Management Unit L1 – Lower Goulburn River and Floodplain (Goulburn Basin Reaches 1-8)

The Goulburn River stretches from the headwaters near Woods Point, and flows North West through Lake Eildon, Alexandra, Yea, through to Seymour, Nagambie, Murchison, and Shepparton, to its confluence with the Murray River upstream from Echuca. The total length of the Goulburn River is 570 km. It has a mean annual water discharge of 3,040 GL. This volume of water is approximately 14% of the total water discharge from Victoria (GBCMA, 2005). Streamflow has been modified by both Lake Eildon, and also Goulburn Weir at Nagambie.

Management Unit L1 covers the **LOWER Goulburn River and Floodplain that** is the Goulburn River from Goulburn Weir near Nagambie, to the confluence with the Murray River, with a total stream length of 195 km (GBCMA 2005). Management unit L1 includes **river reaches 1 to 8** as outlined in the Goulburn Broken Regional River Health Strategy 2005-2015.

Tributaries entering the Goulburn River in Management Unit L1 include Burnt Creek, Pranjip (Muddy) Creek, Creightons Creek, Castle Creek, Seven Creeks, Faithful Creek, Honeysuckle Creek and the Broken River. Faithful and Honeysuckle Creeks flow into Seven Creeks. Creightons Creek joins Pranjip Creek. Pranjip, Castle, and Seven Creeks, and the Broken River, flow directly into the Goulburn River.

This part of the Goulburn River basin is basically flat country. Historically major tree clearing to permit agriculture, including a large horticulture industry, has occurred. Rainfall is less than 450 mm per annum, which makes up only about one third of the total evaporation in this area (GBCMA, 2005).

The Goulburn River is popular for fishing and boating and other recreational activities such as camping and picnics. The Goulburn River is a major source of raw water for the many towns along its length.

Reaches 1 to 8 of the Goulburn River have been identified under the Goulburn Broken Catchment Management Authority's Regional River Health Strategy as **high priority reaches**. A high priority reach is one of high value for either environmental, social and/or economic values.

High values identified in this Management Unit are its association with wetlands of national significance (Kanyapella Basin, and Lower Goulburn Floodplain), the classification of the Goulburn River as a Heritage River, and the presence of Murray Cod and Silver Perch, both considered critically dependent on stream environment, and both listed under the Environmental Protection and Biodiversity Conservation Act (1999).

Threats to these values and recommended actions are listed in table 1.

Murray Cod

Silver Perch

Photos courtesy http://www2.mdbc.gov.au/subs/fish-info/native_info/

Table 1: Threats identified to high value assets in Management Unit L1

Risk level	Actions to address the threats
Very High Risk	
Flow deviation	• Review Bulk Entitlements for the Goulburn River, • review the operating procedures of the Goulburn Weir to improve protection of the aquatic ecosystem, and • complete Goulburn environmental flow project.
Stock Access	• Fencing and revegetation initiatives are proposed to address stock access, as well as controlled grazing on public waterfronts.
Wetland Connectivity (Reach 1 only)	• The Lower Goulburn Floodplain management plan will be implemented in Reach 1 to address wetland connectivity.
Water quality SIGNAL, and Water quality, specifically nutrients and turbidity	Actions with regard to nutrient levels in water include: • provision of fencing and revegetation incentives, • minimizing nutrient run off into irrigation drains by implementing Best Management Practice on farms by irrigators, • removal of phosphorus from irrigation drains through water reuse, • minimizing nutrient discharge to rivers by reducing nutrient generation to wastewater facilities, • encouraging disposal to land of wastewater sources, • implementing best management practice for urban drainage to reduce stormwater contribution, • providing fencing and revegetation

	incentives will also address turbidity, • conducting an Ecological Risk Assessment to determine any further work required to improve turbidity levels.
High Risk	
Channel modification and bank erosion	• Bank stabilization works in areas of stream erosion. • Land managers will also be encouraged to adopt Best Management Practice for stabilizing beds and banks of waterways.
Loss of instream habitat	• Enhancement of aquatic refugia to protect instream habitat.
Water quality trends with regard to pH and electrical conductivity	• Conduct an Ecological Risk Assessment to determine further work required to improve pH and Electrical Conductivity
Medium Risk	
Introduced flora and fauna	• To control introduced fauna, actions within the Murray Darling Basin Native Fish Management Strategy will be supported. • Exotic vegetation will be controlled along streams, and revegetation with native species will be undertaken.

Further and more detailed information regarding Actions and river health Targets can be found in the Goulburn Broken Regional River Health Strategy 2005-2015.

GLOSSARY

Connectivity	Joining up
Electrical Conductivity	Measures the flow of electricity in a solution in µS/cm
Floodplain	Flat land adjacent to a stream or river that experiences occasional flooding when the water way reaches capacity
Flow deviation	Alteration from "usual" or "accepted" / different route
GBCMA	Goulburn Broken Catchment Management Authority
pH	Acidity or alkalinity of the water – 0 being acidic, 14 being alkaline
Refugia	An area that has escaped ecological changes occurring elsewhere, and so provides a suitable habitat for species that at an earlier time were abundant in a large area but now occur at only one or a few small areas.
RRHS	Regional River Health Strategy
SIGNAL	Stream Invertebrate Grade Level
Turbidity	A measure of the clarity of water, measured in NTU

REFERENCES

GBCMA (2005). *Regional River Health Strategy 2005-2015*. Goulburn Broken Catchment Management Authority, Shepparton.