

# River Blackfish population in the Snowy River Catchment - *Gadopsis marmoratus*

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(Illustration: NSW DPI)

## Introduction

The River Blackfish is an Australian freshwater species, with a range extending from southern Queensland to Victoria and Tasmania. Morphological and genetic data indicate that there are several distinct geographical forms, with two found in NSW, an East Gippsland form and a Northern Murray-Darling Basin form; however these are yet to be formally described as unique species. The River Blackfish of the Snowy River (East Gippsland form) were once highly abundant and widely distributed throughout the catchment, but are now restricted to isolated subcatchments through a range of threats, raising conservation concerns for this population.

The Snowy River population of the River Blackfish 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

River Blackfish have a slender, elongated body with small scales. The species has a single long dorsal fin that extends almost the length of the body, and the pelvic fins are reduced to a single branched rays emerging from underneath the throat. River Blackfish possess a large distinct snout and mouth, with the upper jaw protruding over the lower jaw. Colouration of the River Blackfish is highly variable. The species generally has a slight mottled appearance with some banding, and vary in colour from green or brown to almost black.

The primary morphological difference in the two geographical forms is the maximum size attained, with the southern population measuring at larger sizes than the northern population (<600 mm and < 300 mm respectively).

## Habitat and ecology

- The East Gippsland form of River Blackfish is more habitat-specific than the northern form, preferring clear flowing streams with good instream cover such as woody debris, aquatic vegetation and undercut banks. The northern form however, is a secretive, bottom-dwelling fish, inhabiting a wide range of habitats from upland and lowland small creeks, fast flowing rivers to murky streams. It is only rarely found in wetland habitats.
- The River Blackfish is generally nocturnal, utilising different habitat types at different times of the day e.g. undercut banks during the day for protection and open water at night to search for food.
- The River Blackfish is primarily an insectivore but also feeds on crustaceans, molluscs and small fishes.
- The River Blackfish is a non-migratory species, each fish spending its entire life within a 20-30 metre home range. Observation of captive fish suggests that they are highly territorial.
- Spawning occurs from spring to early summer when temperatures exceed 16°C. Fecundity is relatively low (200-500 eggs) and is proportional to the size of the fish. The eggs are deposited in hollow logs or rock crevices. The male guards and cleans these eggs for 14 days until they hatch. The newly hatched larvae are about 6-8mm long and remain at the spawning site for about 3 weeks after hatching.

**Figure 2: River Blackfish is a benthic dwelling carnivore (Photo: NSW DPI)**



## Why is the Snowy River population of River Blackfish threatened?

- Soil erosion and land clearing degrade habitat and spawning sites.
- Cold water released from large dams may disrupt temperature spawning cues, metabolic functioning, growth rates or feeding.
- Removal of large woody debris removes essential spawning sites and reduces reproductive success.
- Interspecies competition with introduced species of trout and redfin, as well as predation of juveniles.
- Accidental capture by recreational fishers.
- Altered water flow in the Snowy River has disrupted the habitat and ecosystem of River Blackfish as the species prefers flowing water.

## Conservation and recovery actions

- Conduct research into the biology and ecology of the River Blackfish and implement monitoring programs for the remaining isolated population.
- Allocate environmental water flows in regulated rivers to restore natural seasonal flow patterns and to reduce the impact of cold water pollution.
- Reinstate large woody debris where appropriate.
- Promote community awareness of the protected status and identification of the River Blackfish.
- Educate fishers on how to identify River Blackfish and the best ways to return any incidentally caught fish to the water.
- Determine interactions and impacts of introduced species and then establish and implement control programs.
- **Report any sightings of the species via the NSW DPI online form:**  
[www.dpi.nsw.gov.au/fisheries/species-protection/report-it/threatened-species-sighting-form](http://www.dpi.nsw.gov.au/fisheries/species-protection/report-it/threatened-species-sighting-form)

## Legal implications

It is illegal to catch and keep, buy, sell, possess or harm River Blackfish from the Snowy River population (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 are also significant penalties for causing damage to the habitat of a threatened species without approval. This includes but is not limited to dredging riverbeds, removing large woody debris and constructing barriers that block the free passage of fish.

Clearing that constitutes a routine agricultural management activity, and certain routine farming practice activities (other than clearing) are permitted, 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 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 Snowy River population of River Blackfish to a position of viability in nature must be set out in the NSW DPI Priorities Action Statement.

## Bibliography and further reading

Fisheries Scientific Committee (2008) Final Determination – *Gadopsis marmoratus* – River Blackfish population in the Snowy River catchment.

Hammer, M. P., et al. (2014). "A multigene molecular assessment of cryptic biodiversity in the iconic freshwater blackfishes (Teleostei: Percichthyidae: *Gadopsis*) of south-eastern Australia." *Biological Journal of the Linnean Society* **111**(3): 521-540.

Jackson, P.D., Koehn, J.D., Lintermans, M., and Sanger, A.C. (1996) Family Gadopsidae: Freshwater blackfishes. Pp 186 – 190. *In: Freshwater Fishes of South-Eastern Australia*. McDowall, R. (ed), Sydney, 247p.

Khan, M. T., et al. (2004). "Habitat use and movement of river blackfish (*Gadopsis marmoratus* R.) in a highly modified Victorian stream, Australia." *Ecology of Freshwater Fish* **13**(4): 285-293.

Koster, W. M. and D. A. Crook (2008). "Diurnal and nocturnal movements of river blackfish (*Gadopsis marmoratus*) in a south-eastern Australian upland stream." *Ecology of Freshwater Fish* **17**(1): 146-154.

**Figure 3: River Blackfish prefer habitats with good instream cover such as woody debris, boulders and aquatic vegetation (Photo: NSW DPI)**



## For further information

See the NSW DPI website: [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

Contact the NSW DPI Threatened Species Unit:  
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