

Fish & Wetlands

Healthy wetlands, healthy fish populations



What are wetlands?

It is estimated that there are more than 30,000 floodplain wetlands in the Murray-Darling Basin. But wetlands can take many forms and come in many sizes.

Inland wetlands can include shallow floodplain water bodies close to the main river channel, such as waterholes, swamps or backwaters. They can include natural springs and ephemeral lakes in arid zones, or marshes in uplands areas.

In coastal regions, wetlands can take the form of tidal flats or estuaries, such as the Coorong near the Murray River mouth. Although some wetlands remain permanently wet, many wetlands in the Murray-Darling Basin undergo natural cycles of wetting and drying.



Wetlands support diverse ecosystems, including water birds such as this Egret



Macquarie Marshes, New South Wales



Ovens River Billabong

Why are wetlands important?

Wetlands play a vital role maintaining the health of the Murray-Darling Basin ecosystem. Their conservation is therefore an important part of protecting and enhancing habitat for fish under the Native Fish Strategy. In particular, healthy wetlands:

- **are important areas of biodiversity**, providing important feeding and breeding habitat for a diverse range of terrestrial and aquatic mammals, birds, reptiles, fish and invertebrates;
- **cleanse river systems** by retaining nutrients, sediments and pollutants;
- **are very productive** and contribute large amounts of nutrients to riverine food webs, ultimately resulting in better ecosystem functioning and healthier native fish populations;
- **provide financial assets** for both private landholders and the wider community. They can assist in flood control and when dry they can provide fertile land for sustainable cropping and grazing;
- **are important focal areas for eco-tourism**, providing recreational areas for boating, swimming, bushwalking, camping and bird watching;
- **hold cultural significance for indigenous communities**. The Coorong for instance has been home to the Ngarrindjeri people for thousands of years.

Facts About Fish in Wetlands

- Globally, wetlands are home to about 40% of the 8500 species of freshwater fish.
- Most of the 35 species of fish in the Murray-Darling Basin use wetlands at some stage in their life cycle.
- Wetlands provide feeding, spawning and nursery sites for native fish. Many of these fish return to the main river channel to recolonise habitats and replenish populations.
- Juvenile fish and several threatened fish species such as Southern-purple spotted gudgeon, Olive perchlet and Southern pygmy perch use aquatic plants in wetlands for protection from predators and for the macroinvertebrate food sources they attract.
- **Healthy wetlands sustain healthy fish populations** in all rivers of the Basin.



Olive perchlet



Southern purple-spotted gudgeon



Southern pygmy perch



Crimson-spotted rainbowfish

Important wetland ecosystems are under threat

The **Ramsar Convention** was signed in Iran in 1971 to promote the conservation and wise use of wetlands throughout the world. Australia became a contracting party to the convention in 1975. Ramsar wetlands are amongst the most degraded habitats in the world and if action is not taken to conserve these habitats, a catastrophic collapse of ecosystem functioning of our freshwater river systems is likely.

The **State Forests of the Central Murray River System** are some examples of Ramsar wetlands within the Murray-Darling Basin. The Millewa, Werai and Koondrook Forests of New South Wales and the Barmah and Gunbower Forests of Victoria collectively form a system of permanently and seasonally flooded lakes and billabongs adjacent to the Murray River. They form part of the largest periodically inundated river red gum forest in Australia and provide important breeding habitat for threatened and endangered bird and fish species.



The Barmah State Forest in Victoria, a Ramsar wetland



The Coorong in South Australia, a Ramsar wetland

What is threatening fish in wetlands?

River regulation has permanently changed the natural wetting and drying cycles of wetlands. Around 43% of the temporary wetlands in the Lower Murray System are now kept permanently flooded by impoundments. This not only disrupts the natural breeding cues of native fish, but it leads to reduced water quality, giving introduced species such as Carp a competitive advantage.

Water abstraction in many rivers, such as the Darling River, ensures that many off-channel billabongs stay permanently dry and therefore are no longer functional as refugia to dryland river fish.

Flood control structures such as levee banks and regulators can prevent native fish moving between the main river channel and wetlands.

Introduced species such as Carp can breed rapidly in wetlands and quickly out-compete native species. Carp are often the first to enter and last to leave wetlands when they connect to the river channel. Mosquitofish and Redfin perch can also eat the eggs and juveniles of native fish.

Pollution and habitat destruction from nearby urban areas, recreational users, stock and landholders can reduce the diversity of plant species and native fish in wetlands.



Algal blooms can occur when the natural wetting and drying cycle of a wetland is changed. These can be toxic to fish.



Floodplain vegetation can die if wetlands are kept permanently dry or permanently wet.



Introduced species such as Carp and Gambusia can out-compete natives in impacted wetlands.

The health and survival of wetlands in the Murray-Darling Basin is in your hands

Landholders

There are a number of incentives aimed at assisting private landholders to manage the long term health of wetlands within their property. These can include one-off grants and tax rebates to assist in wetland restoration activities such as:

- fencing off stock from wetlands and providing alternative watering points;
- removing noxious weeds such as Lippia, Hyacinth and Alligator Weed;
- minimising the use of agricultural chemicals and disposing of unused chemicals responsibly; and
- preserving and replanting native wetland vegetation.

Recreational users

- Take all your rubbish home with you.
- Do not collect firewood from wetlands, this provides structural habitat for fish during flooding.
- Abide by local boating rules, these are there to protect the fragile environment.
- Abide by local fishing rules including bag limits and season closures.
- Become involved with a wetland restoration agency active in your local area. Some examples include, Wetland Care Australia, WWF Australia, Greening Australia and Conservation Volunteers Australia.

The protection of wetlands is an important part of the conservation of native fish populations under the Native Fish Strategy. If you would like to find out further information about how the Native Fish Strategy for the Murray-Darling Basin is working towards healthier wetlands for native fish and to find out what you can do to help, contact the Murray-Darling Basin Commission on (02) 6279 0100 or visit www.mdbc.gov.au