



Australian Government



MURRAY-DARLING BASIN AUTHORITY

# The Living Murray planned works

The Living Murray has initiated the largest environmental works of their kind in Australia that will deliver water to approximately 37,000 hectares of significant forests, wetlands and lakes of the River Murray.

## THE LIVING MURRAY

The Living Murray is one of Australia's most significant river restoration programs, established in response to evidence showing the declining health of the River Murray system.

Over the next three years it is planned that water management structures will be built at The Living Murray icon sites so that environmental water entitlements can be used to flood a floodplain, forest or wetland, or fill a lake, without waiting for a flood. Water management structures are proposed for:

- Gunbower-Koondrook-Perricoota
- Hattah Lakes
- Chowilla Floodplain and Lindsay-Wallpolla Islands (including Mulcra Island).

## Gunbower–Koondrook–Perricoota Forests

Water management structures proposed will enable watering of the icon site. The degree of watering will vary between years ranging from topping up permanent wetlands (most years) to full-scale forest flooding (about one year in four).

### Gunbower Forest

- the widening and deepening of an existing irrigation channel from Gunbower Creek and the construction of associated regulators to supply environmental water to the forest.

### Koondrook-Perricoota Forests

- 3.8 km of new channels upstream of Torrumbarry Weir into the forest to deliver environmental flows
- regulators and levees to control flooding within the forests and return flows to the Wakool River via Barbers Creek.

#### **What is a levee bank?**

*A levee bank is an earthen embankment that prevents water from leaving a site that is being watered.*



*A levee bank within Barmah-Millewa Forest. ©MDBA  
Photo by Arthur Mostead*

#### **What is a regulator?**

*Regulators are structures with gates that can be opened or closed to allow controlled flooding and drying of wetlands to mimic natural conditions. This helps to increase the amount of habitat available for breeding of waterbirds and native fish.*



*A regulator on Toupna Creek ©MDBA  
Photo by Arthur Mostead*

## Hattah Lakes

Water management structures will enable flooding of up to 6,000 ha of lakes and surrounding floodplains. They will include:

- three regulators and three levees to allow water to be retained within the lakes
- a pumping station to supplement natural flows from the River Murray into the lakes
- excavation of small sections of the natural creekbeds to increase the frequency of natural inflows.

## Chowilla Floodplain and Lindsay-Wallpolla Islands (including Mulcra Island)

The proposed water management structures will enable flooding of approximately 7,500 ha of floodplain and wetlands. Structures will include:

### Chowilla Floodplain

- a large regulator on Chowilla Creek to raise water levels in the Chowilla anabranch system, allowing wetlands and the floodplain to be inundated. (An anabranch is an offshoot of the river that re-joins it farther down the channel)
- smaller secondary regulators to control flows into and out of the anabranch system
- fishways to provide fish passage into and out of the anabranch system.

### Lindsay–Wallpolla Islands (Mulcra Island)

- a regulator on Potterwalkagee Creek to raise water levels in the creek, allowing wetlands and the floodplain to be inundated

- a pipe and two small regulators to allow watering of a large wetland downstream of the main regulator.

Water management structures will help to sustain the environment at the icon sites by providing managers with the ability to reinstate a more natural watering regime of both frequency of watering and duration of watering. The works allow different elevations in the floodplain to receive the most appropriate frequency and duration of watering for animal breeding cycles and plant growth.

These proposed structures enable effective watering of the wetlands and floodplains using regulated supplies of environmental water. The operation of

the proposed structures can be adapted to a wide range of conditions and water availability, and they will enable very efficient use of the available environmental water. This will be particularly important in the future under potential climate change conditions.

In addition to the wetland and floodplain watering projects, The Living Murray is funding the completion of the Sea to Hume Fishway program. This includes construction of an additional six fishways on weirs along the River Murray, the construction of two fishways on the Edward River in NSW, and the construction of an additional fishway on the Tauwitchere Barrage near the Murray Mouth.

### Detailed site modelling

Detailed studies assessing how water can best be moved through the icon sites to improve their environmental health have been completed. These studies have involved developing computer programs to test how water currently moves through the sites and how water will move after the water management structures have been put in place. Modelling of water movement has been carried out using MDBA water resources software called MSM-Bigmod, which simulates the operation of the River Murray System based on more than a century of historical flows and climate data.

The model utilises the expected amount of recovered environmental water under The Living Murray with the proposed structures in place. The model is also run under a number of different future climate change scenarios to check the sensitivity and usefulness of the structures. Several strategies for operating the proposed works have been tested to determine the range of potential ecological outcomes under different climate change scenarios. Modelling results suggest that even the small volume of water available in very dry conditions can lead to a real benefit to the environment with the proposed works.

The Living Murray is a joint initiative funded by the New South Wales, Victorian, South Australian, Australian Capital Territory and the Commonwealth Governments, coordinated by the Murray–Darling Basin Authority.

For more information, visit [www.mdba.gov.au](http://www.mdba.gov.au)

#### What is a fishway?

*Fish need to be able to move freely within their environment, a process described as 'fish passage'. The construction of structures such as dams, weirs and road crossings prevent fish passage by creating a physical barrier. One solution to this problem is to construct fishways at sites where these barriers exist. Fishways come in many forms and are specifically designed for each site. The common theme is to facilitate movement of fish by either allowing them to pass through or around the barrier.*

*Three types of fishways are used in the Murray River system. A vertical-slot fishway consists of a series of interconnected pools bypassing an obstruction such as a weir. These work very well for medium and large native fish. Lock fishways operate by attracting fish through an entrance. The fish accumulate in a holding area at the base of the lock. This holding area is then sealed and filled with water to reach a level equal to the water upstream of the barrier. Fish are then able to swim out of the lock. Lock fishways have been specifically developed to allow the movements of small (<60 mm) native fish. Rock-ramp fishways are suited to providing fish passage on low weirs that obstruct fish.*



A vertical-slot fishway at Burtundy ©MDBA  
Photo by Kris Kleeman



0 50 km

6 Murray River Channel (Icon Site 6)

Murray-Darling Basin