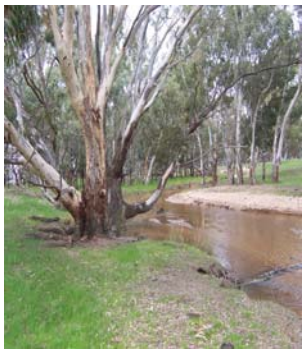
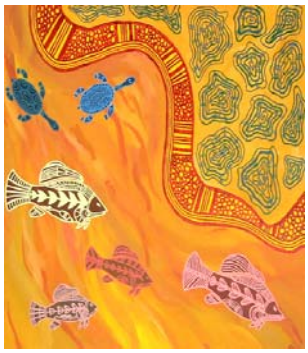
Goulburn Broken
Regional River Health Strategy

2005 - 2015

Appendices

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Additional Information

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- Jill Breadon — Mid Goulburn Broken Implementation Committee
- Murray Chapman — Community representative
- Royce Dickson — Community representative
- Allen Gale and John Anderson — Goulburn Valley Water
- Brian Greed — Community representative
- Peter Howarth — Upper Goulburn Implementation Committee
- Elita Briggs — EPA
- Hubert Miller — Community representative
- Russell Pell — Chair of Shepparton Irrigation Region Implementation Committee
- Shane Papworth / Pat Feehan — Goulburn Murray Water
- Bruce Radford — DSE
- Suzanna Sheed — Community representative (Committee Chair)

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The Technical Panel responsible for the analysis and preparation of the draft strategy:

- Tim Doeg — Macroinvertebrates (Senior Researcher)
- Judy Frankenberg — Vegetation, wetlands
- Shelley Heron — Catchment management (Project Manager)
- John McGuckin — Fish
- Arthur Sovitslis — Database management
- Geoff Vietz — Geomorphology
- Graeme Aitkinson — Indigenous Culture
- Neil Sturgess — Economics

Also:

Wayne Tennant (GBCMA), Fleur Jaques (GBCMA), Tarmo Raadik (DSE), Paul Wilson (DSE), Leon Metzeling (EPA).

Front cover painting "The River" by Rebecca Aitkinson.

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Appendix 1 Key sub-strategies included in the Goulburn Broken Regional River Health Strategy

Goulburn Broken Water Quality Strategy (1996-2016)

Prepared	2002
Status	Regional Strategy – Regionally Endorsed
Review Schedule	2007
Vision/ Goal	Improve and maintain water quality at optimum levels within and downstream of the catchment for native ecosystems, recreation, human and animal consumption, agriculture and industry
Target	Reduce potential catchment phosphorus loads by 65% (from 1993/94 levels) by 2016.
Strategic Objectives	• Minimise the risk of blue green algae outbreaks within the Goulburn Broken catchment thereby • Protecting aquatic ecosystems, public health, industry and water users; • Minimise nutrient contributions to the Murray River (and reduce the risk that nutrients from our catchment will cause or contribute to algal blooms downstream); • Foster regional development (by ensuring the quality of water to industry, agriculture and the community); • Enhance the riverine environment; and • Minimise/optimise water treatment costs.
Supporting Documents	

Goulburn Broken Flow Management Discussion Paper

Prepared	2002
Status	Draft – Discussion Paper
Vision/ Goal	
Target	
Strategic Objectives	• To provide effective control and management over the water cycle with consideration of the environmental, social and economic value provided by the allocation of water. The key instruments being Bulk Entitlements, Streamflow Management Plans and Groundwater Management Plans.
Supporting Documents	

Riparian and Instream Native Flora and Fauna of the Goulburn Broken

Prepared	2002
Status	Draft – Background Paper
Vision/ Goal	To protect and enhance ecological processes and genetic diversity to secure the future of native species of plants, animals and other organisms.
Target	
Strategic Objectives	
Supporting Documents	*Lyon J. and Clunie P (2002) Native Aquatic and Riparian Flora and Fauna Resource Papers (2002), Arthur Rylah Institute for Environmental Research*

Goulburn Broken Regional Floodplain Management Strategy

Prepared	2002

Status	Regional Strategy – Endorsed by Minister for Water Resources
Review Schedule	2012
Vision/ Goal	To work with the community to achieve best practice floodplain management for the benefits of current and future generations, through the implementation of the Regional Floodplain Management Strategy
Target Strategic Objectives	• Facilitate sustainable management of existing strategic floodplain assets, having regard for level of service, ownership, roles and responsibilities of maintenance and cost sharing arrangements. • Develop and implement flood studies and floodplain management plans having regard for social, environmental, cultural and economic costs and benefits. • Provide decision tools to allow development and land use practices to be compatible with the flood risk. • Streamline the referral process to screen out unnecessary referrals, and provide consistent performance-based criteria to all stakeholders. • Ensure development proposals in floodplains are dealt with in a consistent, efficient and effective manner, in accordance with sound floodplain management. • Develop an integrated program for controlling works on floodplains. • Articulate GBCMA's role in emergency response activities, flood awareness for the community and flood warning. • Facilitate effective flood monitoring and timely flood data collection to improve flood knowledge within the catchment. • Develop and implement an integrated floodplain information system that provides high quality data for use in floodplain management decisions. • Improve the community and other stakeholders' knowledge of flood management issues. • Ensure that flood management decisions are made in accordance with best practice principles.
Supporting Documents	Goulburn Broken Regional Floodplain Management Strategy (Investigation Report) Goulburn Broken Regional Floodplain Management Strategy (Main Strategy Report)

Goulburn Broken Recreation Discussion Paper

Prepared	2002
Status	Draft – Discussion Paper
Vision/ Goal	To protect, promote and enhance sustainable recreation opportunities and waterway health so that future generations may continue to enjoy high environmental quality and satisfying recreation experiences.
Target Strategic Objectives	• Establish partnerships between user groups, stakeholder agencies, local communities and private landholders to realise the vision • Implement common guidelines for the, design, development and management of all recreation facilities along waterways • Protect and enhance the environment, cultural and historical, and natural attributes of the waterways that attract recreational users • Encourage appropriate and sustainable recreational development and use of the waterways in keeping with demand
Supporting Documents	

Goulburn Broken Fisheries Management Discussion Paper

Prepared	2002

Status	Draft – Discussion Paper
Vision/ Goal	To achieve the best possible match between the fisheries management arrangements and Victorian recreational fishers' aspirations for the fisheries in the Goulburn region
Target	
Strategic Objectives	• Manage the fisheries of the Goulburn region area to provide a wide variety of fishing experiences with year-round fishing opportunities for both native and introduced species; • Manage with a view to developing the fisheries to their full sustainable potential; • Promote improvements of fish habitat, both in relation to a wide range of threatening processes and to the opportunities for improved production or access to target fish species; • Provide for the conservation and enhancement of recreational fishing target species and other freshwater fauna within the system; • Involve relevant resource managers in the fisheries management process and consult/negotiate with them in relation to possible positive outcomes for the fisheries resources and fish habitats; • Provide for the positive input of resource users in the fisheries management processes for the area; • Facilitate processes for improvement of access and facilities within the area; and • Achieve the best possible match between the fisheries management arrangements and Victorian recreational fishers' aspirations for the fisheries in these waters.
Supporting Documents	

Goulburn Broken Wetland Strategy

Prepared	2004
Status	Draft
Review Schedule	2009
Vision/ Goals	Protect and restore wetland habitat, ecosystem processes and the natural diversity of their native species and communities. Maintain the diverse range of habitats and biota Maintain effective linkages Maintain ecological processes (energy and nutrient cycling, processes which maintain flora and fauna populations and species interactions)
Target	Maintain extent of all wetland types at 2003 levels where the extent (area and number) has declined since European settlement. Improve condition of 70% of wetlands by 2030, using 2003 as the benchmark for condition.
Strategic Objectives	• Protect Existing Habitat • Enhance Existing Habitat • Restore (Establish) New Habitat
Supporting Documents	*Clunie P. and Lyon J (2002, Wetlands Technical Papers, Arthur Rylah Institute for Environmental Research / DNRE* *J. Lyon1, E. S. G. Schreiber1, and R. J. Butcher2 (2002) Prioritising Wetlands for Management of Biodiversity Conservation, Arthur Rylah Institute for Environmental Research* *Howell M and McLennan R (2002), Wetlands Directions Paper for the Goulburn Broken Catchment, Goulburn Broken Catchment Management Authority.* *GBCMA (2004) Goulburn-Broken Catchment - Wetland Systems, Identification of Values, Threats and Potential Risk to Wetland Systems, Goulburn Broken Catchment Management Authority*

Appendix 2 Environmental, Social and Economic Assets in RiVERS and sources of information.

Environmental value	Data source
Significance	
Significant Fauna	DSE Fauna databases (Wildlife Atlas, Aquatic Fauna)
Significant Flora	DSE Flora database
Significant Ecological Vegetation Classes	DSE Flora database
Fish Migration	DSE Fish database, expert knowledge
Significant Wetlands	DSE Wetland database
Rare Wetlands	DSE Wetland database
Sites of Significance	Reports, local knowledge
Heritage Rivers	Heritage River Legislation, LCC 1991
Naturalness	
Width of riparian vegetation	Index of Stream Condition (ISC)
Longitudinal riparian continuity	ISC
Riparian structural intactness	ISC
Aquatic invertebrate community	Information supplied by the EPA
Native fish community	Expert knowledge, fish database
Proportion of introduced fish	Expert knowledge, fish database
Ecologically Healthy River	Identified during this project
Representativeness	
Representative River	VRHS, Local selection of Ecologically Healthy River
Social value	
Recreational fishing	Local knowledge
Non Motor Boat sports	Local knowledge
Motor Boat sports	Local knowledge
Camping	Local knowledge
Swimming	Local knowledge
Passive Recreation	Local knowledge
European Heritage	Heritage Department, Local Knowledge
Listed landscape	Local knowledge
Species of Local Significance	Local knowledge
Economic value	
Water supply – delivery	DSE
Water supply – collection	DSE
Infrastructure	Local knowledge
Land value	Local knowledge
Tourism	Local knowledge
Power generation	Local knowledge

Appendix 3 Threats to environmental, social and economic values included in RiVERS

Threat	Data source
Physical Threats	
Bank erosion	ISC
Bank stability	ISC
Channel form	ISC
Loss of instream habitat	ISC
Stock Access	ISC
Flow Threats	
Flow deviation	ISC
Wetland Connectivity	Local knowledge, wetland database
Water Quality Threats	
Water quality (trend)	EPA Water quality database
Water quality (physicochemical)	EPA Water quality database
Water quality (SIGNAL score)	EPA
Temperature	Local knowledge
Algal Blooms	Local knowledge
Biological Threats	
Introduced Flora	ISC
Introduced Fauna	Local knowledge
Barriers to fish migration	ISC, Local knowledge
Degraded Riparian Vegetation	ISC

Appendix 4 Quantification of Values and Threats

This Appendix presents the rating criteria for each of the Values (environmental, social and economic) and Threats used in the Regional River Health Strategy. The raw data for each reach in the Goulburn Broken Catchment is presented in the next Appendix. A rating of 0 for any measure means no data are available for that reach.

Environmental Values

Rating	Heritage/Representative River
1	Not listed as a Heritage River or Representative River
3	Listed or considered as a State or Regional Representative River
5	Listed as a Heritage River

Rating	Site of Significance
1	No listing
5	Listed in technical or scientific report as significant

Rating	Ecologically Healthy River
1	Not considered an Ecologically Healthy River
5	Ecologically Healthy River

Rating	Significant Fauna
1	No VROTs or AROTs listed
3	VROTs present in bioregional categories 2c, 3b, 3c, 4b, 4c OR if no bioregional category then in Victorian threatened species categories Data Deficient or Poorly Known
4	VROTs present in bioregional categories 1c,2b,4a OR if no bioregional category then Victorian threatened species category Vulnerable or rare
5	AROT present with no Vic classification OR VROTs in bio category 1a,1b,2a,3a OR if no bio category then Vic threatened species category Presumed extinct, Critically Endangered, or Endangered OR listed as Threatened in Vic but no classification of degree

Note: Only species recorded within 200 m of a watercourse are included in the reach.

Rating	Significant Flora
1	No VROTs OR AROTs listed
3	VROTs present in bioregional categories 2c, 3b, 3c, 4b, 4c OR if no bioregional category then in Victorian threatened species categories Data Deficient or Poorly Known
4	VROTs present in bioregional categories 1c,2b,4a OR if no bioregional category then Victorian threatened species category Vulnerable or rare
5	AROT present with no Vic classification OR VROTs in bio category 1a,1b,2a,3a OR if no bio category then Vic threatened species category Presumed extinct, Critically Endangered, or Endangered OR listed as Threatened in Vic but no classification of degree

Note: Only species recorded within 200 m of a watercourse are included in the reach.

Rating	Significant Ecological Vegetation Class
1	Least concern
3	Rare or Depleted
4	Vulnerable
5	Endangered or Presumed Extinct

Rating	Wetland Significance
1	Not listed
2	Regionally significant (nominated by CMA)
4	Wetland of National significance (Directory of Important Wetlands) OR colonial waterbird breeding site
5	Wetlands listed on Ramsar OR national/ international significance for shore birds

Rating	Invertebrate Community (AUSRIVAS)
1	Impoverished
2	Well below reference
3	Below reference or Richer than reference
5	Reference

Rating	Wetland Rarity
1	>20% total area or number for Victoria
2	10% - 19% total area or number for Victoria
3	5% - 9% total area or number for Victoria
4	1% - 4% total area or number for Victoria OR Vulnerable* in the bioregion
5	<1% total area or number for Victoria OR Endangered* in the bioregion

Rating	Native Fish Community (no. of species recorded/ number of species expected)
1	0%
2	1 – 30%
3	31 – 60%
4	61 – 80%
5	81 – 100%

Rating	Native Fish Proportion (no. of introduced species/native & introduced)
1	70 – 100%
2	30 – 69%
3	10 – 29%
4	1 – 9%
5	0%

Rating	Fish Migration
1	Reach not thought to be used by migratory species
2	Migratory species use reach for passage (facultative)
3	Migratory species use reach for passage (obligatory)
4	VROT migratory species use reach for passage (facultative)
5	VROT migratory species use reach for passage (obligatory)

	Riparian Vegetation Width	
Rating	Large Stream	Small Stream
1	<0.25 x baseflow width (0)	Less than 5m
2	0.25 x bfw < 0.5 x bfw (1)	Between 5m and 10m
3	0.5 x bfw < 1.5 x bfw (2)	Between 10m and 30 m
4	1.5 x bfw < 3 x bfw (3)	Between 30m and 40m
5	> 3 x bfw (4)	Greater than 40m

Rating	Riparian Longitudinal Continuity
1	Very poor
2	Poor
3	Moderate
4	Good
5	Excellent

Rating	Riparian Structural Intactness
1	Very low
2	Low
3	Moderate
4	High
5	Very high

Social Values

Rating	Fishing
1	No recreation fishing
2	Unlikely to be recreation fishing
3	Occasional recreation fishing
4	Some recreation fishing
5	Popular for recreation fishing

Rating	Swimming
1	Not suitable for swimming
3	Some swimming
5	Popular swimming location

Rating	Camping
1	Very low – Not suitable for camping
2	Low – Difficult access, low numbers
3	Moderate – Some camping
4	High – Low density camping
5	Very high – Popular camping site

Rating	Boating (Motor)
1	No boating
3	Occasional boating activity
4	Popular boating activity but seasonal
5	Popular boating activity throughout year

Rating	Boating (non-motor)
1	No boating
3	Occasional boating activity
4	Popular boating destination but seasonal
5	Popular boating destination

Rating	Passive Recreation
1	Non-existent
2	Difficult Access – Low passive recreation use
3	Informal passive recreation
5	Formal location for passive recreation

Rating	European Heritage
1	Nothing Known
3	Identified but not formally listed
4	Listed under local planning scheme
5	Heritage Victoria/ National Estate Listing

Rating	Listed Landscapes
1	Not listed landscape
3	Local listed landscape (eg listed in report)
5	State Policy listed landscape (eg zoned on Planning Scheme)

Economic Values

Rating	Water Supply Delivery
1	Very low value – not used for extraction
2	Low value – not used for extraction but potential and/or receives irrigation drainage water (minor).
3	Moderate value – take and use licences on waterway and/or upstream potable water supply system and/or receives irrigation drainage water (major)
4	High value – registered extraction site and/or carries irrigation water and/or receives drainage water not considered above.
5	Very high value – providing water to potable water supply system.

Rating	Water Supply Collection
1	Not Proclaimed Catchment
4	Water supply protection area
5	Proclaimed Water Supply Catchment (possibly closed catchment)

Rating	Infrastructure
1	Very low value – no structures associated
2	Low value – small instream structures
3	Moderate value – minor un-sealed road
4	High value – sealed road OR major instream structure OR culvert bridge
5	Very high value – major highway OR major bridge OR fully lined channel

Rating	Land Value
1	Non Agricultural
2	Dryland grazing/ non irrigated pasture/ forestry
3	High rainfall farming/ Lifestyle farming
4	Some Irrigated land/ Broad-Acre cropping/ mixed grazing
5	Irrigation – dairy, orchard, vineyard, intensive agriculture or urban residential

Rating	Tourism
1	Not thought to be used by tourists
3	Informal or incidental use by tourists/ Seasonal activity eg hunting
4	Formal use by tourists
5	Focus for tourism or event focused

Rating	Power Generation
1	Not used for power generation
2	Minor power generation facility
3	Contributing to power generation
5	Major power generation facility

Threats

Physical Threats

Rating	Bank Erosion
1	Stable (ISC sub-index 4)
2	Limited erosion (ISC sub-index 3)
3	Moderate erosion (ISC sub-index 2)
4	Extensive erosion (ISC sub-index 1)
5	Extreme instability (ISC sub-index 0)

Rating	Bed Instability
1	Stable (ISC sub-index 4)
3	Limited instability (ISC sub-index 2)
5	Extensive instability (ISC sub-index 0)

Rating	Channel Modification
1	Natural
2	Natural with minor modification
3	Some de-snagging and/or minor realignment
4	Extensive de-snagging and/or extensive re-alignment
5	Concrete lined

Rating	Loss of In-stream Habitat
1	Excellent habitat (ISC sub-index 4)
2	Good habitat (ISC sub-index 3)
3	Marginal habitat (ISC sub-index 2)
4	Poor habitat (ISC sub-index 1)
5	Very poor habitat (ISC sub-index 0)

Rating	Stock Access
1	No stock access
5	Stock access recorded

Flow Threats

Rating	Flow Deviation
1	Very small deviation from natural 0.1 - <.1 AAPFD (ISC Hydrology index 9 or 10)
2	Minor >.2 – 1 AAPFD (ISC Hydrology index 8, 7 or 6)
3	Moderate >1 – 2 AAPFD (ISC Hydrology index 5 or 4)
4	Extensive >2 – 4 AAPFD (ISC Hydrology index 3 or 2)
5	Extreme >4 - >5 AAPFD (ISC Hydrology index 1 or 0)

Rating	Wetland Connectivity
1	Appears that wetlands do not and did not exist
2	Natural conditions, wetland connected to waterway with natural flow regime
3	Wetlands connected to waterway but flooded less frequently than natural
4	Wetlands artificially permanently inundated
5	Wetlands no longer connected to waterway under any flow conditions

Water Quality Threats

Rating	Water Quality SEPP Attainment
1	Meets all SEPP objectives
2	Fails to meet the objective for any one of SEPP indicators
5	Fails to meet the objectives for 2 or more SEPP indicators

Rating	Water Quality SIGNAL
1	Meets SIGNAL objective in SEPP (waters of Victoria)
5	Fails to meet SIGNAL objective

Rating	Water Quality Trend
1	Sufficient data collected but no trends identified
2	Not enough data to identify trend
3	Suspect trend in at least 1 parameter but not statistically significant
4	Statistically significant trend in 1 parameter
5	Statistically significant trend in more than 1 parameter

Rating	Water Temperature
1	No dams, dams that do not discharge to natural streams, release from surface water
2	Dams >5m and are artificially destratified
3	Dams >5m with releases from 6 – 10m below FSL or with only occasional releases
4	Dams >5m discharging regularly with offtakes >10m below FSL
5	Dams >5m discharging regularly with offtakes >10m below FSL and there is evidence of cold water pollution

Rating	Algal Blooms
1	No Algal Bloom
5	Known Algal Bloom

Biological Threats

Rating	Exotic Flora
1	0% cover of exotic vegetation (ISC sub-index 4)
2	1 – 10% cover of exotic vegetation (ISC sub-index 3)
3	11 – 40% cover of exotic vegetation (ISC sub-index 2)
4	41 – 60% cover of exotic vegetation (ISC sub-index 1)
5	> 60% cover of exotic vegetation (ISC sub-index 0)

Rating	Exotic Fauna
1	Not present
2	One species occasionally inhabits reach
3	One or more species inhabits reach in high numbers
4	Obvious problems on river bank or impacting on native flora and fauna
5	Population rampant requires immediate action

Rating	Barriers to Fish Migration
1	In typical year, no artificial barriers in basin downstream of the reach interfere with the migration of indigenous fish endemic to the stream (ISC sub-index 4)
3	Situations where there are artificial barriers in the basin d/s of the reach that may intermittently interfere with the migration of ndigo fish endemic to the stream (ISC sub-index 2)
5	In typical year, at least one artificial barrier in the basin downstream of the reach completely blocks the migration of indigenous fish species (ISC sub-index 0)

Rating	Degraded Riparian Vegetation
1	ISC Riparian zone sub index score 9 – 10
2	ISC Riparian zone sub index score 7 – 8
3	ISC Riparian zone sub index score 5 – 6
4	ISC Riparian zone sub index score 3 – 4
5	ISC Riparian zone sub index score 0 – 2

Appendix 5 Data scores for Values and Threats in the Goulburn Broken Catchment

Environmental data (Goulburn Basin)

Name	Reach No.	Heritage Rivers	Sites of Significance	Ecologically Healthy River	Significant Fauna	Significant Flora	Significant EVC	Significant wetlands	Wetland rarity	Invertebrate community	Native Fish community	Exotic fish proportion	Native fish migration	Riparian width	Riparian continuity	Riparian structure
Goulburn River	1	5	1	1	5	1	5	4	5	2	4	2	4	5	5	2
Goulburn River	2	5	1	1	5	1	5	4	5	2	4	2	4	4	5	2
Goulburn River	3	5	1	1	5	1	5	4	5	3	4	2	4	5	5	3
Goulburn River	4	5	1	1	5	5	5	4	5	3	4	2	4	4	5	3
Goulburn River	5	5	1	1	5	1	5	4	1	0	4	2	4	5	5	3
Goulburn River	6	5	1	1	5	1	5	4	5	0	4	2	4	5	5	3
Goulburn River	7	5	1	1	5	4	5	4	5	3	4	2	4	5	4	3
Goulburn River	8	5	1	1	5	4	5	4	5	2	4	2	4	4	5	3
Goulburn River	9	5	1	1	5	1	5	1	5	0	2	2	4	1	1	0
Goulburn River	10	5	1	1	5	1	5	1	5	0	3	2	4	4	5	4
Goulburn River	11	5	1	1	5	1	5	1	5	0	3	2	1	1	2	3
Goulburn River	12	5	1	1	5	1	5	1	5	0	3	2	1	3	3	3
Goulburn River	13	5	1	1	5	1	5	1	5	3	3	2	1	1	5	3
Goulburn River	14	5	1	1	5	1	5	1	5	3	3	2	1	2	4	3
Goulburn River	15	1	1	5	5	1	3	1	1	5	4	2	1	5	5	2
Goulburn River	16	1	1	1	5	4	2	1	1	4	4	2	1	1	1	3
Seven Creeks	17	1	1	1	5	5	5	1	1	3	4	2	4	3	1	3
Seven Creeks	18	1	1	1	5	1	5	1	1	0	4	2	4	2	2	2
Seven Creeks	19	1	5	1	5	1	5	1	1	5	4	2	5	3	2	3
Seven Creeks	20	1	1	1	5	4	5	1	5	0	3	2	1	3	1	2
Faithfull Creek	21	1	1	1	5	1	5	1	1	0	3	2	1	2	1	3
Honeysuckle Creek	22	1	1	1	5	1	5	1	5	3	2	1	4	3	2	3
Honeysuckle Creek	23	1	1	1	3	1	5	1	5	0	2	1	1	3	2	3
Sheep Pen Creek	24	1	1	1	5	1	5	1	5	0	0	0	0	2	1	2
Castle Creek	25	1	1	1	5	4	5	1	5	5	2	2	1	3	2	3
Castle Creek	26	1	1	1	5	3	5	1	1	0	2	1	1	3	1	3
Creightons Creek	27	1	1	1	5	4	5	1	5	3	3	2	1	3	2	3
Creightons Creek	28	1	1	1	5	1	5	1	1	5	3	2	1	2	1	2
Pranjip Creek	29	1	1	1	4	1	5	1	5	0	4	2	1	3	2	3
Cornella Creek	30	1	1	1	5	1	5	1	1	0	3	2	1	3	3	3

Name	Reach No.	Heritage Rivers	Sites of Significance	Ecologically Healthy River	Significant Fauna	Significant Flora	Significant EVC	Significant wetlands	Wetland rarity	Invertebrate community	Native Fish community	Exotic fish proportion	Native fish migration	Riparian width	Riparian continuity	Riparian structure
Cornella Creek	31	1	1	1	5	5	5	1	1	0	3	2	2	3	4	3
Yallagalorrah Creek	32	1	1	1	3	1	5	1	1	0	0	0	0	2	3	3
Goborup Creek	33	1	1	1	5	1	5	4	5	0	2	2	1	3	4	3
Deep Creek	34	1	1	1	5	1	5	1	5	0	2	2	1	3	5	3
Major Creek	35	1	1	1	5	1	5	1	5	0	2	2	1	5	5	3
Bylands Creek	36	1	1	1	5	1	5	1	5	0	0	0	0	4	5	3
Hughes Creek	37	1	1	1	5	1	5	1	1	0	3	2	1	3	5	4
Hughes Creek	38	1	1	1	5	3	5	1	1	0	3	2	1	3	5	3
Hughes Creek	39	1	1	1	5	1	5	1	1	3	3	2	4	3	5	3
Whiteheads Creek	40	1	1	1	3	1	3	1	1	5	0	0	0	3	1	2
Sugarloaf Creek	41	1	1	1	3	1	5	1	1	0	2	2	1	3	2	3
Molison Creek	42	1	1	1	3	1	5	1	1	5	2	1	1	3	3	4
Molison Creek	43	1	1	1	3	1	1	1	1	0	2	1	1	1	2	2
Kurkurac Creek	44	1	1	1	3	1	5	1	1	5	0	0	0	2	2	0
Sunday Creek	45	1	1	1	5	1	5	1	5	0	3	2	4	2	4	3
Sunday Creek	46	1	1	1	5	1	5	1	5	5	3	2	1	3	5	4
Sunday Creek	47	1	1	1	3	1	2	1	1	0	1	1	2	1	1	0
Dry Creek	48	1	1	1	3	1	5	1	1	0	1	1	5	5	5	5
Dabyminga Creek	49	1	1	1	3	1	5	1	1	0	2	3	1	3	5	3
Dabyminga Creek	50	1	1	1	5	1	5	1	1	0	2	3	1	5	5	4
King Parrot Creek	51	1	1	1	5	1	5	1	5	5	4	3	1	4	5	4
King Parrot Creek	52	1	1	1	5	1	3	1	1	5	4	3	1	3	5	4
Dairy Creek	53	1	1	1	3	1	3	1	1	0	0	0	0	2	2	3
Yea River	54	1	1	1	5	1	5	1	5	5	2	2	1	1	2	3
Yea River	55	1	1	1	5	4	5	1	1	0	2	2	1	3	5	4
Yea River	56	1	1	1	5	1	3	1	1	4	2	2	1	1	1	4
Yea River	57	1	1	1	5	4	3	1	1	5	3	2	1	5	5	4
Murrindindi River	58	1	1	1	5	1	5	1	1	5	3	2	1	3	2	4
Murrindindi River	59	1	1	1	5	1	2	1	1	0	2	2	1	1	1	2
Home Creek	60	1	1	1	5	1	5	1	5	5	2	1	1	3	3	3
Spring Creek	61	1	1	1	5	1	5	1	1	3	2	5	1	3	2	3
Acheron River	62	1	5	1	5	1	5	1	5	0	3	2	1	2	3	0
Acheron River	63	1	1	1	5	4	4	1	1	0	3	2	1	3	5	4
Taggerty River	64	4	1	5	5	1	4	1	5	5	4	2	4	5	5	3
Rubicon River	65	1	1	1	3	1	5	1	5	5	4	3	1	3	2	3
Rubicon River	66	1	1	1	5	1	5	1	5	0	5	3	4	3	2	0

Name	Reach No.	Heritage Rivers	Sites of Significance	Ecologically Healthy River	Significant Fauna	Significant Flora	Significant EVC	Significant wetlands	Wetland rarity	Invertebrate community	Native Fish community	Exotic fish proportion	Native fish migration	Riparian width	Riparian continuity	Riparian structure
Big River	67	5	1	5	5	4	2	1	1	0	4	1	1	5	5	4
Big River	68	5	1	5	5	1	2	1	1	5	4	1	1	5	5	2
Howqua River	69	5	1	1	5	1	5	1	1	0	3	2	4	3	5	5
Howqua River	70	5	1	1	5	1	3	1	1	5	3	2	4	1	5	3
Delatite River	71	1	1	1	5	1	5	1	5	5	4	2	4	1	5	2
Delatite River	72	1	1	1	3	4	2	1	1	0	4	2	4	2	3	0
Ford Creek	73	1	1	1	5	1	1	1	5	5	0	0	0	1	1	2
Brankeet Creek	74	1	1	1	3	1	5	1	1	4	2	1	1	2	1	2
Merton Creek	75	1	1	1	5	1	5	1	1	0	3	2	4	2	2	4

Environmental data (Broken Basin)

Name	Reach No.	Heritage Rivers	Sites of Significance	Ecologically Healthy River	Significant Fauna	Significant Flora	Significant EVC	Significant wetlands	Wetland rarity	Invertebrate community	Native Fish community	Exotic fish proportion	Native fish migration	Riparian width	Riparian continuity	Riparian structure
Broken River	1	1	1	1	5	4	5	4	5	0	3	2	4	4	5	3
Broken River	2	1	1	1	5	1	5	4	5	3	3	2	4	4	4	3
Broken River	3	1	1	1	5	1	5	1	1	4	3	3	4	4	3	3
Broken River	4	1	1	1	5	1	5	1	1	0	4	3	4	3	4	3
Broken River	5	1	1	1	5	5	5	1	5	5	4	3	1	2	1	2
Broken River	6	1	1	1	5	1	5	1	1	0	0	0	0	3	2	3
Five Mile Creek	7	1	1	1	5	1	5	1	5	5	4	3	1	2	1	3
Five Mile Creek	8	1	1	1	5	1	5	1	1	0	2	2	1	3	0	0
Lima East Creek	9	1	1	1	5	1	5	1	1	0	0	0	0	4	2	3
Lima East Creek	10	1	1	1	5	1	3	1	1	0	0	0	0	4	5	4
Sawpit Creek	11	1	1	1	5	1	3	1	1	0	0	0	0	3	2	3
Halls Weir Creek	12	1	1	1	3	1	1	1	1	0	0	0	0	1	1	2
Holland Creek	13	1	1	1	5	1	5	1	1	0	4	3	4	3	3	3
Holland Creek	14	1	1	1	5	4	5	1	5	3	3	2	1	3	2	3
Holland Creek	15	1	1	1	5	1	3	1	1	0	3	2	1	3	0	0
Ryans Creek	16	1	1	1	5	1	5	1	5	3	4	3	4	3	2	3

Name	Reach No.	Heritage Rivers	Sites of Significance	Ecologically Healthy River	Significant Fauna	Significant Flora	Significant EVC	Significant wetlands	Wetland rarity	Invertebrate community	Native Fish community	Exotic fish proportion	Native fish migration	Riparian width	Riparian continuity	Riparian structure
Ryans Creek	17	4	1	5	5	1	3	1	5	0	4	3	4	5	5	3
Sam Creek	18	1	1	1	5	1	5	1	1	0	5	3	1	2	2	3
Watchbox Creek	19	1	1	1	5	4	5	1	1	0	5	4	1	3	2	3
Winton Creek	20	1	1	1	5	1	5	1	1	0	0	0	0	2	1	3
Broken Creek	21	1	1	1	5	5	5	5	5	0	4	2	4	3	5	3
Broken Creek	22	1	1	1	5	5	5	4	5	0	4	2	4	3	4	2
Broken Creek	23	1	1	1	5	5	5	4	5	3	3	2	1	2	3	3
Broken Creek	24	1	1	1	1	5	5	4	5	0	3	2	1	3	4	3
Broken Creek	25	1	1	1	1	5	5	4	5	5	2	1	1	2	3	3
Broken Creek	26	1	1	1	5	4	5	4	5	5	3	2	1	2	3	3
Broken Creek	27	1	1	1	1	1	5	1	1	0	2	1	1	4	2	3
Nine Mile Creek	28	1	1	1	5	5	5	1	1	2	2	1	1	5	5	3
Nine Mile Creek	29	1	1	1	5	1	5	1	5	0	2	1	1	2	1	3
Pine Lodge Creek	30	1	1	1	5	5	5	1	1	0	2	1	1	2	1	2
Pine Lodge Creek	31	1	1	1	1	1	3	1	5	0	2	1	1	2	1	3
Boosey Creek	32	1	1	1	5	5	5	1	1	0	4	2	1	4	2	3
Boosey Creek	33	1	1	1	5	5	5	1	1	3	3	2	1	3	4	3
Boosey Creek	34	1	1	1	5	5	5	1	1	0	2	1	1	1	1	3
Sandy Creek	35	1	1	1	1	1	5	1	1	0	2	1	1	1	1	3

Social and Economic data (Goulburn Basin)

		Social Values									Economic Values					
Name	Reach No.	Fishing	Swimming	Camping	Sports (Motor)	Sports (non-motor)	Passive recreation	European Heritage	Listed Landscapes	Flagship species	Water Supply Delivery	Water Supply Collection	Infrastructure	Land Value	Tourism	Power Generation
Goulburn River	1	5	3	5	5	3	3	4	1	5	5	1	5	3	3	1
Goulburn River	2	5	3	5	5	3	3	1	1	5	5	1	4	3	3	1
Goulburn River	3	5	3	5	5	3	3	1	1	5	5	1	4	3	3	1
Goulburn River	4	5	3	5	5	3	3	1	1	5	5	1	4	3	3	1
Goulburn River	5	5	5	5	5	4	5	4	1	5	5	1	5	3	4	1

		Social Values									Economic Values					
Name	Reach No.	Fishing	Swimming	Camping	Sports (Motor)	Sports (non-motor)	Passive recreation	European Heritage	Listed Landscapes	Flagship species	Water Supply Delivery	Water Supply Collection	Infrastructure	Land Value	Tourism	Power Generation
Goulburn River	6	5	5	5	5	4	3	3	1	5	5	1	4	5	5	1
Goulburn River	7	5	3	5	5	3	3	3	1	5	5	1	5	5	3	1
Goulburn River	8	5	5	5	5	3	5	5	1	5	5	1	5	5	3	1
Goulburn River	9	5	3	5	5	5	3	5	1	5	5	1	5	5	5	1
Goulburn River	10	5	3	3	5	3	5	3	1	5	5	1	5	5	4	1
Goulburn River	11	5	3	3	5	4	4	4	1	5	5	1	5	5	5	1
Goulburn River	12	5	3	3	4	3	3	4	5	5	5	1	4	4	3	1
Goulburn River	13	5	3	3	3	3	3	1	5	5	5	1	5	4	3	1
Goulburn River	14	5	3	3	3	4	3	1	1	5	5	1	5	5	5	3
Goulburn River	15	5	3	5	1	4	3	4	1	5	5	5	4	3	4	2
Goulburn River	16	4	3	4	1	3	3	5	1	5	5	5	4	2	4	2
Seven Creeks	17	3	1	1	1	3	3	1	1	5	4	1	5	4	3	1
Seven Creeks	18	4	3	2	1	1	2	1	1	5	3	1	4	2	1	1
Seven Creeks	19	4	5	3	1	1	5	3	1	5	5	1	5	2	4	1
Seven Creeks	20	5	3	2	1	1	3	1	1	5	3	5	4	3	3	1
Faithfull Creek	21	2	3	1	1	1	2	1	3	4	4	1	5	4	1	1
Honeysuckle Creek	22	2	1	1	1	1	1	1	1	4	3	1	4	4	1	1
Honeysuckle Creek	23	2	1	1	1	1	2	1	1	5	3	1	5	3	1	1
Sheep Pen Creek	24	1	1	1	1	1	1	1	1	5	3	1	3	2	1	1
Castle Creek	25	2	3	2	1	1	2	1	1	4	4	1	5	5	3	1
Castle Creek	26	2	3	2	1	1	3	1	1	4	4	1	5	4	1	1
Creightons Creek	27	2	1	1	1	1	2	1	1	5	3	1	5	2	1	1
Creightons Creek	28	2	3	2	1	1	2	1	1	5	3	1	5	2	1	1
Pranjip Creek	29	2	1	1	1	1	1	4	1	5	4	1	5	2	1	1
Cornella Creek	30	1	1	3	1	1	2	4	1	5	3	1	4	5	3	1
Cornella Creek	31	1	1	1	1	1	2	4	1	5	3	1	3	3	3	1
Yallagalorrah Creek	32	1	1	1	1	1	1	1	1	5	1	1	4	5	1	1
Goborup Creek	33	2	3	2	1	1	1	3	1	5	4	1	4	4	1	1
Deep Creek	34	2	3	2	3	3	2	3	1	5	4	1	3	4	4	1
Major Creek	35	2	3	3	3	3	3	1	1	5	4	1	4	4	3	1
Bylands Creek	36	1	1	1	1	1	1	1	1	1	3	1	4	2	1	1
Hughes Creek	37	3	3	1	1	1	3	5	1	5	4	1	5	4	3	1
Hughes Creek	38	4	3	3	1	1	2	3	1	5	4	1	3	4	3	1
Hughes Creek	39	4	5	5	1	1	3	3	1	5	4	1	3	3	3	1
Whiteheads Creek	40	1	1	1	1	1	5	3	1	1	3	1	4	2	1	1

		Social Values									Economic Values					
Name	Reach No.	Fishing	Swimming	Camping	Sports (Motor)	Sports (non-motor)	Passive recreation	European Heritage	Listed Landscapes	Flagship species	Water Supply Delivery	Water Supply Collection	Infrastructure	Land Value	Tourism	Power Generation
Sugarloaf Creek	41	4	3	2	1	1	2	1	1	5	3	1	4	3	1	1
Molison Creek	42	3	3	1	1	1	3	5	1	5	3	1	5	3	1	1
Molison Creek	43	2	1	1	1	1	2	1	1	1	5	5	4	2	1	1
Kurkurac Creek	44	3	1	1	1	1	1	4	1	5	3	1	5	3	1	1
Sunday Creek	45	4	3	1	1	2	2	3	1	5	3	1	5	4	1	1
Sunday Creek	46	3	1	2	1	1	1	3	1	5	3	1	5	3	1	1
Sunday Creek	47	2	1	4	1	1	5	5	5	5	5	5	3	1	3	1
Dry Creek	48	2	1	1	1	1	1	4	1	5	3	1	5	3	1	1
Dabyminga Creek	49	4	3	1	1	1	2	3	5	5	3	1	4	3	3	1
Dabyminga Creek	50	4	3	2	1	1	3	5	5	5	3	1	4	3	4	1
King Parrot Creek	51	4	3	3	1	2	5	1	5	5	4	1	4	4	3	1
King Parrot Creek	52	4	3	2	1	1	3	1	5	5	5	1	3	5	4	1
Dairy Creek	53	1	1	1	1	1	1	1	1	1	1	1	5	2	1	1
Yea River	54	4	3	2	1	1	1	1	1	5	4	1	4	4	3	1
Yea River	55	4	3	2	1	2	2	1	1	5	4	1	5	4	3	1
Yea River	56	4	1	1	1	1	2	1	1	5	4	1	4	4	3	1
Yea River	57	4	1	1	1	1	5	4	1	5	4	1	5	5	3	1
Murrindindi River	58	4	3	3	1	1	2	1	1	5	4	1	4	5	3	1
Murrindindi River	59	4	3	5	1	1	5	4	5	5	4	1	4	2	4	1
Home Creek	60	4	3	1	1	1	2	1	1	5	4	1	5	5	3	1
Spring Creek	61	2	1	1	1	1	1	1	1	1	3	1	5	3	1	1
Acheron River	62	5	3	3	1	3	3	1	1	5	5	1	5	4	4	1
Acheron River	63	5	3	2	1	1	2	1	1	5	5	1	4	3	4	1
Taggerty River	64	4	3	3	1	2	5	1	5	5	5	1	5	3	4	3
Rubicon River	65	5	3	3	1	1	3	1	1	5	5	1	5	5	4	1
Rubicon River	66	5	1	3	1	1	3	5	5	5	5	1	5	1	3	5
Big River	67	5	3	4	1	4	3	5	5	5	5	5	5	2	4	2
Big River	68	3	1	3	1	1	2	1	1	5	5	5	2	1	3	2
Howqua River	69	5	3	5	1	3	3	5	5	5	5	5	4	3	5	2
Howqua River	70	5	3	5	1	4	5	5	1	5	5	5	3	2	5	2
Delatite River	71	5	3	3	1	3	3	4	3	5	5	5	5	2	4	2
Delatite River	72	5	1	3	1	3	3	4	3	1	5	5	5	3	4	2
Ford Creek	73	1	1	1	1	1	1	4	3	1	2	5	3	2	1	1
Brankeet Creek	74	2	1	1	1	1	2	1	3	1	5	5	4	4	3	2
Merton Creek	75	2	1	1	1	1	2	4	3	1	3	5	4	4	1	2

Social and Economic data (Broken Basin)

		Social Values									Economic Values					
Name	Reach No.	Fishing	Swimming	Camping	Sports (Motor)	Sports (non-motor)	Passive recreation	European Heritage	Listed Landscapes	Flagship species	Water Supply Delivery	Water Supply Collection	Infrastructure	Land Value	Tourism	Power Generation
Broken River	1	4	3	1	1	3	3	1	1	5	5	1	5	5	3	1
Broken River	2	5	3	3	1	3	3	1	1	4	5	1	5	5	3	1
Broken River	3	5	5	3	3	3	2	5	1	5	5	1	5	4	3	1
Broken River	4	5	3	2	1	3	2	1	1	5	5	1	5	4	3	1
Broken River	5	4	3	2	1	1	2	1	1	4	5	5	4	3	3	1
Broken River	6	4	3	2	1	1	2	1	1	5	1	5	5	3	1	1
Five Mile Creek	7	2	3	1	1	1	1	1	1	5	3	1	5	2	1	1
Five Mile Creek	8	2	3	2	1	1	1	1	1	4	3	1	4	3	4	1
Lima East Creek	9	2	3	1	1	1	1	1	1	4	3	1	4	4	1	1
Lima East Creek	10	2	3	3	1	4	5	1	1	5	4	1	3	3	4	3
Sawpit Creek	11	1	1	2	1	1	1	1	1	1	1	1	2	3	1	1
Halls Weir Creek	12	1	1	1	1	1	1	1	1	1	1	1	4	2	1	1
Holland Creek	13	4	3	2	1	1	5	1	1	5	5	1	5	2	3	1
Holland Creek	14	4	5	5	1	1	3	1	1	5	3	1	4	2	5	1
Holland Creek	15	4	3	2	1	1	2	1	1	5	1	1	3	2	3	1
Ryans Creek	16	4	3	3	1	1	2	1	1	5	2	1	4	2	3	1
Ryans Creek	17	4	1	3	1	1	2	1	1	5	5	5	5	2	3	1
Sam Creek	18	1	1	1	1	1	1	1	1	4	1	1	3	3	1	1
Watchbox Creek	19	3	1	4	1	1	5	5	1	5	1	1	4	2	4	1
Winton Creek	20	2	1	1	1	1	1	1	1	1	1	1	5	2	3	1
Broken Creek	21	5	3	5	5	3	2	1	1	5	5	1	5	5	3	1
Broken Creek	22	5	3	3	5	3	2	4	1	5	5	1	4	5	3	1
Broken Creek	23	5	3	2	3	5	3	1	1	5	5	1	5	5	3	1
Broken Creek	24	4	3	4	3	3	5	5	1	5	5	1	5	5	4	1
Broken Creek	25	4	3	3	1	3	3	1	1	5	5	1	4	3	3	1
Broken Creek	26	4	3	2	1	1	2	1	1	4	5	1	4	3	3	1
Broken Creek	27	4	3	1	1	1	2	1	1	5	5	1	4	3	3	1
Nine Mile Creek	28	3	3	2	3	3	2	5	1	5	5	1	5	5	3	1
Nine Mile Creek	29	1	1	1	1	1	1	1	1	1	5	1	4	2	3	1
Pine Lodge Creek	30	1	1	1	1	1	1	1	1	1	5	1	5	5	1	1
Pine Lodge Creek	31	1	1	1	1	1	1	1	1	1	3	1	4	4	1	1

		Social Values									Economic Values					
Name	Reach No.	Fishing	Swimming	Camping	Sports (Motor)	Sports (non-motor)	Passive recreation	European Heritage	Listed Landscapes	Flagship species	Water Supply Delivery	Water Supply Collection	Infrastructure	Land Value	Tourism	Power Generation
Boosey Creek	32	4	3	2	1	1	2	1	1	4	5	1	4	3	3	1
Boosey Creek	33	3	1	1	1	1	2	4	1	4	3	1	4	2	3	1
Boosey Creek	34	2	1	1	1	1	5	5	1	5	2	1	3	2	4	1
Sandy Creek	35	1	1	1	1	1	1	1	1	1	1	1	4	2	1	1

Threat data (Goulburn Basin)

		Physical Threats					Flow Threats		Water Quality Threats					Biological Threats			
Name	Reach No.	Bank erosion	Bed instability	Channel modification	Loss of in-stream habitat	Stock access	Flow deviation	Wetland connectivity	WQ level	WQ SIGNAL	WQ trend	Temperature	Algal Blooms	Introduced flora	Introduced fauna	Barrier to fish	Degraded Streamside Zone
Goulburn River	1	2	1	4	3	5	5	5	0	5	0	1	1	1	3	1	2
Goulburn River	2	3	1	4	4	5	5	2	5	5	5	1	1	2	3	1	2
Goulburn River	3	4	2	4	3	5	5	2	0	1	0	1	1	3	3	1	2
Goulburn River	4	3	2	4	3	1	5	2	0	5	0	1	1	2	3	1	2
Goulburn River	5	2	1	4	4	1	5	2	5	0	5	1	1	3	3	1	2
Goulburn River	6	2	1	4	3	5	5	2	0	0	0	1	1	2	3	1	2
Goulburn River	7	2	2	4	2	5	5	2	0	5	0	1	1	2	3	1	2
Goulburn River	8	2	1	4	2	5	5	2	2	5	5	1	1	2	3	1	2
Goulburn River	9	5	5	3	5	5	5	2	0	0	0	5	1	5	0	5	3
Goulburn River	10	1	1	3	1	5	5	2	0	0	0	5	1	2	0	5	2
Goulburn River	11	3	3	3	3	5	5	2	0	0	0	5	1	4	0	5	5
Goulburn River	12	1	1	3	2	5	5	2	0	0	0	5	1	2	0	5	3
Goulburn River	13	1	1	3	1	1	5	2	0	5	0	5	1	3	0	5	3
Goulburn River	14	2	1	3	2	5	5	2	1	5	5	5	5	4	0	5	4
Goulburn River	15	1	1	2	1	1	1	1	2	1	5	1	1	3	0	5	2

		Physical Threats					Flow Threats		Water Quality Threats					Biological Threats			
Name	Reach No.	Bank erosion	Bed instability	Channel modification	Loss of in-stream habitat	Stock access	Flow deviation	Wetland connectivity	WQ level	WQ SIGNAL	WQ trend	Temperature	Algal Blooms	Introduced flora	Introduced fauna	Barrier to fish	Degraded Streamside Zone
Goulburn River	16	2	1	1	1	1	1	1	0	1	0	1	1	5	0	5	4
Seven Creeks	17	2	2	2	2	5	2	2	0	1	0	1	1	2	3	1	3
Seven Creeks	18	3	3	2	3	5	2	2	0	0	0	1	1	2	3	1	4
Seven Creeks	19	2	3	2	3	5	1	2	5	5	0	1	1	3	3	3	3
Seven Creeks	20	2	1	3	2	5	1	2	5	0	5	1	1	2	3	3	3
Faithfull Creek	21	2	3	2	3	5	1	2	0	0	0	1	1	3	0	1	4
Honeysuckle Creek	22	4	3	2	2	5	1	2	0	5	0	1	1	3	0	1	3
Honeysuckle Creek	23	2	4	2	3	5	1	2	0	0	0	1	5	2	0	5	4
Sheep Pen Creek	24	3	2	3	5	5	1	2	0	0	0	1	1	3	0	1	4
Castle Creek	25	3	2	2	2	5	3	2	0	1	0	1	1	3	0	1	3
Castle Creek	26	2	3	2	3	5	1	2	0	0	0	1	1	2	0	3	4
Creightons Creek	27	3	1	2	2	5	1	2	0	5	0	1	1	2	0	1	3
Creightons Creek	28	2	3	2	3	5	1	2	0	1	0	1	1	3	0	3	4
Pranjip Creek	29	2	2	2	2	5	1	2	0	0	0	1	1	2	0	1	3
Cornella Creek	30	2	2	2	4	5	1	2	0	0	0	1	1	2	0	1	3
Cornella Creek	31	2	2	2	3	5	1	2	0	0	0	1	1	2	0	3	3
Yallagalorrah Creek	32	3	3	2	4	5	1	2	0	0	0	1	1	2	0	1	3
Goborup Creek	33	2	1	2	3	5	1	2	0	0	0	1	1	2	0	1	3
Deep Creek	34	2	2	2	3	1	1	2	0	0	0	1	1	3	0	1	3
Major Creek	35	2	2	2	2	5	1	2	0	0	0	1	1	2	0	5	2
Bylands Creek	36	2	2	2	2	1	1	2	0	0	0	1	1	2	0	5	2
Hughes Creek	37	2	2	2	3	5	1	2	0	0	0	1	1	3	0	5	3
Hughes Creek	38	3	4	2	4	5	1	2	0	0	0	1	1	4	0	5	4
Hughes Creek	39	2	4	2	3	5	1	2	0	1	0	1	1	3	0	5	3
Whiteheads Creek	40	4	4	2	3	5	1	2	0	5	0	1	1	2	0	5	4
Sugarloaf Creek	41	2	2	2	3	5	2	2	5	0	5	1	1	2	0	5	3
Molison Creek	42	1	2	2	2	5	1	2	0	5	0	1	1	3	0	5	3
Molison Creek	43	2	3	2	4	5	2	1	0	0	0	1	1	3	0	5	4
Kurkurac Creek	44	2	2	2	4	5	2	2	0	5	0	1	1	1	0	5	4
Sunday Creek	45	3	2	2	2	5	2	2	5	0	5	1	1	3	0	5	3
Sunday Creek	46	2	2	2	3	5	3	2	0	3	0	1	1	4	0	5	3
Sunday Creek	47	5	5	2	5	5	1	1	0	0	0	1	1	5	0	5	3
Dry Creek	48	2	1	2	2	1	1	2	0	0	0	1	1	2	0	5	2

		Physical Threats					Flow Threats		Water Quality Threats					Biological Threats			
Name	Reach No.	Bank erosion	Bed instability	Channel modification	Loss of in-stream habitat	Stock access	Flow deviation	Wetland connectivity	WQ level	WQ SIGNAL	WQ trend	Temperature	Algal Blooms	Introduced flora	Introduced fauna	Barrier to fish	Degraded Streamside Zone
Dabyminga Creek	49	3	3	2	4	5	1	2	0	0	0	1	1	2	0	5	2
Dabyminga Creek	50	2	3	2	4	1	1	2	0	0	0	1	1	3	0	5	2
King Parrot Creek	51	3	2	2	2	5	3	2	0	5	0	1	1	3	0	5	2
King Parrot Creek	52	1	3	2	4	5	3	1	5	1	5	1	1	4	0	5	2
Dairy Creek	53	2	3	2	5	5	1	2	0	0	0	1	1	2	0	5	4
Yea River	54	2	2	2	1	5	1	2	0	1	0	1	1	3	0	5	4
Yea River	55	1	1	2	1	5	1	2	0	0	0	1	1	2	0	5	2
Yea River	56	2	1	2	1	0	1	2	0	1	0	1	1	3	0	5	3
Yea River	57	2	2	2	1	0	2	2	0	1	0	1	1	3	0	5	2
Murrindindi River	58	3	2	2	2	5	1	2	0	1	0	1	1	4	0	5	4
Murrindindi River	59	1	1	2	1	0	1	1	2	0	5	1	1	2	0	5	1
Home Creek	60	3	2	3	3	5	1	2	0	5	0	1	1	3	0	5	3
Spring Creek	61	3	4	2	2	5	1	2	0	5	0	1	1	3	0	5	4
Acheron River	62	1	1	1	5	5	5	2	0	0	0	1	1	1	3	5	2
Acheron River	63	1	1	2	1	5	1	1	0	0	0	1	1	1	3	5	2
Taggerty River	64	1	1	2	1	1	2	2	0	1	0	1	1	2	0	5	1
Rubicon River	65	2	1	2	1	5	1	2	0	1	0	1	1	3	0	5	3
Rubicon River	66	1	1	2	1	0	5	1	0	0	0	1	1	1	0	5	2
Big River	67	1	1	2	1	1	1	2	0	0	0	1	1	2	0	5	1
Big River	68	1	1	1	1	1	1	1	2	1	5	1	1	2	0	5	1
Howqua River	69	1	1	2	1	1	1	2	0	0	0	1	1	2	0	5	1
Howqua River	70	2	1	1	1	1	1	1	0	1	0	1	1	2	0	5	2
Delatite River	71	3	4	2	1	5	1	2	2	3	5	1	1	4	0	5	4
Delatite River	72	1	4	1	1	1	1	1	0	0	0	1	1	0	0	5	2
Ford Creek	73	3	3	3	5	5	1	2	0	5	0	1	1	4	0	5	4
Brankeet Creek	74	3	2	2	2	5	1	2	5	3	5	1	1	3	0	5	5
Merton Creek	75	3	3	2	3	5	1	2	0	0	0	1	1	3	0	5	5

Threat data (Broken Basin)

		Physical Threats					Flow Threats		Water Quality Threats					Biological Threats			
Name	Reach No.	Bank erosion	Bed instability	Channel modification	Loss of in-stream habitat	Stock access	Flow deviation	Wetland connectivity	WQ level	WQ SIGNAL	WQ trend	Temperature	Algal Blooms	Introduced flora	Introduced fauna	Barrier to fish	Degraded Streamside Zone
Broken River	1	2	3	3	3	5	5	2	5	0	0	1	1	3	3	1	2
Broken River	2	2	3	3	2	5	5	2	0	5	0	1	1	3	3	5	2
Broken River	3	2	2	4	2	5	5	2	5	5	5	4	5	3	0	5	2
Broken River	4	2	1	4	2	5	5	2	5	0	5	4	1	3	0	5	3
Broken River	5	2	1	4	3	5	1	1	0	5	0	1	5	4	0	5	4
Broken River	6	2	1	4	2	5	1	1	0	0	0	1	1	3	0	5	3
Five Mile Creek	7	3	3	2	4	5	1	2	0	1	0	1	1	3	0	5	4
Five Mile Creek	8	2	2	2	3	5	5	2	0	0	0	1	1	2	0	5	2
Lima East Creek	9	1	2	2	3	5	5	2	0	0	0	1	1	3	0	5	3
Lima East Creek	10	2	3	2	2	5	3	1	0	0	0	1	1	2	0	5	2
Sawpit Creek	11	2	1	3	2	5	3	1	0	0	0	1	1	2	0	5	3
Halls Weir Creek	12	2	1	2	2	5	1	1	0	0	0	1	1	2	0	5	4
Holland Creek	13	2	2	4	2	5	3	2	5	0	5	1	1	3	0	5	3
Holland Creek	14	1	1	4	2	5	1	2	0	5	0	1	1	3	0	5	4
Holland Creek	15	1	2	1	1	1	2	1	0	0	0	1	1	1	0	5	3
Ryans Creek	16	2	2	2	3	1	2	2	0	5	0	1	1	4	0	5	3
Ryans Creek	17	1	1	1	1	1	1	1	0	0	0	1	1	2	0	5	2
Sam Creek	18	2	2	2	2	5	1	2	0	0	0	1	1	2	0	5	4
Watchbox Creek	19	2	2	2	4	5	1	2	0	0	0	1	1	4	0	5	4
Winton Creek	20	3	3	2	5	5	1	2	0	0	0	1	1	2	0	5	4
Broken Creek	21	2	1	2	2	5	5	3	5	0	5	1	5	2	3	1	3
Broken Creek	22	2	1	2	3	5	5	2	0	0	0	1	1	2	3	1	3
Broken Creek	23	3	2	2	2	5	5	2	0	1	0	1	5	3	3	1	3
Broken Creek	24	1	1	2	3	5	5	2	0	0	0	1	1	2	3	1	3
Broken Creek	25	2	1	2	3	5	5	2	5	5	5	1	1	3	3	5	3
Broken Creek	26	3	2	2	3	5	5	2	0	5	0	1	1	3	3	5	3
Broken Creek	27	1	1	2	3	5	5	2	0	0	0	1	1	2	0	5	3
Nine Mile Creek	28	2	2	2	3	5	1	2	0	5	0	1	1	3	0	1	2
Nine Mile Creek	29	1	1	2	5	5	1	2	0	0	0	1	1	2	0	5	4
Pine Lodge Creek	30	2	1	2	5	5	1	2	0	0	0	1	1	2	0	1	4
Pine Lodge Creek	31	2	1	2	4	5	1	2	0	0	0	1	1	2	0	1	4

		Physical Threats					Flow Threats		Water Quality Threats					Biological Threats			
Name	Reach No.	Bank erosion	Bed instability	Channel modification	Loss of in-stream habitat	Stock access	Flow deviation	Wetland connectivity	WQ level	WQ SIGNAL	WQ trend	Temperature	Algal Blooms	Introduced flora	Introduced fauna	Barrier to fish	Degraded Streamside Zone
Boosey Creek	32	2	2	2	4	1	3	2	0	0	0	1	1	2	0	5	3
Boosey Creek	33	3	2	2	4	5	3	2	0	1	0	1	5	3	0	5	3
Boosey Creek	34	1	1	2	4	5	5	2	0	0	0	1	1	2	0	5	4
Sandy Creek	35	1	1	2	5	5	1	2	0	0	0	1	1	2	0	5	3

Appendix 6 Significant faunal species in the Goulburn Broken Catchment.

Note: Only species recorded within 100 m of a watercourse are included.

EPBC: Species listed under the Federal *Environment Protection and Biodiversity Conservation Act* 1999 in the Goulburn Broken Catchment. End – Endangered, Vul – Vulnerable;

AROT: V – Vulnerable;

FFG: L – Listed;

VROT: e – endangered, v – vulnerable, r – rare, k – Data deficient).

Common name	Scientific name	EPBC	AROT	FFG	VROT
Amphibians					
Spotted tree frog	*Litoria spenceri*	End		L	e
Warty bell frog	*Litoria raniformis*	Vul	V		v
Birds					
Helmeted honeyeater	*Lichenostomus melanops cassidix*	End		L	e
Regent honeyeater	*Xanthomyza phrygia*	End		L	e
Superb parrot	*Polytelis swainsonii*	Vul	V	L	e
Swift parrot	*Lathamus discolor*	End		L	e
Fish					
Barred galaxias	*Galaxias fuscus*	End		L	e
Bluenose(Trout) cod	*Maccullochella macquariensis*	End		L	e
Macquarie perch	*Macquaria australasica*	End		L	e
Murray cod	*Maccullochella peelii peelii*	Vul		L	v
Mammals					
Leadbeater's possum	*Gymnobelideus leadbeateri*	End		L	e
Spot-tailed quoll	*Dasyurus maculatus*	Vul	V	L	e

Appendix 7 Significant flora species in the Goulburn Broken Catchment.

Note: Only species recorded within 100 m of a watercourse are included.

EPBC: Species listed under the Federal *Environment Protection and Biodiversity Conservation Act* 1999;

AROT: V – Vulnerable, E – Endangered, R – rare, K – Data deficient; ;

FFG: L – Listed;

VROT: e – endangered, v – vulnerable, r – rare, k – Data deficient.

Common name	Scientific name	EPBC	AROT	FFG	VROT
Alpine bent	*Agrostis meionectes*		R		r
Ausfeld's wattle	*Acacia ausfeldii*		R		v
Highland bush-pea	*Pultenaea williamsonii*		K		r
Narrow goodenia	*Goodenia macbarronii*		V	L	v
Small scurf-pea	*Cullen parvum*		E	L	e

Appendix 8 High Value Social and Economic Reaches in the Goulburn Broken Catchment

Reaches with total Social scores between 30-35

Management Unit	Name	Reach No.	Total Social Score	Included as High Priority Reach
Broken Basin				
L2	Broken Creek	24	33	✓
M1	Broken River	3	32	✓
L2	Broken Creek	22	31	✓
L2	Broken Creek	21	30	✓
Goulburn Basin				
U1	Goulburn River	12	35	✓
U7	Big River	67	35	✓
U7	Howqua River	69	35	✓
L1	Goulburn River	1	34	✓
U1	Goulburn River	11	34	✓
U7	Howqua River	70	34	✓
L1	Goulburn River	7	33	✓
U1	Goulburn River	10	33	✓
U4	Murrindindi River	59	33	
L1	Goulburn River	4	31	✓
L1	Goulburn River	3	31	✓
L1	Goulburn River	2	31	✓
U1	Goulburn River	13	31	✓
U7	Goulburn River	15	31	✓
U7	Delatite River	71	30	✓

Reaches with total Economic scores between 20-23

Management Unit	Name	Reach No.	Total Social Score	Included as High Priority Reach
Broken Basin				
L2	Broken Creek	24	21	✓
M2	Broken River	5	21	✓
M3	Ryans Creek	17	21	✓
L2	Broken Creek	21	20	✓
L2	Broken Creek	23	20	✓
L2	Nine Mile Creek	28	20	
L5	Broken River	2	20	✓
L5	Broken River	1	20	✓
Goulburn Basin				
U5	Brankeet Creek	74	23	
U7	Big River	67	23	✓
U7	Delatite River	71	23	✓
U7	Goulburn River	15	23	✓
U1	Goulburn River	9	22	✓

Management Unit	Name	Reach No.	Total Social Score	Included as High Priority Reach
U1	Goulburn River	11	22	✓
U7	Goulburn River	16	22	✓
U7	Howqua River	70	22	✓
L1	Goulburn River	6	21	✓
U1	Goulburn River	10	21	✓
U6	Rubicon River	65	21	
U6	Taggerty River	64	21	✓
L1	Goulburn River	8	20	✓
L1	Goulburn River	7	20	✓
U6	Acheron River	62	20	✓
U6	Rubicon River	66	20	✓

Appendix 9. Process for identifying Ecologically Healthy Rivers in the Goulburn Broken Catchment

The term Ecologically Healthy River was coined by the VRHS as "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".

The VRHS provides a number of characteristics of an ecologically healthy river:

"An ecologically healthy river will have flow regimes, water quality and channel characteristics such that:

- in the river and riparian zone, the majority of plant and animal species are native and no exotic species dominates the system;
- natural ecosystem processes are maintained;
- major natural habitat features are represented and are maintained over time;
- native riparian vegetation communities exist sustainably for the majority of its length;
- native fish and other fauna can move and migrate up and down the river;
- linkages between river and floodplain and associated wetlands are able to maintain ecological processes;
- natural linkages with the sea or terminal lakes are maintained; and
- associated estuaries and terminal lake systems are productive ecosystems."

The VRHS provides a number of criteria for identifying ecologically healthy rivers, based on ISC data (Table A9.1). The VRHS stresses that these are only a "first cut" conservative set of criteria. Under these criteria, four reaches were identified as ecologically healthy rivers:

- Yea River (Reach 55);
- Acheron River (Reach 63);
- Taggerty River (Reach 64); and
- Big River (Reach 67).

The advent of RiVERS, with a more comprehensive database of ecological conditions allows a more refined and comprehensive set of measures that can be used. A number of measures in RiVERS can be related to the different characteristics of an ecologically healthy river (Table A9.2).

Some measures relate directly to the characteristics (proportion of exotic flora and fauna, barriers, wetland connectivity, some habitat measures) while others must be seen as surrogate measures. Ecosystem processes, for example, cannot be measured directly, but riparian conditions, water quality and flow deviation all have some relationship to a variety of processes that they influence.

Ecologically healthy rivers must score highly on these measures, and a subjective assessment of criteria required has been made (Table A9.3)

For each reach in the Goulburn Broken Catchment, the RiVERS score for each measure was compared with the criteria outlined in Table A9.3. Results are shown in Table A9.5.

Table A9.1 Criteria for ecologically healthy rivers from the VRHS.

Measure	VRHS criteria for ecologically healthy river
Riparian vegetation	within 1 ISC class of natural
Structural intactness	>80% of bank vegetated with no more than 5 significant gaps for each
Longitudinal continuity	tree, shrub and groundcover layer (>10m/km)
cover of exotics	<40% exotic cover for each tree, shrub and groundcover layer
Instream species	Macroinvertebrate communities very similar to those at reference sites
Major habitat features	In lowland reaches, numerous to abundant woody debris within stream sourced from native vegetation In upland reaches, >30% stable habitat within stream
Longitudinal continuity	Barriers downstream which may only occasionally impede fish passage
Bed condition	Stable or limited instability

Table A9.2 Measures in RiVERS related to different characteristics of an ecologically healthy river

Characteristic of Ecologically Healthy River	Measures in RiVERS
In the river and riparian zone, the majority of plant and animal species are native and no exotic species dominates the system	Invertebrate composition Native fish O/E Exotic fish Proportion Exotic flora Exotic fauna
Natural ecosystem processes are maintained	Riparian width Riparian continuity Structural intactness WQ trend WQ level Temperature Flow Deviation Bank erosion Bed stability
Major natural habitat features are represented and are maintained over time	Channel form Streamside Zone Instream habitat Stock access
Native fish and other fauna can move and migrate up and down the river	Barriers
Linkages between river and floodplain and associated wetlands are able to maintain ecological processes	Wetland Connectivity
Natural linkages with the sea or terminal lakes are maintained	Not applicable
Associated estuaries and terminal lake systems are productive ecosystems	Not applicable

Table A9.3 Criteria for measure to identify ecologically healthy rivers.

Measures in RiVERS	Criteria for ecologically healthy river (RiVERS score)
Invertebrate composition	AUSRIVAS Band A (5)
Native fish O/E	>80% of expected species present (5)
Exotic fish Proportion	90-100% species native (4,5)
Exotic flora	<40% cover (1,2,3)
Exotic fauna	Not present or one occasional species (1,2)
Riparian width	>30m for small, >1.5 baseflow width for large streams (4,5)
Riparian continuity	Good or Excellent (4,5)
Structural intactness	High (5)
Water Quality trend	No statistical trend (1)
Water Quality level	Meets SEPP requirements (1)
Temperature	No change (1,2)
Flow Deviation	Very small to minor deviation (1,2)
Bank erosion	Stable (1)
Bed stability	Stable (1)
Channel modification	None or minor (1,2)

Measures in RiVERS	Criteria for ecologically healthy river (RiVERS score)
Streamside Zone	ISC score 7-10 (1,2)
Instream habitat	Excellent habitat (1)
Stock access	Not present (1)
Barriers	None or occasional (1,3)
Wetland Connectivity	No natural wetlands, or no change in connectivity (1,2)

No reach in the Goulburn-Broken Catchment achieved the criteria for an ecologically healthy river in every one of the 20 measures in Table A9.3. This is not actually surprising, as many of the measures do not have data for every reach. In particular, measures for exotic fauna (93% reaches have no data), water quality trend (84%), water quality level (83%), and invertebrate composition (61%) have a significant amount of missing data.

Additionally, a number of measures are influenced over wide areas. The barriers at Goulburn and Eildon Weirs means that the vast majority of upstream reaches in the Goulburn River cannot reach the barriers criteria for an ecologically healthy river[1].

However, a number of reaches do score highly on a large number of measures, suggesting that they may be close to the conditions for ecologically healthy rivers. Two additional criteria were used to select potentially ecologically healthy rivers:

- Greater than 75% of measures where data are available reach the criteria in Table A9.3; and
- Two of the riparian vegetation measures (width and continuity), 6 in-stream measures (bed stability, bank stability, channel modification, streamside zone, in-stream habitat and stock access) and Flow Deviation all achieve the criteria.

This resulted in 5 reaches identified that meet these two criteria:

- Taggerty River (Reach 64);
- Goulburn River (Reach 15);
- Big River (Reach 67);
- Big River (Reach 68); and
- Ryans Creek (Reach 17 in the Broken Basin).

These reaches were adopted as Ecologically Healthy Rivers for the production of the Regional River Health Strategy.

A number of reaches came close to the criteria for Ecologically Healthy River status. These either met the criteria for the percentage of measures that met the criteria, but failed on only one of the riparian, in-stream or flow criteria (Table A9.4).

Table A9.4 Reaches close to the criteria for ecologically healthy rivers.

Name	Reach	% measures	"Missing" measure
Bylands Creek	36	86	In-stream habitat
Dry Creek	48	75	In-stream habitat
Yea River	57	82	Stock access (no data)
Howqua River	69	75	Riparian width
Howqua River	70	78	Riparian width

[1] Only reaches that would not naturally contain larger migratory species would not be affected by the barriers.

Other reaches were identified that failed on a number of criteria, but could be seen as essentially enhanced to Ecologically Healthy River status with a single co-ordinated program. These were reaches that only failed to meet the criteria only on two or more of riparian width, riparian continuity, streamside zone and stock control. These reaches could be raised to a higher status through a single riparian restoration program:

- Goulburn River (Reach 16);
- Yea River (3 reaches – 54-56);
- Murrindindi River (Reach 59);
- Acheron River (Reach 63);
- Rubicon River (Reach 65); and
- Holland Creek (Broken Basin Reach 15).

Table A9.5(a) Each reach in the Goulburn Broken Catchment where a shaded cell indicates that the reach fulfils the criteria for an ecologically healthy river for that particular measure. An "X" indicates no data.

			Veg Width	Veg Cont	Bank	Bed	Channel	SSZ	LOIH	Flow	Stock	Veg Intact	Barriers	Wetland	Algal Bloom	WQ trend	WQ level	WQ Signal	Temp	Invert O/E	Fish O/E	Fish Prop	Exot Flora	Exot fauna
L1	Goulburn	1														X	X		X					X
	Goulburn	2																	X					X
	Goulburn	3														X	X		X					
	Goulburn	4														X	X		X					X
	Goulburn	5																X	X	X				X
	Goulburn	6														X	X	X	X	X				X
	Goulburn	7														X	X		X					X
	Goulburn	8																	X					X
L3	Seven	17														X	X		X					
	Seven	18														X	X	X	X	X				
	Faithfull	21														X	X	X	X	X				X
	Honeysuckle	22														X	X		X					X
	Honeysuckle	23														X	X	X	X	X				X
	Sheep Pen	24														X	X	X	X	X	X	X		X
	Castle Creek	25														X	X		X					X
	Creightons	27														X	X		X					X
	Pranjip	29														X	X	X	X	X				X
L4	Cornella	30														X	X	X	X	X				X
	Cornella	31														X	X	X	X	X				X
	Yallagalorrah	32														X	X	X	X	X	X	X		X
	Goborup	33														X	X	X	X	X				X
	Deep Creek	34														X	X	X	X	X				X
M7	Seven	19														X								
	Seven	20																X	X	X				
	Castle Creek	26														X	X	X	X	X				X
	Creightons	28														X	X		X					X
U1	Goulburn	9														X	X	X	X	X				X
	Goulburn	10														X	X	X	X	X				X
	Goulburn	11														X	X	X	X	X				X
	Goulburn	12														X	X	X	X	X				X
	Goulburn	13														X	X		X					X
	Goulburn	14																	X					X
U2	Major Creek	35														X	X	X	X	X				X
	Bylands	36														X	X	X	X	X	X	X		X
	Hughes	37														X	X	X	X	X				X
	Hughes	38														X	X	X	X	X				X
	Hughes	39														X	X		X					X
	Whiteheads	40														X	X		X		X	X		X

Table A9.5(b) Each reach in the Goulburn Broken Catchment where a shaded cell indicates that the reach fulfils the criteria for an ecologically healthy river for that particular measure. An "X" indicates no data.

			Veg Width	Veg Cont	Bank	Bed	Channel	SSZ	LOIH	Flow	Stock	Veg Intact	Barriers	Wetland	Algal Bloom	WQ trend	WQ level	WQ Signal	Temp	Invert O/E	Fish O/E	Fish Prop	Exot Flora	Exot fauna
U3	Sugarloaf	41																X	X	X				X
	Molison	42														X	X		X					X
	Molison	43														X	X	X	X	X				X
	Kurkurac	44										X				X	X		X		X	X		X
	Sunday	45																X	X	X				X
	Sunday	46														X	X		X					X
	Sunday	47										X				X	X	X	X	X				X
	Dry Creek	48														X	X	X	X	X				X
	Dabyminga	49														X	X	X	X	X				X
	Dabyminga	50														X	X	X	X	X				X
U4	King Parrot	51														X	X		X					X
	King Parrot	52																	X					X
	Dairy	53														X	X	X	X	X	X	X		X
	Yea River	54														X	X		X					X
	Yea River	55														X	X		X					X
	Yea River	56									X					X	X		X					X
	Yea River	57									X					X	X		X					X
	Murrindindi	58														X	X		X					X
	Murrindindi	59									X							X	X	X				X
U5	Home	60														X	X		X					X
	Spring	61														X	X		X					X
	Ford Creek	73														X	X		X		X	X		X
	Brankeet	74																	X					X
	Merton	75														X	X	X	X	X				X
U6	Acheron	62										X				X	X	X	X	X				X
	Acheron	63														X	X	X	X	X				
	Taggerty	64														X	X		X					X
	Rubicon	65														X	X		X					X
	Rubicon	66									X	X				X	X	X	X	X				X
U7	Goulburn	15																	X					X
	Goulburn	16														X	X		X					X
	Big River	67														X	X	X	X	X				X
	Big River	68																	X					X
	Howqua	69														X	X		X					X
	Howqua	70														X	X		X					X
	Delatite	71																	X					X
	Delatite	72										X				X	X	X	X	X				X

Table A9.5(c) Each reach in the Goulburn Broken Catchment where a shaded cell indicates that the reach fulfils the criteria for an ecologically healthy river for that particular measure. An "X" indicates no data.

			Veg Width	Veg Cont	Bank	Bed	Channel	SSZ	LOIH	Flow	Stock	Veg Intact	Barriers	Wetland	Algal Bloom	WQ trend	WQ level	WQ Signal	Temp	Invert O/E	Fish O/E	Fish Prop	Exot Flora	Exot fauna
	Broken	21																X	X	X				X
	Broken	22														X	X	X	X	X				X
L2	Broken	23														X	X		X					X
	Broken	24														X	X	X	X	X				X
	Nine Mile	28														X	X		X					X
	Pine	30														X	X	X	X	X				X
	Pine	31														X	X	X	X	X				X
L5	Broken	1														X		X	X	X				X
	Broken	2														X	X		X					X
M1	Broken	3																	X					X
	Broken	4																X	X	X				X
	Broken	5														X	X		X					X
M2	Broken	6														X	X	X	X	X	X	X		X
	Sawpit	11														X	X	X	X	X	X	X		X
	Halls	12														X	X	X	X	X	X	X		X
	Broken	5L														X	X	X	X	X				X
	Holland	13																X	X	X				X
	Holland	14														X	X		X					X
M3	Holland	15		X								X				X	X		X	X				X
	Ryans	16														X	X		X					X
	Ryans	17														X	X	X	X	X				X
	Sam	18														X	X	X	X	X				X
	Watchbox	19														X	X	X	X	X				X
M4	Winton	20														X	X	X	X	X	X	X		X
	Five Mile	7														X	X		X					X
M5	Five Mile	8		X												X	X	X	X	X				X
	Lima East	9														X	X	X	X	X	X	X		X
	Lima East	10														X	X	X	X	X	X	X		X
	Broken	25																	X					X
	Broken	26														X	X		X					X
	Broken	27														X	X	X	X	X				X
M6	Nine Mile	29														X	X	X	X	X				X
	Boosey	32														X	X	X	X	X				X
	Boosey	33														X	X		X					X
	Boosey	34														X	X	X	X	X				X
	Sandy	35														X	X	X	X	X				X

Appendix 10 Risk-based Assessment in the Goulburn Broken Catchment.

The Australian/New Zealand Standard "*Risk Management AS/NZ 4360:1999*" defines risk as "the chance of something happening that will have an impact upon objectives" (or, in this case, values).

The basic aim of the risk assessment is provide some objective measure of the hazard to a particular asset (environmental, social or economic) by a particular threat. Risk is expressed as a function of "likelihood" and "consequence".

The risk assessment is carried out on the Priority Waterways to identify key threats that could have a deleterious impact on the high values in the waterways.

Likelihood and Consequence

Likelihood

"Likelihood" is a measure of the probability that a particular threat will have an impact on a particular value.

Likelihood is therefore a combination of the level of the threat (how severe the threat is), and the degree of association (or connectivity), between the threat and the value in question.

The level of the threat is simply taken here as the measure of each of the 16 threats identified in the RiVERS database.

The association is a measure of the theoretical potential for a threat to have an impact on the value. For many threats, there is a direct and obvious "association" with a particular value. For example, the presence of a barrier to fish migration has a high potential (or strong association) to have an impact on the fish community upstream, bank erosion has a strong association with riparian vegetation width, bed instability has a strong association with the macroinvertebrate community, and water temperature has a strong association with the social value of swimming.

In each of these examples, there is a high theoretical potential for the threat to have an impact. When combined with the level of the threat, it expresses the likelihood that the threat will have or has had an actual impact.

For other threat/value combinations, there is no obvious association. The same barrier to fish migration, for example, has no association with passive recreational values upstream (i.e. the recreation values are completely independent as to whether or not there is a barrier to fish migration downstream), and the loss of instream habitat would have no association with riparian values.

Other threat/value associations are not so clear cut. For examples, exotic riparian flora may, or may not, have an association with a significant fish species (depending on the species itself, and perhaps the location in the catchment), and bank erosion may or may not have an impact on European heritage values (being different, say, between an historic bridge and an historic farmhouse well away from the river bank). These association values are, therefore, site specific.

Association values were evaluated on a 1-5 scale (where 1 is no association and 5 is a strong association) for each possible combination of the 16 threats and 30 values (environmental, social and economic). The ratings between 1 and 5 were based on definitions and criteria outlined in Table A10.1.

Rather than allocate association values in each and every reach, the Technical Panel determined that a number of association values could be applied across the catchment. That is, the relationship between a threat and a value was constant, irrespective of the location in the catchment, or the specific nature of the value. Hence, a generic table of association values was established (Table A9.3) for a number of specific threat/value combinations.

Table A10.1 Association values adopted for the Regional River Health Strategy.

Value	Meaning	Clarifier
1	Practically Impossible	Practically impossible that the threat will impact on the value.
2	Remotely possible	No evidence of threat impacting on value, but it is remotely possible.
3	Unusual but possible	Evidence in a few isolated cases where threat has impacted on the value
4	Quite possible	Some evidence that threat has an impact on the value
5	Almost certain	Good evidence that the threat always impacts on the value

Generic association values could not be assigned for a number of threat/value combinations:

- Significant flora (all threats, except barriers to fish migration);
- Significant fauna (all threats);
- Significant Ecological Vegetation Classes (all threats, except barriers to fish migration);
- Heritage Rivers (all threats);
- Ecologically Healthy Rivers (barrier threat only);
- Sites of Significance (all threats);
- Native fish community (barrier threat only);
- Fish migration (wetland connectivity threat only);
- Species of community significance (all threats); and
- European Heritage (bank erosion, bed instability, channel modification, flow deviation, degradation of streamside zone, and exotic flora).

For site specific associations, appropriate values for these threats in all priority reaches were determined at a workshop of the Technical Panel, held in Yea on 26-28 August 2003. A set of rules relating the site specific nature of the asset (e.g. species or types of communities present) and the association value. These rules are presented in Table A10.4. Where more than one type of asset was present (e.g. both riparian and floodplain species, the association value was the highest of any of the various components).

Association values for Heritage River reaches were taken as the highest value for any of the individual components that make up the nominations for Heritage River status.

For the two Sites of Significance, association values for Ecologically Healthy River were used for the Acheron River, and a value of 1 was used for all values for Seven Creeks (as the site of significance is for geological formations).

For the barrier threat to Ecologically Healthy Rivers and Native fish community, association values were recorded as 5 if migratory species were recorded or expected in the reach or 1 if they were not present or expected.

For fish migration and wetlands, association values were recorded as 5 if migratory species that used wetlands were recorded or expected in the reach or 1 if they were not present or expected.

Table A10.3 Generic association values for different threat/value combinations (ss – values are site specific)

	Bank erosion	Bed instability	Barriers to migration	Channel modification	Flow deviation	WQ trend	WQ level	WQ SIGNAL	Temperature	Exotic Flora	Exotic Fauna	Loss of Instream habitat	Algal Blooms	Degraded Streamside Zone	Wetland Connectivity	Stock access
Environmental Value																
Significant Flora	ss	ss	1	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss
Significant EVC	ss	ss	1	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss
Significant Fauna	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss
Significant Wetland	2	2	1	2	5	4	4	4	2	5	4	1	1	2	5	3
Wetland Rarity	2	2	1	2	5	4	4	4	2	4	4	1	1	2	5	4
Heritage River	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss
Sites of Significance	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss	ss
Ecologically healthy	5	5	ss	5	5	4	4	4	4	5	5	5	4	5	4	4
Riparian Width	5	2	1	3	3	1	1	1	1	5	4	1	1	5	2	5
Riparian Continuity	5	2	1	1	3	1	1	1	1	5	4	1	1	5	2	5
Riparian intactness	4	2	1	1	4	1	1	1	2	5	5	1	1	5	2	5
Invertebrate O/E	4	5	1	4	3	4	5	5	5	4	2	5	4	5	4	4
Native Fish O/E	4	4	ss	5	5	4	4	4	5	3	4	5	2	4	4	4
Native Fish Proportion	4	4	4	5	5	4	4	4	5	3	4	5	2	4	4	3
Fish migration	2	2	5	4	4	3	4	4	4	1	2	4	2	2	ss	2

	Bank erosion	Bed instability	Barriers to migration	Channel modification	Flow deviation	WQ trend	WQ level	WQ SIGNAL	Temperature	Exotic Flora	Exotic Fauna	Loss of Instream habitat	Algal Blooms	Degraded Streamside Zone	Wetland Connectivity	Stock access
Social Value																
Fishing	4	4	5	4	4	3	4	4	4	4	4	5	4	3	3	4
NonMotor Sports	3	3	1	3	4	1	2	1	2	1	1	1	4	3	2	3
Motor Boating	2	3	1	2	4	1	2	1	2	1	1	1	4	2	1	1
Camping	3	1	1	3	3	2	2	1	2	2	1	1	5	3	1	4
Swimming	3	2	1	3	4	3	5	5	5	1	1	2	5	3	1	4
European heritage	ss	ss	1	ss	ss	1	1	1	1	ss	1	1	1	ss	1	1
Passive Recreation	4	2	1	3	3	2	2	1	1	3	2	2	4	5	2	4
Listed Landscapes	4	3	1	4	3	1	1	1	1	4	2	2	1	4	3	4
Economic Value																
Water Supply Delivery	4	3	1	2	1	4	5	4	1	1	1	1	5	1	1	4
Water Supply Collection	1	1	1	1	5	4	4	4	1	2	1	1	5	2	1	4
Infrastructure	4	4	1	1	2	1	2	2	1	1	1	1	2	1	1	2
Land Value	4	3	1	3	1	3	3	3	2	4	2	2	3	3	1	2
Tourism	3	2	1	2	3	3	3	3	3	3	2	2	4	4	1	2
Power Generation	2	2	1	1	5	1	1	1	1	1	1	1	1	1	1	1

Table A10.3 Association rules for different threat/value combinations where site specific values are required

Significant flora or EVC	Bank erosion	Bed instability	Barriers to migration	Channel modification	Flow deviation	WQ trend	WQ level	WQ SIGNAL	Temperature	Exotic Flora	Exotic Fauna	Loss of In-stream habitat	Algal Blooms	Degraded Streamside Zone	Wetland Connectivity	Stock access
Riparian species or EVC	5	5	1	5	5	4	4	4	5	5	5	5	4	5	5	5
Wetland species or EVC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Floodplain species or EVC	3	2	1	3	4	1	1	1	1	5	4	1	1	1	1	5

Significant fauna and Flagship species	Bank erosion	Bed instability	Barriers to migration	Channel modification	Flow deviation	WQ trend	WQ level	WQ SIGNAL	Temperature	Exotic Flora	Exotic Fauna	Loss of Instream habitat	Algal Blooms	Degraded Streamside Zone	Wetland Connectivity	Stock access
Spotted Tree Frog	5	5	1	5	5	4	5	5	5	5	4	5	4	5	4	5
Other amphibians	5	2	1	3	5	4	4	4	2	5	4	1	1	5	5	5
tree-dwelling birds	4	1	1	2	2	1	1	1	1	4	3	1	1	4	1	4
ground dwelling birds	5	2	1	3	4	1	1	1	2	5	5	1	1	5	2	5
ducks	2	2	1	2	5	3	3	4	2	4	4	1	1	2	5	4
ibis/spoonbill	3	2	1	2	5	3	3	4	2	4	4	1	1	2	5	4
cormorant	5	3	1	5	4	2	2	2	2	4	3	4	2	5	4	5
Trout cod	5	5	1	5	5	4	4	4	5	3	4	5	2	4	4	4
Macquarie perch	5	5	4	5	5	4	4	5	5	3	4	5	2	4	4	4
Galaxias	5	5	1	5	5	4	5	5	2	5	5	5	1	4	4	5
small, riverine fish species	4	4	1	5	5	4	4	4	5	3	4	5	2	4	4	4
small, wetland fish species	2	2	1	2	5	4	4	4	2	4	4	1	1	2	5	4
large non-migratory fish species	4	4	1	5	5	4	4	4	5	3	4	5	2	4	4	4
large migratory fish species	4	4	5	5	5	4	4	4	5	3	4	5	2	4	4	4
trout	4	4	1	4	4	3	4	4	2	4	1	5	2	4	4	4
Hemiphlebia	2	2	1	2	5	4	4	4	2	4	4	1	1	2	5	4
Crayfish	4	5	1	4	3	4	5	5	5	4	2	5	2	5	4	4
possum/glider/bats	5	2	1	3	3	1	1	1	1	5	4	1	1	5	2	5
ground-dwelling mammals	5	2	1	3	2	1	1	1	1	4	5	1	1	5	1	5
aquatic mammals	5	4	1	5	4	3	3	3	4	4	2	5	2	4	1	4
Reptiles	5	2	1	3	2	1	1	1	1	4	5	1	1	5	1	5

Heritage Rivers	Bank erosion	Bed instability	Barriers to migration	Channel modification	Flow deviation	WQ trend	WQ level	WQ SIGNAL	Temperature	Exotic Flora	Exotic Fauna	Loss of Instream habitat	Algal Blooms	Degraded Streamside Zone	Wetland Connectivity	Stock access
Goulburn Management Unit L1	5	5	1	5	5	4	5	5	5	5	5	5	4	5	4	5
Goulburn Management Unit M1	5	5	1	5	5	4	5	5	5	5	4	5	4	5	4	5
Big River	5	5	1	5	5	4	5	5	5	5	4	5	4	5	4	5
Howqua River	5	2	1	3	4	1	1	1	1	5	4	1	1	5	2	5

European Heritage	Bank erosion	Bed instability	Barriers to migration	Channel modification	Flow deviation	WQ trend	WQ level	WQ SIGNAL	Temperature	Exotic Flora	Exotic Fauna	Loss of Instream habitat	Algal Blooms	Degraded Streamside Zone	Wetland Connectivity	Stock access
River-front farm property	2	2	1	2	2	1	1	1	1	2	1	1	1	2	1	1
Bridge	4	4	1	3	2	1	1	1	1	1	1	1	1	1	1	1
Mining settlement	4	4	1	4	2	1	1	1	1	3	1	1	1	2	1	1
Off stream Building	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Near-stream building	3	3	1	2	2	1	1	1	1	1	1	1	1	1	1	1
Tunnel	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ford	4	5	1	3	2	1	1	1	1	1	1	1	1	1	1	1

The "likelihood" value for any threat/value combination can be determined as a numerical score for different combinations of the level of the threat and the association (Table A10.4), where a-y are the likelihood values.

Table A10.4 Possible likelihood values for combinations of threat ranking and association.

		Threat Ranking				
		1	**2**	**3**	**4**	**5**
Association value	**1**	a	b	c	d	e
	2	f	g	h	i	j
	3	k	l	m	n	o
	4	p	q	r	s	t
	5	u	v	w	x	y

For the Goulburn Broken Regional River Health Strategy, we have decided not to combine the threat ranking and the association value into a single likelihood score. This is because different combinations of threat and association can actually mean different things (in particular, they elicit different management responses). This is explained in more detail later (see Risk Ratings below).

Consequence

"Consequence" is a measure of the impact that a threat can have on a particular asset. This can range from no impact or only a temporary small impact, through to a catastrophic impact (e.g. complete loss of the species or value). A reasonable measure of consequence is the rating of the Value (Table A10.5). That is, the higher the value of an asset, the more "consequence" there is if a threat acts on the value. Hence, if there is an endangered species in a reach (a high rating for significant fauna), then the consequence of a high level of threat, with a high level of likelihood, is much higher than if no endangered species is found there.

Table A10.5 Consequence values adopted for the Regional River Health Strategy.

Component	Rating/Score				
Value rating	1	2	3	4	5
Consequence score	1	2	3	4	5

Risk Ratings

Rather than adopt a simple numerical approach to determining risk levels (assigning a risk rating to the product of likelihood and consequence scores), it was felt that looking at combinations of association, threat level and consequence (value) could be more valuable. This is because different combinations can be seen to suggest or need to different management responses.

Various combinations of association, threat levels and consequence were determined to have various degrees of risk, which could be associated with a specified management response (Table A10.6). These are:

- **Very High**: Where all three measures – association, consequence and actual threat - are rated at the highest level (5), then the risk is deemed to be very high – the high level of threat is almost certain to have an impact on the high value asset. This risk level has the highest priority for a management response, with an urgent need to reduce the level of the threat to protect the asset.
- **High 1**: Where one of the three measures rates high (4) and the other 2 rate very high (5), the risk is deemed to be high, with the threat very likely to have an impact on a high value asset. This rating suggests that threat reduction should be a high priority (but less than for a Very High risk threat).

- **High 2**: Similarly, where two measures rate high (4) and one measure rates very high (5), the risk is still high that the threat will have an impact on a high value asset. Threat reduction for these cases should still be seen as a high priority (but less than for Very High and High 1 risk threats).
- **High 3**: Where all measures rate high (4), the risk is still high. Threat reduction for these cases should still be seen as a high priority (but less than for Very High and other High risk threats).
- **Medium 1**: Where the association is medium (3), the value is high (4 or 5) and the threat is high, there is some elevated chance that the value may be affected. If possible, threat reduction should be considered, but the value should at least be monitored to establish any decline.
- **Medium 2**: Similarly, where association is high (4 or 5), value is high (4 or 5), but the threat is medium (3), there is some elevated chance that the asset may be affected. While it may not be necessary to immediately reduce the level of threat, the value should at least be monitored to establish any decline, and the threat should not be allowed to increase in severity.
- **Low 1**: where association is high (4 or 5), value is high (4 or 5), but the threat is low (1-2), then the immediate risk to the asset is relatively low, but any increase in the threat level is potentially serious (so the management response is to prevent an increase in the level of threat).
- **Low 2**: where the association is high (4 or 5), the value is low (1 or 2) and the threat is high (4 or 5), this may indicate a possible causal link between threat and value. These categories should be examined on a case-by-case basis to confirm any causal link. Reducing the threat level could therefore be appropriate to increase the value.

Table A10.6 Combinations of association, threat and consequence associated with levels of risk and management responses.

Description	Association	Threat	Consequence	Risk Rating	Response
All 5	5	5	5	Very High	Urgent need to reduce threat level. Top priority for threat reduction.
One 4, two 5 (any order)	5	4	5	High 1	2nd priority for threat reduction
	5	5	4		
	4	5	5		
Two 4s, one 5 (any order)	5	4	4	High 2	3rd priority for threat reduction
	4	4	5		
	4	5	4		
All 4	4	4	4	High 3	4th priority for threat reduction
Medium Association, High Threat, High Value	3	4 or 5	4 or 5	Medium 1	Monitor asset level for decline; Opportunistic threat reduction.
High Association, Medium Threat, High Value	4 or 5	3	4 or 5	Medium 2	Monitor asset level for decline; Do not allow an increase in threat level.
High Association, High Value, Low Threat	4 or 5	1 or 2	4 or 5	Low 1	Do not allow an increase in threat levels
High Association, Low Value, High Threat	4 or 5	4 or 5	1 or 2	Low 2	Assess whether threat is the cause of low value and act accordingly.

It is here that we see the justification for maintaining the values of association, threat and consequence separate. While any simplified scheme (where likelihood values are calculated from combining association and threat) should be able to identify the Very High and High risk categories, it is unlikely that such a scheme could distinguish between the three levels within the High category[2], the difference between the two medium categories (involving a subtle but important difference in management response) or the two low categories. Such a scheme could potentially be developed, but assessing the risk levels in the manner here would seem a more transparent method of assigning risk.

[2] In practice, all three categories will be called "High" and treated with equal importance in the production of the Strategy. Only where limited resources are available would the differences potentially become important.

Appendix 11 Risk tables for High Priority Waterways in the Goulburn Broken Catchment

The following tables present the risk-based analysis results for all High Priority Waterway reaches in the Goulburn Broken Catchment. For each reach, the values included in determining the reach risk rating are highlighted (green).

Management Unit L1 – Lower Goulburn River and floodplain

	Goulburn River Reach 1		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	1	4	3	5	5	5	0	5	0	1	1	1	3
Environmental	Aquatic invertebrates	2	-	-	Low 2	-	Low 2	-	-	-	Low 2	-	-	-	-	-
	Significant EVC	5	-	-	-	-	High 1	Very High	Very High	-	-	-	-	-	Low 1	Medium 2
	Significant Fauna	5	Low 1	Low 1	High 1	Medium 2	Very High	Very High	Very High	-	High 1	-	Low 1	-	Low 1	Medium 2
	Fish Migration	4	-	-	High 3	Medium 2	-	High 2	High 2	-	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	Medium 2	High 2	High 1	High 2	-	Medium 1	-	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	Low 2	-	-	Low 2	Low 2	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Low 1	Low 1	High 1	Medium 2	Very High	Very High	Very High	-	Very High	-	Low 1	Low 1	Low 1	Medium 2
	Riparian Continuity	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	Low 2	Low 2	-	Low 2	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	2	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Very High	-	High 1	-	-	-	Low 1	Medium 2
	Significant Wetlands	4	-	-	-	-	Medium 1	High 1	High 1	-	High 2	-	-	-	Low 1	Medium 2
	Riparian Width	5	Low 1	-	Medium 1	-	Very High	Medium 1	-	-	-	-	-	-	Low 1	Medium 2
Social	Camping	5	-	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	High 2	Medium 2	High 1	High 1	Medium 1	-	High 1	-	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	High 1	Medium 2	Very High	Very High	High 1	-	Very High	-	Low 1	Low 1	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	High 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Goulburn River Reach 2		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			3	1	4	4	5	5	2	5	5	5	1	1	2	3
Environmental	Aquatic invertebrates	2	-	-	Low 2	Low 2	Low 2	-	-	Low 2	Low 2	Low 2	-	-	-	-
	Significant EVC	5	-	-	-	-	High 1	Very High	Low 1	High 1	-	High 1	-	-	Low 1	Medium 2
	Significant Fauna	5	Medium 2	Low 1	High 1	High 1	High 1	Very High	Low 1	High 1	High 1	High 1	Low 1	-	Low 1	Medium 2
	Fish Migration	4	-	-	High 3	High 3	-	High 2	Low 1	High 2	-	Medium 1	Low 1	-	-	-
	Native fish community	4	Medium 2	Low 1	High 2	High 2	High 2	High 1	Low 1	High 2	Medium 1	High 2	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	Low 2	Low 2	-	Low 2	-	Low 2	-	Low 2	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Medium 2	Low 1	High 1	High 1	Very High	Very High	Low 1	Very High	Very High	High 1	Low 1	Low 1	Low 1	Medium 2
	Riparian Continuity	5	Medium 2	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	Low 2	Low 2	Low 2	Low 2	-	Low 2	Low 2	Low 2	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	2	Medium 2	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	High 1	High 1	High 1	-	-	Low 1	Medium 2
	Significant Wetlands	4	-	-	-	-	Medium 1	High 1	Low 1	High 2	High 2	High 2	-	-	Low 1	Medium 2
	Riparian Width	4	Medium 2	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	-	Low 1	Medium 2
Social	Camping	5	-	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Medium 2	Low 1	High 2	High 1	High 1	High 1	-	High 1	High 1	Medium 1	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Medium 2	Low 1	High 1	High 1	Very High	Very High	Low 1	Very High	Very High	High 1	Low 1	-	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Medium 2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Medium 2	-	-	-	High 1	-	-	Very High	High 1	High 1	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 3			4	2	4	3	5	5	2	0	1	0	1	1	3	3
Environmental	Aquatic invertebrates	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	-	-	-	-	High 1	Very High	Low 1	-	-	-	-	-	Medium 2	Medium 2
	Significant Fauna	5	High 2	Low 1	High 1	Medium 2	High 1	Very High	Low 1	-	Low 1	-	Low 1	-	Medium 2	Medium 2
	Fish Migration	4	-	-	High 3	Medium 2	-	High 2	Low 1	-	-	-	Low 1	-	-	-
	Native fish community	4	High 3	Low 1	High 2	Medium 2	High 2	High 1	Low 1	-	-	-	Low 1	-	-	Medium 2
	Proportion exotic fish	2	Low 2	-	Low 2	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	High 1	Low 1	High 1	Medium 2	Very High	Very High	Low 1	-	Low 1	-	Low 1	Low 1	Medium 2	Medium 2
	Riparian Continuity	5	High 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Medium 2	Medium 2
	Ecologically Healthy River	1	Low 2	-	Low 2	-	Low 2	Low 2	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	High 2	-	-	-	Very High	High 1	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	Low 1	-	-	-	Medium 2	Medium 2
	Significant Wetlands	4	-	-	-	-	Medium 1	High 1	Low 1	-	Low 1	-	-	-	Medium 2	Medium 2
	Riparian Width	5	High 1	-	Medium 1	-	Very High	Medium 1	-	-	-	-	-	-	Medium 2	Medium 2
Social	Camping	5	Medium 1	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	High 2	Low 1	High 2	Medium 2	High 1	High 1	-	-	Low 1	-	Low 1	Low 1	Medium 2	Medium 2
	Flagship Species	5	High 1	Low 1	High 1	Medium 2	Very High	Very High	Low 1	-	Low 1	-	Low 1	Low 1	Medium 2	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	High 3	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	High 2	-	-	-	High 1	-	-	-	Low 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 4			3	2	4	3	1	5	2	0	5	0	1	1	2	3
Environmental	Aquatic invertebrates	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	-	-	-	-	Low 1	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Fauna	5	Medium 2	Low 1	High 1	Medium 2	Low 1	Very High	Low 1	-	High 1	-	Low 1	-	Low 1	Medium 2
	Fish Migration	4	-	-	High 3	Medium 2	-	High 2	Low 1	-	-	-	Low 1	-	-	-
	Native fish community	4	Medium 2	Low 1	High 2	Medium 2	Low 1	High 1	Low 1	-	Medium 1	-	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	Low 2	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	5	-	-	Medium 1	-	Low 1	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Heritage/Representative River	5	Medium 2	Low 1	High 1	Medium 2	Low 1	Very High	Low 1	-	Very High	-	Low 1	Low 1	Low 1	Medium 2
	Riparian Continuity	5	Medium 2	-	-	-	Low 1	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	Low 2	-	-	Low 2	-	-	Low 2	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Medium 2	-	-	-	Low 1	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	-	Very High	Low 1	-	High 1	-	-	-	Low 1	Medium 2
	Significant Wetlands	4	-	-	-	-	-	High 1	Low 1	-	High 2	-	-	-	Low 1	Medium 2
	Riparian Width	4	Medium 2	-	Medium 1	-	Low 1	Medium 1	-	-	-	-	-	-	Low 1	Medium 2
Social	Camping	5	-	-	Medium 1	-	Low 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Medium 2	Low 1	High 2	Medium 2	Low 1	High 1	-	-	High 1	-	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Medium 2	Low 1	High 1	Medium 2	Low 1	Very High	Low 1	-	Very High	-	Low 1	-	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Medium 2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Medium 2	-	-	-	Low 1	-	-	-	High 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 5			2	1	4	4	1	5	2	5	0	5	1	1	3	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	-	-	-	-	Low 1	Very High	Low 1	High 1	-	High 1	-	-	Medium 2	Medium 2
	Significant Fauna	5	Low 1	Low 1	High 1	High 1	Low 1	Very High	Low 1	Very High	-	High 1	Low 1	-	Medium 2	Medium 2
	Fish Migration	4	-	-	High 3	High 3	-	High 2	Low 1	High 2	-	Medium 1	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	High 2	Low 1	High 1	Low 1	High 2	-	High 2	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	Low 2	Low 2	-	Low 2	-	Low 2	-	Low 2	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Low 1	Low 1	High 1	High 1	Low 1	Very High	Low 1	Very High	-	High 1	Low 1	Low 1	Medium 2	Medium 2
	Riparian Continuity	5	Low 1	-	-	-	Low 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Ecologically Healthy River	1	-	-	Low 2	Low 2	-	Low 2	-	Low 2	-	Low 2	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	Low 1	High 1	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	4	-	-	-	-	-	High 1	Low 1	High 2	-	High 2	-	-	Medium 2	Medium 2
	Riparian Width	5	Low 1	-	Medium 1	-	Low 1	Medium 1	-	-	-	-	-	-	Medium 2	Medium 2
Social	Camping	5	-	-	Medium 1	-	Low 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	High 2	High 1	Low 1	High 1	-	High 1	-	Medium 1	Low 1	Low 1	Medium 2	Medium 2
	Flagship Species	5	Low 1	Low 1	High 1	High 1	Low 1	Very High	Low 1	High 1	-	High 1	Low 1	-	Medium 2	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	4	-	-	Medium 1	-	-	High 2	-	-	-	-	-	Low 1	-	-
	Passive Recreation	5	Low 1	-	Medium 1	-	Low 1	Medium 1	-	-	-	-	-	Low 1	-	-
	Swimming	5	-	-	Medium 1	-	Low 1	High 1	-	Very High	-	Medium 1	Low 1	Low 1	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	Medium 1	-	Medium 1	-	Medium 1	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	Very High	-	High 1	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 6			2	1	4	3	5	5	2	0	0	0	1	1	2	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	Medium 1	-	Very High	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Fauna	5	Low 1	Low 1	High 1	Medium 2	Very High	Very High	Low 1	-	-	-	Low 1	-	Low 1	Medium 2
	Fish Migration	4	-	-	High 3	Medium 2	-	High 2	Low 1	-	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	Medium 2	High 2	High 1	Low 1	-	-	-	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	Low 2	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Low 1	Low 1	High 1	Medium 2	Very High	Very High	Low 1	-	-	-	Low 1	Low 1	Low 1	Medium 2
	Riparian Continuity	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	Low 2	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Wetlands	4	-	-	-	-	Medium 1	High 1	Low 1	-	-	-	-	-	Low 1	Medium 2
	Riparian Width	5	Low 1	-	Medium 1	-	Very High	Medium 1	-	-	-	-	-	-	Low 1	Medium 2
Social	Camping	5	-	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	High 2	Medium 2	High 1	High 1	-	-	-	-	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	High 1	Medium 2	Very High	Very High	Low 1	-	-	-	Low 1	-	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	4	-	-	Medium 1	-	Medium 1	High 2	-	-	-	-	-	Low 1	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	5	-	-	Medium 1	-	High 1	High 1	-	-	-	-	Low 1	Low 1	-	-
Economic	Infrastructure	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	Medium 1	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	5	-	-	-	-	-	Medium 1	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 7			2	2	4	2	5	5	2	0	5	0	1	1	2	3
Environmental	Aquatic invertebrates	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	-	-	-	-	High 1	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Fauna	5	Low 1	Low 1	High 1	Low 1	Very High	Very High	Low 1	-	High 1	-	Low 1	-	Low 1	Medium 2
	Fish Migration	4	-	-	High 3	Low 1	-	High 2	Low 1	-	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	Low 1	High 2	High 1	Low 1	-	Medium 1	-	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	Low 2	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	4	-	-	Medium 1	-	High 2	High 1	Low 1	-	-	-	-	-	Low 1	Medium 2
	Heritage/Representative River	5	Low 1	Low 1	High 1	Low 1	Very High	Very High	Low 1	-	Very High	-	Low 1	Low 1	Low 1	Medium 2
	Riparian Continuity	4	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	Low 2	-	-	Low 2	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	High 1	-	-	-	Low 1	Medium 2
	Significant Wetlands	4	-	-	-	-	Medium 1	High 1	Low 1	-	High 2	-	-	-	Low 1	Medium 2
	Riparian Width	5	Low 1	-	Medium 1	-	Very High	Medium 1	-	-	-	-	-	-	Low 1	Medium 2
Social	Camping	5	-	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	High 2	Low 1	High 1	High 1	-	-	High 1	-	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	High 1	Low 1	Very High	Very High	Low 1	-	Very High	-	Low 1	-	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	Medium 1	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	High 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 8			2	1	4	2	5	5	2	2	5	5	1	1	2	3
Environmental	Aquatic invertebrates	2	-	-	Low 2	-	Low 2	-	-	-	Low 2	Low 2	-	-	-	-
	Significant EVC	5	Low 1	-	Medium 1	-	Very High	Very High	Low 1	Low 1	-	High 1	-	-	Low 1	Medium 2
	Significant Fauna	5	Low 1	Low 1	High 1	Low 1	Very High	Very High	Low 1	Low 1	High 1	High 1	Low 1	-	Low 1	Medium 2
	Fish Migration	4	-	-	High 3	Low 1	-	High 2	Low 1	Low 1	-	Medium 1	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	Low 1	High 2	High 1	Low 1	Low 1	Medium 1	High 2	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	Low 2	-	-	Low 2	-	-	-	Low 2	-	-	-	-
	Significant Flora	4	-	-	Medium 1	-	High 2	High 1	Low 1	Low 1	-	High 2	-	-	Low 1	Medium 2
	Heritage/Representative River	5	Low 1	Low 1	High 1	Low 1	Very High	Very High	Low 1	Low 1	Very High	High 1	Low 1	-	Low 1	Medium 2
	Riparian Continuity	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	Low 2	-	-	Low 2	Low 2	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	Low 1	High 1	High 1	-	-	Low 1	Medium 2
	Significant Wetlands	4	-	-	-	-	Medium 1	High 1	Low 1	Low 1	High 2	High 2	-	-	Low 1	Medium 2
	Riparian Width	4	Low 1	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	-	Low 1	Medium 2
Social	Camping	5	-	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	High 2	Low 1	High 1	High 1	-	Low 1	High 1	Medium 1	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	High 1	Low 1	Very High	Very High	Low 1	Low 1	Very High	High 1	Low 1	-	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	5	Low 1	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	Swimming	5	-	-	Medium 1	-	High 1	High 1	-	Low 1	Very High	Medium 1	Low 1	Low 1	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	Medium 1	-	-	-	-	-	-	Medium 1	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Low 1	High 1	High 1	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit L2 – Lower Broken Creek

	Broken Creek Reach 21		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	1	2	2	5	5	3	5	0	5	1	5	2	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Very High	Medium 2	High 1	-	High 1	-	-	Low 1	Medium 2
	Significant Fauna	5	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Very High**	**Very High**	**Medium 2**	**Very High**	**-**	**High 1**	**Low 1**	**-**	**Low 1**	**Medium 2**
	Fish Migration	4	-	-	Low 1	Low 1	-	High 2	Medium 2	High 2	-	Medium 1	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	Low 1	Low 1	High 2	High 1	Medium 2	High 2	-	High 2	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	Low 2	-	Low 2	-	-	-	-
	Significant Flora	5	-	-	-	-	High 1	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	Low 2	-	Low 2	-	Low 2	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Medium 2	High 1	-	High 1	-	-	Low 1	Medium 2
	Significant Wetlands	5	**-**	**-**	**-**	**-**	**Medium 1**	**Very High**	**Medium 2**	**High 1**	**-**	**High 1**	**-**	**-**	**Low 1**	**Medium 2**
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	5	-	-	-	-	High 1	Medium 1	-	-	-	-	-	Very High	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Low 1	Low 1	High 1	High 1	-	High 1	-	Medium 1	Low 1	High 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	High 1	Very High	Medium 2	Very High	-	High 1	Low 1	High 1	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	High 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	2	-	-	-	-	Low 2	-	-	-	-	-	-	Low 2	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	-	-	-	-	-	Medium 1	-	Medium 1	-	Medium 1	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Very High	-	High 1	-	Very High	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Broken Creek Reach 22		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	1	2	3	5	5	2	0	0	0	1	1	2	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Significant Fauna	5	**Low 1**	**Low 1**	**Low 1**	**Medium 2**	**High 1**	**Very High**	**Low 1**	**-**	**-**	**-**	**Low 1**	**-**	**Low 1**	**Medium 2**
	Fish Migration	4	-	-	Low 1	Medium 2	-	High 2	Low 1	-	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	Low 1	Medium 2	High 2	High 1	Low 1	-	-	-	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	4	-	-	-	-	Low 2	Low 2	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	2	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Wetlands	4	**-**	**-**	**-**	**-**	**Medium 1**	**High 1**	**Low 1**	**-**	**-**	**-**	**-**	**-**	**Low 1**	**Medium 2**
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Low 1	Medium 2	High 1	High 1	-	-	-	-	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	Low 1	Medium 2	Very High	Very High	Low 1	-	-	-	Low 1	Low 1	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Broken Creek Reach 23			3	2	2	2	5	5	2	0	1	0	1	5	3	3
Environmental	Aquatic invertebrates	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Medium 2	-	-	-	Very High	Very High	Low 1	-	-	-	-	-	Medium 2	Medium 2
	Significant Fauna	**5**	**Medium 2**	**Low 1**	**Low 1**	**Low 1**	**Very High**	**Very High**	**Low 1**	**-**	**Low 1**	**-**	**Low 1**	**-**	**Medium 2**	**Medium 2**
	Fish Migration	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	5	Medium 2	-	-	-	Very High	High 1	-	-	-	-	-	-	Medium 2	Medium 2
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	-	-	-	Low 2	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Medium 2	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	Low 1	-	-	-	Medium 2	Medium 2
	Significant Wetlands	**4**	**-**	**-**	**-**	**-**	**Medium 1**	**High 1**	**Low 1**	**-**	**Low 1**	**-**	**-**	**-**	**Medium 2**	**Medium 2**
	Riparian Width	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
Social	Camping	2	-	-	-	-	Low 2	-	-	-	-	-	-	Low 2	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Medium 2	Low 1	Low 1	Low 1	High 1	High 1	-	-	Low 1	-	Low 1	High 1	Medium 2	Medium 2
	Flagship Species	5	Medium 2	Low 1	Low 1	Low 1	Very High	Very High	Low 1	-	Low 1	-	Low 1	High 1	Medium 2	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	5	-	-	-	-	Medium 1	High 1	-	-	-	-	-	High 1	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Medium 2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Medium 2	-	-	-	-	-	-	-	-	-	-	Medium 1	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Medium 2	-	-	-	High 1	-	-	-	Low 1	-	-	Very High	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Broken Creek Reach 24			1	1	2	3	5	5	2	0	0	0	1	1	2	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Fauna	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fish Migration	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	Medium 2
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	4	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Wetlands	**4**	**-**	**-**	**-**	**-**	**Medium 1**	**High 1**	**Low 1**	**-**	**-**	**-**	**-**	**-**	**Low 1**	**Medium 2**
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	4	-	-	-	-	High 2	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Low 1	Low 1	Medium 2	High 2	High 2	-	-	-	-	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	Low 1	Medium 2	High 1	Very High	Low 1	-	-	-	Low 1	-	-	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	5	Low 1	-	-	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	Medium 1	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit L4 – Western Catchment

	Gobarup Creek Reach 33		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	1	2	3	5	1	2	0	0	0	1	1	2	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Low 1	Low 1	-	-	-	-	-	Low 1	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Medium 2	Very High	Low 1	Low 1	-	-	-	-	-	Low 1	-
	Fish Migration	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Native fish community	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	Low 1	-	-	-	-	-	-	Low 1	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Low 1	Low 1	-	-	-	-	-	Low 1	-
	Significant Wetlands	4	-	-	-	-	**Medium 1**	**Low 1**	**Low 1**	-	-	-	-	-	**Low 1**	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Flagship Species	5	Low 1	Low 1	Low 1	Medium 2	Very High	Low 1	Low 1	-	-	-	Low 1	-	Low 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	4	Low 1	-	-	-	High 2	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit L5 – Lower Broken River

	Broken River Reach 1		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	3	3	3	5	5	2	5	0	0	1	1	3	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Very High	Low 1	High 1	-	-	-	-	Medium 2	Medium 2
	Significant Fauna	5	**Low 1**	**Medium 2**	**Medium 2**	**Medium 2**	**High 1**	**Very High**	**Low 1**	**High 1**	-	-	**Low 1**	-	**Medium 2**	**Medium 2**
	Fish Migration	4	-	-	Medium 2	Medium 2	-	High 2	Low 1	High 2	-	-	Low 1	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	Low 2	-	-	-	-	-	-
	Significant Flora	4	-	-	-	-	High 2	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Medium 2	Medium 2
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	Low 2	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	High 1	-	-	-	-	Medium 2	Medium 2
	Significant Wetlands	4	-	-	-	-	**Medium 1**	**High 1**	**Low 1**	**High 2**	-	-	-	-	**Medium 2**	**Medium 2**
	Riparian Width	4	Low 1	-	-	-	High 1	Medium 1	-	-	-	-	-	-	Medium 2	Medium 2
Social	Camping	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Medium 2	Medium 2	Medium 2	High 2	High 2	-	High 2	-	-	Low 1	Low 1	Medium 2	Medium 2
	Flagship Species	5	Low 1	Medium 2	Medium 2	Medium 2	High 1	Very High	Low 1	Very High	-	-	Low 1	Low 1	Medium 2	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	-	-	-	-	-	Medium 1	-	-	-	-	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Very High	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Broken River Reach 2		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	3	3	2	5	5	2	0	5	0	1	1	3	3
Environmental	Aquatic invertebrates	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Very High	Low 1	-	-	-	-	-	Medium 2	Medium 2
	Significant Fauna	**5**	**Low 1**	**Medium 2**	**Medium 2**	**Low 1**	**High 1**	**Very High**	**Low 1**	**-**	**High 1**	**-**	**Low 1**	**-**	**Medium 2**	**Medium 2**
	Fish Migration	4	-	-	Medium 2	Low 1	-	High 2	Low 1	-	-	-	Low 1	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	4	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	Low 2	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	High 1	-	-	-	Medium 2	Medium 2
	Significant Wetlands	**4**	**-**	**-**	**-**	**-**	**Medium 1**	**High 1**	**Low 1**	**-**	**High 2**	**-**	**-**	**-**	**Medium 2**	**Medium 2**
	Riparian Width	4	Low 1	-	-	-	High 1	Medium 1	-	-	-	-	-	-	Medium 2	Medium 2
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Medium 2	Medium 2	Low 1	High 1	High 1	-	-	High 1	-	Low 1	Low 1	Medium 2	Medium 2
	Flagship Species	4	Low 1	Medium 2	Medium 2	Low 1	High 2	High 1	Low 1	-	High 1	-	Low 1	Low 1	Medium 2	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	High 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit M1 – Mid Broken River

	Broken River Reach 3		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	2	4	2	5	5	2	5	5	5	4	5	3	0
Environmental	Aquatic invertebrates	4	Low 1	Low 1	High 2	Low 1	High 1	Medium 1	-	Very High	Very High	High 1	High 1	High 1	Medium 2	-
	Significant EVC	5	Low 1	-	Medium 1	-	Very High	High 1	-	-	-	-	-	-	Medium 2	-
	Significant Fauna	**5**	**Low 1**	**Low 1**	**High 1**	**Low 1**	**Very High**	**Very High**	**Low 1**	**High 1**	**High 1**	**High 1**	**High 1**	**-**	**Medium 2**	**-**
	Fish Migration	4	-	-	High 3	Low 1	-	High 2	Low 1	High 2	-	Medium 1	High 3	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	Low 2	-	Low 2	Low 2	Low 2	Low 2	Low 2	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	4	Low 1	-	Medium 1	-	High 1	Medium 1	-	-	-	-	-	-	Medium 2	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	5	Low 1	Low 1	Medium 1	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	High 2	Low 1	High 1	High 1	-	High 1	High 1	Medium 1	High 2	High 1	Medium 2	-
	Flagship Species	5	Low 1	Low 1	High 1	Low 1	High 1	Very High	Low 1	Very High	Very High	High 1	High 1	-	Medium 2	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	2	-	-	-	-	Low 2	-	-	-	-	-	-	Low 2	-	-
	Swimming	5	-	-	Medium 1	-	High 1	High 1	-	Very High	Very High	Medium 1	High 1	Very High	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	Medium 1	-	-	-	-	Medium 1	-	Medium 1	-	Medium 1	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Very High	High 1	High 1	-	Very High	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Broken River Reach 4			2	1	4	2	5	5	2	5	0	5	4	1	3	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	Medium 1	-	Very High	High 1	-	-	-	-	-	-	Medium 2	-
	Significant Fauna	**5**	**Low 1**	**Low 1**	**High 1**	**Low 1**	**Very High**	**Very High**	**Low 1**	**Very High**	**-**	**High 1**	**High 1**	**-**	**Medium 2**	**-**
	Fish Migration	4	-	-	High 3	Low 1	-	High 2	Low 1	High 2	-	Medium 1	High 3	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	Low 1	High 2	High 1	Low 1	High 2	-	High 2	High 2	-	-	-
	Proportion exotic fish	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	4	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	-
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	Low 2	-	Low 2	-	Low 2	Low 2	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	High 2	Low 1	High 1	High 1	-	High 1	-	Medium 1	High 2	Low 1	Medium 2	-
	Flagship Species	5	Low 1	Low 1	High 1	Low 1	High 1	Very High	Low 1	High 1	-	High 1	High 1	-	Medium 2	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	Medium 1	-	-	-	-	Medium 1	-	Medium 1	-	-	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Very High	-	High 1	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit M2 – Upper Broken River Catchment

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Broken River Reach 5			2	1	4	3	5	1	1	0	5	0	1	5	4	0
Environmental	Aquatic invertebrates	5	Low 1	Low 1	High 2	Medium 2	High 1	-	-	-	Very High	-	Low 1	High 1	High 2	-
	Significant EVC	5	Low 1	-	Medium 1	-	Very High	Low 1	-	-	-	-	-	-	High 1	-
	Significant Fauna	**5**	**Low 1**	**Low 1**	**High 1**	**Medium 2**	**Very High**	**Low 1**	**Low 1**	**-**	**Very High**	**-**	**Low 1**	**-**	**High 1**	**-**
	Fish Migration	1	-	-	Low 2	-	-	-	-	-	-	-	-	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	Medium 2	High 2	Low 1	Low 1	-	Medium 1	-	Low 1	-	Medium 1	-
	Proportion exotic fish	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	5	-	-	Medium 1	-	High 1	Low 1	Low 1	-	-	-	-	-	High 1	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	-	-	-	Low 2	-	-	Low 2	Low 2	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Low 1	Low 1	-	High 1	-	-	-	High 2	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
Social	Camping	2	-	-	-	-	Low 2	-	-	-	-	-	-	Low 2	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Low 1	High 3	Medium 2	High 2	Low 1	-	-	High 2	-	Low 1	High 2	High 3	-
	Flagship Species	4	Low 1	Low 1	High 2	Medium 2	High 2	Low 1	Low 1	-	High 1	-	Low 1	-	High 3	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	Low 2	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	Low 2	-	-
	Passive Recreation	2	-	-	-	-	Low 2	-	-	-	-	-	-	Low 2	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	High 1	-	-	Very High	-	-
	Water Supp collection	5	-	-	-	-	High 1	Low 1	-	-	High 1	-	-	Very High	-	-

Management Unit M3 – Ryans and Hollands Creeks

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Holland Creek Reach 13			2	2	4	2	5	3	2	5	0	5	1	1	3	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	Medium 1	-	Very High	Medium 2	-	-	-	-	-	-	Medium 2	-
	Significant Fauna	**5**	**Low 1**	**Low 1**	**High 1**	**Low 1**	**Very High**	**Medium 2**	**Low 1**	**Very High**	**-**	**Very High**	**Low 1**	**-**	**Medium 2**	**-**
	Fish Migration	4	-	-	High 3	Low 1	-	Medium 2	-	High 2	-	Medium 1	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	High 2	Low 1	High 2	Medium 2	Low 1	High 2	-	High 2	Low 1	-	-	-
	Proportion exotic fish	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	Low 2	-	Low 2	-	-	Low 2	-	Low 2	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	Very High	Medium 2	-	-	-	-	-	-	Medium 2	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Low 1	High 3	Low 1	High 2	Medium 2	-	High 2	-	Medium 1	Low 1	Low 1	Medium 2	-
	Flagship Species	5	Low 1	Low 1	High 1	Low 1	High 1	Medium 2	Low 1	Very High	-	High 1	Low 1	Low 1	Medium 2	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	5	Low 1	-	Medium 1	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Very High	-	High 1	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Ryans Creek Reach 17			1	1	1	1	1	1	1	0	0	0	1	1	2	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	Low 1	-
	Fish Migration	4	-	-	Low 1	Low 1	-	Low 1	-	-	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	-	-
	Proportion exotic fish	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	**4**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**-**	**-**	**-**	**Low 1**	**Low 1**	**Low 1**	**-**
	Riparian Continuity	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	**5**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**-**	**-**	**-**	**Low 1**	**Low 1**	**Low 1**	**-**
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	-	Low 1	Low 1	-	-	-	-	-	Low 1	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	-	Low 1	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	-	Low 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	Low 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	5	-	-	-	-	Low 1	Low 1	-	-	-	-	-	Low 1	-	-

Management Unit M6 – Upper Broken and Boosey Creeks

	Broken Creek Reach 25		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	**1**	**2**	**3**	**5**	**5**	**2**	**5**	**5**	**5**	**1**	**1**	**3**	**3**
Environmental	**Aquatic invertebrates**	**5**	Low 1	Low 1	Low 1	Medium 2	High 1	Medium 1	-	Very High	Very High	High 1	Low 1	Low 1	Medium 2	-
	Significant EVC	**5**	Low 1	-	-	-	Very High	Very High	Low 1	High 1	-	High 1	-	-	Medium 2	Medium 2
	Significant Fauna	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fish Migration	**1**	-	-	-	-	-	Low 2	-	Low 2	-	-	-	-	-	-
	Native fish community	**2**	-	-	-	-	Low 2	Low 2	-	Low 2	-	Low 2	-	-	-	-
	Proportion exotic fish	**1**	-	-	-	-	-	Low 2	-	Low 2	-	Low 2	-	-	-	-
	Significant Flora	**5**	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Medium 2	Medium 2
	Heritage/Representative River	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	**3**	-	-	-	-	Low 2	Low 2	-	-	-	-	-	-	-	-
	Ecologically Healthy River	**1**	-	-	-	-	Low 2	Low 2	-	Low 2	Low 2	Low 2	-	-	-	-
	Sites of Significance	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	**3**	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	**5**	-	-	-	-	Medium 1	Very High	Low 1	High 1	High 1	High 1	-	-	Medium 2	Medium 2
	Significant Wetlands	**4**	**-**	**-**	**-**	**-**	**Medium 1**	**High 1**	**Low 1**	**High 2**	**High 2**	**High 2**	**-**	**-**	**Medium 2**	**Medium 2**
	Riparian Width	**2**	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
Social	**Camping**	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	**4**	Low 1	Low 1	Low 1	Medium 2	High 2	High 2	-	High 2	High 2	Medium 1	Low 1	Low 1	Medium 2	Medium 2
	Flagship Species	**5**	Low 1	Low 1	Low 1	Medium 2	Very High	Very High	Low 1	High 1	Very High	High 1	Low 1	-	Medium 2	Medium 2
	Listed Landscape	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	**1**	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Non Motor based Sports	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	**Infrastructure**	**4**	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	**5**	Low 1	-	-	-	High 1	-	-	Very High	High 1	High 1	-	Low 1	-	-
	Water Supp collection	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Broken Creek Reach 26		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			3	**2**	**2**	**3**	**5**	**5**	**2**	**0**	**5**	**0**	**1**	**1**	**3**	**3**
Environmental	**Aquatic invertebrates**	**5**	Medium 2	Low 1	Low 1	Medium 2	High 1	Medium 1	-	-	Very High	-	Low 1	Low 1	Medium 2	-
	Significant EVC	**5**	Medium 2	-	-	-	Very High	High 1	-	-	-	-	-	-	Medium 2	Medium 2
	Significant Fauna	**5**	-	-	-	-	High 1	Very High	Low 1	-	-	-	-	-	Medium 2	Medium 2
	Fish Migration	**1**	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Native fish community	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	**2**	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Significant Flora	**4**	Medium 2	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Heritage/Representative River	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	**3**	-	-	-	-	Low 2	Low 2	-	-	-	-	-	-	-	-
	Ecologically Healthy River	**1**	-	-	-	-	Low 2	Low 2	-	-	Low 2	-	-	-	-	-
	Sites of Significance	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	**3**	Medium 2	-	-	-	High 1	High 2	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	**5**	-	-	-	-	Medium 1	Very High	Low 1	-	High 1	-	-	-	Medium 2	Medium 2
	Significant Wetlands	**4**	**-**	**-**	**-**	**-**	**Medium 1**	**High 1**	**Low 1**	**-**	**High 2**	**-**	**-**	**-**	**Medium 2**	**Medium 2**
	Riparian Width	**2**	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
Social	**Camping**	**2**	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	**4**	Medium 2	Low 1	Low 1	Medium 2	High 2	High 2	-	-	High 2	-	Low 1	Low 1	Medium 2	Medium 2
	Flagship Species	**4**	Medium 2	Low 1	Low 1	Medium 2	High 1	High 1	Low 1	-	High 1	-	Low 1	-	Medium 2	Medium 2
	Listed Landscape	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	**1**	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Non Motor based Sports	**1**	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Passive Recreation	**2**	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Swimming	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	**Infrastructure**	**4**	Medium 2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	**5**	Medium 2	-	-	-	High 1	-	-	-	High 1	-	-	Low 1	-	-
	Water Supp collection	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit M7 – Euroa Strathbogie

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Seven Creeks Reach 19			2	3	2	3	5	1	2	5	5	0	1	1	3	3
Environmental	Aquatic invertebrates	5	Low 1	Medium 2	Low 1	Medium 2	High 1	-	-	Very High	Very High	-	Low 1	Low 1	Medium 2	-
	Significant EVC	5	Low 1	-	-	-	Very High	Low 1	Low 1	High 1	-	-	-	-	Medium 2	Medium 2
	Significant Fauna	**5**	**Low 1**	**Medium 2**	**Low 1**	**Medium 2**	**Very High**	**Low 1**	**Low 1**	**Very High**	**Very High**	**-**	**Low 1**	**-**	**Medium 2**	**Medium 2**
	Fish Migration	5	-	-	Low 1	Medium 2	-	Low 1	-	High 1	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	Medium 2	Low 1	Medium 2	High 2	Low 1	Low 1	High 2	Medium 1	-	Low 1	-	-	Medium 2
	Proportion exotic fish	2	-	-	-	-	-	-	-	Low 2	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	-	-	Low 2	Low 2	-	-	-	-	-
	Sites of Significance	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	High 1	Low 1	-	-	-	-	-	-	Medium 2	Medium 2
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Medium 2	Low 1	Medium 2	High 2	Low 1	-	High 2	High 2	-	Low 1	Low 1	Medium 2	Medium 2
	Flagship Species	5	Low 1	Medium 2	Low 1	Medium 2	High 1	Low 1	Low 1	Very High	High 1	-	Low 1	-	Medium 2	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	5	Low 1	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Swimming	5	-	-	-	-	High 1	Low 1	-	Very High	Very High	-	Low 1	Low 1	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	-	-	Medium 1	Medium 1	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Very High	High 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Seven Creeks Reach 20			2	1	3	2	5	1	2	5	0	5	1	1	2	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Low 1	Low 1	High 1	-	High 1	-	-	Low 1	Medium 2
	Significant Fauna	**5**	**Low 1**	**Low 1**	**Medium 2**	**Low 1**	**Very High**	**Low 1**	**Low 1**	**Very High**	**-**	**High 1**	**Low 1**	**-**	**Low 1**	**Medium 2**
	Fish Migration	1	-	-	-	-	-	-	-	Low 2	-	-	-	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	-	-	Low 2	-	Low 2	-	-	-	-
	Significant Flora	4	-	-	-	-	High 2	Low 1	Low 1	High 2	-	High 2	-	-	Low 1	Medium 2
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	-	-	Low 2	-	Low 2	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	2	Low 1	-	-	-	High 1	Low 1	-	-	-	-	-	-	Low 1	Medium 2
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Low 1	Low 1	High 1	-	High 1	-	-	Low 1	Medium 2
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Medium 2	Low 1	High 1	Low 1	-	High 1	-	Medium 1	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	Medium 2	Low 1	High 1	Low 1	Low 1	High 1	-	High 1	Low 1	-	Low 1	Medium 2
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp collection	5	-	-	-	-	High 1	Low 1	-	High 1	-	High 1	-	Low 1	-	-

Management Unit U1 – Mid Goulburn River

	Goulburn River Reach 9		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			5	5	3	5	5	5	2	0	0	0	5	1	5	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Very High	-	-	-	Very High	Very High	Low 1	-	-	-	-	-	Very High	-
	Significant Fauna	5	Very High	Very High	Medium 2	Very High	Very High	Very High	Low 1	-	-	-	Very High	-	Very High	-
	Fish Migration	4	-	-	Medium 2	High 2	-	High 2	Low 1	-	-	-	High 2	-	-	-
	Native fish community	2	Low 2	Low 2	-	Low 2	Low 2	Low 2	-	-	-	-	Low 2	-	-	-
	Proportion exotic fish	2	Low 2	Low 2	-	Low 2	-	Low 2	-	-	-	-	Low 2	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Very High	High 1	Medium 2	Very High	Very High	Very High	Low 1	-	-	-	Very High	Low 1	Very High	-
	Riparian Continuity	1	Low 2	-	-	-	Low 2	Low 2	-	-	-	-	-	-	Low 2	-
	Ecologically Healthy River	1	Low 2	Low 2	-	Low 2	Low 2	Low 2	-	-	-	-	Low 2	-	Low 2	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	-	-	-	-	High 1	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	1	Low 2	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
Social	Camping	5	Medium 1	-	-	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	European Heritage	5	High 1	High 1	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	High 1	High 1	Medium 2	Very High	High 1	High 1	-	-	-	-	High 1	Low 1	High 1	-
	Flagship Species	5	High 1	Very High	Medium 2	Very High	High 1	Medium 1	-	-	-	-	Very High	Low 1	High 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	Medium 1	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	5	Medium 1	Medium 1	-	-	Medium 1	High 1	-	-	-	-	-	Low 1	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	High 1	Medium 1	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	High 1	Medium 1	-	-	-	-	-	-	-	-	-	-	High 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	5	Medium 1	-	-	-	-	Medium 1	-	-	-	-	Medium 1	Low 1	Medium 1	-
	Water Supp delivery	5	High 1	Medium 1	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Goulburn River Reach 10		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			1	1	3	1	5	5	2	0	0	0	5	1	2	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	-
	Significant Fauna	5	Low 1	Low 1	Medium 2	Low 1	Very High	Very High	Low 1	-	-	-	-	-	Low 1	-
	Fish Migration	4	-	-	Medium 2	Low 1	-	High 2	-	-	-	-	High 2	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Low 1	Low 1	Medium 2	Low 1	Very High	Very High	Low 1	-	-	-	Very High	Low 1	Low 1	-
	Riparian Continuity	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	-	-	Low 2	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	-	-	-	-	Low 1	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	4	Low 1	-	-	-	High 1	Medium 1	-	-	-	-	-	-	Low 1	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Medium 2	Low 1	High 1	High 1	-	-	-	-	High 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Medium 2	Low 1	High 1	Very High	Low 1	-	-	-	Very High	Low 1	Low 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	5	Low 1	-	-	-	High 1	Medium 1	-	-	-	-	-	Low 1	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	Medium 1	-	-	-	-	Medium 1	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 11			3	3	3	3	5	5	2	0	0	0	5	1	4	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Medium 2	-	-	-	Very High	High 1	-	-	-	-	-	-	High 1	-
	Significant Fauna	5	Medium 2	Medium 2	Medium 2	Medium 2	Very High	Very High	Low 1	-	-	-	-	-	High 1	-
	Fish Migration	1	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	**Medium 2**	**Medium 2**	**Medium 2**	**Medium 2**	**Very High**	**Very High**	**Low 1**	**-**	**-**	**-**	**Very High**	**Low 1**	**High 1**	**-**
	Riparian Continuity	2	-	-	-	-	Low 2	Low 2	-	-	-	-	-	-	Low 2	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	-	-	Low 2	-	Low 2	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	-	-	-	-	Low 2	Low 2	-	-	-	-	-	-	Low 2	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	-	-	-	-	High 2	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	4	Medium 2	Medium 2	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Medium 2	Medium 2	Medium 2	Medium 2	High 1	High 1	-	-	-	-	High 1	Low 1	High 2	-
	Flagship Species	5	Medium 2	Medium 2	Medium 2	Medium 2	Very High	Very High	Low 1	-	-	-	Very High	Low 1	High 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	5	-	-	-	-	-	High 1	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	4	-	-	-	-	Medium 1	High 2	-	-	-	-	-	Low 1	-	-
	Passive Recreation	4	Medium 2	-	-	-	High 2	Medium 1	-	-	-	-	-	Low 1	Medium 1	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Medium 2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Medium 2	-	-	-	-	-	-	-	-	-	-	-	High 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	5	-	-	-	-	-	Medium 1	-	-	-	-	Medium 1	Low 1	Medium 1	-
	Water Supp delivery	5	Medium 2	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 12			1	1	3	2	5	5	2	0	0	0	5	1	2	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	High 1	-	-	-	-	-	-	Low 1	-
	Significant Fauna	5	Low 1	Low 1	Medium 2	Low 1	Very High	Very High	Low 1	-	-	-	-	-	Low 1	-
	Fish Migration	1	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	**Low 1**	**Low 1**	**Medium 2**	**Low 1**	**Very High**	**Very High**	**Low 1**	**-**	**-**	**-**	**Very High**	**Low 1**	**Low 1**	**-**
	Riparian Continuity	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	-	-	Low 2	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	-	-	-	-	-	Low 1	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Medium 2	Low 1	High 1	High 1	-	-	-	-	High 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Medium 2	Low 1	High 1	Very High	Low 1	-	-	-	Very High	Low 1	Low 1	-
	Listed Landscape	5	Low 1	-	Medium 2	-	High 1	Medium 1	-	-	-	-	-	-	Low 1	-
	Motor based Sports	4	-	-	-	-	-	High 2	-	-	-	-	-	Low 1	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 13			1	1	3	1	1	5	2	0	5	0	5	1	3	0
Environmental	Aquatic invertebrates	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Low 1	Very High	Low 1	-	-	-	-	-	Medium 2	-
	Significant Fauna	5	Low 1	Low 1	Medium 2	Low 1	Low 1	Very High	Low 1	-	Very High	-	-	-	Medium 2	-
	Fish Migration	1	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Low 1	Low 1	Medium 2	Low 1	Low 1	Very High	Low 1	-	Very High	-	Very High	Low 1	Medium 2	-
	Riparian Continuity	5	Low 1	-	-	-	Low 1	High 1	-	-	-	-	-	-	Medium 2	-
	Ecologically Healthy River	1	-	-	-	-	-	Low 2	-	-	Low 2	-	Low 2	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	-	Very High	Low 1	-	High 1	-	-	-	Medium 2	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Medium 2	Low 1	Low 1	High 1	-	-	High 1	-	High 1	Low 1	Medium 2	-
	Flagship Species	5	Low 1	Low 1	Medium 2	Low 1	Low 1	High 1	-	-	High 1	-	High 1	-	Medium 2	-
	Listed Landscape	5	Low 1	-	Medium 2	-	Low 1	Medium 1	-	-	High 1	-	-	-	Medium 2	-
	Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	-	High 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Goulburn River Reach 14			2	1	3	2	5	5	2	1	5	5	5	5	4	0
Environmental	Aquatic invertebrates	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Very High	Low 1	Low 1	-	High 1	-	-	High 1	-
	Significant Fauna	5	Low 1	Low 1	Medium 2	Low 1	Very High	Very High	Low 1	Low 1	Very High	High 1	-	-	High 1	-
	Fish Migration	1	-	-	-	-	-	Low 2	-	-	-	-	Low 2	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	Low 2	-	-	-	Low 2	Low 2	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	5	Low 1	Low 1	Medium 2	Low 1	Very High	Very High	Low 1	Low 1	Very High	High 1	Very High	High 1	High 1	-
	Riparian Continuity	4	Low 1	-	-	-	High 1	High 2	-	-	-	-	-	-	High 2	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	Low 2	-	-	Low 2	Low 2	Low 2	Low 2	Low 2	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Very High	Low 1	Low 1	High 1	High 1	-	-	High 2	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Medium 2	Low 1	High 1	High 1	-	Low 1	High 1	Medium 1	High 1	High 1	High 2	-
	Flagship Species	5	Low 1	Low 1	Medium 2	Low 1	High 1	High 1	-	Low 1	High 1	Medium 1	High 1	-	High 2	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	4	-	-	-	-	Medium 1	High 2	-	-	-	-	-	High 2	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	5	Low 1	-	-	-	-	-	-	-	-	Medium 1	-	Medium 1	High 2	-
	Power Generation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	5	-	-	-	-	-	Medium 1	-	-	Medium 1	Medium 1	Medium 1	High 1	Medium 1	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	Low 1	High 1	High 1	-	Very High	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit U2 – Majors Creek and Hughes Creek

	Hughes Creek Reach 37		Bank Erosion 2	Bed Instability 2	Channel modification 2	Loss of in-stream habitat 3	Stock Access 5	Flow Deviation 1	Wetland Connectivity 2	Water Quality (level) 0	Water Quality (SIGNAL) 0	Water Quality (trend) 0	Temperature 1	Algal Blooms 1	Introduced Flora 3	Introduced Fauna 0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Low 1	-	-	-	-	-	-	Medium 2	-
	Significant Fauna	**5**	**Low 1**	**Low 1**	**Low 1**	**Medium 2**	**Very High**	**Low 1**	**Low 1**	**-**	**-**	**-**	**Low 1**	**-**	**Medium 2**	**-**
	Fish Migration	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	5	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	4	Low 1	-	-	-	High 1	Low 1	-	-	-	-	-	-	Medium 2	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	5	Low 1	Low 1	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Flagship Species	5	Low 1	Low 1	Low 1	Medium 2	High 1	Low 1	Low 1	-	-	-	Low 1	-	Medium 2	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	4	Low 1	-	-	-	High 2	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit U4 – King Parrot Creek/Yea River

	King Parrot Creek Reach 51		Bank Erosion 3	Bed Instability 2	Channel modification 2	Loss of in-stream habitat 2	Stock Access 5	Flow Deviation 3	Wetland Connectivity 2	Water Quality (level) 0	Water Quality (SIGNAL) 5	Water Quality (trend) 0	Temperature 1	Algal Blooms 1	Introduced Flora 3	Introduced Fauna 0
Environmental	Aquatic invertebrates	5	Medium 2	Low 1	Low 1	Low 1	High 1	-	-	-	Very High	-	Low 1	Low 1	Medium 2	-
	Significant EVC	5	Medium 2	-	-	-	Very High	Medium 2	-	-	-	-	-	-	Medium 2	-
	Significant Fauna	**5**	**Medium 2**	**Low 1**	**Low 1**	**Low 1**	**Very High**	**Medium 2**	**Low 1**	**-**	**Very High**	**-**	**Low 1**	**-**	**Medium 2**	**-**
	Fish Migration	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Native fish community	4	Medium 2	Low 1	Low 1	Low 1	High 2	Medium 2	Low 1	-	Medium 1	-	Low 1	-	-	-
	Proportion exotic fish	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	5	Medium 2	-	-	-	Very High	Medium 2	-	-	-	-	-	-	Medium 2	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	-	-	-	Low 2	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Medium 2	Low 1	-	High 1	-	-	-	Medium 2	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	4	Medium 2	-	-	-	High 1	-	-	-	-	-	-	-	Medium 2	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Medium 2	Low 1	Low 1	Low 1	High 2	Medium 2	-	-	High 2	-	Low 1	Low 1	Medium 2	-
	Flagship Species	5	Medium 2	Low 1	Low 1	Low 1	High 1	Medium 2	Low 1	-	Very High	-	Low 1	-	Medium 2	-
	Listed Landscape	5	Medium 2	-	Low 1	-	High 1	-	-	-	High 2	-	-	-	Medium 2	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	5	Medium 2	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Medium 2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Medium 2	-	-	-	-	-	-	-	-	-	-	-	Medium 2	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	4	Medium 2	-	-	-	High 2	-	-	-	High 2	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	Yea River Reach 55		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			1	1	2	1	5	1	2	0	0	0	1	1	2	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Very High	Low 1	-	-	-	-	-	-	Low 1	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Low 1	Very High	Low 1	Low 1	-	-	-	Low 1	-	Low 1	-
	Fish Migration	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Native fish community	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	5	Low 1	-	-	-	Very High	Low 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	4	Low 1	-	-	-	High 1	Low 1	-	-	-	-	-	-	Low 1	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Low 1	Low 1	Low 1	High 2	Low 1	-	-	-	-	Low 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	High 1	Low 1	Low 1	-	-	-	Low 1	-	Low 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	4	Low 1	-	-	-	High 2	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit U6 – Acheron, Rubicon and Taggerty Rivers

	Acheron River Reach 62		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			1	1	1	5	5	1	2	0	0	0	1	1	1	3
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	Low 1	-	Very High	Low 1	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Fauna	5	Low 1	Low 1	Low 1	Very High	Very High	Low 1	Low 1	-	-	-	-	-	Low 1	Medium 2
	Fish Migration	1	-	-	-	Low 2	-	-	-	-	-	-	-	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	Low 2	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	Low 2	Low 2	-	-	-	-	-	-	-	-	-
	Sites of Significance	5	Low 1	Low 1	Low 1	Very High	High 1	Low 1	Low 1	-	-	-	Low 1	Low 1	Low 1	Medium 2
	Riparian Structure	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Low 1	Low 1	-	-	-	-	-	Low 1	Medium 2
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	-	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Low 1	Very High	High 1	Low 1	-	-	-	-	Low 1	Low 1	Low 1	Medium 2
	Flagship Species	5	Low 1	Low 1	Low 1	Very High	High 1	Low 1	Low 1	-	-	-	Low 1	-	Low 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	Low 1	-
	Power Generation	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	-	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	High 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Taggerty River Reach 64			1	1	2	1	1	2	2	0	1	0	1	1	2	0
Environmental	Aquatic invertebrates	5	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	Low 1	Low 1	Low 1	-
	Significant EVC	4	Low 1	-	-	-	Low 1	Low 1	Low 1	-	-	-	-	-	Low 1	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	Low 1	-	-	-	Low 1	-
	Fish Migration	4	-	-	Low 1	Low 1	-	Low 1	-	-	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	4	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	Low 1	-	Low 1	Low 1	Low 1	-
	Riparian Continuity	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	Low 1	-	Low 1	Low 1	Low 1	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Rarity of Wetlands	5	-	-	-	-	-	Low 1	Low 1	-	Low 1	-	-	-	Low 1	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	-	Low 1	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	4	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	Low 1	-	Low 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	Low 1	-	Low 1	-	Low 1	-
	Listed Landscape	5	Low 1	-	Low 1	-	Low 1	-	-	-	Low 1	-	-	-	Low 1	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	-	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	-	Low 1	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Rubicon River Reach 66			1	1	2	1	0	5	1	0	0	0	1	1	1	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	-	High 1	-	-	-	-	-	-	Low 1	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Low 1	-	Very High	Low 1	-	-	-	-	-	Low 1	-
	Fish Migration	4	-	-	Low 1	Low 1	-	High 2	-	-	-	-	Low 1	-	-	-
	Native fish community	5	Low 1	Low 1	Low 1	Low 1	-	Very High	Low 1	-	-	-	Low 1	-	-	-
	Proportion exotic fish	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	2	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	5	-	-	-	-	-	Very High	Low 1	-	-	-	-	-	Low 1	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Low 1	Low 1	-	High 1	-	-	-	-	Low 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	-	High 1	-	-	-	-	-	-	Low 1	-
	Listed Landscape	5	Low 1	-	Low 1	-	-	Medium 1	-	-	-	-	-	-	Low 1	-
	Motor based Sports	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	1	-	-	-	-	-	Low 2	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	5	-	-	-	-	-	Very High	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	-	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Management Unit U7 – Upper Goulburn Catchment

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Big River Reach 67			1	1	2	1	1	1	2	0	0	0	1	1	2	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Fauna	**5**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**-**	**-**	**-**	**Low 1**	**Low 1**	**Low 1**	**-**
	Fish Migration	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Native fish community	4	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	-	-
	Proportion exotic fish	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	**5**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**-**	**-**	**-**	**Low 1**	**Low 1**	**Low 1**	**-**
	Riparian Continuity	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	**5**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**-**	**-**	**-**	**Low 1**	**Low 1**	**Low 1**	**-**
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	4	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	-	Low 1	-
Social	Camping	4	-	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	European Heritage	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	-	Low 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	Low 1	Low 1	-
	Listed Landscape	5	Low 1	-	Low 1	-	Low 1	-	-	-	-	-	-	-	Low 1	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	4	-	-	-	-	-	Low 1	-	-	-	-	-	Low 1	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	-	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	5	-	-	-	-	Low 1	Low 1	-	-	-	-	-	Low 1	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Big River Reach 68			1	1	1	1	1	1	1	2	1	5	1	1	2	0
Environmental	Aquatic invertebrates	5	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	Low 1	Low 1	High 1	Low 1	Low 1	Low 1	-
	Significant EVC	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	High 1	-	-	Low 1	-
	Fish Migration	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Native fish community	4	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	High 2	Low 1	-	-	-
	Proportion exotic fish	1	-	-	-	-	-	-	-	-	-	Low 2	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	**5**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**High 1**	**Low 1**	**Low 1**	**Low 1**	**-**
	Riparian Continuity	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	**5**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**Low 1**	**High 1**	**Low 1**	**Low 1**	**Low 1**	**-**
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	2	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	-	Low 1	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	High 1	Low 1	Low 1	Low 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	Low 1	Low 1	High 1	-	Low 1	-	-
	Water Supp collection	5	-	-	-	-	Low 1	Low 1	-	Low 1	Low 1	High 1	-	Low 1	-	-

	Howqua River Reach 69		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			1	1	2	1	1	1	2	0	0	0	1	1	2	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	Low 1	-
	Fish Migration	4	-	-	Low 1	Low 1	-	Low 1	-	-	-	-	Low 1	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	Low 1	Low 1	-
	Riparian Continuity	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	5	-	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	European Heritage	5	Low 1	Low 1	Low 1	-	Low 1	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	-	Low 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Listed Landscape	5	Low 1	-	Low 1	-	Low 1	-	-	-	-	-	-	-	Low 1	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	4	Low 1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	5	-	-	-	-	-	-	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	5	-	-	-	-	Low 1	Low 1	-	-	-	-	-	Low 1	-	-

	Howqua River Reach 70		Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
			2	1	1	1	1	1	1	0	1	0	1	1	2	0
Environmental	Aquatic invertebrates	5	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	Low 1	Low 1	Low 1	-
	Significant EVC	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Fauna	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	Low 1	-	Low 1	Low 1	Low 1	-
	Fish Migration	4	-	-	Low 1	Low 1	-	Low 1	-	-	-	-	Low 1	-	-	-
	Native fish community	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Proportion exotic fish	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	Low 1	-	Low 1	Low 1	Low 1	-
	Riparian Continuity	5	Low 1	-	-	-	Low 1	Low 1	-	-	-	-	-	-	Low 1	-
	Ecologically Healthy River	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	5	-	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	European Heritage	5	Low 1	Low 1	Low 1	-	Low 1	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	Low 1	-	Low 1	Low 1	Low 1	-
	Flagship Species	5	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	Low 1	-	Low 1	-	-	-	Low 1	-
	Listed Landscape	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	4	-	-	-	-	-	Low 1	-	-	-	-	-	Low 1	-	-
	Passive Recreation	5	Low 1	-	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	5	-	-	-	-	-	-	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	-	-	-	Low 1	-	-	-	Low 1	-	-	Low 1	-	-
	Water Supp collection	5	-	-	-	-	Low 1	Low 1	-	-	Low 1	-	-	Low 1	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Delatite River Reach 71			3	4	2	1	5	1	2	2	3	5	1	1	4	0
Environmental	Aquatic invertebrates	5	Medium 2	High 1	Low 1	Low 1	High 1	-	-	Low 1	Medium 2	High 1	Low 1	Low 1	High 2	-
	Significant EVC	5	Medium 2	-	-	-	Very High	Low 1	-	-	-	-	-	-	High 1	-
	Significant Fauna	5	Medium 2	High 1	Low 1	Low 1	Very High	Low 1	Low 1	Low 1	Medium 2	High 1	Low 1	-	High 1	-
	Fish Migration	4	-	-	Low 1	Low 1	-	Low 1	-	Low 1	-	Medium 1	Low 1	-	-	-
	Native fish community	4	Medium 2	High 3	Low 1	Low 1	High 2	Low 1	Low 1	Low 1	-	High 2	Low 1	-	Medium 1	-
	Proportion exotic fish	2	-	Low 2	-	-	-	-	-	-	-	Low 2	-	-	-	-
	Significant Flora	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	5	-	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
	Ecologically Healthy River	1	-	Low 2	-	-	Low 2	-	-	-	-	Low 2	-	-	Low 2	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	2	-	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
	Rarity of Wetlands	5	-	-	-	-	Medium 1	Low 1	Low 1	Low 1	Medium 2	High 1	-	-	High 2	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	1	-	-	-	-	Low 2	-	-	-	-	-	-	-	Low 2	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Medium 2	High 2	Low 1	Low 1	High 1	Low 1	-	Low 1	Medium 2	Medium 1	Low 1	Low 1	High 2	-
	Flagship Species	5	Medium 2	High 1	Low 1	Low 1	High 1	Low 1	Low 1	Low 1	Medium 2	High 1	Low 1	Low 1	High 2	-
	Listed Landscape	3	-	-	-	-	-	-	-	Low 1	Medium 2	Medium 1	-	-	High 2	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Medium 2	Medium 1	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	2	-	-	-	-	-	-	-	-	-	-	-	-	Low 2	-
	Power Generation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	-	-	-	-	Medium 1	-	Low 1	Medium 1	-
	Water Supp delivery	5	Medium 2	Medium 1	-	-	High 1	-	-	Low 1	Medium 2	High 1	-	Low 1	-	-
	Water Supp collection	5	-	-	-	-	High 1	Low 1	-	Low 1	Medium 2	High 1	-	Low 1	-	-

			Bank Erosion	Bed Instability	Channel modification	Loss of in-stream habitat	Stock Access	Flow Deviation	Wetland Connectivity	Water Quality (level)	Water Quality (SIGNAL)	Water Quality (trend)	Temperature	Algal Blooms	Introduced Flora	Introduced Fauna
Delatite River Reach 72			1	4	1	1	1	1	1	0	0	0	1	1	0	0
Environmental	Aquatic invertebrates	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant EVC	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Fauna	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fish Migration	4	-	-	Low 1	Low 1	-	Low 1	-	-	-	-	Low 1	-	-	-
	Native fish community	4	Low 1	High 3	Low 1	Low 1	Low 1	Low 1	Low 1	-	-	-	Low 1	-	-	-
	Proportion exotic fish	2	-	Low 2	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Flora	4	Low 1	-	-	-	Low 1	-	-	-	-	-	-	-	-	-
	Heritage/Representative Riv	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Continuity	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ecologically Healthy River	1	-	Low 2	-	-	-	-	-	-	-	-	-	-	-	-
	Sites of Significance	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Structure	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Rarity of Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Significant Wetlands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Riparian Width	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Social	Camping	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	European Heritage	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fishing	5	Low 1	High 2	Low 1	Low 1	Low 1	Low 1	-	-	-	-	Low 1	Low 1	-	-
	Flagship Species	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Listed Landscape	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Motor based Sports	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non Motor based Sports	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Passive Recreation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Swimming	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Economic	Infrastructure	5	Low 1	Medium 1	-	-	-	-	-	-	-	-	-	-	-	-
	Land Value	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Power Generation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tourism	4	-	-	-	-	-	-	-	-	-	-	-	Low 1	-	-
	Water Supp delivery	5	Low 1	Medium 1	-	-	Low 1	-	-	-	-	-	-	Low 1	-	-
	Water Supp collection	5	-	-	-	-	Low 1	Low 1	-	-	-	-	-	Low 1	-	-

Appendix 12. Codes of Practice, Guidelines and Current Recommended Practices for the Goulburn Broken Catchment

The following list of Codes of Practice, Guidelines and Current Recommended Practices in the Goulburn Broken Catchment is taken from: GBCMA (2004) *Current Recommended Practices for Water Quality in the Goulburn Broken Catchment.*

Codes of Practice

- Code of Practice for fire management on public land.
- Code of forest practices for timber production.
- Code of Practice for small wastewater treatment plants.
- Septic tanks Code of Practice.
- Code of Practice – piggeries.
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Guidelines

- Reuse options for household wastewater.
- Land capability assessment for on-site domestic wastewater management.
- Guidelines for wastewater irrigation.
- Guidelines for environmental management – use of reclaimed water.
- Disinfection of treated wastewater – guidelines for environmental management.
- Point source discharges to streams: protocol for in-stream monitoring and assessment.
- Managing sewage discharges to inland waters.
- Freshwater fish farms guidelines.
- Dairy cattle feedpad guidelines for the Goulburn Broken Catchment.
- Environmental guidelines for the dairy processing industry.
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Current Recommended Practices

- Reducing dairy effluent.
- Farm drainage reuse.
- Drainage diversion.
- Nutrient pollution of drainage water.
- Dryland drainage schemes.
- Urban drain design – water sensitive urban design.
- Urban source controls.
- Primary stormwater treatment.
- Secondary stormwater treatment.
- Dam desilting.
- Filter strips.
- Constructed wetlands.
- Whole farm plans.
- Lasergrading.
- Riparian land management.
- Stock management.
- Stabilising soil erosion.
- Unsealed roads.
- Cropping management.
- Perennial vegetation management.
- Soil, water and nutrient management practices for the Victorian strawberry industry.
- Storage and handling of farm chemicals.

The following is a list of Current Recommended Practices for riparian land protection in the Goulburn Broken Catchment.

Riparian Minimum Current Recommended Practices

- Fence riparian areas to control stock access.
- Limit watering points for stock along streams to designated areas.
- Eliminate grazing of riparian areas when the site is wet and pugging will occur.
- Control all state prohibited, new and emerging, regional priority weeds and serious agricultural weeds as outlined in the Goulburn Broken Regional Weeds Plan.
- Control all pest animals.
- Maintain all native vegetation.
- Control stocking rates to ensure nutrient levels are kept low.
- Do not collect any fallen timber.
- Do not remove dead trees.
- Do not clear any leaf litter.
- Do not remove fallen snags from the streambed.
- Do not cultivate any riparian areas or within 20m of a riparian area.
- Endeavour to prevent fire along riparian areas.
- Do not apply fertilizer to riparian areas or within 20m of a riparian areas.
- Minimise spray drift into riparian areas.
- Eliminate grazing immediately after a flood event.
- Only revegetate riparian areas in accordance with current best practice revegetation methods.
- Monitor the condition of the riparian area 5 yearly.

Riparian Current Best Practice Recommendations

- **All of the above plus:**
- Control stock grazing in riparian areas and areas directly adjacent to riparian through fencing 40m plus from the stream.
- Installing water troughs away from the stream banks and edges to limit faecal material from entering the stream and to prevent erosion.
- Do not cultivate any riparian areas or within 40m of a riparian area.
- Do not apply fertilizer the riparian area or within 40m of a riparian area.
- Maintain and were possible increase the abundance and diversity of indigenous native flora.
- Control and were possible decrease the cover of exotic species.
- Develop and implement a grazing regime that encourages natural regeneration.
- If natural regeneration can not occur revegetate in accordance with best practice revegetation methods.
- If large scale weed control is undertaken ensure that revegetation is undertaken to vegetate the gaps left from the removal of the weeds.
- Control recreational activities along riparian areas to reduce impacts i.e. Camping and Motorbike riding.

Appendix 13 Assumptions used to develop targets and costings in the Goulburn Broken Catchment

Managing threats identified by the risk-based assessment method in High Priority Waterways will:

- Maintain or improve the condition of Heritage Rivers, Representative Rivers and Ecological Healthy Rivers.

Managing broad scale threats identified by the risk-based assessment method on the regions Waterways will:

- protect or improve the condition of waterways in the region.

2. Controlling exotic vegetation such as willows and weeds, along with revegetation of native species will:

- Improve riparian flora and fauna diversity;
- Promote the regeneration of native species;
- Protect significant riparian flora and fauna species;
- Promote aquatic biodiversity and habitat;
- Improver water quality, particularly dissolved oxygen and temperature;
- Assist to protect private land from flooding impacts;
- Improve Streamside Zone ISC rating by a maximum of 7 points[3] over 50% of the reach under management (the ISC is based partly based on randomly selected sites, so monitoring sites may not include sites where works are conducted) by:
    - Not increasing width indicator of ISC Streamside Zone Sub-Index, as existing vegetation width will be replaced;
    - Increasing longitudinal continuity indicator of ISC Streamside Zone Sub-Index by one (1) point, as some existing vegetation gaps will be filled;
    - Increasing structural intactness indicator of ISC Streamside Zone Sub-Index to six (6) points, as natural vegetation structure will be restored;
    - Increasing percentage indigenous cover indicator of ISC Streamside Zone Sub-Index to four (4) points for overstorey, as natural vegetation overstorey will be restored;
    - Increasing regeneration of indigenous species indicator of ISC Streamside Zone Sub-Index to one (1) point, as natural vegetation overstorey will be restored;
- Maintain Streamside Zone ISC rating in 50% of reaches under management over the period of the Strategy.

3. Providing revegetation initiatives for floodplain riparian landholders will:

- Improve riparian flora and fauna diversity;
- Improve vegetation structure and composition;
- Protect significant riparian flora and fauna species;

[3] Based on a maximum increase of 1 for longitudinal continuity (LC), 6 for structural intactness (SI), 4 for indigenous cover (PCI) and 1 for regeneration of indigenous species (R) in the ISC formula: Streamside Zone Index = [(W + LC) + ((SI x PCI) +R)/2] x 10/18, where W = width indicator. Actual increase in each reach depends on the starting score for each indicator.

- Improve water quality, particularly nutrients, by providing a buffer to filter nutrient input to streams and wetlands. Specifically:
    - Reduce total phosphorous inputs by 2.5-6.5 kg/km/yr
- Provide a buffer to prevent or slow the rate of pathogens from entering streams and wetlands;
- Shade the streams and influence temperature and light;
- Influence channel shape and stream stability;
- Management of riparian lands and control of exotic vegetation will: decrease pest animal harbour, enhance natural regeneration, improve aquatic & terrestrial habitat, improve bank stability and water quality, and enhance aesthetics and recreational accessibility.
- Improve instream ecological processes by providing sources of leaf litter to the stream;
- Lead to the natural long-term return of large woody debris to the stream channel (but probably in a time scale beyond the life of this strategy);
- Be adopted by 75% of floodplain landholders (based on length of river bank) over the period of the Strategy;
- Improve Streamside Zone ISC rating by a maximum of 8 points[4] over 50% of the length of reach under management by:
    - Increasing width indicator of ISC Streamside Zone Sub-Index by one (1) point, assuming a width of 5-10 m will be implemented;
    - Increasing longitudinal continuity indicator of ISC Streamside Zone Sub-Index by one (1) point, as some existing vegetation gaps will be filled;
    - Increasing structural intactness indicator of ISC Streamside Zone Sub-Index to two (2) points, as natural vegetation structure will be restored;
    - Increasing percentage indigenous cover indicator of ISC Streamside Zone Sub-Index to four (4) points for overstorey, as natural vegetation overstorey will be restored;
    - Increasing regeneration of indigenous species indicator of ISC Streamside Zone Sub-Index to one (1) point, as natural vegetation overstorey will be restored;
- Maintain Streamside Zone ISC rating at 50% of reaches under management over the period of the Strategy.
- Improve Physical Form ISC rating by a maximum of 1 point[5] at 50% of reaches under management over the period of the Strategy, by:
    - Increasing bank stability indicator of ISC Physical Form sub-index by up to two (2) points (from extensive to limited, or moderate to stable).

4. Managing streamside grazing through fencing will:

- Improve native vegetation structure and composition;
- Reduce sediment mobilisation from the bank profile.
- Protect patches of remnant native vegetation;

[4] Based on a maximum increase of 1 for width (W), 1 for longitudinal continuity (LC), 6 for structural intactness (SI), 4 for indigenous cover (PCI) and 1 for regeneration of indigenous species (R) in the ISC formula: Streamside Zone Index = [(W + LC) + ((SI x PCI) +R)/2] x 10/18. Actual increase in each reach depends on the starting score for each indicator.

[5] Based on a maximum of 2 points in a 16 point Physical Form scale. Actual increase in each reach depends on the starting score for each indicator (e.g. a starting bank stability rating of 3 will result in only an increase of 1 point).

- Contribute to reduction in suspended sediments and TP by enhancing protection of banks and filtering of nutrient runoff;
- Be adopted by 75% of floodplain landholders (based on length of river bank) over the period of the Strategy;
- Improve Physical Form ISC rating by a maximum of 1 point[6] at 50% of reaches under management over the period of the Strategy, by:
    - Increasing bank stability indicator of ISC Physical Form sub-index by up to two (2) points (from extensive to limited, or moderate to stable).

5. Stabilising bank erosion will:

- Reduce sediment mobilisation from the banks. Specifically:
    - Reduce fine and coarse sediment mobilisation from bank profile by 60-612 t/km/yr.
- Reduce nutrient inputs to streams from the banks. Specifically:
    - Reduce total phosphorous inputs by 15-153 kg/km/yr.
- Improve biodiversity values within stream;
- Maintain or improve the range and numbers of significant instream flora and fauna species;
- Maintain or improve the conservation status of any freshwater species;
- Improve Physical Form ISC rating by a maximum of 1.5 points[7] at 50% of reaches under management over the period of the Strategy, by:
    - Increasing bank stability indicator of ISC Physical Form sub-index by up to three (3) points (from extensive or moderate to stable).
- Maintain Physical Form ISC rating at 50% of reaches under management over the period of the Strategy;
- Increase the Aquatic Life ISC rating, although the scale of any increase cannot be determined.

6. Stabilising instream erosion will:

- Improve biodiversity values within stream;
- Maintain or improve the range and numbers of significant instream flora and fauna species;
- Maintain or improve the conservation status of any freshwater species;
- Contribute to reduction in suspended sediments by reducing in-stream erosion;
- Improve Physical Form ISC rating by a maximum of 1 points[8] at 50% of reaches under management over the period of the Strategy, by:
    - Increasing bank stability indicator of ISC Physical Form sub-index by up to two (2) points (from extreme to moderate, moderate to nil).
- Maintain Physical Form ISC rating at 50% of reaches under management over the period of the Strategy.

7. Removal or modification of instream barriers to fish migration will:

- Facilitate movement of migratory native fish;

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[6] Based on a maximum of 2 points in a 16 point Physical Form scale. Actual increase in each reach depends on the starting score for each indicator (e.g. a starting bank stability rating of 3 will result in only an increase of 1 point).

[7] Based on a maximum of 3 points in a 16 point Physical Form scale. Actual increase in each reach depends on the starting score for each indicator (e.g. a starting bank stability rating of 3 will result in only an increase of 1 point).

[8] Based on a maximum of 2 points in a 16 point Physical Form scale.

- Improve native fish community values within all stream reaches upstream of the barrier to the next barrier in the system.
- Enable migratory fish access to additional stream length equal to the sum of all ISC reaches upstream;
- Improve Physical Form ISC rating by a maximum of 2 points[9] at reaches upstream of the barrier, by:
    - Increasing influence of artificial barrier indicator of ISC Physical Form sub-index by up to four (4) points (to "no barrier affecting reach" score).

8. Implementing environmental flow recommendations or agreed flow regimes from and Streamflow Management Plans will:

- Improve biodiversity values within stream.

9. Implementation of Best Management Practices for improving the retention of nutrients from on-farm sources will:

- Result in a long-term reduction of 14% in nutrient output (total nitrogen and phosphorous) of on-farm sources to the rivers;
- Result in a long-term reduction of 14% in sediment output of on-farm sources to the rivers;
- Be adopted by 40% of properties in the short-term (5 years) and by 80% of properties in the long-term (30 years).

10. Implementation of a community awareness and involvement program will:

- Increase regional community understanding and knowledge about river health issues;
- Encourage greater community involvement in river management and restoration;
- Increase the number of Friends of Rivers groups;
- Increase the number and diversity of community membership of CMA and other agency committees and advisory groups;
- Increase the number of community members and groups involved in the Waterwatch program.

11. The monitoring and evaluation program will enable us to:

- make comparisons over time and improve our understanding of resource response (following intervention)

12. The costs of each action outlined in the Regional River Health Strategy:

- is based on the Table 13.1. For many actions, both a high and low estimate of costs are given, depending on the assumptions made. For costings in this Regional River Health Strategy, the average of the two estimates is used.

[9] Based on a maximum of 4 points in a 16 point Physical Form scale.

Table 13.1 - Costs of each action outlined in the Regional River Health Strategy

	Actions and Outputs	$/Unit - Est 1	$/Unit - Est 2	UNIT
Instream Aquatic Restoration				
	Construction of Fish Ladder	100,000	100,000	vert m of barrier
	Fish survey	10,000	6,500	km
	Macroinvertebrate survey	3,000	1,200	project area/site
	Reinstatement of Large Woody Debris		70,000	km
	SEARS	20,000		km
	Native fish stocking (for conservation)		8,000	1000 fish
Riparian Management				
	Fencing (materials only)	3,500	3,000	km
	Fencing (construction)	3,500	2,500	km
	Riparian weed management for site preparation (ground cover)		900	km
	Riparian weed management for site preparation (woody weeds)		1,000	km
	Aquatic Weeds (heavy)	20,000		km
	Aquatic Weeds (medium - light)	5,000		km
	Woody weed management (heavy)		5,000	km
	Willow management (light)	5,000	2,300	km
	Willow management (heavy)	15,000	18,000	km
	Off stream watering	1,000	2,500	km
	Revegetation (plants, stakes and guards only)	3,750	650	1000 plants
	Revegetation (plants, stakes, guards and planting crew - labour)	5,000	1,500	1000 plants
	Direct seeding		300	km
	Weed Maintenance in high rainfall areas (after revegetation)		5,000	km
	Bird Survey		160	km
Urban Enhancement				
	Weed management (light)		12,000	km
	Weed management (heavy)		21,000	km
	Urban Stormwater Education	10,000		per mun. per annum
Erosion Control				
	Gully stabilisation - rock chute (minor)	5,000	5,000	site
	Gully stabilisation - rock chute (major)	13,000	12,000	site
	Stream Stabilisation - rock chute (minor)	7,500	8,000	site
	Stream Stabilisation - rock chute (major)	25,000	18,000	site
	Stream stabiliation - rock beaching (minor)	5,000	4,000	km
	Stream stabilisation - rock beaching (major)	10,000	7,000	site
	Alignmant training		25,000	site
Strategies And Plans				
	Development of Streamflow Management Plan	150,000	40,000	each
	Development of Restoration Plan for Specific Waterway		30,000	each
	Development of Waterway Action Plan for sub-catchment		10,000	each
	Groundtruthing Nutrient Action Plan Priorities		25,000	entire region
	Groundtruthing River Health Plan Priorities		50,000	entire region
Education				
	Half day workshop (CMA lead eg Riparian Workshop)		1,500	each
	Half day workshop (Expert lead eg Freshwater Circus)		2,500	each
	Media Release		200	each
	Forum (eg River Health Forum)		2,000	each
	Educational material		1,000	1000 units
	Curriculum aids for schools - water quality/waterway related topics		10,000	topic
	Special event (eg World Environment Day)		30,000	each
Other				
	Monitoring (ISC)	200		per rep reach
	Monitoring (Bugs , Ausrivas)	3,000		per site
	Monitoring (fish)	10,000		per km
	Longitudinal Surveys	1,000		per km

Appendix 14 Threatening Processes and Action Statements

A number of river reaches are home to EPBC listed fauna and AROT flora considered critically dependant on stream environments. The recovery of many species is being addressed under a National Recovery Plan, Action Plan or protected through the recognition and management of threatening processes. The implementation of programs under this Regional River Health Strategy needs to support and be integrated into these efforts. (i.e. Macquarie perch, Murray cod, Barred galaxias and Spotted tree frog.

Threatening Processes

- Alteration to the natural flow regimes of rivers and streams.
- Alteration to the natural temperature regimes of rivers and streams.
- Degradation of native riparian vegetation along Victorian rivers and streams.
- Habitat fragmentation as a threatening process for fauna in Victoria.
- Increase in sediment input into Victorian rivers and streams due to human activities.
- Input of toxic substances into Victorian rivers and streams.
- Introduction of live fish into waters outside their natural range within a Victorian river catchment after 1770.
- Loss of hollow-bearing trees in Victorian native forests.
- Prevention of passage of aquatic biota as a result of the presence of instream structures.
- Removal of wood debris from Victorian streams.
- The invasion of native vegetation by environmental weeds.
- The spread of Phytophthora cinnamomi from infected sites into parks and reserves, including roadsides, under control of a state or local government authority.
- Use of lead shot in cartridges for the hunting of waterfowl.
- Use of Phytophthora-infected gravel in construction of roads, bridges and reservoirs.

Approved Action Statements for Animals

- Barred Galaxias, Galaxias olidus var. fuscus. No. 65
- Helmeted Honeyeater, Lichenostomus melanops cassidix. No. 08
- Leadbeater's Possum, Gymnobelideus leadbeateri. No .62
- Regent Honeyeater, Xanthomyza phrygia. No 41
- Spotted Tree Frog, Litoria spenceri. No.112
- Superb Parrot, Polytelis swainsonii. No.33
- Flora and Fauna Guarantee: Action Statement No 15 - Spot-tailed Quoll
- Trout Cod, Maccullochella macquariensis. No. 38

Approved Action Statements for Plants

- Narrow Goodenia - Action Statement No. 072
- Small Scurf-pea - Action Statement No. 031

Recovery Plans Adopted Under the EPBC Act

Recovery Plan Title	Species Scientific Name	Species Common Name
Helmeted Honeyeater Recovery Plan 1998-2002 'Teetering on the Verge of Success'	*Lichenostomus melanops cassidix*	Helmeted Honeyeater
Leadbeater's Possum Recovery Plan	*Gymnobelideus leadbeateri*	Leadbeater's Possum
Regent Honeyeater Recovery Plan 1999-2003	*Xanthomyza phrygia*	Regent Honeyeater
Spotted Tree Frog Recovery Plan	*Litoria spenceri*	Spotted Tree Frog
The Recovery Plan for the Swift Parrot (*Lathamus discolor*) 2001-2005	*Lathamus discolor*	Swift Parrot
Recovery Plan for the Trout Cod (*Maccullochella macquariensis*)	*Maccullochella macquariensis*	Trout Cod

Appendix 15 Setting priorities for investment in river health using benefit-cost analysis

The Goulburn Broken Regional River Health Strategy has the following four key objectives.

- Protecting the rivers that are of highest community value from any decline in condition.
- Maintaining the condition of ecologically healthy rivers.
- Achieving an 'overall improvement' in the environmental condition of the remainder of rivers.
- Preventing damage from future management activities.

A methodology has been designed to assess priorities for investment once management actions or programs to meet one or other of these objectives for different rivers or reaches have been designed and costed (URS 2003). The methodology is designed to answer questions like: "Based on the estimated costs and benefits, on what rivers or reaches in a region should the river management authority spend its limited budget so as to achieve the greatest return to the community?" This question is concerned with the relative net benefits between reaches, with the proviso that the net benefits of managing the selected reaches should be positive.

Programs to improve river health must compete for funds with investment projects in all other areas of public investment, such as transport infrastructure, hospitals, education and major 'events'. Application of this methodology will also enable river health projects to compete with other investments by using the same measuring rod – money.

Many of the investments competing for funds with river health projects produce goods and services that are traded in markets and have prices attached to them. On the other hand, many of the goods and services produced by a healthy river cannot be traded and remain unpriced. Nevertheless, the use of money values, based on community's willingness to pay (WTP), for unpriced environmental assets and services is accepted practice in the economic analysis of management programs designed to improve the state of a natural resource, or restore it to some former state. However, an important feature of the methodology is the use of the community's willingness to accept compensation (WTA) for the loss of the current state of a river, as would occur if a program to preserve a highly natural river were not implemented[10.]

Techniques capable of valuing unpriced benefits are available, the most appropriate for the problems faced in this study being so-called stated preference methods, such as choice modelling or contingent valuation. Unfortunately, the method of valuing unpriced benefits for a given river is labour intensive and expensive. Therefore, the process of 'benefit transfer' is used. This is a process in which the results from rigorous valuation studies at other sites are used to infer values for the unpriced benefits at the site of interest. The process of 'benefit transfer' is accepted, albeit grudgingly by some, as the most expedient way to value the assets or services in question.

The methodology uses benefit-cost ratios (BCRs) – the benefits achieved per dollar spent - as the prime criterion by which priorities are judged. When programs are arrayed in descending order of their BCRs, a set of investment priorities is revealed.

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[10] Or, as would also occur with failure to implement a program that maintained the present condition of a somewhat degraded river.

The assessment of priorities is dependent on an understanding of the physical and biological relationships that underlie the response of a river and its ecosystem to management actions. There is, however, considerable uncertainty in predicting the outcomes of management actions. This risk is incorporated into the assessment of priorities by using a probabilistic form of benefit-cost analysis.

The paper unfolds as follows. The methodology is outlined in the next Section, followed by a worked example (Taggerty River). Next, some of the limitations of the methodology are discussed and the paper concludes with an outline of further work required for the methodology to be operational in the Goulburn Broken region.

Methodology

Benefit-cost ratios

The benefit-cost ratio (BCR) arises from benefit-cost analysis and is a useful criterion for priority setting. A BCR is the ratio of the present value of benefits to the present value of costs (capital costs and operating costs). Such a definition implies that total funds – both capital and operating - are limited.

A BCR less than one indicates that the program is uneconomical (that is, the present value of the costs is greater than the present value of the benefits). Of those programs that have a BCR greater than one, the higher the BCR, the more return is expected from each dollar expended.

The Department of Finance (1991) stated that where there is a budget constraint, BCR can lead to misleading conclusions, particularly if the actions differ in size. This result, however, is only evident when the projects are mutually exclusive, that is, if only one of a set of possible projects can be undertaken at a given site. In this assessment of investment priorities, the alternatives are single programs (comprising a set of actions) that can be implemented simultaneously on different rivers or reaches of a river – they are not mutually exclusive. It is under these circumstances that the decision-maker must choose the subset of the most efficient actions that can be accommodated within the limited budget. Provided all benefits and costs can be quantified, the comparison of BCRs for each action is an appropriate tool for priority setting in order to maximise the net benefits from the given budget (Sinden and Thampapillai, 1995).

Unpriced benefits

The challenge of the BCA (and, therefore, with the use of BCRs) is the need to value the unpriced environmental benefits of actions. In the case of river management, such benefits include the benefits of improved (or damage avoided to) opportunities for river based recreation, and benefits to river health. Unfortunately, the methods of valuing unpriced benefits, such as contingent valuation, choice modelling or travel cost estimates, using either willingness to pay or willingness to accept are labour intensive and expensive. The process of benefit transfer, however, is a way in which the results from rigorous valuation studies can be used to infer values for the unpriced benefits in this study.

The Bases of Value

As discussed in URS (2003) two approaches to benefit valuation can be used. One is willingness to pay (WTP), which reflects the maximum monetary amount that an individual would pay to obtain a good. The other is willingness to accept compensation (WTA), which reflects the minimum monetary amount required to relinquish the good. WTP, therefore, provides a purchase price, relevant for valuing the proposed gain of a good, whereas WTA provides a selling price, relevant for valuing a proposed relinquishment. Conventional economic theory suggests that, in most circumstances, these two measures should yield roughly equal estimates of value. However, there is a large body of empirical evidence from observation of human behaviour that demonstrates that willingness to accept

compensation (WTA) frequently exceeds by many times the WTP for the same good (see URS 2003 for a review of this evidence).

This empirical evidence cannot be ignored, and that the correct measure of value must be used in the analysis of river management programs. In short, the benefits of restoration and improvement should be valued by WTP for an improved environmental asset or service, while the benefits of preservation and maintenance should be valued by WTA for the loss of the asset or service.

If analysts use WTP where WTA is appropriate, a whole class of environmental goods will be under-valued and hence under-supplied. For example, WTP is relevant to measure the gain in benefits of habitat improvements (restoration and improvement) but WTA is appropriate to measure the loss of benefits if there was habitat loss or damage from its existing condition. If WTP is used where WTA is appropriate, there may be insufficient investment in the prevention of losses and damage (preservation and maintenance), and those sorts of programs would be under-supplied.

Aims and Costs of Management

Preservation, restoration, improvement and maintenance are different approaches to river management. The appropriate types of actions within the program depend on the condition of the river relative to the desired condition. We postulate the following aims for each approach.

Preservation activities aim to prevent future degradation of a pristine environmental asset.

Maintenance activities prevent the quality of the asset further degrading from its current degraded state.

Restoration activities restore the quality of an environmental asset to an earlier condition.

Improvement activities enhance the quality of the asset relative to its current level.

In general, preservation and maintenance actions attempt to avoid future losses, restoration attempts to replace past losses, whereas improvement attempts to increase gains. It should be noted, however, that these categories are not mutually exclusive in that a given action may produce joint outcomes. For example, an action (say, upstream sediment reduction) that is primarily designed to preserve most attributes (such as, healthy in-stream habitat) on the reach in question may simultaneously bring about an improvement in another attribute (say, a reduction in algal blooms). Rather than consider the consequences of an action for a reach attribute-by-attribute, it seems appropriate to account for the overall intention (for example, preservation or improvement) of the action for that reach.

Benefit-cost analysis enables future benefits and costs to be expressed at a common point in time, usually the present, through the process of discounting. The river manager identifies the total cost of the program for each river or reach and the distribution of the costs over time. For comparison with the benefits of the program, the stream of costs must be converted to an equivalent (lump sum) present value using an appropriate rate of discount.

Estimating Willingness to Accept Compensation

Unfortunately, estimates of WTA are hard to find and difficult to collect. Contingent valuation or choice modelling are perhaps the only ways to derive these estimates, but such survey methods may tend to overestimate WTA. An appealing procedure is to exploit the disparity between the two measures by recognising that WTP under estimates WTA and to multiply WTP by a pre-determined factor, that is:

WTA = WTP * multiplier.

This approach would be suitable if we can estimate an appropriate WTP and an appropriate multiplier.

Using the results of empirical studies on the order of difference between WTA and WTP, it is argued (URS 2003) that an appropriate (conservative) multiplier might lie between 1.0 and 5.0 and can be determined using three characteristics that relate to river environments. These characteristics are:

- the degree to which the total river environment has substitutes;
- the rareness and accessibility of the attributes of the river; and
- the community's sense of moral responsibility towards (or "ownership" of) the river.

We set the multiplier equal to 1.0 (that is, WTA = WTP) when:

- *substitutes*: the river environment has near perfect, readily available, substitutes;
- *attributes:* the river attributes are common and the site is easy and cheap to access; and
- *responsibility:* the community feels little or no moral responsibility for the river.

Set the multiplier to its maximum value (5.0) when:

- *substitutes:* the river environment is unique;
- *attributes:* the river attributes are rare and the site is difficult and expensive to access; and
- *responsibility:* the community feels a moral responsibility for the river.

People representing the relevant community (inside and outside the catchment) can score each of these characteristics on a scale of from 1.0 to 5.0 and the results added and averaged to determine the multipliers for each community.

Benefit Transfer

The process of benefit transfer is a way in which the results from rigorous valuation studies can be used to infer values for the unpriced benefits of changes in river health. The process of benefit transfer, along with its pros and cons, is discussed in Devousges *et al.* (1992), Bennett (2001), and Sturgess (2001).

At the present time, the study of NSW rivers by Bennett and Morrison (2001) is considered to contain values of river health attributes most suitable for benefit transfer to Victorian rivers. The approach taken by those authors was to divide the catchments of NSW into five 'geographic regions'. One catchment from within each region was selected, and the environmental values of the rivers in these 'representative' catchments were estimated in five separate choice modelling applications. For Victorian applications it is necessary to decide which NSW region is most suited to the Victorian river in question.

After extensive consultation with policy makers, scientists and the community, Bennett and Morrison selected five attributes for valuation, namely:

- the percentage increase in the length of the river with healthy native vegetation and wetlands;
- the increase in the number of native fish species present;
- the increase in the number of waterbird and other fauna species present;
- the increase in water quality from boatable to fishable across the whole river; and
- the increase in water quality from fishable to swimmable across the whole river.

The process of translating the outcomes of management actions as measured by the river manager into these attributes is not an easy task and will inevitably require judgement by the river manager.

The process of benefit transfer is complicated by a person's location in relation to the river in question. It is to be expected that the values people attach to a river attribute may change with their distances from the river. In their study of NSW rivers, Bennett and Morrison postulated two 'market' segments – households within the catchment in question and households outside the catchment. The latter was confined to the households within the State of New South Wales. Victorian applications should also use two market segments, 'within the catchment' and 'outside the catchment', where the latter, in line with the source study, is confined to households in the remainder of Victoria. Even if it were considered that interest in a given river stretched beyond Victoria's borders, no basis for extrapolation beyond those borders is provided by the source study.

Sources for other transferable values, for both environmental and recreational values are detailed in URS (2003).

Risk Analysis

Risk is referred to as a situation where the probability of a given outcome can be specified. For river management actions, it is extremely difficult to determine the precise probability distribution of outcomes for each action or river works. Therefore, we employ simple triangular distributions by requesting that river managers specify their best estimates of most likely, absolute minimum (worst) and absolute maximum (best) physical outcomes of the attributes that can be valued.

Each point on the triangular distributions of physical outcomes for the attributes listed above is multiplied by the value of the attribute (from the appropriate region defined by Bennett and Morrison, 2001), after adjusting WTP to WTA where approriate, for each set of households (inside and outside the catchment). The value of the outcome for each set of households is added to obtain the three points on the triangular distribution of benefits for that river attribute. This process is repeated to obtain the triangular distribution of benefits for each relevant attribute. The value of the benefits of each outcome is used as input into simple simulations that enable the calculation of the distribution of total benefits. The results of interest from this process are the mean net benefit of the program (net present value), the mean BCR and their respective standard deviations. These simulations are readily undertaken using Crystal Ball™ software (a Microsoft Excel™ add-in).

Risk analysis can assist in the assessment of priorities in the following way. If the programs on two reaches have nearly the same mean BCR but the nature of the distributions around those means is very different, the program on the reach with the narrower distribution might be chosen ahead of the one with the wider distribution – a process of risk minimisation.

Example Application - Goulburn River catchment (Reach 64 - Taggerty River)

As discussed in the Strategy, this reach is 17.5 kilometres in length and is considered to be in an "ecologically healthy" condition worthy of preservation. The reach has significant environmental and social importance and less significant economic importance. The overall threat ranking for this reach is 56 for the catchment, which suggests that it is relatively protected from major threats. Details of the assets at risk, the threats to them and the 10-year resource condition targets are detailed in the Strategy and need not be repeated here.

The actions to be undertaken on this Reach emphasise the control of exotic vegetation, reducing human interference, fencing and grazing control, and revegetation. These actions are designed to protect this ecologically healthy river. The estimated cost of the 5-year program is $240,000, having a present value

of $220,000 at a discount rate of 4 per cent. Because protection is the aim of the program it is appropriate to use WTA as the basis for valuing any losses in river attributes that would be avoided by implementation of the program.

The possible outcomes in terms of reductions in valued attributes that would be avoided by implementation of the program are:

- a decrease in the length of the river with healthy native vegetation and wetlands;
- the loss of species of native fish that are present;
- the loss of species of waterbirds and other fauna that are present; and
- a potential loss in the number of fishing days and days of passive recreation.

The last of these attributes could not be valued due to the lack of information on current usage and whether any such loss would be a real loss in recreation to the State or whether recreationists would merely transfer their activities to other rivers within the Victoria.

For the purposes of demonstration, the relevant multipliers to estimate WTA from the known WTP for each attributes were assessed by the Waterway Manager as 4.0 for within catchment households and 2.7 for households outside the catchment.

The Murrumbidgee is regarded as the appropriate NSW river (Bennett and Morrison 2001) from which to transfer values to the Goulburn. Both have their source in mountainous areas and flow long distances to the Murray River.

Healthy native vegetation

The three estimated points on the triangular distribution of the decrease in the length of the stream with healthy native vegetation and wetlands that might avoided if the program were implemented are:

- 0.2 km (0.03 per cent of the river's length) worst outcome
- 3.5 km (0.6 per cent of the river's length) most likely outcome
- 17.5 km (3.0 per cent of the river's length) best outcome

The WTP values (assessed by Bennett and Morrison as a present value) for 'a one per cent increase in the length of the river with healthy vegetation and wetlands' for southern inland rivers represented by the Murrumbidgee were estimated by Bennett and Morrison to be $1.45 for 'within catchment' households and $2.17 for 'outside catchment' households.

Using the estimated numbers of households in the two segments of the 'market', namely, 32,000 'within catchment' and 1,687,000 'outside catchment' and scaling to 38 per cent of each population[11], the estimated value of each possible outcome is obtained by adding the 'within catchment' value and the 'outside catchment' value. The valuation process is shown in Table A15(i).

[11] The reason for this scaling process is explained in URS 2003.

Table A15(i): Estimated benefits from preventing a reduction in healthy native vegetation – Taggerty River - Reach 64

Item	Avoided loss of 17.5 km of river (3.0 per cent of length)– best outcome		Avoided loss of 3.5 km of river (0.6 per cent of length) – most likely outcome		Avoided loss of 0.2 km of river (0.03 per cent of length) – worst outcome	
	Within catchment	**Outside catchment**	**Within catchment**	**Outside catchment**	**Within catchment**	**Outside catchment**
WTP per HH per 1% of river length	$1.45	$2.17	$1.45	$2.17	$1.45	$2.17
WTP/WTA multiplier	4.0	2.7	4.0	2.7	4.0	2.7
WTA per HH per 1% of river length	$5.80	$5.86	$5.80	$5.86	$5.80	$5.86
WTA per HH per outcome percentage of river length	$17.40	$15.58	$3.48	$3.52	$0.17	$0.18
No. HH (at 38% of total)	12,000	641,000	12,000	641,000	12,000	641,000
Value of outcome for each market ($m)	0.21	9.99	0.04	2.26	0.002	0.12
Value of outcome ($m)	10.20		2.30		0.12	

Loss of species of native fish

With the program in place, the river manager 'guesstimated' that the best outcome might be to avoid the loss of 10 per cent of native fish species, the most likely outcome would be to avoid the loss of 0 to 5 per cent of the species, and the worst outcome would be to avoid the loss of no species of native fish. There are four recorded species of native fish in the Taggerty River, one of which (Barred Galaxias) is critically endangered in Victoria and another which is insufficiently known (Mountain Galaxias) – which may indicate it is at some degree of risk (Atlas of Victorian Wildlife, DSE, 25 Feb. 2003). Based on these data, we propose that the three points on the distribution of avoided potential loss of native fish species would be:

- zero species of native fish worst outcome;
- zero species of native fish most likely outcome; and
- loss of one species of native fish best outcome.

The WTP values (assessed as a present value) for 'an increase of one species of native fish' for southern inland rivers represented by the Murrumbidgee were estimated by Bennett and Morrison to be $2.58 for 'within catchment' households and $3.81 for 'outside catchment' households. Using similar

calculations to those in Table 1 and the same multipliers to convert WTP to WTA, the estimated benefits of avoiding the loss of native fish species were:

- worst outcome $0
- most likely outcome $0
- best outcome $6.71 m

Loss of species of waterbirds and other fauna

The river manager's 'guesstimates' of the percentage losses in the best, most likely, and worst cases for waterbirds and other fauna are the same as for the percentage losses in the number of species of native fish. There are 68 recorded species of birds and other fauna associated with the Taggerty River, three of which are either vulnerable, or endangered. Assuming that it is these classes of fauna that are most likely to be lost in the absence of the program, we assume the following distribution of avoided loss of species in the absence of the program:

- zero species of waterbirds and other fauna worst outcome;
- zero species of waterbirds and other fauna most likely outcome; and
- loss of one species of waterbirds and other fauna best outcome.

The WTP values (assessed as a present value) for 'an increase of one species of waterbirds and other fauna present' for southern inland rivers represented by the Murrumbidgee were estimated by Bennett and Morrison to be $1.59 for 'within catchment' households and $1.80 for 'outside catchment' households. Using similar calculations to those in Table 1 and the same multipliers to convert WTP to WTA, the estimated benefits of avoiding the loss of native fish species were:

- worst outcome $0
- most likely outcome $0
- best outcome $3.20 m

Total benefits and costs

For the simulations using Crystal Ball™, the benefits from avoiding losses in the three attributes are assumed to be additive and perfectly correlated. The results of the simulations of the benefits and costs of the program are shown Table A15(ii)).

Table A15(ii): Estimated benefits and costs – Taggerty River- Reach 64

Item	Value
Present value of benefits (standard deviation) ($m)	7.57 (4.52)
Present value of program cost at 4 per cent discount ($m)	0.22
Mean NPV (standard deviation) ($m)	7.35 (4.53)
Expected BCR (standard deviation)	34.42 (20.57)

The program is estimated to be a profitable investment but it is noted that the standard deviations of the investment criteria are large due to the spread of possible outcomes – particularly for the native vegetation attribute. In 68 per cent of repeated 'trials' of the program, the BCR would lie in the range from the mean BCR minus one standard deviation to the mean BCR plus one standard deviation, that is, between about 13.8 and about 55. If outcomes were such that the actual benefit of the of the program were just over 1.6 standards deviations less than the mean, the net present value would be negative.

Sensitivity analysis

- The program is estimated not to be a sound investment if all three worst outcomes were achieved – NPV = minus $0.10m, BCR = 0.55.

- If only the 'within catchment' market were considered (with values assessed at WTA), the mean NPV would be minus $0.07m with a standard deviation of $0.09m. Mean BCR = 0.68 with a standard deviation = 0.42. This suggests that although individual households in the local community may have a WTA compensation for the loss of healthy native vegetation and wetlands that is 4 times their WTP, the local community by itself is too small to render the preservation of the Taggerty River a worthwhile investment.

- If the program were evaluated on the distribution of outcomes valued at WTP rather than the estimated WTA, the mean NPV would be about $2.71m with a standard deviation of $1.75m, and the mean BCR of 13.32 with a standard deviation of 7.97. The implication of this valuation of benefits is that the priority allocated to investment in this reach if assessed on WTP may be lower than it should be.

Comparison with other selected reaches

Goulburn Reach 14 was compared with 5 other case study reaches on the Barwon and Goulburn Rivers with interesting results (for details see URS 2003). Because of the exploratory nature of that study and the stylised programs used in the evaluation, the resultant ranking of programs should be regarded as illustrative rather than definitive. Nevertheless, the rankings provided by the case studies provided useful information about the programs and, most importantly, demonstrate the following important implications for the investment in river health.

- The preservation of high valued rivers or reaches is a sound investment not just because the works involved tend to be relatively cheap but also because it was demonstrated that very high benefits are achieved when the correct basis of valuation (WTA) is used.

- Not all preservation programs have higher priority than all improvement programs. That is, preservation is not always the first choice. For example, Barwon Reach 4 (improvement) was shown to have a higher priority (a mean BCR of 14.2) than Barwon Reach 1 (preservation) (a mean BCR of 6.5). Variables that might bring this result about include: the cost of the program; the extent of improvement in river attributes and the number of attributes improved; the values of those attributes held by the two communities; and the size of the within catchment community. For example, an improvement program that is likely to improve many attributes that are highly valued by a large local community is likely to have high benefits and a high BCR if the program is relatively cheap.

- Many of the case study programs were sound investments only because of the values that the 'outside catchment' communities attach to the reaches in question.

- Of particular importance was the demonstration that the priorities amongst the programs changed if WTP was used as the basis for valuation in all programs, irrespective of whether the aim was to preserve or improve. For example, Goulburn Reach 14 (protect) was ranked at Number 2 amongst the six case studies when WTA was used as the basis of valuation but at Number 3 if WTP was

used as the basis of valuation for all reaches. Depending on the level of funds available to undertake the programs this reduction in ranking could lead to the rejection of Goulburn Reach 14, even though it is a sound investment on its own. Therefore, the hypothesis that failure to use the correct basis of valuation (WTA) for preservation and maintenance programs may lead to under-supply of river preservation is supported.

Limitations of the methodology

Some limitations of the methodology that must be borne in mind include the following.

- Judgement, albeit expert judgement, is necessary to translate the complex and vast array of river health attributes into the set for which community valuations exist.

- Uncertainty about the outcomes of a management program always exists. This uncertainty is accommodated using simple triangular distributions. A triangular distribution is an approximation to other distributions, such as normal or lognormal distributions, providing flexibility in modelling a limited set of data points. However, one limitation of a triangular distribution is that it is bounded by the estimates of the minimum and maximum outcomes, thereby eliminating the possibility of extreme outlying values that might possibly occur.

- Not all attributes of value to the community can be valued at the present time. For example, although values are available from the Bennett and Morrison study for increasing the number of species present on the river we do not yet have a value for an increase in the population of a species that is already present.

- At the present time we are forced to rely on the process of benefit transfer from a study conducted in NSW because values for attributes of river health specific to rivers in the Goulburn Broken region are not available.

- In the absence of transferable values for WTA for the benefits of river management, we have had to estimate WTA from transferable WTP values by exploiting the empirical observation that WTA often exceeds WTP by a multiple that depends on the nature of the good in question. While the conservative multiplier used here, with a maximum value of five, is based on the best available empirical work to date, the true value remains unknown.

Further Work

Before the methodology described here can be applied to assess investment priorities for the Goulburn Broken River Health Strategy, the following information will be required.

- Programs based on the strategic objectives and appropriate to the reaches of the relevant rivers must be identified and costed, including the distribution of costs through time.

- Establish whether the prime objective of the program on a given reach is to preserve/maintain existing attribute condition or to restore/improve from existing degraded attribute condition. Determine the appropriate basis for benefit valuation (WTP or WTA) in each case and determine the multipliers where WTA is appropriate.

- Predict triangular distributions of outcomes (best, worst and most likely) for the five valued attributes derived for the NSW rivers (discussed above) for each reach contained in the Strategy. Alternatively, it may be expedient to determine the outcomes for a set of case studies whose results could be extrapolated to each member of a class of reach.

- Determine the NSW representative river most appropriate for each river in the Goulburn Broken region. Ideally, however, rather than being forced to rely on benefit transfer from NSW rivers, with the lesser confidence in the results that such a process entails, research could be undertaken to determine values of river health attributes specific to the rivers of the Goulburn Broken region.

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Appendix 16 – Indicative Set of Target Areas

Indicative Set of Target Areas to be included in the Regional River Health Strategy and Related Action Plans Targets in these areas will be set through the regional RHS and its component action plans, and will be included in the schedule of targets in the RCS.

Implementation Target Areas

- Number of rivers with negotiated environmental flow regimes
- Number of rivers with improvements made to environmental flow regimes
- Level of reduction in nutrient loads from priority sources within catchment
- Area of riparian land under management agreements
- Area or riparian land vegetated
- Length of river subjected to riparian weed control
- Number of barriers where fish passage restored
- Number of plans developed for areas of high social value

Resource Condition Target Areas

10-year resource condition targets to be included in RRHSs as outlined in the VRHS	Proposed clarifications and additions to 10-year resource condition targets to be included in RRHSs from workshop	Status
Length of river in excellent or good condition	Length of river in excellent or good condition (as measured by ISC#) (Can be increase or total but benchmark must be clear)	Compulsory in RRHS
Number of high value river reaches with adequate environmental flows	Number of high value reaches meeting agreed ecological flow objectives	Compulsory in RRHS
Reduction in nutrients at key monitoring sites within catchments	Reduction/improvement in nutrient loads/concentrations at key monitoring sites within catchments (note that key sites must be clearly defined)	Compulsory in RRHS
Reduction in salinity at key monitoring sites within catchments	Reduction/improvement in salinity loads/concentrations at key monitoring sites within the catchments (note that key sites must be clearly defined)	Compulsory in RRHS
Reduction in sediment loads at key monitoring sites within catchments	Reduction/improvement in sediment loads/concentrations at key monitoring sites within the catchments (note that key sites must be clearly defined)	Compulsory in RRHS
Length of river with improvement of one rating in the measurement of riparian condition	Length of river protection/improvement in riparian condition as measured by ISC#)	Compulsory in RRHS
Length of river with improvement of one rating in physical form subindex	Length of river protection/improvement of physical form subindex (as measured by ISC#)	Compulsory in RRHS
Length of river where instream habitat has been reinstated	Length of river where instream habitat has been reinstated	To be part of 5-year targets
Increase in river length made accessible for fish movement	Increase in river length made accessible for fish movement	To be part of 5-year targets
Improved floodplain linkages	Improved floodplain linkages/functions (note this is difficult to	Optional in

	determine)	RRHS
Number of high value public assets with appropriate level of protection from flooding	Number of high value public assets with appropriate level of protection from flooding (note this is optional for RRHS)	Optional in RRHS
Number of high value environmental assets protected	Number of high value reaches/environmental assets (including estuaries, wetlands, fish, etc) protected	Optional in RRHS
Representative rivers in good or excellent condition	Representative and Ecologically Healthy rivers/reaches in good or excellent condition (as measured by ISC#)	Compulsory in RRHS
Value of Heritage Rivers maintained	Value of Heritage Rivers maintained	Compulsory in RRHS (if relevant)
*% of monitoring sites meeting SEPP (Waters of Victoria) objectives	*% of relevant SEPP (WoV) objectives met for key monitoring sites (note that relevant objectives and key sites must be clearly defined)	Compulsory in RRHS
	**Protection/improvement of aquatic life (as measured by ISC#) at key monitoring sites (note that key sites must be clearly defined)	Compulsory in RRHS

Appendix 17 – Index of Stream Condition (Reach Breaks)

BASIN	REACH	Easting	Northing	Reach End (flow)	Description
4	1	383102	5967287	START	Broken River, 1.2 km u/s of Gowangardie Weir, 3.3 km d/s of Dookie-Violet Town Rd.
4	1	354686	5970489	END	Broken River, at end of Hassett St Shepp, 2km d/s of GV Hwy crossing
4	2	383102	5967287	END	Broken River, 1.2 km u/s of Gowangardie Weir, 3.3 km d/s of Dookie-Violet Town Rd.
4	2	404888	5962781	START	Broken River, 150m d/s of Casey Weir
4	3	404888	5962781	END	Broken River, 150m d/s of Casey Weir
4	3	408689	5946938	START	Broken River, 500m d/s of Poison Ck confluence, 850m d/s of Burns Lane off Samaria Rd
4	4	408689	5946938	END	Broken River, 500m d/s of Poison Ck confluence, 850m d/s of Burns Lane off Samaria Rd
4	4	411588	5920585	START	Broken River, Nillahcootie Lake Rd crossing, (Nth end of Lake Nillahcootie)
4	5	421278	5907235	START	Broken River, at the Bridge Ck confluence, 800m u/s of Mansfield-Whitefield Rd
4	5	411588	5920585	END	Broken River, Nth end of Lake Nillahcootie, Nillahcootie Lake Rd crossing
4	6	441867	5907103	START	Broken River East Branch, 3.7 km Nth of Evans Ck Track along Cambatong Rd
4	6	421278	5907235	END	Broken River, at the Bridge Ck confluence, 800m u/s of Mansfield-Whitefield Rd
4	7	401780	5963270	START	Baddaginne Ck, at the Broken River confluence, 4.3 km d/s of Casey Weir
4	7	396748	5933042	END	Baddaginne Ck, 1.2km Nth of D6 Rd, Warrenbayne
4	8	396748	5933042	END	Baddaginne Ck, 1.2km Nth of D6 Rd, Warrenbayne
4	8	393074	5927642	START	Baddaginne Ck, at the Bonnie Doon Rd crossing, 150m south from the Bonnie Doon Rd & Boundary Hill-Upper Boho Rd intersection.
4	9	410195	5937638	END	Moonee Ck, Moonee Ck-Broken River confluence, 800m Nth of the crossing at McKellar Rd
4	9	406169	5924612	START	Moonee Ck, 1.8 km d/s of Heaney Rd crossing off Lima East Rd
4	10	406169	5924612	END	Moonee Ck, 1.8 km d/s of Heaney Rd crossing off Lima East Rd
4	10	402932	5914535	START	Moonee Ck, 200m u/s of crossing at Crystal Mines Track off Barjarg Rd
4	11	430500	5911708	START	Bridge Ck, 450m u/s of crossing at Mansfield-Whitfield Rd Tolmie (off Spring Ck Rd)
4	11	421278	5907235	END	Bridge Ck, Bridge Ck-Broken River confluence, 800m u/s of Broken River crossing at Mansfield-Whitfield Rd, Off Long Lane (Barwite)
4	12	422765	5902060	START	(Halls Weir Ck), 1.3 km u/s of crossing at Barwite Rd (off Mansfield-Whitfield Rd)
4	12	415266	5906389	END	(Halls Weir Ck), at Broken River confluence, 150m d/s of crossing at Shamrock Lane, off Long Lane (Mansfield)
4	13	409319	5953008	END	Holland Ck, 700m d/s of crossing at Samaria Rd
4	13	416022	5947318	START	Holland Ck, Holland Ck-Ryans Ck confluence, 550m u/s of Emu Bridge Rd crossing
4	14	424197	5919994	START	Holland Ck, 2.2 km u/s of crossing at Jones Rd (Archerton)
4	14	416022	5947318	END	Holland Ck, Holland Ck-Ryans Ck confluence, 550m u/s of Emu Bridge Rd crossing
4	15	431478	5912119	START	Bog Ck, At the Mansfield-Whitfield Rd & Spring Ck Rd Crossing (Tolmie)
4	15	424197	5919994	END	Holland Ck, 2.2 km u/s of crossing at Jones Rd (Archerton)

BASIN	REACH	Easting	Northing	Reach End (flow)	Description
4	16	430791	5935558	START	Ryans Ck, southern end of Loombah Weir (off Upper Ryans Ck Rd)
4	16	416022	5947318	END	Holland Ck, Holland Ck-Ryans Ck confluence, 550m u/s of Emu Bridge Rd crossing
4	17	432270	5915416	START	Ryans Ck, at the old Tolmie Rd crossing
4	17	430791	5935558	END	Ryans Ck, southern end of Loombah Weir (off Upper Ryans Ck Rd)
4	18	424860	5932894	START	Sam Ck, 3 km u/s of Odea Rd crossing (Tatong)
4	18	417633	5947018	END	Sam Ck, at Sam Ck-Ryans Ck confluenc, Gunn Rd crossing
4	19	427128	5928223	START	Watchbox Ck, crossing at Tiger Hill Rd or Loombah Weir Track
4	19	424653	5945320	END	Watchbox Ck, Watchbox-Ryans Ck confluence, 1.4 km d/s of Odea Rd (Molyullah)
4	20	416673	5959715	END	Mokoan Inlet Channel, south end of Lake Mokoan, Nelson Rd and Winton Ck crossing
4	20	424638	5948896	START	Winton Ck, 2.7 km u/s of Brock-Upper Lurg Rd crossing
4	21	322728	6011344	START	Broken Ck, 3.3 km u/s of Kennedys Weir, Boals-McDonalds Rd crossing
4	21	315566	6018166	END	Broken Ck, Broken Ck-Murray River confluence, 1 km d/s of Rices Weir
4	22	337541	6008824	START	Broken Ck, where railway line crosses ck in Nathalia
4	22	322728	6011344	END	Broken Ck, 3.3 km u/s of Kennedys Weir, Boals-McDonalds Rd crossing
4	23	337541	6008824	END	Broken Ck, where railway line crosses ck in Nathalia
4	23	351667	6000844	START	Broken Ck, Broken Ck-Nine Mile Ck confluence, 1 km d/s of Sutcliffes Rd
4	24	351667	6000844	END	Broken Ck, Broken Ck-Nine Mile Ck confluence, 1 km d/s of Sutcliffes Rd
4	24	376541	6004400	START	Broken Ck, 300m u/s of Katamatite-Nathalia Rd crossing, 1.2 km u/s of the Nine Mile, Wild Dog & Broken Ck confluence
4	25	376541	6004400	END	Broken Ck, 300m u/s of Katamatite-Nathalia Rd crossing, 1.2 km u/s of the Nine Mile, Wild Dog & Broken Ck confluence
4	25	394157	5997875	START	Broken Ck, Tungamah Main Rd crossing, channel that joins the Broken & Boosey Cks
4	26	394157	5997875	END	Broken Ck, Tungamah Main Rd crossing, channel that joins the Broken & Boosey Cks
4	26	396815	5981483	START	Broken Ck, 1 km u/s of crossing at Lidgerwood Rd (Devenish)
4	27	396815	5981483	END	Broken Ck, 1 km u/s of crossing at Lidgerwood Rd (Devenish)
4	27	402086	5966597	START	Broken Ck, 300m d/s of crossing at Taylor-Wallace Rd (Goorambat)
4	28	375740	6003785	START	Nine Mile Ck, Nine Mile Ck-Broken Ck confluence, 500m d/s of Dip Bridge Rd (Invergordon)
4	28	354189	5995001	END	Nine Mile Ck, Nine Mile Ck-Pine Lodge Ck confluence
4	29	375740	6003785	END	Nine Mile Ck, Nine Mile Ck-Broken Ck confluence, 500m d/s of Dip Bridge Rd (Invergordon)
4	29	387629	5983037	START	East of Walters Rd (Waggarandall)
4	30	351667	6000844	END	Broken Ck, Broken Ck-Nine Mile Ck confluence, 1 km d/s of Sutcliffes Rd
4	30	368597	5974853	START	Pine Lodge Ck, 400m d/s of New Dookie Rd crossing (Pine Lodge)
4	31	368672	5974706	END	Pine Lodge Ck, 400m d/s of New Dookie Rd crossing (Pine Lodge)
4	31	381818	5970227	START	East of Dookie-Gowangardie Rd (Cosgrove Sth)
4	32	402011	5996111	START	Boosey Ck, Sandy Channel-Boosey Ck confluence
4	32	379490	6005012	END	Boodey Ck, Boosey Ck-Broken Ck confluence, 950m d/s of Learmont Rd crossing (Katamatite)

BASIN	REACH	Easting	Northing	Reach End (flow)	Description
4	33	402011	5996111	END	Boosey Ck, Sandy Channel-Boosey Ck confluence
4	33	413910	5980199	START	Boosey Ck, Boughyard Ck-Boosey Ck confluence, at the Bungeet Rd crossing
4	34	428166	5979261	START	Starts at Booth Rd (Wangandary)
4	34	413910	5980199	END	Boosey Ck, Boughyard-Boosey Ck confluence, at the Bungeet Rd crossing
4	35	420282	5989974	START	Starts at Keenan Rd (Boweya North)
4	35	402011	5996111	END	Boosey Ck, Sandy Channel-Boosey Ck confluence
4	36	316194	6025454	END	Budgee Ck, Murray River-Budgee Ck confluence
4	36	337126	6030031	START	Tullah Ck, Bourke St crossing (Yielima)
5	1	320029	5999780	START	Goulburn River, Yambuna Bridge Rd crossing (Yambuna)
5	1	304686	6002281	END	Goulburn River, Murray River-Goulburn River Confluence (Nth end of Looker Rd)
5	2	320029	5999780	END	Goulburn River, Yambuna Bridge Rd crossing (Yambuna)
5	2	335695	5994470	START	Goulburn River, Nth end of Hutchison Rd (Undera)
5	3	348381	5986751	START	Goulburn River, Sth end of Buchanan Rd (Bunbartha)
5	3	335695	5994470	END	Goulburn River, Nth end of Hutchison Rd (Undera)
5	4	354287	5973951	START	Goulburn River, 4 km d/s of Midland Hwy crossing (Shepparton)
5	4	348381	5986751	END	Goulburn River, Sth end of Buchanan Rd (Bunbartha)
5	5	354082	5969180	START	Goulburn River, Goulburn River-Seven Cks confluence (Riverview Drive Kialla)
5	5	354287	5973951	END	Goulburn River, 4 km d/s of Midland Hwy crossing (Shepparton)
5	6	353022	5958154	START	Goulburn River, Castle Ck-Goulburn River confluence, 300m d/s of Goulburn Valley Hwy crossing (Arcadia)
5	6	354082	5969180	END	Goulburn River, Goulburn River-Seven Cks confluence (Riverview Drive Kialla)
5	7	353022	5958154	END	Goulburn River, Castle Ck-Goulburn River confluence, 300m d/s of Goulburn Valley Hwy crossing (Arcadia)
5	7	348652	5950620	START	Goulburn River, Pranjip Ck-Goulburn River confluence, 1km d/s of Quirks Rd (Nth end) crossing (Arcadia)
5	8	348652	5950620	END	Goulburn River, Pranjip Ck-Goulburn River confluence, 1km d/s of Quirks Rd (Nth end) crossing (Arcadia)
5	8	336469	5934788	START	Goulburn River, between Cattanach canal & Stuart Murray canal, east of the Goulburn Weir
5	9	336469	5934788	END	Goulburn River, between Cattanach canal & Stuart Murray canal, east of the Goulburn Weir
5	9	332565	5916170	START	Goulburn River, Hughes Ck-Goulburn River confluence, 3 km d/s of Hughes Ck-Goulburn Valley Freeway crossing
5	10	333629	5901876	START	Goulburn River, Whiteheads Ck-Goulburn River confluence (west end of Hanna St Seymour)
5	10	332565	5916170	END	Goulburn River, Hughes Ck-Goulburn River confluence, 3 km d/s of Hughes Ck-Goulburn Valley Freeway crossing
5	11	333629	5901876	END	Goulburn River, Whiteheads Ck-Goulburn River confluence (west end of Hanna St Seymour)
5	11	341164	5892793	START	Goulburn River, 1.6 km u/s of the Goulburn Valley Hwy crossing (Trawool)
5	12	341164	5892793	END	Goulburn River, 1.6 km u/s of the Goulburn Valley Hwy crossing (Trawool)
5	12	355215	5883537	START	Goulburn River, Yea River-Goulburn River confluence, 100m u/s of Ghin Ghin Rd crossing
5	13	355270	5883553	END	Goulburn River, Yea River-Goulburn River confluence, 100m u/s of Ghin Ghin Rd crossing
5	13	376357	5883970	START	Goulburn River, West end of Binns-McCraes Rd (Cathkin)

BASIN	REACH	Easting	Northing	Reach End (flow)	Description
5	14	405265	5879406	START	Goulburn River, where enters Lake Eildon at sth end, Pinniger Rd crossing (Eildon)
5	14	376357	5883970	END	Goulburn River, West end of Binns-McCraes Rd (Cathkin)
5	15	423148	5871562	END	Goulburn River, Jamieson River-Goulburn River confluence, 500m d/s of where Jamison River crosses Mansfield-Woods Point Rd (Jamieson)
5	15	432361	5857360	START	Goulburn River, Moonlight Ck-Goulburn River confluence, 200m d/s of where Moonlight Ck crosses Lazarini Spur Rd (Woods Point)
5	16	432361	5857360	END	Goulburn River, Moonlight Ck-Goulburn River confluence, 200m d/s of where Moonlight Ck crosses Lazarini Spur Rd (Woods Point)
5	16	428168	5844328	START	Goulburn River, East of Corn Hill Rd
5	17	354082	5969180	END	Seven Cks, Goulburn River-Seven Cks confluence (Riverview Drive Kialla)
5	17	363637	5946023	START	Seven Cks, Faithful Ck-Seven Cks confluence, 200m d/s of Miepoll School Rd crossing (Miepoll)
5	18	363637	5946023	END	Seven Cks, Faithful Ck-Seven Cks confluence, 200m d/s of Miepoll School Rd crossing (Miepoll)
5	18	372176	5933714	START	Seven Cks, Branch Ck-Seven Cks confluence, 500m u/s of Moglenemby Rd crossing (Euroa)
5	19	372176	5933714	END	Seven Cks, Branch Ck-Seven Cks confluence, 500m u/s of Moglenemby Rd crossing (Euroa)
5	19	383204	5917391	START	Seven Cks, 540m d/s of Galls Gap Rd crossing (Strathbogie)
5	20	397868	5918771	START	Seven Cks, 3 km d/s of Mt Piper Track crossing
5	20	383204	5917391	END	Seven Cks, 540m d/s of Galls Gap Rd crossing (Strathbogie)
5	21	363637	5946023	END	Faithful Ck, Faithful Ck-Seven Cks confluence, 200m d/s of Miepoll School Rd crossing (Miepoll)
5	21	390998	5927804	START	Faithful Ck, McGearys Lane crossing (Boho Sth)
5	22	357091	5962697	END	Honeysuckle Ck, Seven Cks-Honeysuckle Ck confluence, 300m d/s of Archer Rd crossing (Kialla)
5	22	375083	5949404	START	Honeysuckle Ck, Riggs Ck-Honeysuckle Ck confluence, 1.7 km u/s of Strathaird Rd crossing (Tamleugh)
5	23	375083	5949404	END	Honeysuckle Ck, Riggs Ck-Honeysuckle Ck confluence, 1.7 km u/s of Strathaird Rd crossing (Tamleugh)
5	23	394469	5939969	START	Swamp Ck, Kays Track (Boho)
5	24	366515	5961344	END	Irish Ck, 1.8 km u/s of Shepparton-Euroa Rd crossing (Kialla East)
5	24	389198	5956892	START	Sloans Rd (Koonda)
5	25	353022	5958154	END	Castle Ck, Castle Ck-Goulburn River confluence, 300m d/s of Goulburn Valley Hwy crossing (Arcadia)
5	25	370802	5930648	START	Castle Ck, 800m d/s of Clifton St (Euroa Main Rd) crossing
5	26	370802	5930648	END	Castle Ck, 800m d/s of Clifton St (Euroa Main Rd) crossing
5	26	376487	5911043	START	Castle Ck, Fredricksons Lane crossing (Gooram)
5	27	365035	5926439	START	Creightons Ck, 600m u/s of Hume Freeway crossing (Euroa)
5	27	348652	5950620	END	Creightons Ck, Pranjip Ck-Goulburn River confluence, 1km d/s of Quirks Rd (Nth end) crossing (Arcadia)
5	28	365192	5926644	END	Creightons Ck, 600m u/s of Hume Freeway crossing (Euroa)
5	28	371516	5908898	START	Creightons Ck, Creightons Ck Rd (Gooram)
5	29	346833	5935493	END	Pranjip Ck, Burnt Ck-Pranjip Ck confluence, 450m d/s of Wahring-Euroa Rd crossing (Wahring)
5	29	355624	5918645	START	Pranjip Ck, East end of Alexandersons Rd (Locksley)
5	30	303125	5944502	START	Cornella Ck, Cornella Ck-Yallagalorrah Ck confluence, 1.6 km d/s of Plain Rd crossing (Colbinabbin)
5	30	303489	5956184	END	Cornella Ck, east end of Willoughby Rd (Corop)

BASIN	REACH	Easting	Northing	Reach End (flow)	Description
5	31	303125	5944502	END	Cornella Ck, Cornella Ck-Yallagalorrah Ck confluence, 1.6 km d/s of Plain Rd crossing (Colbinabbin)
5	31	298656	5916485	START	Cornella Ck, Plantation Rd (Heathcote)
5	32	303125	5944502	END	Yallagalorrah Ck, Cornella Ck-Yallagalorrah Ck confluence, 1.6 km d/s of Plain Rd crossing (Colbinabbin)
5	32	297747	5932055	START	Yallagalorrah Ck, Pook Rd crossing (Cornella)
5	33	308885	5960831	END	Goborup Ck, Nth of Wallenjoe Rd (Corop)
5	33	310554	5932724	START	Goborup Ck, Nth of Boundary Rd (Redcastle), near Black Waterhole
5	34	319307	6006374	END	Deep Ck, Wallala Ck-Deep Ck confluence, 700m d/s of Stewarts Bridge Rd (Echuca-Nathalia Rd) crossing (Lower Moira)
5	34	343033	5997791	START	Deep Ck, Sth end of Flanners Rd (Kaarimba)
5	35	328341	5920814	END	Major Ck, Goulburn River-Major Ck confluence, Wattlevale Rd (Mitchellstown)
5	35	306040	5898455	START	Major Ck, Paddys Dam Rd (Tooborac)
5	36	327403	5917862	END	Gardiner Ck, Major Ck-Gardiner Ck confluence (Mitchellstown)
5	36	320878	5898602	START	Bassetts Rd (Hilldene)
5	37	332565	5916170	END	Hughes Ck, Hughes Ck-Goulburn River confluence, 3 km d/s of Hughes Ck-Goulburn Valley Freeway crossing
5	37	346194	5909314	START	Hughes Ck, Murrawoods Rd crossing (Avenel)
5	38	346194	5909314	END	Hughes Ck, Murrawoods Rd crossing (Avenel)
5	38	348899	5901892	START	Hughes Ck, Buckland Ck-Hughes Ck confluence, off Hughes Ck Rd (Tarcombe)
5	39	371431	5897890	START	Hughes Ck, off Top Rd (Terip Terip)
5	39	348899	5901892	END	Hughes Ck, Buckland Ck-Hughes Ck confluence, off Hughes Ck Rd (Tarcombe)
5	40	347071	5892457	START	Whiteheads Ck, off Homewood Rd (Whiteheads)
5	40	333629	5901876	END	Whiteheads Ck, Goulburn River-Whiteheads Ck confluence, 300m d/s of Hanna St crossing (Seymour)
5	41	319321	5889920	START	Mollison Ck, 1.1 km u/s of Glenaroua-Broadford Rd crossing (Glenaroua)
5	41	330208	5899219	END	Sugarloaf Ck-Sunday Ck confluence, 100m u/s of Ford Rd crossing (Hilldene)
5	42	310111	5886128	START	Percivall Ck, Fullards Rd (Pyalong)
5	42	319321	5889920	END	Mollison Ck, 1.1 km u/s of Glenaroua-Broadford Rd crossing (Glenaroua)
5	43	307496	5883138	START	High Camp-Lancefield Rd crossing (High Camp)
5	43	310111	5886128	END	Percivall Ck, Fullards Rd (Pyalong)
5	44	322864	5888303	END	Kurkuruc Ck, Sugarloaf Ck-Kurkuruc Ck confluence, 200m d/s of Mooneys Lane crossing (Glenaroua)
5	44	321850	5878082	START	Kurkuruc Ck, off Jefferys Lane (Broadford)
5	45	327007	5881069	START	Sunday Ck, Dry Ck-Sunday Ck confluence, 500m from Broadford-Kilmore Rd (High St) crossing (Broadford)
5	45	331332	5900408	END	Sugarloaf Ck, Goulburn River-Sugarloaf Ck confluence, 400m d/s of Dysart Rd crossing (Seymour)
5	46	327007	5881069	END	Sunday Ck, Dry Ck-Sunday Ck confluence, 500m from Broadford-Kilmore Rd (High St) crossing (Broadford)
5	46	334051	5861623	START	Sunday Ck, Morrison Ck-Sunday Ck confluence, off Westcott Ck Rd (Clonbinane)
5	47	337279	5857549	START	Sunday Ck, Board Rd crossing (Clonbinane)
5	47	334051	5861623	END	Morrison Ck, Off Hills Rd (Clonbinane)
5	48	327007	5881069	END	Dry Ck, Dry Ck-Sunday Ck confluence, 500m from Broadford-Kilmore Rd (High St) crossing (Broadford)
5	48	328585	5860309	START	Dry Ck, Dry Ck Rd crossing (Clonbinane)

BASIN	REACH	Easting	Northing	Reach End (flow)	Description
5	49	331603	5884585	START	Dabyminga Ck, Chain of Ponds Ck-Dabyminga Ck confluence (Tallarook)
5	49	334680	5893319	END	Dabyminga Ck, Goulburn River-Dabyminga Ck confluence, 2 km d/s of Upper Goulburn Rd crossing (Tallarook)
5	50	337414	5867614	START	Dabyminga Ck, Fowerdale Rd crossing (Clonbinane)
5	50	331603	5884585	END	Dabyminga Ck, Chain of Ponds Ck-Dabyminga Ck confluence (Tallarook)
5	51	348152	5866321	START	King Parrot Ck, Dennet Ck-King Parrot Ck confluence, Long Gully Rd (Hazeldene)
5	51	346454	5887885	END	King Parrot Ck, Goulburn River-King Parrot Ck confluence, 850m d/s of GV Hwy crossing (Kerrisdale)
5	52	341947	5852440	START	King Parrot Ck, Camp Rd (Kinglake West)
5	52	348152	5866321	END	King Parrot Ck, Dennet Ck-King Parrot Ck confluence, Long Gully Rd (Hazeldene)
5	53	349057	5876632	START	Near Yea Spur
5	53	349057	5884948	END	Dairy Ck, GV Hwy crossing (Homewood)
5	54	364489	5873170	START	Yea River, Murrindindi River-Yea River confluence, 300m u/s of Murrindindi Rd crossing (Yea)
5	54	355270	5883553	END	Yea River, Yea River-Goulburn River confluence, 100m u/s of Ghin Ghin Rd crossing
5	55	360052	5857474	START	Yea River, Rocky Ck-Yea River confluence, 1.4 km d/s of Break Oday Rd crossing (Glenburn)
5	55	364489	5873170	END	Yea River, Murrindindi River-Yea River confluence, 300m u/s of Murrindindi Rd crossing (Yea)
5	56	360133	5848360	START	Yea River, Mountain Ck-Yea River confluence, 300m d/s of Gordons Bridge Rd crossing (Toolangi)
5	56	360052	5857474	END	Yea River, Rocky Ck-Yea River confluence, 1.4 km d/s of Break Oday Rd crossing (Glenburn)
5	57	360133	5848360	END	Yea River, Mountain Ck-Yea River confluence, 300m d/s of Gordons Bridge Rd crossing (Toolangi)
5	57	367930	5849312	START	Yea River, Yea Link Rd crossing (Toolangi)
5	58	364489	5873170	END	Murrindindi River, Murrindindi River-Yea River confluence, 300m u/s of Murrindindi Rd crossing (Yea)
5	58	370982	5862823	START	Murrindindi River, Murrindindi - S.E.C. Rd crossing (Murrindindi)
5	59	370982	5862823	END	Murrindindi River, Murrindindi - S.E.C. Rd crossing (Murrindindi)
5	59	376646	5850216	START	Bull Ck, Spur Rd crossing (Narbethong)
5	60	383897	5902728	START	Home Ck, off Moroondah Hwy (Kanumbra)
5	60	372377	5885146	END	Home Ck, Goulburn River-Home Ck confluence, 1.6 km d/s of G.V. Hwy crossing (Cathkin)
5	61	389995	5895013	START	Stoney Ck, Nth-East end of Stoney Ck Rd (Fawcett)
5	61	375061	5886121	END	Spring Ck, Goulburn River-Spring Ck confluence, 2 km d/s of G.V. Hwy crossing (Cathkin)
5	62	385241	5876951	END	Acheron River, Goulburn River-Acheron River confluence, 400m d/s from Acheron Rd crossing (Acheron)
5	62	383876	5852742	START	Acheron River, Dip Ck-Acheron River confluence, 200m d/s of Dip Ck & Maroondah Hwy crossing (Buxton)
5	63	383876	5852742	END	Acheron River, Dip Ck-Acheron River confluence, 200m d/s of Dip Ck & Maroondah Hwy crossing (Buxton)
5	63	390029	5833405	START	Off Road Ten (East Warburton)
5	64	384729	5857989	END	Stevenson River, Acheron River-Stevenson River confluence, 600m d/s of the Acheron River & Dyes Lane crossing (Buxton)
5	64	400640	5846197	START	Snowy Ck, Lake Mountain Rd crossing (Marysville)

BASIN	REACH	Easting	Northing	Reach End (flow)	Description
5	65	389457	5876760	END	Rubicon River, Goulburn River-Rubicon River confluence, sth end of Acheron Rd (Acheron)
5	65	395879	5872116	START	Rubicon River, Nth of Rubicon A (Switching station)
5	66	395879	5872116	END	Rubicon River, Nth of Rubicon A (Switching station)
5	66	399332	5852535	START	Nth of Boundary Trail (Rubicon)
5	67	418397	5847457	START	Big River, Reefton Logging Rd Crossing (Eildon)
5	67	416571	5866189	END	Big River, along the Eildon-Jamieson Rd (Kevington), near Burnt Bridge
5	68	423766	5833863	START	Oaks Ck, Warburton-Woods Point Rd crossing (Matlock)
5	68	418397	5847457	END	Big River, Reefton Logging Rd Crossing (Eildon)
5	69	427146	5880200	END	Howqua River, 1 km u/s of Mansfield-Woods Point Rd crossing (Howqua)
5	69	431490	5878397	START	Howqua River, Running Ck-Howqua River confluence, 400m d/s of the Running Ck & Steiners Rd crossing (Howqua)
5	70	431490	5878397	END	Howqua River, Running Ck-Howqua River confluence, 400m d/s of the Running Ck & Steiners Rd crossing (Howqua)
5	70	464137	5886137	START	Howqua River, where the Howqua River divided into Howqua River Nth & Sth branches, Queen Spur Rd crossing (Mount Buller)
5	71	414011	5886120	END	Delatite River, Nth side of Walshes Rd (Walsh Cove)
5	71	446811	5892673	START	Delatite River, Buller Ck-Delatite River confluence, 100m u/s of Stirling Rd crossing (Mirimbah)
5	72	446811	5892673	END	Delatite River, Buller Ck-Delatite River confluence, 100m u/s of Stirling Rd crossing (Mirimbah)
5	72	455247	5888816	START	Delatite River, Circuit Rd crossing (Mount Buller)
5	73	413430	5898618	END	Ford Ck, 3 km d/s of Maroondah Hwy crossing (Mansfield)
5	73	431899	5897273	START	D/s of Terry Rd crossing (Mansfield), Glenroy Hills
5	74	400652	5916806	START	Kangaroo Ck, Nth of Kangaroo Ck Track (Creek Junction)
5	74	393730	5902147	END	Brankeet Ck, Woolshed Ck-Brankeet Ck confluence, 400m u/s of Ancona-Woodfield Rd crossing (Ancona)
5	75	393417	5902418	END	Merton Ck, Brankeet Ck-Merton Ck confluence, 200m d/s of Ancona-Woodfield Rd crossing (Woodfield)
5	75	380141	5907143	START	Macklins Rd (Merton), Middle Hill