



**GOULBURN  
BROKEN**  
CATCHMENT  
MANAGEMENT  
AUTHORITY

# The Goulburn River Large Scale River Restoration Project

The aim of the Goulburn River Large Scale River Restoration project was to protect the values of the Goulburn River and its floodplain and riparian zones.

The Project has focused on on-ground works along the length of the Goulburn River. On-ground works that have been undertaken through the project include:

- Controlling stock access through fencing to protect water quality, riparian vegetation and wetlands;
- Enhancing riparian zones through weed control, native revegetation and natural regeneration;
- Working with partner organisations to implement riparian and aquatic weed control programs;
- Protecting urban water quality by installing gross pollutant traps in Shepparton and a bioremediation wetland in Mooroopna;
- Installing a rock ramp fishway at the Shepparton town weir to open up 122km of river to fish passage;
- Stabilising the bed and banks of the River;
- Replacing 2 vehicle crossings at Tahbilk Lagoon on the Goulburn River floodplain to provide native fish passage between the lagoon and the Goulburn River; and
- Reintroducing 604 snags (or large woody debris) to improve native fish habitat along 2.5 kilometres of the Goulburn River and Tahbilk Lagoon, which supports a population of the threatened Freshwater catfish.

On-grounds works carried out through the Goulburn River Large Scale River Restoration Project have resulted in a significant improvement to the Goulburn River and its floodplain.





# The Goulburn River

The Goulburn River catchment is Victoria's largest, covering over 1.6 million hectares or 7.1% of the state's total area. The Goulburn River is 570km long, flowing from upstream of Woods Point to the Murray River at Echuca.

The river has a mean annual discharge of 3.04 GL (1.8 ML/ha), which represents 13.7% of the total state discharge.

The Goulburn River offers the community a comprehensive range of values. The 430km section of the river between Eildon Reservoir and the confluence with the Murray River has been declared a Heritage River, in recognition of its multiple values.

The Heritage status of the river is in recognition of the range of social,

environmental and economic values, particularly:

- Intact understorey in River Red Gum open forest/woodland, and yellow box and grey box woodland/open forest communities;
- Wetlands of State significance;
- Significant habitat for vulnerable or threatened wildlife;
- Recreational Fishing opportunity;
- A wide range of recreational activities, including canoeing, camping and fishing;
- Cultural heritage sites; and
- Scenic landscapes.

The Goulburn River is a priority river within the ministerially endorsed Regional River Health Strategy, which was developed by the Goulburn Broken Catchment Management Authority in consultation with communities within the Goulburn and Broken basins. Community support is present to protect this river for both current and future generations.

A range of strategies and action plans have recognised its importance and have established a raft of works and actions to protect and enhance its health and the values it provides.



## Project Summary

Since the commencement of the Large Scale River Restoration Project in 2008/2009, significant on-ground works have been carried out to improve the condition of the Goulburn River.

More than 131 hectares of riparian revegetation has been completed in riparian areas on the Goulburn River, which exceeds the output target for the project of 110 hectares. More than 36 kilometres of river frontage has been revegetated using tubestock planting and mechanical direct seeding.

Almost 200 hectares of remnant riparian vegetation has been protected by 17.98 kilometres of fencing, compared to a planned 70 hectares.

The number of off stream watering points installed (11) is well down on original targets for the project (70), as the majority of fencing and/or revegetation sites did not require off stream water. This lead to major cost savings for the project.

Exotic weed control output targets have also been exceeded in the upper, mid and lower sections of the Goulburn

River. More than 110 kilometres of exotic vegetation control has been carried out in the Upper Goulburn River (52 kilometres planned at the start of the project), 57.58 kilometres in the mid Goulburn River (10 kilometres planned), and 37 kilometres in the lower Goulburn River (20 kilometres planned). A total of 966.37 hectares of land was treated for regionally prohibited weeds along the length of the Goulburn River as a result of the Large Scale River Restoration project.

The re-introduction of critical habitat for native fish (or "re-snagging") has been carried out in a number of key locations in the Goulburn River between Murchison and Shepparton, and in Tahbilk Lagoon, which is connected to the mid Goulburn River and is a significant habitat site for the threatened Freshwater catfish. A total of 604 snags (or more than 1200 cubic metres of hardwood stumps and logs) have been placed along almost 2.5 kilometres of river in key areas identified as having a low density of native fish habitat by habitat mapping carried out by freshwater fish ecologists from the Arthur Rhyllah Institute.

Vehicle crossings that were identified by ARI ecologists as being barriers to the movement of native fish at the inlet

and outlet of Tahbilk Lagoon have been removed and replaced with structures that allow unimpeded passage to and from the Goulburn River for Freshwater Catfish and other native fish species.

The Shepparton Town Weir was also removed and replaced with a rock ramp fishway, which opens up 122 kilometres of the Goulburn River between the Shepparton Town Weir the Goulburn Weir (downstream of Nagambie) for native fish migration, even during periods of low flows.

In partnership with the Greater Shepparton City Council, 2 Gross Pollutant Traps have been installed at priority stormwater outfalls within the Shepparton area. These Gross Pollutant traps will catch litter and debris from stormwater outfalls before it reaches the Goulburn River.

Signs detailing the significance of the Goulburn River has been produced and installed at 15 locations along the River. The signs have been erected in prominent locations in towns including Jamieson, Alexandra, Eildon, Nagambie, Shepparton, Mooroopna and Murchison. Interpretive signage was also developed for the Shepparton Town Weir fishway.

Upper  
Goulburn  
River







# Overall Goulburn River Large Scale River Restoration project achievements

Output Description	Qualifier	Unit	Achieved
Community Groups Supported	Other	No. groups	4
Revegetate with indigenous vegetation	Within riparian zones	Area (ha)	131
Revegetate with indigenous vegetation	Other terrestrial zones (next to or within remnant vegetation)	Area (ha)	16
Revegetate with indigenous vegetation	Within Riparian zones (next to or within remnant vegetation)	Length of river (km)	36.03
Fence Remnant Vegetation	Within riparian zones	Length of fencing (km)	17.981
Fence Remnant Vegetation	Within riparian zones	Area fenced (ha)	199.703
Fence Remnant Vegetation	Other terrestrial zones	Area fenced (ha)	32
Grazing regime change	Grazed as required for NRM outcomes	Area established (ha)	7.2
Fence wetland	Other	Area fenced (ha)	1.5
Off-stream watering points established	No qualifier	Number established	11
Pest treatment	Regionally prohibited weeds	Area treated (ha)	966.37
Pest treatment	Regionally prohibited weeds	Length of river (km)	207.26
Sites treated for soil erosion through engineering works/fencing	Other	Area treated (ha)	7.1
Urban stormwater control systems installed	Other	No. installed	3
Stream bank stabilised	No qualifier	Length stabilised (km)	4.285
Stream or area opened to fish passage	Fishway Installed	No. fish barriers addressed	3
Stream or area opened to fish passage	Fishway installed	Length or river (km)	135
Stream or area opened to fish passage	Other	Length of in stream habitat (km)	2.466
Urban Stormwater system	Gross Pollutant trap installed	No. installed	3
Pest treatment	Aquatic weeds	Length of waterway controlled or eradicated (km)	146

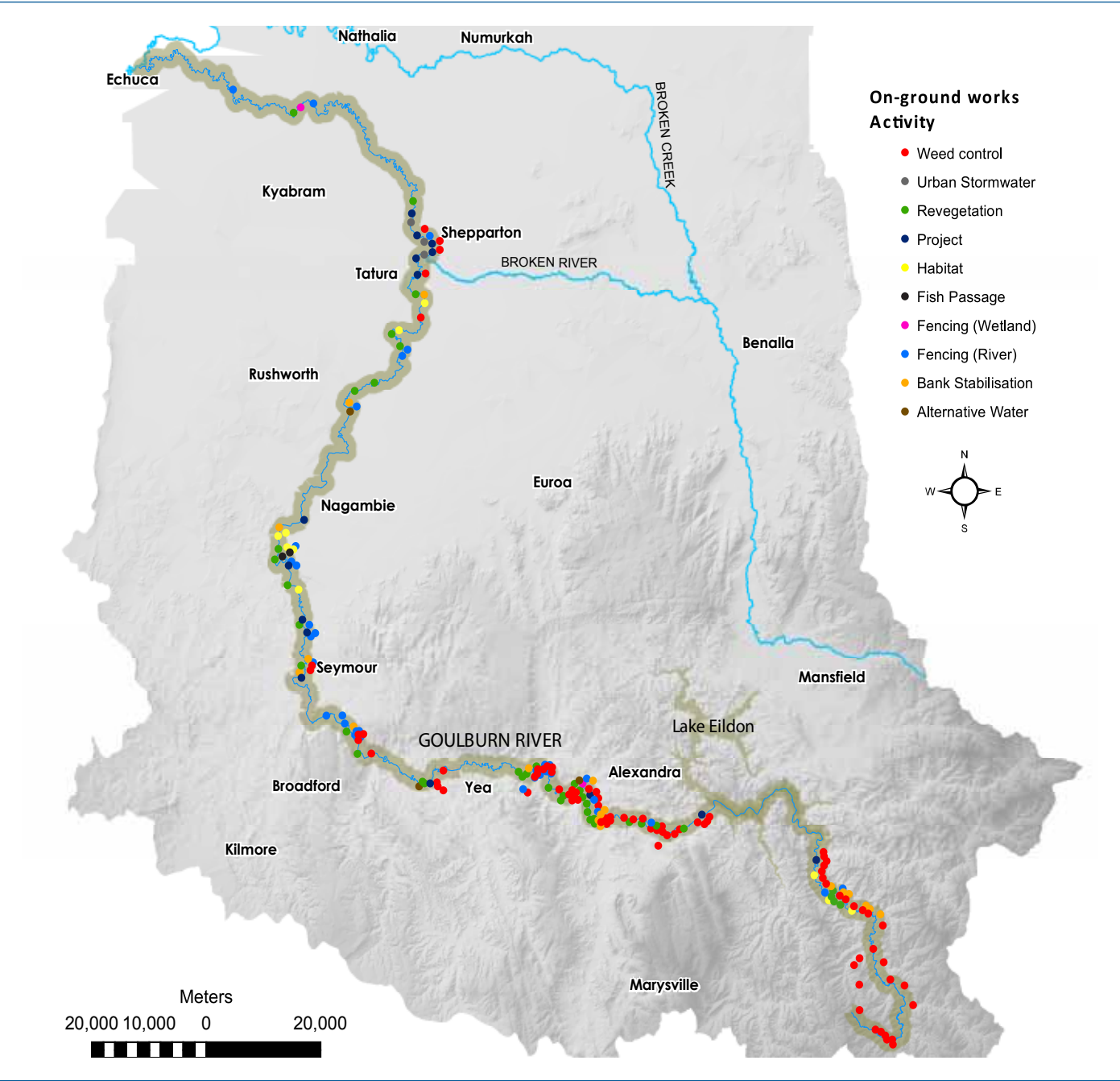






# LSRR Project Output Summary by Management Unit

## Goulburn River Large Scale River Restoration Project on-ground works



**Management Unit L1:  
Lower Goulburn River and Floodplain**

Covers the Goulburn River downstream of Goulburn Weir, a total length of stream of 195 km.

**Priority Status:** High Community Value

**Key Resource Focus:** Streamside Zone, Physical Form and Hydrology

**Activity has concentrated on:**

- Improving existing corridor links through revegetation, fencing, willow and woody weed control and the control of other invasive flora species.
- Identifying key erosion sites with planned construction at key sites to remediate erosion.
- Identifying priority catchment initiatives and works at key sites.
- Identifying sites for the placement of large woody debris (snags) through a study to assess in-stream habitat.
- Assessing priority urban storm water out falls.
- Assessing fish passage requirements at Shepparton and Goulburn Weir and modifying Shepparton Town Weir to improve fish passage.

Output	Targets from funding bid	Actual Output
Riparian revegetation @ >750 trees/ha	60 ha	26 ha (along 6.25 km)
Riparian fencing	40 km	4.29 km (55.99 ha fenced)
MyFOL / Management Agreements	40	16
Alternative Watering Points	40	2
Exotic vegetation control (injection and physical)	20 km	37 km (across 659.67 ha)
Public land protection	10 km	10.543 km of river
Placement of large wood structures (SEAR) @ 5/km	10 sites	Placement of 111 snags along 0.250 km River (average size 2m³)
Control bed and bank erosion in priority areas	5 km	0.55 km
Urban storm water / agriculture CRP projects	4	3
Key flow regimes reinstated	1	0
Key outfalls stabilised	2	2
Investigate fish passage	1 site	1 site
Provide fish Passage through removal or modification of existing structure	Not in original bid	122 km river opened up to fish passage
Exotic Vegetation control	Not in original bid	Weed mapping between Toolamba Bridge and Shepparton - Mooroopna.
Exotic Vegetation control	Not in original bid	146 km aquatic weed control
Investigation/Research	Not in original bid	1 project - Lower Goulburn Wetlands assessment
Investigation/Research	Not in original bid	1 project - Lower Goulburn Floodplain wetland fish investigation
Investigation/Research	Not in original bid	1 project - Lower Goulburn Native Fish Communities monitoring
Awareness raising - Interpretative signs installed	Not in original bid	Interpretive signs at 9 locations

**Management Unit U1:  
Mid Goulburn River**

Covers the length of the Goulburn River between Eildon Reservoir and Goulburn Weir, a total length of stream of 145 km.

**Priority Status:** High Community Value

**Key Resource Focus:** Streamside Zone, Physical Form and Hydrology

**Activity has concentrated on:**

- Improving existing corridor links through revegetation, fencing, willow control and other invasive flora species control.
- Identifying key erosion sites with planned construction at key sites to remediate erosion.
- Identifying priority catchment initiatives and works at key sites
- Identifying sites for the placement of large woody debris (snags) through a study to assess in-stream habitat.
- Assessing priority urban storm water out falls.
- Identifying key public land parcels for protection

Output	Targets from funding bid	Actual Output
Riparian revegetation @ >750 trees/ha	30 ha	100.733 ha (along 26.178 km river)
Riparian fencing	30 kms	13.688 km (143.71 ha fenced)
MyFOL / Management Agreements	30	53
Alternative Watering Points	30	9
Exotic vegetation control (injection and physical)	10 km	57.58 km (across 161 ha)
Public land protection	30 km	93.45 km of river
Placement of large wood structures (SEAR) @ 5/km	20 sites	Placement of 493 snags along 2.216 km River (average size 2m³)
Control bed and bank erosion in priority areas	2 km	1.635 km
Provide fish Passage through removal or modification of existing structure	Not in original bid	13 km river opened up to fish passage
Investigation/Research	Not in original bid	1 project - Mid Goulburn Wetlands assessment project
Investigation/Research	Not in original bid	1 project – Freshwater catfish in Tahbilk lagoon electrofishing/monitoring
Investigation/Research	Not in original bid	1 project – Native Fish Habitat Mapping. Mid Goulburn River.
Awareness raising	Not in original bid	Interpretative signs at 7 locations

**Management Unit U7:  
Upper Goulburn Catchment**

Covers the Goulburn River and major tributaries upstream of Eildon Reservoir, a total length of stream of 200 km.

**Priority Status:** High Community Value

**Key Resource Focus:** Streamside Zone, Physical Form and Hydrology

**Activity has concentrated on:**

- Improving existing corridor links through willow control and other invasive flora species control.
- Identifying key erosion sites with planned construction at key sites to remediate erosion.
- Identifying priority catchment initiatives and works at key sites.

Output	Targets from funding bid	Actual Output
Riparian revegetation @ >750 trees/ha	20 ha	0 ha*
Exotic vegetation control (injection and physical)	52 km	112.68 km (across 144.5 ha)
Partnership initiatives to improve the management of exotic vegetation in the catchment.	6 projects	4 projects
Control bed and bank erosion in priority areas	Not in original bid	2.1 km
Awareness raising - Interpretative signs installed	Not in original bid	1 location

*\*Revegetation was not carried out in the Upper Goulburn as existing intact areas of native vegetation in areas where weed control has been carried out will result in the natural regeneration of native vegetation.*

# Research Projects

A number research projects, monitoring projects, assessments and other investigations have been carried out through the Goulburn River Large Scale River Restoration project. These include:

- Lower Goulburn Wetland assessments
- Mid Goulburn Wetland assessments
- Lower Goulburn River Floodplain Wetland Fish Investigation
- Status of fish populations in the lower Goulburn River (2003-2012)
- Freshwater Catfish in Tahbilk Lagoon – electrofishing, tagging and monitoring project
- Mapping of habitat and associated fish survey in the Goulburn River, Seymour

Contact the Goulburn Broken Catchment Management Authority or visit [www.gbcma.vic.gov.au](http://www.gbcma.vic.gov.au) to obtain a copy of the reports that have been prepared as part of these projects.

## Supporting River Health

The community can assist in the protection of these natural assets through a number of ways:

- Find out about your local rivers and streams (and the values they contain/provide);
- Protect and manage streamside buffer areas by fencing and re-establishing native vegetation
- Get involved with and encourage participation in native fish and river health education programs
- Get involved with local groups working on river projects (Waterwatch, Landcare, Indigenous and recreational angling groups).

For more information please contact the Goulburn Broken Catchment Management Authority.



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