp			x					x
66921	Fishers Swamp								
66923									
66924									
66949	Holylands Plains								
66958									
67009									
67044									

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
67053	Moodies Swamp						x		x
67086									
67091	Mulquiney Road			x					x
67092									
67093									
67096	Kels Swamp								
67137	208								
67149									
67424									
67804	Lake Nillahcootie		x	x					x
67812	Loombah Weir		x	x					x
67904									
67905	Dowdle Swamp			x					x
67909~1	Sergeant's Swamp								
67909~2	Winton Swamp						x		x
67909~3	Green Swamp								

	GOAL	SOCIAL	ECONOMIC	ENVIRONMENT					PRIORITY WETLAND
		Maintain and improve waterways of high community value	Maintain and improve water quality in priority water supply catchments	Populations of threatened aquatic dependent species will be maintained or improved	Barmah Forest will retain its ecological character	The values associated with Heritage Rivers will be maintained or improved	Wetlands with formally recognised significance are maintained or improved	Rivers in a near natural or ecologically healthy state are retained	
67925	Ashmead Swamp								
67926	Bill Friday Swamp								
67929	Humphries Swamp								
67930	Lindsays Swamp								
67932	Blacks Swamp								
7925296960									
7925434071	Carlands North						x		x
8023832810									
									59

 asset included in AVIRA but no data uploaded

Appendix I - Costings applied to strategic priorities

Management Strategy	Implementation Targets	Unit Cost (+/- 20%)
Riparian Management	Frontage protection fencing	\$20,000 / km
	Pest Plant control / maintenance	\$5,000 / ha
	Aquatic weed (pest plant)	\$10,000 / km
	Revegetation (native stock)	\$8,000 / ha
	Alternative Water	\$5,000 / km
	Woody weed management	\$15,000 - \$30,000 / km
	Pest Animal Control	\$200 - \$5,000 / ha
Management of the River Channel	Reinstatement of IWD	\$20,000 - \$40,000 / km
	Bed control	\$5,000 - \$50,000 / km
	Bank Control	\$25,000 / site
	Gully erosion	\$10,000 / site
	Asset protection	\$5,000-\$25,000 / site
Management of Environmental Water	Carp Screens	\$25,000-\$40,000 / site
Monitoring	Water Quality Sampling (low complexity)	\$1,000 / site
	Macro-invertebrate sampling	\$3,000 / site
	Fish Community / movement / other	\$5,000 / site
Supporting Actions	Extension (Statutory Role)	
	Maintenance	
	Engagement of Community	10% of program
	Project Management / Governance	15% of program
	Workshops (Community / Traditional Owners)	\$2,500 / half day
	Field Days / Events	\$500 - \$10,000 / day

Appendix J - Glossary of terms

AROT: Australian Rare or Threatened Species

Aquatic: relating to water. Formerly used for inland waters but may be used for marine and estuarine waters as well.

AVIRA Database: AVIRA is a database (which is a development from RiVERS) that integrates environmental, social and economic information from a variety of sources into a single package. AVIRA relies on existing datasets, including the Index of Stream Condition, statewide flora and fauna databases, EPA water quality datasets and data collated by the CMAs.

Avulsion: In sedimentary geology and fluvial geomorphology, avulsion is the rapid abandonment of a river channel and the creation of a new river channel.

Bankfull width: where the river channel is filled from the top of one bank to the other.

Benthic: bottom dwelling. Usually refers to organisms living on the substratum. This assemblage is collectively known as benthos.

Biota: all organisms of an ecosystem (usually the fauna and flora).

Biomass: the total mass of living material occupying a specific part or the whole of an ecosystem at a given time. Usually expressed as live or dry weight per unit area.

Degraded: the lowering of a streambed with time due to erosion and transport of bed materials, or the blockage of sediment sources.

Detritus: organic debris from decomposing organisms and their products. A major source of nutrients and energy for some aquatic food webs.

Ecologically Healthy Waterway: a river which retains the major ecological features and functioning of that river prior to European settlement and which would be able to sustain these characteristics into the future.

Ecosystem: the combination of a community (biota) and its abiotic environment. Ecosystems are characterised by ecological processes such as the flow of energy and nutrients through food webs.

Ecotone: region lying between two ecosystems, often sharing some ecological features of both. The riparian zone represents an ecotone between a river or stream and its catchment.

Ephemeral: containing water only after unpredictable rain.

Erosion: the process by which the surface of the earth is worn away by the action of water, glaciers, wind and waves.

Eutrophication: an increase in the nutrient status of a body of water. Occurs naturally with increasing age of a waterbody, but much more rapidly as a by-product of human activity.

Environmental Water Reserve (EWR): the share of water resources set aside to maintain the environmental values of a water system.

Floodplain: the land adjacent to a channel at the elevation of the bankfull discharge.

Geomorphology: the science that studies the evolution of the earth's surface. The systematic examination of landforms and their interpretation of geologic history.

Groundwater: water occurring below the ground's surface.

Indigenous: a plant native to an area; has not been introduced from elsewhere.

Index of Stream Condition: the Index of Stream Condition (ISC) methodology was developed to benchmark the condition of streams (a snapshot of the catchment), assess the effectiveness of programs and to assist with priority setting. The Index is a measure of a stream's change from natural or ideal conditions. It presents an indication of the extent of change in respect of five key "stream health" indices: Hydrology (change in volume and seasonal flow); Physical Form (stability, degradation/aggradation, influence of artificial barriers and abundance/absence of instream debris); Streamside Zone (Plant species – native/exotic, spatial extent, width, continuity and links); Water Quality (assessment of total phosphorus, turbidity, conductivity and pH); and Aquatic Life (abundance and type of macro invertebrates).

Large woody debris: branches and tree boles that have fallen into the watercourse. Often referred to as snags.

Macroinvertebrates: larger invertebrates, and large enough to be observed without the aid of a microscope. Their body length usually exceeds 1mm.

Management Action/Implementation Targets: short term targets (1-5 years), relating to management actions or capacity-building.

Noxious: an official designation for a plant that is a serious weed and must be controlled.

Overgrazed: land that has been grazed by livestock to the extent that erosion and soil degradation is occurring.

Overland flow: downslope, surface movement of runoff other than in defined channels, usually with high erosion potential.

Pugging: livestock trampling soil and water together, to create muddy depressions at the edge of rivers and other waterbodies.

Ramsar: Australia is a signatory to the Convention on Wetlands (Ramsar, Iran, 1971) the broad aims of which are to halt, and where possible reverse, the worldwide loss of wetlands and to conserve those that remain through wise use and management. The convention is commonly known as the Ramsar Convention after the Iranian town in which it was first signed in 1971.

Reach: a length of stream, typically 20 to 30 km long, which is relatively homogenous with regard to the hydrology, physical form, water quality and aquatic life.

Refuge: areas where plants and animals can take refuge, during times of climatic or biological stress and which support the individuals that will recolonise the surrounding landscape when conditions improve. Refuges provide conditions suitable for survival of species that may be declining elsewhere.

Resource Condition Target: specific, time bound and measurable targets, relating largely to the desired condition of natural resources in the longer term.

Riffle: an area of river which is wide and shallow, the water flowing over a pebble bed with protruding rocks. A stream section with fast and turbulent flow, rapids.

Rivers: rivers are defined here as major rivers, streams or creeks and their tributaries, and include the water, the channel and surrounding land, known as riparian land.

RiVERS Database: RiVERS is a database (pre AVIRA) that integrates environmental, social and economic information from a variety of sources into a single package. RiVERS was used by CMAs in the development of the first asset based strategies.

Rare: a species that characteristically has a limited distribution and or abundance due to the specificity of their habitat requirements or that has a limited distribution and abundance because habitat resources have been modified or lost.

Riparian vegetation: vegetation found along the bank of streams and rivers.

Riparian zone: any land which adjoins, directly influences, or is influenced by a body of water.

Threatened: a generic term used to describe taxa that are rare, vulnerable, endangered or insufficiently known and are subject to a threatening process.

Vulnerable: species likely to become endangered in the short term should a threatening process continue.

Waterway: rivers and streams, their associated estuaries and floodplains (including floodplain wetlands) and non-riverine wetlands.

Water-dependent: aquatic species or those dependent on river water for survival.

Weed: any useless, troublesome or noxious plant, especially one that grows profusely.

Wetlands: wetlands are still-water environments, usually occurring where water collects in depressions in the landscape from either surface water or groundwater. Wetlands can include swamps, lakes and peatlands. Some wetlands are dependent on groundwater for their existence; others depend on surface water run-off or large floods from adjacent rivers.

Appendix K - Acronyms

Acronym	Full Description
ANZECC guidelines	Australian and New Zealand guidelines for fresh and marine water quality
ARRC	Australian River Restoration Centre
AVIRA	Aquatic Value Identification and Risk Assessment
CAMBA	China-Australia Migratory Bird Agreement
CEWO	Commonwealth Environmental Water Office
CFI	Carbon Farming Initiative
CMA	Catchment Management Authority
Cth	Commonwealth
DEPI	Department of Environment and Primary Industries
DIWA	Directory of Important Wetlands in Australia
DPI	Department of Primary Industries
DSE	Department of Sustainability and Environment
ENRC	Environment and Natural Resources Committee
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EWMP	Environmental Water Management Plans
EWR	Environmental Water Reserve
FFG Act	Flora and Fauna Guarantee Act 1988
GDEs	Groundwater Dependent Ecosystems
IPA	Invasive Plants and Animals
ISC	Index of Stream Condition
IWC	Index of Wetland Condition
IWCM	Integrated water cycle management
IWCP	Integrated Water Cycle Plan
JAMBA	Japan Australia Migratory Bird Agreement
KPI	Key Performance Indicator
NDRRA	Natural Disaster Relief and Recovery Arrangements
NRM	Natural Resource Management
NWQMS	National Water Quality Management Strategy
OLV	Office of Living Victoria
RCS	Regional Catchment Strategy
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
RRHS	Regional River Health Strategy

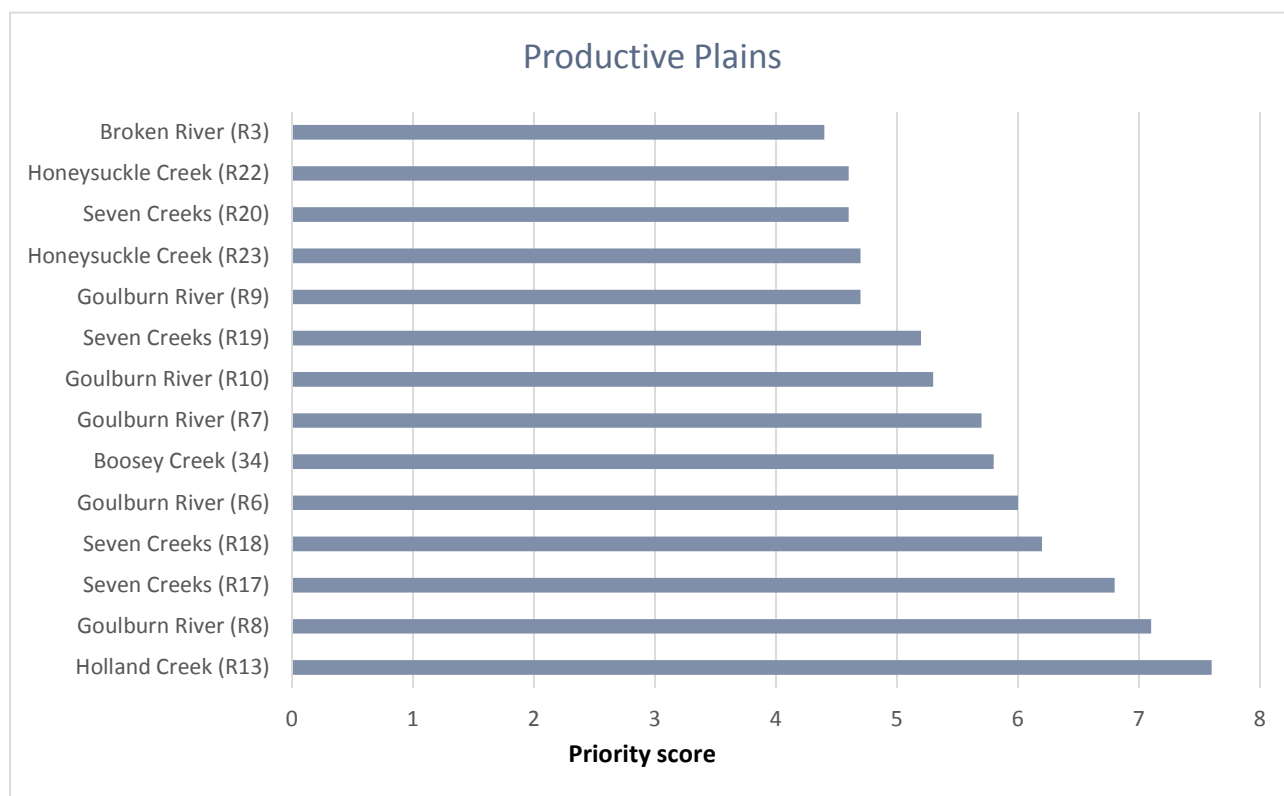
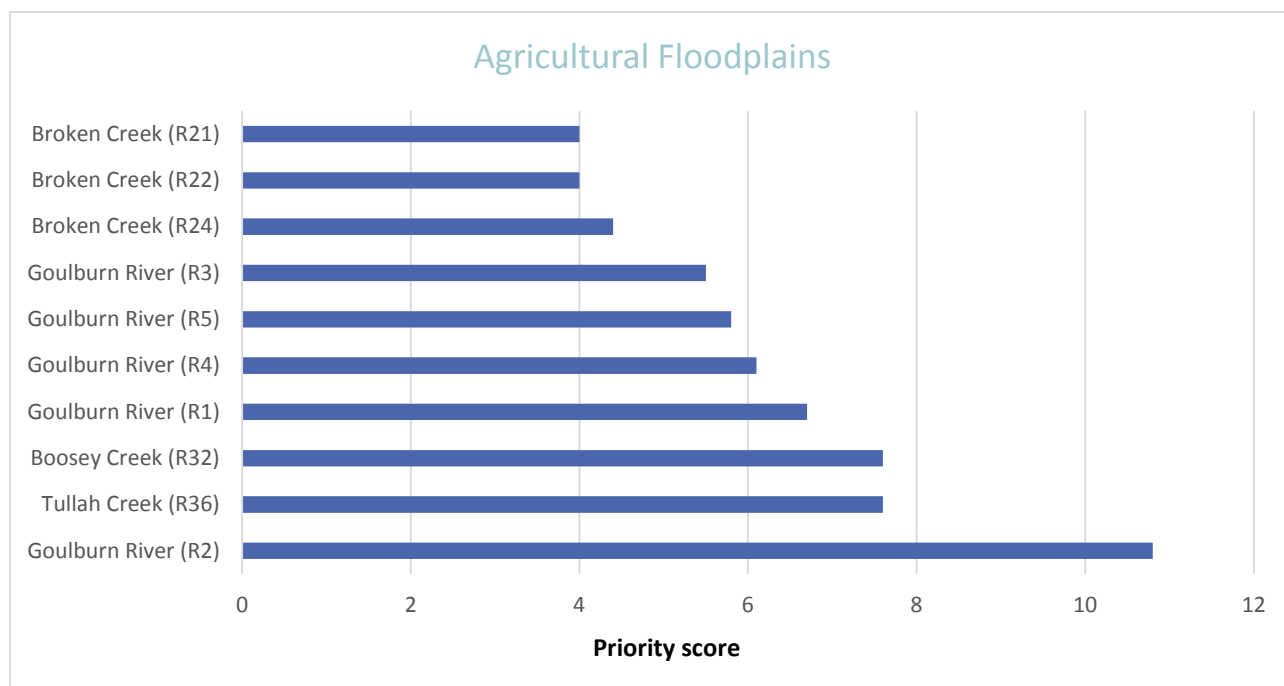
Acronym	Full Description
RWS	regional Waterway Strategy
RMW	River Murray Water
SEPP	State Environment Protection Policies
SEPP (WoV)	State Environment Protection Policy (Waters of Victoria)
SWS	Sustainable Water Strategy
TUL	Take and Use Licence
VCMC	Victorian Catchment Management Council
VEAC	Victorian Environment Assessment Council
VEFMAP	Victorian Environmental Flows Monitoring and Assessment Program
VEWH	Victorian Environmental Water Holder
VRHS	Victorian River Health Strategy
VWMS	Victorian Waterway Management Strategy
VWQMN	Victorian Water Quality Monitoring Network
WMIS	Water Management Information System
WoNS	Weeds of National Significance
WSUD	Water sensitive urban design
WUL	Water Use Licence

Appendix L: List of achievements from the last strategy (Goulburn Broken River Health Strategy 2005-2013)

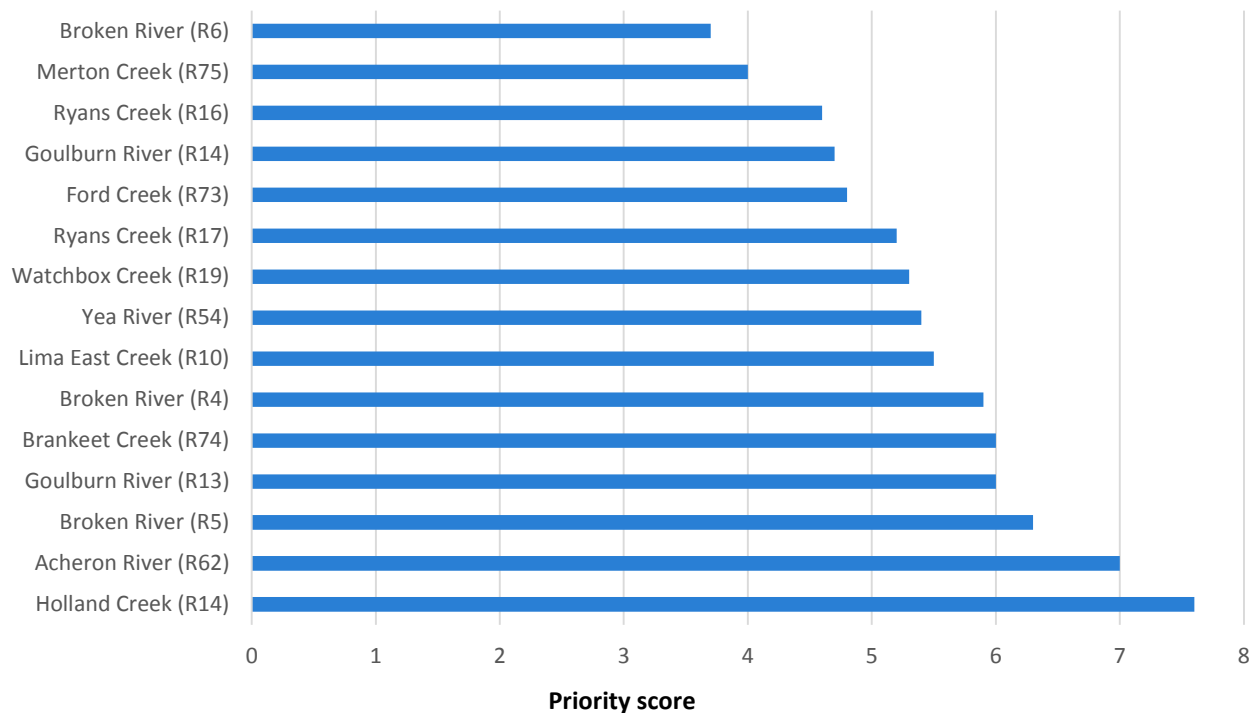
Work / Activity type	January 2005 to October 2009			November 2009 to December 2013		
	Sum of Output 1	Sum of Output 2	Sum of Output 3	Sum of Output 1	Sum of Output 2	Sum of Output 3
Alternative Water - Output 1=no. points	373			112	0	0
Bank Stabilisation - Output 1=stabilised (km), Output 2=structures (no), Output 3=protected (km)	21.4	158	41.3	27.8	278	67.9
Bed Stabilisation - Output 1=stabilised (km), Output 2=structures (no), Output 3=protected (km)	10.7	76	28.8	5.1	18	10.2
Community Support - Output 1=no. groups (no), Output 2=no. participants (no)				3	37	
EWR - Output 1=water provided (ML), Output 2=stream reaches supported (no)	40	0		37,431	0	
Fencing (Remnant Veg/Special Area) - Output 1=area fenced (ha), Output 2=fence length (km)	149.6	19.6		16.3	4.8	
Fencing (River) – Debris removal and Fence reinstatement – Output 1=Debris removed (km), Output 2=Fence reinstated= (km)				21.3	24.5	
Fencing (River) – Fence replacement – Output 1=Fence relaced (km)				53.1		
Fencing (River) - Output 1=area fenced (ha), Output 2=fence length (km), Output 3=stream length (km)	6,287.7	722.2	799.2	882.8	145.8	143.8
Fencing (Wetland) - Output 1=area fenced (ha), Output 2=fence length (km)	2,202.9	9.8		13.2	4.6	
Fish Passage - Output 1=stream length (km), Output 2=no. fish barriers addressed (no)	216.1	14		26	4	
G-M Water Channel & Drainage Weed Management – Output 1=area treated (ha)	945.8			4.2		
Habitat - Output 1=no. debris replaced/relocated (no), Output 2=habitat established (km)	378.1	14.7		1,279	26.1	
Investigation - Output 1=area covered (ha), Output 2=no. of sites (no), Output 3=no. undertaken (no)				306	61	61
Monitoring - Output 1=no. reports (no), Output 2=no. sites monitored (no)				1	408	
Projects - Output 1=No. projects (no)	565			76		
Revegetation - Output 1=revegetation area (ha), Output 2=stream length (km), Output 3=plants (no)	1,146.2	395.2	361,220	659.0	554.6	197,116.6
RMA - Output 1=area of CL protected (ha), Output 2=length of CL protected (km), Output 3=area of FH protected(ha)				212.3	2,988.6	139.1
Site Inspection Riparian Protection - Output 1=no. inspections (no)				134		
Survey - Output 1=No of surveys				6		
Urban Stormwater - Output 1=no. systems installed (no)	1			3		
Weeds (Aquatic) - Output 1=stream length controlled/eradicated (km)	392.1			509.5		
Weeds (Frontage) - Output 1=area treated (ha), Output 2=stream length (km)	20,034.9	785.2		4,560.1	981.5	

Appendix M: Priority waterways (risk and feasibility)

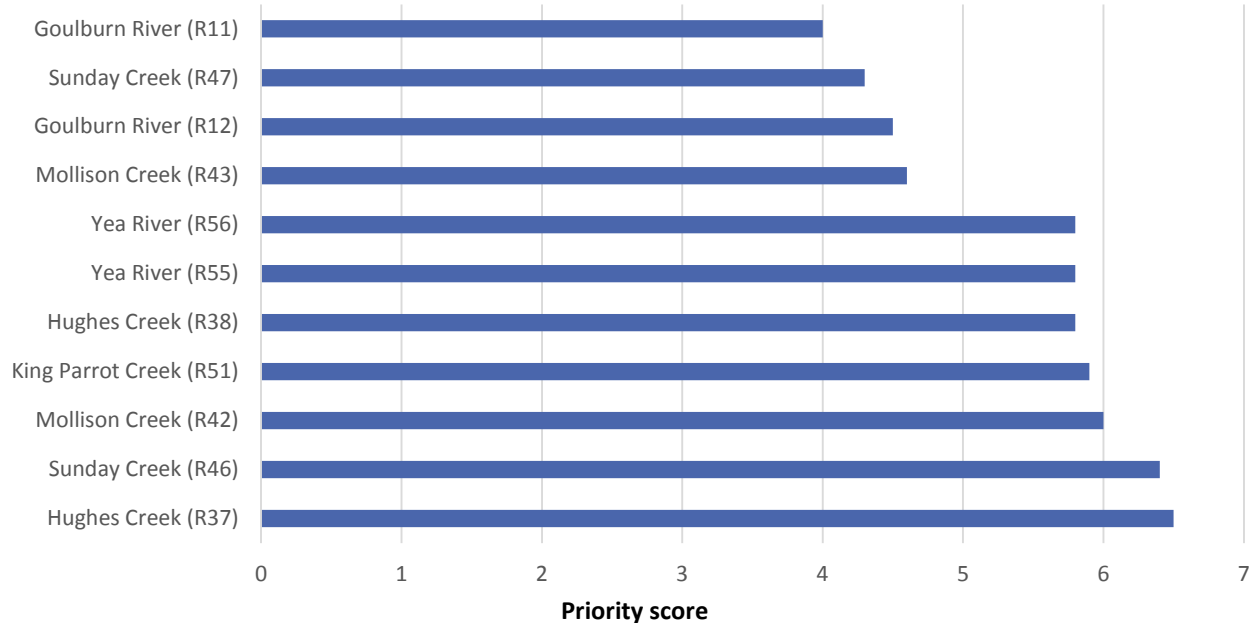
The following graphs represent the results of the overall risk and feasibility assessments, undertaken for priority waterways. The results are shown on a SES/Landscape basis. The x axis on the graphs represent lowest to highest priority score, when applying risk and feasibility process.

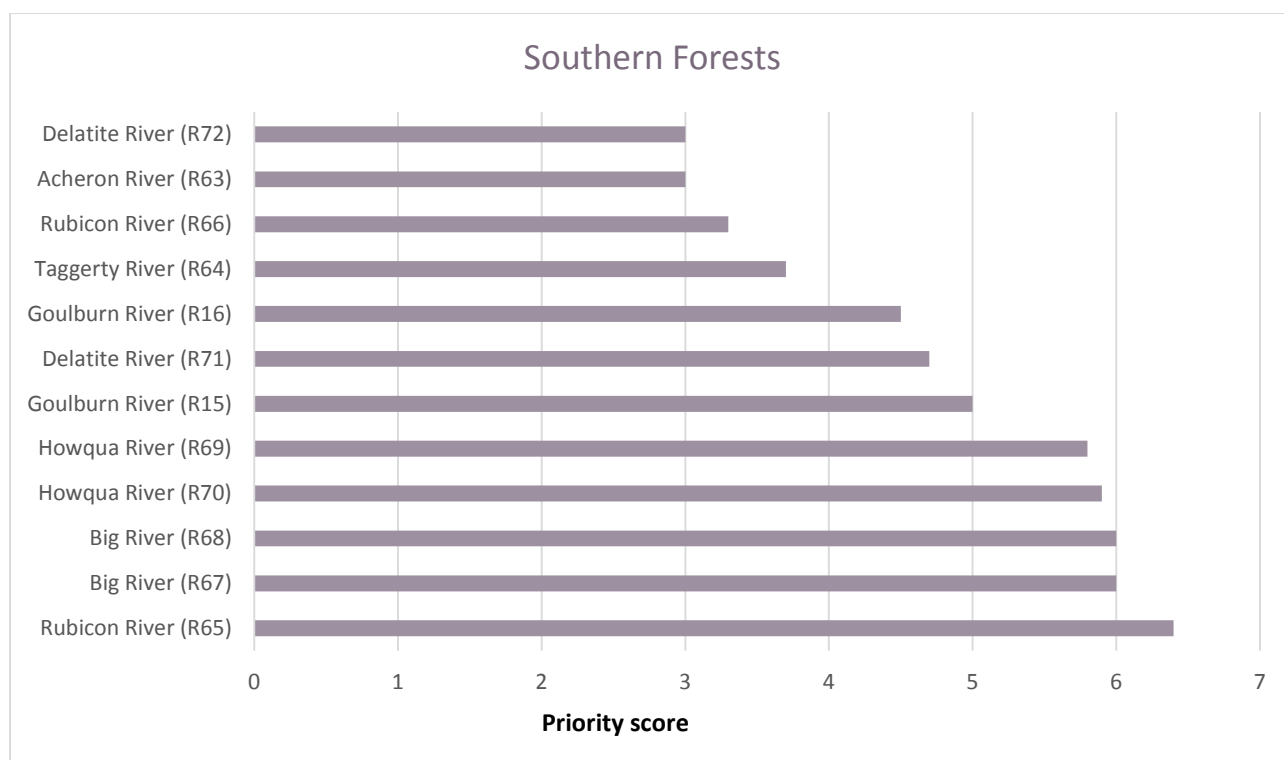


Upland Slopes



Commuting Hills





Appendix N: Receipt of comments from community (that informed the preparation of the waterway strategy)

The following methods were employed to seek comments from the community and partner agencies.

Formal submission of the “draft” Regional Waterway Strategy	Department of Environment and Primary Industries (DEPI)
Regional Consultation Groups	Goulburn Broken Catchment Management Authority Board Regional Waterway Strategy Community Reference Group
Air Media	UG FM, 3SR FM, Mt Buller 91.1FM (est. 170,000+ listeners)
Social Media	Facebook and Twitter
[Chough-chat] FW: Waterway Strategy - Community Consultation (mailing list for stakeholders involved in Biodiversity Management in the Goulburn Broken Catchment)	268 recipients
CMA web based e-newsletter	680 recipients
Print media	Country News
Web site	www.GBCMA.vic.gov.au
Correspondence (formal/email)	96 Community NRM Groups, 7 Landcare and 5 Conservation Management Networks. (email) Local Government EPA (Regional) Urban and Rural Water Corporations

Submissions were received from the following individuals, groups and agencies.

Benalla Rural City Council	Neil Harris (Community)
Department of Environment and Primary Industries	Ray Russell (Community)
Goulburn-Murray Water	Ray Thomas (Community)
Goulburn Valley Environment Group (Community)	Shire of Strathbogie
Goulburn Valley Water	Steven Hicks (Community)
Jarod Lyon (Arthur Rylah Institute for Environmental Research)	Terry Court (Community)
Matthew Hudson (GMW/Community)	Terry Hunter (Goulburn-Murray Water)
Mel Haddow (Climate Change) GB CMA Biodiversity Projects	Wetlands Section. Aquatic Systems Policy Branch, Water Reform Division, Department of the Environment
Murrindindi Shire Council	

Appendix O: Opportunities and challenges – (priority management actions)

The following tables detail priority actions to guide the maintenance and improvement of waterways within the Goulburn Broken Region:

TRADITIONAL OWNER VALUES OF WATERWAYS

Action	Timeframe	Responsibility
Support the development of a “Country” Plan for the Taungurung Clans Aboriginal Corporation	2018	TCAC
Support the implementation of the intent and priority initiatives contained within the YYNAC (Working on Country Plan)	2014-2022	YYNAC, state and regional agencies
Build capacity of Traditional Owners to maintain and improve natural resources within the region	2014 ongoing	TOs, state and regional agencies
Access knowledge and support from Traditional Owners on regional forums and working groups	2014 ongoing	Traditional Owners

MANAGEMENT OF RIPARIAN LAND

Action	Timeframe	Responsibility
Undertake strategic revegetation and associated riparian works such as fencing, weed management and the provision of off-stream stock watering infrastructure on priority waterways, wetlands and floodplains to maintain and improve the resilience of targeted waterways	2014-2022	GB CMA, Landowners
Link strategic land management actions to key (priority) riparian management programs within areas that contribute to waterway resilience	2014-2022	GB CMA, DEPI (region), Landcare and Landowners

WATER QUALITY

Action	Timeframe	Responsibility
Development of domestic wastewater management plans across the region	2015	DEPI, Local Government
Development, implementation and monitoring of domestic wastewater management plans across the region	2016-2022	DEPI, Local Government
Continue to support “Waterwatch” within the Region	2015-2022	GBRWQF
Maintain and support Northern Regional Water Monitoring Partnership and River and Water Contingency/Planning Group	2014-2022	All
Assess the risk posed to beneficial uses (surface and subsurface) from key pollutants (pathogens, nutrients, sediments)	2014-2022	GB CMA (Waterway Manager)
Assess pathogen risks from stock accessing waterways upstream of drinking water offtakes, as part of riparian management programs, in line with Policy 9.6 of the Victorian Waterway Management Strategy (2013)	2016	GB CMA

MANAGEMENT OF THE ENVIRONMENTAL WATER RESERVE

Action	Timeframe	Responsibility
Support development of environmental monitoring and research programs focussed on key environmental watering priorities (including wetland vegetation), and establish processes to routinely assess results and feedback into future flow management decisions	2018-2021	DEPI, GB CMA, VEW, ARI, Universities
Redevelop river health and environmental flow objectives for the Goulburn River between Lake Eildon and Goulburn Weir (to accommodate high summer flows and cold water)	2014-2021	GB CMA
Develop Environmental Water Management Plans for the Goulburn River, upper and lower Broken Creek	2014-2018	GB CMA
Develop a multi-year environmental flow planning framework for the Goulburn River, including compatibility with River Murray environmental flow release needs from the Goulburn River.	2014-2021	GB CMA, VEW
Develop an understanding of the issues associated with lower Goulburn floodplain watering to develop options for maximising environmental outcomes while minimising social and economic impacts	2014-2018	GB CMA, DEPI, VEW
Develop and implement works and other actions to provide water supply to priority wetland and streams (e.g. regulators)	2014-2021	GB CMA, DEPI
Understand the potential impacts of environmental flow management on economic and social activities, and minimise impacts where possible	2016-2021	GB CMA, VEW, GMW, DEPI, RMW
Work with GMW and River Murray Water to maximise the potential environmental outcomes from management of consumptive water en route and supply system operation flexibility		
Increase community communication and engagement in environmental flow management		
Develop a better understanding of groundwater dependent ecosystems and look for opportunities to maintain and improve these		
Continue to develop and implement strategic actions at Barmah Forest		
Undertake planning to address delivery constraints and to advocate for over-bank environmental flows	2014-2022	GB CMA, VEW, DEPI

GROUNDWATER

Action	Timeframe	Responsibility
Complete the development of groundwater local management plans for the Upper Goulburn, Strathbogie, West Goulburn, Eildon, Broken, and Mid Goulburn GMAs, taking into account social, economic and environmental values)	2014-2015	GMW, DEPI stakeholders and community
Review and adapt groundwater management plans to take into account new information when it becomes available	ongoing	GMW
Develop robust flow objectives for all high value waterways	2015	GB CMA GMW
Identify and map high value GDEs and groundwater levels or groundwater discharge regimes required to support healthy ecosystems	2015	GB CMA, GMW
Develop ministerial guidance on GDEs and implement this guidance when assessing groundwater licence applications	2014 onwards	DEPI, GMW, GB CMA
Align groundwater management with the outcomes of the water law review and proposed changes to the <i>Water Act (1989)</i>	2014 onwards	DEPI, GMW
Assess the viability of conjunctive management of groundwater and surface water in priority catchment(s)	2015 onwards	GMW, GB CMA, DEPI

FLOODPLAIN MANAGEMENT

Action	Timeframe	Responsibility
Carry out statutory planning obligations as a referral body, and to provide advice to the general community	2021	GB CMA
Carry out flood modelling and flood mapping	ongoing	GB CMA
Work with the Environmental Water Reserve Team to achieve environmental outcomes both within and outside of the catchment	2015 onwards	GMW, GB CMA, DEPI
Complete review of the Goulburn Broken Floodplain Management Strategy	2015-2017	GB CMA

THREATENED AQUATIC DEPENDENT SPECIES

Action	Timeframe	Responsibility
Develop and implement strategies to improve the resilience of waterways to enable the re-establishment of robust self-sustaining populations of Macquarie perch and Trout cod in the Goulburn River between Lake Eildon and Barmah. In particular, ensure connectivity with 'satellite populations' in Hughes Creek, Seven Creeks, King Parrot Creek, Holland Creek and Yea River	2050	DEPI (ARI), GB CMA, community
Identify, prioritise and implement strategies to lesson extinction risk by translocation and stocking of threatened species	2050	DEPI (ARI), Fisheries Victoria, GB CMA and community
Undertake research and monitoring to identify and prioritise recovery actions, in line with action statements and recovery plans and adaptive management principles	2050	DEPI (ARI), Fisheries Victoria
Ensure connectivity with wetland and off channel habitats along the Goulburn (Catfish and Macquarie perch)	2030	GB CMA
Deliver community initiatives and partnerships to maintain or improve habitat for threatened species and farm production, such as weed control, revegetation and soil and catchment stabilisation	2014-2022	Agency stakeholders and community
Develop a plan for listed aquatic biodiversity values including an objective for threatened species, threatening processes and communities and management approaches to optimise conservation outcomes and ecosystem function/with resilience being achieved to the desired level	2022	DEPI (Regional Services), DEPI (ARI), GB CMA

RECREATIONAL FISHERIES

Action	Timeframe	Responsibility
Support habitat restoration works where they align with popular recreational fishing river reaches or critical habitat needs for threatened species (refer RFL Survey 2012)	2021	DEPI, GB CMA
Investigate the feasibility of using over-bank environmental flows in the Goulburn and Broken Rivers to enhance native fish recruitment	2022	DEPI, GB CMA, MBDA
Investigate the feasibility of improving the native fish recreational fishing in the Waranga Basin through habitat enhancement (Refer Goulburn Murray Water On land, On Water Management Plan)	2018	GB CMA, DEPI, VRFish, ATF
Support the re-establishment of woody habitat in the GB CMA region based on the outcomes of DEPI's habitat mapping study recommendations (refer DEPI research report, Arthur Rylah Institute)	2025	DEPI, GB CMA
Focus efforts to establish stocked populations of Trout cod and Macquarie perch in the Goulburn River (between the junction of Hughes Creek and King Parrot Creek)	2022	DEPI, GB CMA, VRFish
Using the Vic Fish Stock consultative process, investigate the case for re-establishing freshwater catfish populations near the junction of the Broken Creek and Goulburn River confluence	2022	DEPI, Vic Fish Stock
Enhance recreational fishing outcomes in the Goulburn River tailrace fishery by protecting and where needed, re-establishing riparian and in-stream habitat	2022	GB CMA, DEPI

MANAGEMENT OF INVASIVE SPECIES

Action	Timeframe	Responsibility
Assess the risks of inland aquatic invasive species spread through the Victorian water grid	2015-2018	DEPI, Waterway managers, water corporations
Support multi-jurisdictional process and actions to manage invasive species	Ongoing	DEPI, Waterway managers, water corporations
Support research into the management and control of invasive species	2015-2050	DEPI, Waterway managers, water corporations
Identify stream lengths that may require selective removal in very limited sections of a few upper catchment streams to protect valuable species and ecosystems, working in collaboration with relevant stakeholders' interest groups	2014-2022	DEPI (Regional Services / ARI), Waterway managers
Encourage and support efforts for control methods and management of carp within priority waterways (identified) within the region Highlight level of urgency	2018	DEPI (ARI), GB CMA
Facilitate "carp muster" days on identified "hot spots" (waterways and wetlands, storages)	2014-2022	DEPI (ARI), Fisheries Victoria, GB CMA
Encourage support efforts for enhanced control of invasive plant species. – biological and chemical control methods	2022	Research Organisations

MANAGEMENT OF THE RIVER CHANNEL

Action	Timeframe	Responsibility
Provide adequate resources to enable the management of works on waterways to prevent threats to the ecological systems and manmade assets	2014-2022	GB CMA, DEPI (Waterway Policy)
Further refine priority reaches and mapping for maintenance and improvement to in stream habitat across the region	2014-2018	GB CMA, DEPI (ARI), Fisheries Victoria
Install IWH within priority river reaches (see Chapter 7)	2014-2022	GB CMA, DEPI (ARI), Fisheries Victoria
Develop recreational boating strategies and plans in key areas as identified by the Boating Authority	2014-2018	GB CMA, Local Government
Establish within key boating zones appropriate zoning of particular uses and controls	2014-2022	GB CMA, Local Government, DEPI (ARI)

MANAGEMENT OF EXTREME EVENTS

Action	Timeframe	Responsibility
That the Regional Water and Contingency Planning Group continue to operate to plan and respond to waterway incidents	on-going	Regional Water Quality Partners
Provide Input to Fire Protection Plans, Fire Operation Plans and Municipal Emergency Management Plans to ensure that high value waterways are maintained	on-going	Catchment Management Authority
(from Policy 15.4 VWMS) Adopt a risk-based approach to address the impacts of floods and bushfires on waterways and associated public infrastructure. Develop a program of onground works to reduce the impacts on waterways and public infrastructure from flood and bushfire. The program will be included in the regional Waterway Strategies and will constitute the disaster mitigation strategy for flood and bushfires in relation to waterways in the catchment management region.	2018	Waterway managers (Catchment Management Authorities) and regional partners
Following extreme events a regional Planning Group will be establish to respond to emergency works and monitoring	2018	Waterway managers (Catchment Management Authorities) Frontline service
For natural flood and bushfire disasters, waterway managers will prepare and submit to the Department of Treasury and Finance, applications for funding in accordance with the National Natural Disaster Relief and Recovery Arrangements Determination 2011.	2014-2022	Waterway managers (Catchment Management Authorities) Frontline service
Following extreme events a review of waterway and wetland priorities will be undertaken	as required (2022)	Waterway managers (Catchment Management Authorities) Statement of Obligations / <i>Water Act (1989)</i>

INFLUENCE OF THE SURROUNDING CATCHMENT

Action	Timeframe	Responsibility
Facilitate adoption and implementation of IWCM principles in the region. Develop and implement IWCM projects	2015 - 2019	CMA, Water Corporations (Goulburn Valley Water) and Municipalities
Progress partnership approach to establish programs that leads to a reduction in water use across the catchment	2014 - 2022	CMA, Water Corporations (Goulburn Valley Water) and Municipalities
Promote best practice: Multi-benefit - gaining a more productive landscape and a healthier environment within the Communications Strategy (see Chapter 8)	2015-2021	DEPI, GB CMA and Landcare
Include waterways and wetlands as key features (in all levels of planning) within Local Planning - including Whole Farm Plans	2015-2021	DEPI, GB CMA, Landowners and Landcare
Provide protection for key waterways and wetlands through Land Use Planning	2015-2021	Local Government, DEPI, GB CMA

POTENTIAL CLIMATE CHANGE

Action	Timeframe	Responsibility
Increase awareness of the potential impact of climate change and adaptation options	2014 - 2022	GB CMA, DEPI
Increase awareness of the potential impact of climate change on threats and resilience of systems at a range of scales	2014 - 2022	GB CMA, DEPI
Accelerate the rate of riparian maintenance and improvement works and water regime management in priority waterways and wetlands	2014 - 2022	GB CMA, Community
Accelerate the rate and encourage broad land-based improvement works and actions (erosion and sediment control)	2014 - 2022	DEPI, Community
Refine and maintain critical aquatic dependent refugia (consider Zonation Project)	2014 - 2022	GB CMA, DEPI (ARI), Community
Model likely vegetation changes under climate change scenarios for waterway zone (by SES)	2014 - 2022	Research Organisations, DEPI (Sustainable Water Environments Division)
Plan (as required) for environmental watering and associated works in compensating for reduced frequency and duration of flooding under climate change	2014 - 2022	GB CMA
Reduce flow thresholds to priority floodplain wetlands (identifying these) to restore flooding frequency at lower river levels	2014 - 2022	GB CMA