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Endangered ecological communities in NSW

Lower Murray River aquatic ecological community

Threatened Species Unit

Fisheries Conservation and Aquaculture Branch, Port Stephens Fisheries Centre

Introduction

The aquatic ecological community of the lower Murray River drainage system has been greatly modified since European settlement, through activities such as river regulation, agricultural practices and the introduction of non-native species. Many aquatic habitats are now degraded, and many native species have experienced declines in their numbers and distribution – some to the point where they are now listed as threatened.

This ecological community is listed as an **endangered ecological community** in NSW, meaning that it is likely to become extinct in nature in this state, unless the circumstances and factors threatening its survival and evolutionary development cease to operate.

The listing of the lower Murray River aquatic ecological community has several legal implications, including the establishment of heavy penalties for harming (without appropriate authority) species or habitats that form part of the community (see 'Legal implications').

Potential impacts on the ecological community must be considered during development assessment processes, and NSW Department of Primary Industries may prepare a recovery plan for the community.

Description

The lower Murray aquatic ecological community includes all native fish and aquatic invertebrates within all natural creeks, rivers and associated lagoons, billabongs and lakes of the regulated portions of the Murray, Murrumbidgee and Tumut rivers, as well as all their tributaries and branches.

The listing includes:

- the Murray River below Hume Weir
- the Murrumbidgee River below Burrinjuck Dam
- the Tumut River below Blowering Dam
- Billabong Creek, Yanco Creek, Colombo Creek and their tributaries
- Frenchmans Creek
- Edward River, the Wakool River and their tributaries
- the Rufus River
- Lake Victoria.

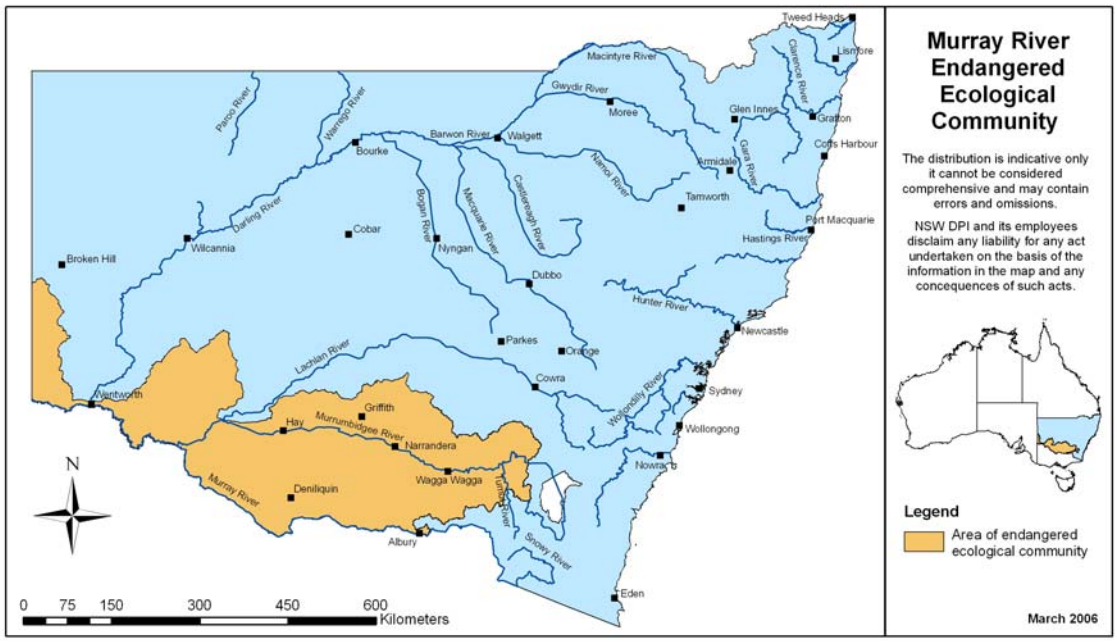
The Lachlan and Darling rivers and their tributaries, along with artificial canals, water distribution and drainage works, farm dams and off-stream reservoirs, are excluded from the aquatic ecological community.

The community includes 23 native fish species and over 400 recorded native invertebrate species.

Habitat and ecology

The lower Murray ecological community occurs in a lowland riverine environment, characterised by meandering channels and wide floodplains. The land is generally flat to gently sloping.

Yanco Creek. Photo: NSW DPI



In their natural state, these lowland rivers experienced extremely variable water flows, ranging from floods to droughts.

Variability in environmental conditions has led to adaptations in the native aquatic flora and fauna; for example, many species rely on floods to trigger spawning and create suitable breeding habitats.

Lowland rivers provide a wide range of habitats for fish and invertebrates, including pools, runs or riffles, backwaters and billabongs, large woody habitats and aquatic plants.

Floodplains also provide a mosaic of habitat types, including permanent and temporary wetlands, as well as terrestrial habitats.

Why is the aquatic community threatened?

- Modification of natural river flows as a result of river regulation (dams, weirs etc.), leading to reduced habitat quality and complexity, loss of spawning cues, and reduced opportunities for dispersal and migration of aquatic species.
- Spawning failures and habitat loss resulting from cold water releases from dams.
- Predation, competition, diseases and habitat modification from introduced fish species, such as carp, goldfish, redfin perch, gambusia, weatherloach and tench.
- Degradation of the riparian (riverbank) zone through stock access and clearing of native vegetation, leading to loss of shelter and increased sedimentation.
- Removal of in-stream large woody debris, which is an important habitat component and territory marker for many fish and invertebrates.
- Agricultural practices, such as irrigation, clearing, grazing and the use of fertilisers and pesticides, which have affected water quality.
- Over-fishing has probably contributed to declines in some species. Illegal fishing, together with hooking injuries in accidentally caught fish, still pose a threat to some species.

Illegal fishing activities are a threat to the EEC and should be reported to Fishers Watch on ph: 1800 043 536. Photo: Mark Hauser, NSW DPI

Conservation and recovery actions

- Allocate and manage environmental water flows in regulated rivers, to lessen the impacts of unseasonal flow and temperature patterns.
- Mitigate the impact of cold water pollution from major regulating structures.
- Prevent sedimentation and poor water quality by improving land management practices, conserving and restoring riparian vegetation and using effective erosion control measures.

Edward River Regulator. Photo: NSW DPI

- Develop and implement control programs for introduced species.
- Reinstate large woody debris where appropriate.
- Continue to assess and manage the impacts of fishing.
- Provide fish passage by removing barriers or installing fishways in consultation with affected stakeholders.

Fish ladder at Torrumbarry Weir. Photo: NSW DPI

Legal implications

The listing of the lower Murray River aquatic ecological community has given all native fish and other aquatic animal life within its boundaries the status of endangered species.

Harming a member of an endangered ecological community is an offence. Penalties can include fines of up to $220,000 and up to two years imprisonment.

Harming, buying, selling, or possessing a threatened species is also an offence. Penalties can include fines of up to $220,000 and up to two years imprisonment.

Severe penalties also apply for damaging the habitat of an endangered ecological community without approval. Damage includes actions such as dredging riverbeds and constructing in-stream or floodplain barriers that block the free passage of fish.

Clearing activities authorised by a property vegetation plan approved under the *Native Vegetation Act 2003* are permitted, provided the native vegetation reform package had the benefit of biodiversity certification at the time the property vegetation plan was approved.

Clearing that constitutes a routine agricultural management activity is permitted, as are certain routine farming practice activities other than clearing – provided the activities are to the minimum extent reasonably necessary, and all other relevant statutory approvals or authorities have been obtained.

The impact of developments or activities that require consent or approval (in accordance with the *Environmental Planning and Assessment Act 1979*) must be assessed and considered by consent or determining authorities. Where such actions are likely to result in a significant impact on a threatened species or its habitat, a detailed species impact statement must be prepared.

Strategies to be adopted for promoting the recovery of the endangered ecological community must be set out in the NSW DPI Priorities Action Statement.

A recovery plan may also be prepared for the endangered ecological community in accordance with the provisions of the *Fisheries Management Act 1994*, to promote the recovery of the community.

Arrangements are in place to allow continued recreational fishing for some popular native species, including:

- Murray cod (*Maccullochella peelii peelii*)
- golden perch (*Macquaria ambigua*)
- yabbies (*Cherax destructor*)
- Murray crayfish (*Euastacus armatus*)
- freshwater shrimps
- freshwater prawns.

Licensed inland commercial fishers with an appropriate endorsement may also continue to take yabbies and carp.

All existing bag, size and possession limits, closures and other fishing restrictions continue to apply.

Murray crayfish – part of the EEC. Photo: NSW DPI

Large woody debris habitat. Photo: NSW DPI

Lake Mulwala. Photo: NSW DPI

Bibliography and further reading

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Lloyd, LN & Walker, KF 1986,' Distribution and conservation status of small freshwater fish in the River Murray, South Australia', *Transactions of the Royal Society of South Australia* 110, pp. 49–57.

For further information

Phone the Fisheries Information and Advisory Line: 1300 550 474.

For more information on general fishing regulations check with your local fisheries office, or on the NSW DPI website, at www.dpi.nsw.gov.au

Contact the NSW DPI Threatened Species Unit

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