

Lake Mulwala

Water Quality Study

Vegetation Assessment

The study recommended:

- Clearing in the Everglades area should be strictly controlled;
- Riparian vegetation should be improved around the entire lake but would be most effective to focus on the Everglades and Central Lake regions;
- Increasing the width of riparian vegetation patches via a series of connected blocks. This approach is preferable to increasing the riparian width around the whole lake [e.g. with a double row of trees]; and

- Establishing an education program highlighting the benefits of improving vegetation cover in and around the lake, and the effects of undesirable species.

As owner and manager of most of the foreshore land on the Victorian side of the lake, Goulburn-Murray Water on behalf of the Murray-Darling Basin Commission is committed to protecting and improving native vegetation to enhance water quality and the ecological health of Lake Mulwala.

This brochure is part of a series, which also includes more detailed information on Lake Mulwala's water quality and how you can contribute to a healthier lake. To obtain other brochures from the series contact:

Goulburn—Murray Water Yarrawonga Weir
03 5744 3137

Moira Shire Council
03 5871 9222

Corowa Shire Council
02 6033 8999

Or visit www.g-mwater.com.au.

To view the Murray-Darling Basin Freshwater Research Centre Water Quality report visit www.g-mwater.com.au.



The spread of invasive Crack Willow trees is a potential threat to the health of the lake.



Vegetation Assessment

Native vegetation in and around Lake Mulwala was the focus of a study undertaken by the Murray-Darling Freshwater Research Centre in 2004-2005.

The study was part of a broader Water Quality Study on Lake Mulwala which reviewed existing literature on the health of the lake, assessed current conditions and made recommendations for future monitoring.

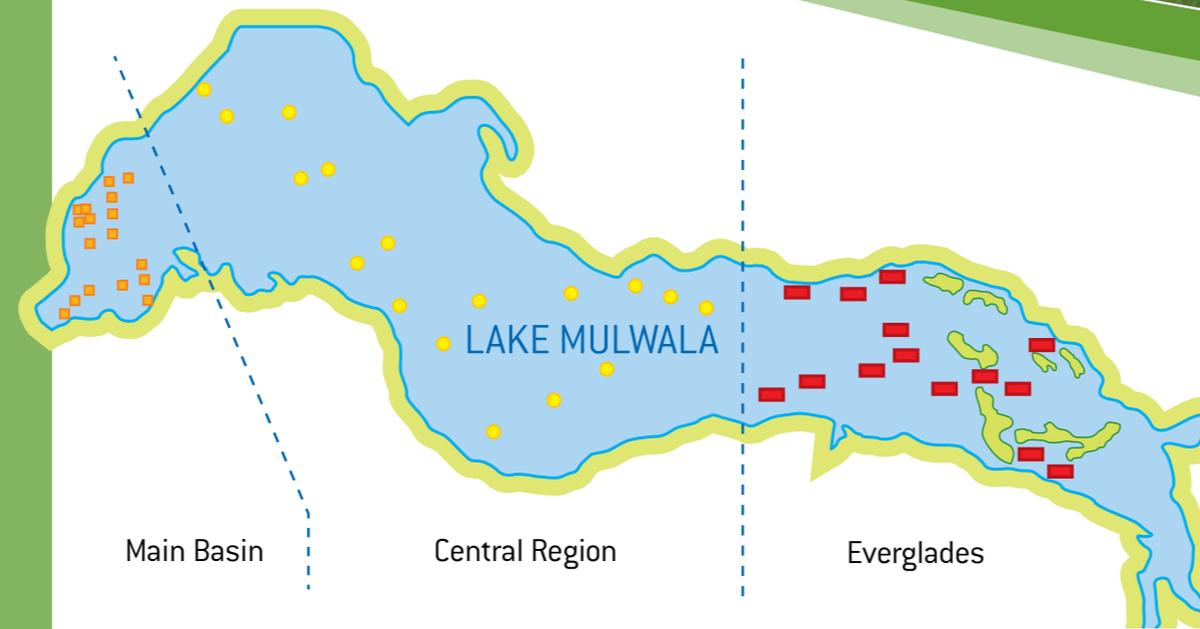
The study found, apart from the Everglades region, vegetation around most of the lake consists of a narrow strip. This strip, known as the riparian zone, is stressed and in poor condition, due to human-induced activity in surrounding areas. The zone consists mostly of mature River Red Gums (*Eucalyptus camaldulensis*) and at the western end, exotic tree species such as Weeping Willow (*Salix babylonica*).

Healthy native vegetation is an essential component for healthy waterways. At Lake Mulwala it provides important ecosystem functions such as:

- Filtering runoff of sediments, nutrients and other pollutants to the lake;
- Habitat for native bird, animal and fish species; and
- Stabilising the lake bed and banks to prevent erosion.

Improved ecological health of Lake Mulwala is a key objective of the Lake Mulwala Land and On-Water Management Plan. The study provided a detailed baseline of information on the current state of vegetation. This will be used to enable better management and the development of an ongoing monitoring program.

This brochure is part two of a series outlining information on the vegetation assessment component of the study.



For the purpose of the study, the lake was divided into three main regions including the Main Basin at the western end of the lake, the Central Lake Region and the Upper Eastern Lake region known as the 'Everglades' where the River Murray meets the Lower Ovens River.

A Geographic Information System was used combined with on-ground assessment and sampling techniques to assess the health of the riparian and aquatic vegetation.

Assessments confirmed the Everglades region exhibits vegetation of high ecological value that requires careful management and protection. The high diversity (30 species recorded) and abundance, good condition and ongoing regeneration of in-channel vegetation provides healthy habitat for native animals.

The study found:

- About 400 ha of land at Lake Mulwala is vegetated, although more than a third of the lake's edge is not vegetated;
 - At least 33 different aquatic and riparian species were observed;
 - Riparian vegetation is relatively healthy in the Everglades region but ecological value declines from east to west;
 - In the Central Lake region, riparian vegetation mostly consists of a single row of trees. Although Kyffins Reserve takes in a large area of vegetation, including three ha of in-channel vegetation.
 - In the western Main Basin region, only one third of the lake's edge is vegetated, almost entirely with exotic species (99%) which are mostly Weeping Willows. In-channel vegetation is scarce with no aquatic species recorded.
 - While 95% of the vegetated lake area is comprised of native species, this is predominantly remnant mature River Red Gum (*Eucalyptus camaldulensis*), with little evidence of regeneration.
- The spread of invasive Crack Willow trees, Dense Waterweed and Arrowhead are potential threats to the lake's health. These species out-compete native vegetation and provide limited habitat for native species.

Only one extensive vegetation survey had been carried out prior to the 2004-2005 study, making it impossible to predict long-term trends.

However, using the baseline data gathered in this study, a comprehensive standardised monitoring program for vegetation at Lake Mulwala has been developed. The monitoring program will be repeated every five years, and will assess changes in abundance, composition, distribution and condition of riparian and aquatic vegetation.