

Australian Capital Territory

# Nature Conservation (Macquarie Perch) Conservation Advice 2020

Notifiable instrument NI2020–351

made under the

Nature Conservation Act 2014, s 90C (Conservation advice)

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## 1 Name of instrument

This instrument is the *Nature Conservation (Macquarie Perch) Conservation Advice 2020*.

## 2 Commencement

This instrument commences on the day after its notification day.

## 3 Conservation advice for Macquarie Perch

Schedule 1 sets out the conservation advice for Macquarie Perch (*Macquaria australasica*).

Arthur Georges  
Chair, Scientific Committee  
24 June 2020

# Schedule 1

(see s 3)

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**ACT**  
Government

Environment, Planning and  
Sustainable Development



ACT Scientific  
Committee

# CONSERVATION ADVICE

## MACQUARIE PERCH – *Macquaria australasica*

### CONSERVATION STATUS

The Macquarie Perch *Macquaria australasica* Cuvier, 1830 is recognised as threatened in the following jurisdictions:

International	<b>Endangered</b> , International Union for Conservation of Nature (IUCN) Redlist
National	<b>Endangered</b> , <i>Environment Protection and Biodiversity Conservation Act 1999</i> <b>Endangered</b> , Conservation Status of Australian Fishes 2016
ACT	<b>Endangered</b> , <i>Nature Conservation Act 2014</i>
NSW	<b>Endangered</b> , <i>Fisheries Management Act 1994</i>
Victoria	<b>Threatened</b> , <i>Flora and Fauna Guarantee Act 1988</i> <b>Endangered</b> , Advisory List of Threatened Vertebrate Fauna in Victoria
South Australia	<b>Extinct</b> , Action Plan for South Australian Freshwater Fishes

### ELIGIBILITY

The factors that made the Macquarie Perch eligible for listing as Endangered in the ACT Threatened Native Species List are included in the **Error! Reference source not found.** section below.

### DESCRIPTION AND ECOLOGY

Macquarie Perch contains 3 cryptic taxa, two of which are currently undescribed. The only taxon that occurs in the ACT is the Murray-Darling Basin taxon. Two occur only in coastal streams and are now considered different taxa, genetically and morphologically distinct, to the form that occurs in the Murray-Darling Basin (Faulks et al. 2010; Gilligan and Bruce 2019; Lintermans et al. 2019). Macquarie Perch are members of the Family Percichthyidae, which contains the Australian freshwater basses and cods. The Murray-Darling Basin taxon is a moderately-sized, deep-bodied, laterally compressed fish with large white eyes. In the Murray-Darling Basin the maximum length is about 550 mm total length and maximum weight is 3.5 kg, but individuals larger than 400 mm or one kilogram are uncommon (Harris and Rowland 1996; Lintermans 2007, Lintermans and Ebner 2010).



Macquarie Perch (E. Beaton – ACT Government)

The body colour is generally black-grey or bluish grey on the dorsal and lateral surfaces and some individuals are distinctly mottled, particularly small juveniles. The ventral surface is whitish. The lateral line is obvious and there are conspicuous open pores on the snout and around the eyes. The tail is rounded, the eye is large and white, and the mouth is large with the jaws equal in length. Adult specimens possess a distinct 'humped back' and the tail is rounded. The species is not sexually dimorphic.

Macquarie Perch are reported to live for up to 30 years with a substantial proportion of some reservoir populations older than 15 years (Tonkin et al. 2018). Macquarie Perch undertake a spawning migration, from October to December (Tonkin et al. 2010; Dougal 2002; Broadhurst et al. 2012) into flowing rivers (Lintermans et al. 2010; Tonkin et al. 2010) and gather in schools before spawning, which can last several weeks (Battaglione 1988; Tonkin et al. 2010). Fish deposit eggs at the foot of pools or head of riffles or fast-flowing sections of river (Tonkin et al. 2010; Broadhurst et al. 2018; Broadhurst et al. 2019) where males fertilise them. The eggs are then washed downstream where they lodge in gravel or rocky areas until hatching (Cadwallader and Rogan 1977; Douglas 2002; Tonkin et al. 2010). Larvae hatch in 10 to 11 days at water temperatures of 15–17°C (Gooley 1986) with the larvae being about 7 mm long upon hatching (Battaglione 1988). Generation length is calculated as 14 years (Lintermans et al. 2019).

The diet of Macquarie Perch consists predominantly of freshwater prawns and shrimps (*Macrobrachium* and *Paratya*), and small benthic aquatic insect larvae, particularly mayflies, caddisflies and midges. Yabbies, dragonfly larvae, zooplankton and molluscs are also eaten (McKeown 1934; Butcher 1945; Cadwallader and Eden 1979; Battaglione 1988; Lintermans 2006; Norris et al. 2012; Hatton 2016).

## DISTRIBUTION AND HABITAT

Historically the species was broadly distributed with populations in upland and lowland habitats including the Murray River between Euston and Tocumwal, Edwards and Wakool rivers and Barmah Lakes near Deniliquin (Cadwallader 1977; Llewellyn and MacDonald 1980; Cadwallader 1981). However, Macquarie Perch distribution is now fragmented (Pavlova et al. 2017) and the species is typically found in isolated cooler, shaded, upper reaches of the Murray–Darling river system in Victoria, New South Wales and the Australian Capital Territory (ACT). It also occurs in the coastal drainages in the Hawkesbury–Nepean Catchment in New South Wales and has translocated populations in the Shoalhaven and Upper Nepean rivers in New South Wales, and Yarra River in Victoria. Historically, a population also occurred in the Kangaroo Valley in NSW. (Lintermans 2007; Faulks et al. 2010).

In the ACT, Macquarie Perch is currently restricted to a population in the Cotter River upstream of Cotter Dam. Occasional individuals are found in the lower Paddys River, but these are likely to represent translocations or from the Cotter River (Lintermans 2000). Individuals are recorded from the Murrumbidgee River within the ACT, near Casuarina Sands, which are likely to be sourced from fish washed over the Cotter Dam or associated with the population upstream in NSW. The Cotter River population was previously restricted to the dam and the short section of river below Vanitys Crossing, where a causeway blocked upstream movement (Ebner and Lintermans 2007; Broadhurst et al. 2012; Broadhurst et al. 2013). The range of the population has now expanded upstream by over ten kilometres as a result of the installation of fishways at Vanitys Crossing and Pipeline Road (Act Government 2018b, Broadhurst et al. 2019). Translocations of Macquarie Perch have occurred in the ACT to the Cotter River above Corin Reservoir and the Molonglo River in Kowen Forest, however, these actions are yet to be proven successful in establishing a self-sustaining population (Lintermans 2017), especially given the translocation reach of the Cotter River upstream of Corin Reservoir was severely impacted by fire in the 2020 bushfires.

## THREATS

The main identified threats in the ACT action plan (ACT Government 2018b) include:

- habitat modification
- river regulation
- barriers to fish passage
- overfishing
- sedimentation
- reduction in water quality
- alien fish species and disease
- changing climate
- fires
- genetic bottlenecks
- reduction in spawning habitat availability
- cormorant predation.

## MAJOR CONSERVATION OBJECTIVE

The overall objective of the action plan (ACT Government 2018b) is to maintain in the long term, viable, wild populations of Macquarie Perch as a component of the indigenous aquatic biological resources of the ACT and as a contribution to regional and national conservation of the species. This includes the need to maintain natural evolutionary processes and resilience.

## CONSERVATION PRIORITIES

The 2018 Action Plan for Macquarie Perch (ACT Government 2018b) identifies actions and the following main priorities to:

- protect viable populations in the Cotter Reservoir and Cotter River below Bendora Dam,
- monitor a representative set of sites containing Macquarie Perch to determine long-term population trends and to evaluate the effects of management,
- further research and adaptive management required to better understand the habitat requirements for the species; and
- management to maintain riverine habitats with appropriate seasonal flow regimes, intact riparian zones, sufficient pool depths, minimal sediment inputs from roads and surrounding land use, an absence of Redfin Perch and Carp, and connectivity between spawning and non-spawning habitats.

## OTHER RELEVANT ADVICE, PLANS OR PRESCRIPTIONS

- [ACT Aquatic and Riparian Conservation Strategy](#) (ACT Government 2018a)
- [ACT Action Plan – Macquarie Perch](#) (ACT Government 2018b)
- [National Recovery Plan – Macquarie Perch](#) (Department of the Environment and Energy 2018)
- [IUCN Redlist species account – Macquarie Perch](#) (Lintermans et al. 2019)

## LISTING BACKGROUND

Macquarie Perch was initially listed in the ACT as an Endangered species on 6 January 1997 in accordance with section 21 of the *Nature Conservation Act 1980*. At that time, the Flora and Fauna Committee (now the Scientific Committee) concluded that the assessment satisfied the following criteria:

- 1.2 species is observed, estimated, inferred or suspected to be at risk of premature extinction in the ACT region in the near future as demonstrated by:
  - 1.2.1 current severe decline in population or distribution from evidence based on:
    - 1.2.1.1 direct observation, including comparison of historical and current records
    - 1.2.1.2 severe decline in rate of reproduction or recruitment; severe increase in mortality; severe disruption of demographic or social structure
    - 1.2.1.3 severe decline in quality or quantity of habitat
    - 1.2.1.4 very high actual or potential levels of exploitation
    - 1.2.1.5 severe threats from herbivores, predators, parasites, pathogens or competitors.

Macquarie Perch is eligible for listing as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth)(TSSC 2013).

The most recent review of the species national conservation status found that the species meets the IUCN Criteria A and B – A2ce; B2ab(ii,iii,iv) for Endangered based on a population reduction (50% over the past three generations (42 years)); restricted distribution in south-eastern Australia (area of occupancy (AOO) is estimated at 492km<sup>2</sup>); and a severely fragmented population (Lintermans et al. 2019). However, several populations have been impacted by the 2020 bushfires in south-eastern Australia, and the translocation reach of the Cotter River upstream of Corin Reservoir has been severely impacted.

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## FURTHER INFORMATION

Further information on the related Action Plan or other threatened species and ecological communities can be obtained from: Environment, Planning and Sustainable Development Directorate (EPSDD).  
Phone: (02) 132281, EPSDD Website: <http://www.environment.act.gov.au/cpr>