

Darling River Hardyhead population in the Hunter River catchment

Craterocephalus amniculus

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Darling River Hardyhead. (Photo: Gunther Schmida)

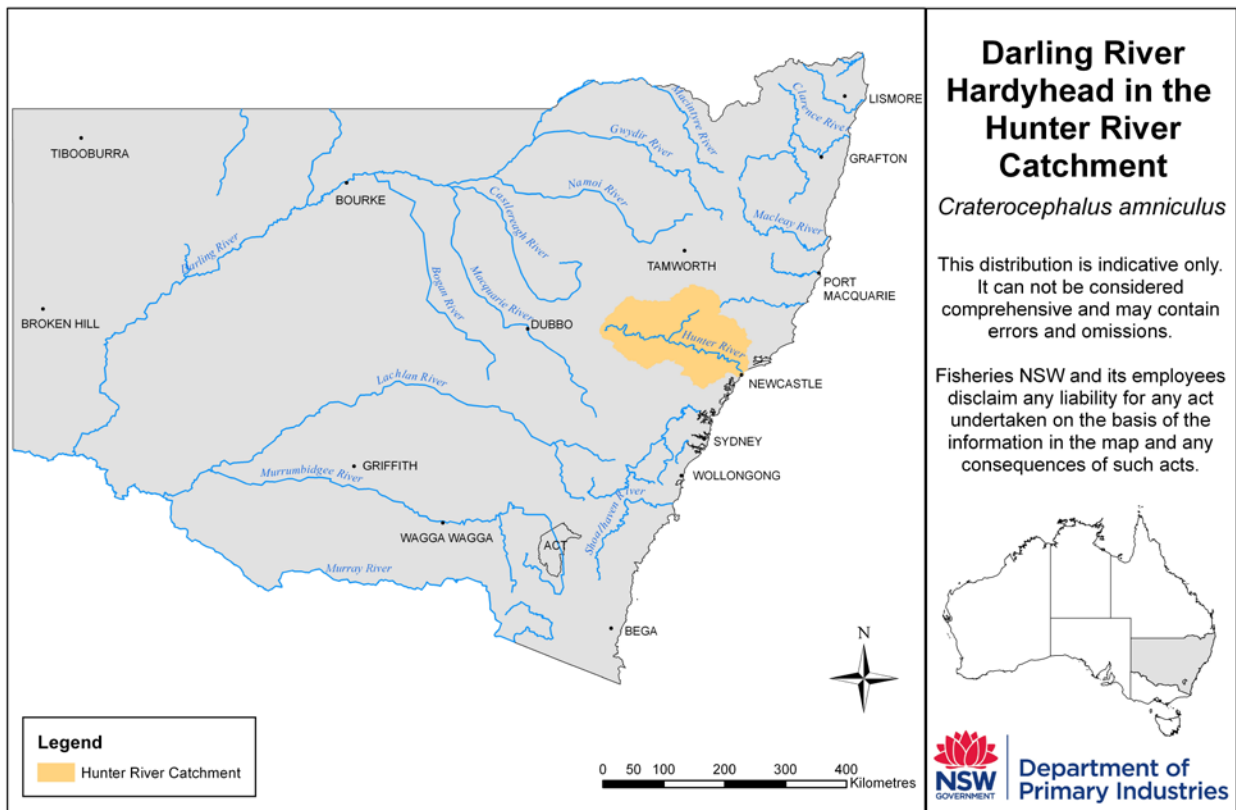


Introduction

The Darling River Hardyhead is a small, endemic Australian fish from the Family Atherinidae. The species is found in the upper tributaries of the Darling River including in the Border Rivers and the Gwydir and Namoi catchments. Although its distribution extends into the Queensland portion of the Border Rivers catchment, it is primarily found in NSW. It is also found in the headwaters of the Hunter System in coastal NSW.

Despite extensive sampling throughout its potential distribution, no individuals have been detected from the Hunter catchment since 2003.

The Darling River Hardyhead population in the Hunter River catchment is listed as an **endangered population** in NSW. There are heavy penalties for harming, possessing, buying or selling them, or for harming their habitat (see 'Legal Implications').



Description

The Darling River Hardyhead is a small species of fish growing to a maximum of 80mm fork length, but is generally around 42mm. It has compressed sides and a small protrusible mouth and thin lips to help capture and grip food. It has a forked tail, two small, short-based dorsal fins, and pectoral fins that are positioned high on the body. The second dorsal fin is situated directly above the anal fin.

The Darling River Hardyhead has large, silvery eyes. The scales are small and rarely overlap, and there are usually no scales on top of the head. The species is normally dusky gold coloured on its back with a dark silvery stripe which runs along the length of the body. The underside of the Darling River Hardyhead is lighter in colour, often with a silvery sheen.

Habitat and ecology

- Darling River Hardyheads primarily eat algae and fly larvae, but have also been seen to feed on small insects.
- The species is most commonly found in the north-east part of the Murray-Darling Basin, especially in the MacIntyre, Namoi other border rivers. The Hunter River population is the only known occurrence of the species in an eastward flowing river.

- They are usually found in slow flowing, clear, shallow waters or in aquatic vegetation at the edge of such waters. The species has also been recorded from the edge of fast flowing habitats such as the runs at the head of pools.
- They are usually found singly or in small or large schools of up to about 50 fish.
- Little data has been recorded on the reproductive biology of the species, however it is closely related to the Murray hardyhead (*Craterocephalus fluviatilis*), which is considered a short lived (annual) species with an extended breeding season from spring through to autumn. The eggs will usually be deposited amongst aquatic vegetation.

Why is the Darling River Hardyhead population in the Hunter River catchment threatened?

- The habitat of the Darling River Hardyhead has been degraded through soil erosion, land clearing and livestock damage to riverbanks.
- Thermal pollution (changes in water temperature) from large impoundments such as Glenbawn Dam, Lake Lidell and Lake St Clair is likely to harm populations downstream.

- The presence of competing species, including alien Goldfish (*Carassius auratus*), eastern gambusia (*Gambusia holbrooki*) and common carp (*Cyprinus carpio*) may be causing significant declines of the Darling River Hardyhead in the Hunter River catchment. It is also likely that gambusia feed on the eggs and larvae of the Darling River Hardyhead.
- Water extraction from smaller tributary streams during droughts may put additional pressure on remnant populations.

Conservation and recovery actions

- Develop advisory materials on the identification and conservation status of the Darling River Hardyhead population in the Hunter River catchment and educate landowners and the community.
- Encourage landowners to implement improved land management practices within the Hunter River catchment, such as restricting livestock access to waterways by fencing, and the use of vegetated buffer strips to reduce sediment and fertiliser run off.
- Improve water quality by appropriate land management practices, conserving and restoring riparian vegetation, and using effective erosion and sediment control measures.
- Allocate environmental flows in regulated rivers and minimise extraction during low flow conditions to restore natural seasonal flow patterns.
- Develop cooperative research partnerships to improve understanding of the biology, ecology and genetics of the Darling River Hardyhead, and the threatening processes affecting the species.
- Investigate the feasibility of ex-situ conservation options including translocation and breeding.
- Mitigate the impacts of pest species by developing and implementing management programs.
- Protect key sites within the Hunter River catchment which are likely to support the population, and address key threats.
- **Report any sightings of the species via the NSW DPI Threatened and Pest Species Sighting Form online: www.dpi.nsw.gov.au/fisheries**

Legal Implications

It is illegal to catch and keep, buy, sell, possess or harm Darling River Hardyhead from the Hunter River catchment (or any other threatened species in NSW) without a specific permit, licence, or other appropriate approval. Significant penalties apply. For endangered populations, these penalties can include fines of up to \$220,000 and up to 2 years in prison.

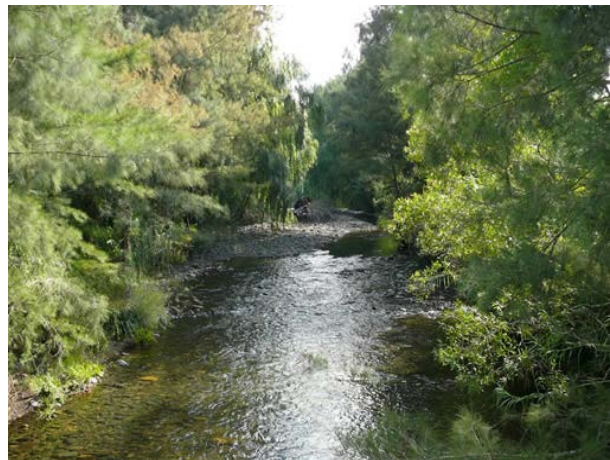
There can also be significant penalties for causing damage to the habitat of a threatened species without approval through actions such as dredging riverbeds, removing large woody debris damaging riparian vegetation and constructing barriers that block the free passage of fish.

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 Darling River Hardyhead population in the Hunter River catchment to a position of viability are to be set out in the NSW DPI Priorities Action Statement.

A recovery plan may be prepared for the Darling River Hardyhead population in the Hunter River catchment to promote the recovery of the species to a position of viability in nature.

Darling River Hardyhead habitat in the Hunter River at Aberdeen, NSW. (Photo: Hunter-Central Rivers CMA)



Bibliography and further reading

Allen G.R., Midgley S.H. and Allen M. (2002) Field Guide to Freshwater Fishes of Australia. CSIRO Publishing, Collingwood, Victoria.

Fisheries Scientific Committee (2013) Final Determination: The Darling River hardyhead population in the Hunter River catchment – *Craterocephalus amniculus* as an Endangered Species.

Lintermans M. (2009) Fishes of the Murray-Darling Basin: An Introductory Guide. Murray-Darling Basin Authority Canberra, ACT.

McDowall R. (1996) Freshwater Fishes of South-Eastern Australia. Reed Books, Sydney, NSW.

For further information

See the NSW DPI website: www.dpi.nsw.gov.au

Contact the NSW DPI Threatened Species Section:

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Coloration of the Darling Hardyhead, (Illustration: Jill Ruse)

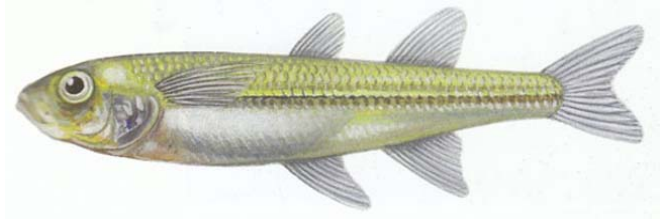


Illustration of the Darling River Hardyhead, displaying details of the scales and average length of the species, (Illustration: Crowley & Ivantsoff)

