

Common Name: Macquarie Perch (Murray-Darling Form)  
Scientific Name: *Macquaria australasica* Cuvier 1830  
Other Common Names: Mountain Perch, Bream, Black Bream, White-eye, Silvereye,  
Other Scientific Names: None

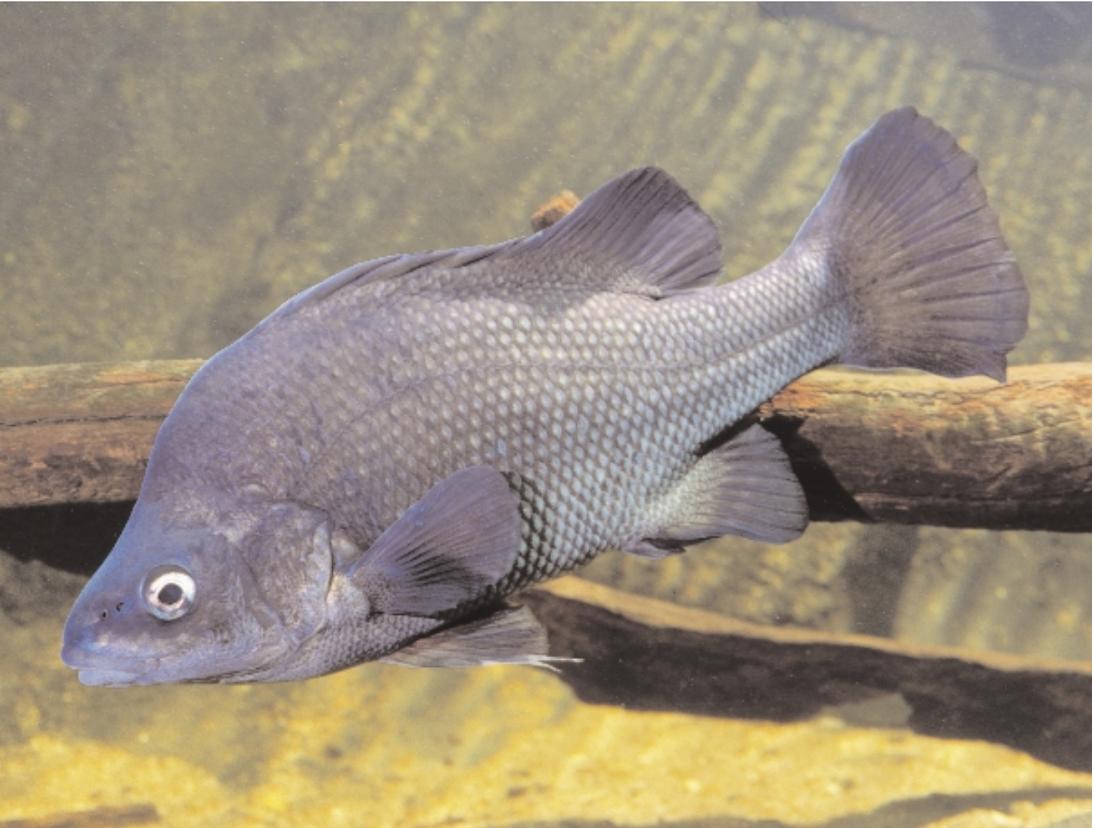


Photo: Gunther Schmida

### Biology and Habitat

It is now considered that there are at least two species contained within Macquarie Perch, one of which occurs in the western rivers (the Murray-Darling form) and one in the eastern or coastal rivers (the coastal form). This report deals only with the Murray-Darling form as this is the species which is found in the Upper Murrumbidgee catchment. This moderate-size fish (maximum length 460 mm, maximum weight 3.5 kg, usually less than 350 mm and 1 kg) is typically found in the cooler, upper reaches of the Lachlan, Murrumbidgee and Murray catchments. Males reach sexual maturity at 2 years of age and approximately 210 mm total length, and females at 3 years of age and 300 mm total length. In the Cotter River in the ACT, males mature at approximately 140–150 mm length. Spawning occurs in October/November with the spawning site at the foot of pools with the eggs drifting downstream and lodging amongst gravel and cobble in riffles. Hatching usually occurs after 10–11 days at water temperatures of 15–17°C with the larvae being about 7 mm long upon hatching. A quiet and docile species, Macquarie Perch generally feed on shrimps and small benthic aquatic insect larvae, particularly mayflies, caddisflies and midges.

## Distribution, Abundance and Evidence of Change

Macquarie Perch are typically found in the cooler, upper reaches of the Murray-Darling river system in Victoria, New South Wales and the Australian Capital Territory. In the ACT, *M. australasica* is restricted to four rivers, the Murrumbidgee, Molonglo, Paddys and Cotter rivers. In the Cotter River, the species is restricted to the lower section of the river from its junction with the Murrumbidgee up to Vanitys Crossing (including Cotter Reservoir). Anecdotal reports indicate that the species did occur further upstream on the Cotter but has now disappeared from this area and appears unable to pass the high concrete causeway built at Vanitys Crossing in the late 1970s. In 1985 a total of 41 individuals was removed from Cotter Reservoir as it was drained for maintenance of the dam wall. These fish were released into Bendora Reservoir but this translocation attempt appears to have failed.

Records from the Molonglo River are scarce and in recent times have only been from the lower end of the river below Lake Burley Griffin. The discharge of treated effluent from the Lower Molonglo Water Quality Control Centre since 1978 is likely to provide a chemical barrier which discourages dispersal of some native fish species from the Murrumbidgee to the Molonglo River. Scrivener Dam now prevents upstream movement of fish species from the lower Molonglo and effectively restricts access to the majority of the Molonglo River. It is likely that *M. australasica* historically occurred in the middle to upper reaches of the river but was almost certainly eliminated along with almost all other fish species due to heavy metals pollution from the Captains Flat mines. A fish survey in 1992–93 of the Molonglo River catchment from above Captains Flat to Lake Burley Griffin failed to locate the species.

The species has been recorded from along the entire length of the Murrumbidgee River in the ACT but the species has declined noticeably in abundance since the mid 1980s (see earlier section on long-term fish monitoring).

Greenham (1981) reported Macquarie Perch from the Paddys River based based on the results of angler interviews. A recent survey of the Paddys River for *M. australasica* revealed that the species is only present in this catchment immediately above the junction with the Cotter River.

A recently completed survey of the Upper Murrumbidgee catchment has failed to locate this species in the Yass, Bredbo, Numeralla, Kybean, and Big Badja rivers. The species was recorded in extremely low numbers in the Goodradigbee River with reasonable numbers captured in the Murrumbidgee River from Cooma to Yaouk. There is also a small population in the Murrumbidgee near Michelago. Upstream of Yaouk the Murrumbidgee River is degraded by sedimentation and diversion of flows by Tantangara Reservoir, and Macquarie Perch were absent. A recent unconfirmed report of Macquarie Perch in Tantangara Reservoir warrants further investigation. If the species is present in this reservoir, then it may also be present in the Murrumbidgee River upstream of the reservoir, where unconfirmed angler reports suggest they were present in the 1950s. The species is present in a section of the Queanbeyan River immediately upstream of Googong Reservoir with the total length of the Queanbeyan River in which Macquarie Perch are found estimated to be approximately 16 km. A substantial waterfall prevents further spread upstream in this river. The continued survival of the Queanbeyan River population is the result of a translocation of fish from Googong Reservoir in 1980. No Macquarie Perch are found in the Queanbeyan River below Googong Reservoir.

Conservation Status

National	ACT	NSW	VIC
<i>ASFB</i> Vulnerable	Endangered	Vulnerable	Endangered (NRE 2000)
<i>IUCN</i> Endangered	(angling prohibited)	(angling prohibited)	(angling permitted)
<i>ANZECC</i> Endangered			

#### Fishing Pressure Directed at this Species

A moderately sought after species because of its good eating qualities, it is now protected in New South Wales and the ACT.

#### Stocking Locations

Nil, but has been translocated past a natural barrier in the Queanbeyan River.

#### Potential Threats

- Interactions with alien species such as trout and Redfin.
- Exposure to EHNV.
- Habitat modification such as sedimentation, clearing of riparian vegetation, construction of dams and weirs which act as barriers to migration and recolonisation, cold water discharges from dams which prevent successful breeding.
- Recreational fishing of small, remnant populations although illegal, may still be a threat.

#### Conservation Reserves Where the Species Has Been Recorded

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Gigerline Nature Reserve</li> <li>• Woodstock Nature Reserve</li> <li>• Bullen Range Nature Reserve</li> </ul> | <ul style="list-style-type: none"> <li>• Stony Creek Nature Reserve</li> <li>• Googong Foreshores</li> <li>• Lower Molonglo Nature Reserve</li> </ul> |
|---|---|

#### General References

Butcher 1945; Cadwallader 1981; Cadwallader & Eden 1979; Cadwallader & Rogan 1977; Dufty 1986; Gooley 1986, Ingram *et al.* 2000; Koehn & O'Connor 1990a; Langdon 1989b; McKeown 1934; Merrick & Schmida 1984; Wager & Jackson 1993.

#### Local References

ACT Government 1999c; Battaglione 1988; Burchmore *et al.* 1988; Greenham 1981; Kukolic & Rutzou 1989; Lake 1967a; Lintermans 1998b, 1998d, 2002a,b; Lintermans *et al.* 2001.

Common Name: Golden Perch  
Scientific Name: *Macquaria ambigua* (Richardson 1845)  
Other Common Names: Yellowbelly, Callop, Perch, Murray Perch, White Perch,  
Other Scientific Names: *Plectroplites ambiguus*



Photo: Gunther Schmida

### Biology and Habitat

This species is widespread throughout the Murray-Darling Basin, with a genetically distinct but closely related species recently identified from the Lake Eyre and Bulloo drainage's in central Australia. A moderate to large fish (maximum length 760 mm and maximum weight 23 kg, usually less than 400 mm and 4 kg) which is predominantly found in the lowland, warmer, turbid, slow-flowing rivers. Golden Perch are reproductively mature at 3–4 years and spawn in floods during spring and summer when water temperature exceeds about 23°C. Adults and juveniles are migratory with extensive upstream movements of thousand of kilometres recorded, although migratory movements are usually much shorter. Upstream movements are stimulated by rises in streamflow. Eggs are semi-buoyant and hatching occurs in 1–2 days with newly-hatched larvae about 3.5 mm long. Breeding has been recorded in Googong Reservoir and Lake Burley Griffin, but does not occur often as suitable spawning conditions are largely absent. The diet of adult fish consists mainly of shrimps, yabbies, small fish and benthic aquatic insect larvae.

## Distribution, Abundance and Evidence of Change

In the Canberra region the species would formerly have been widespread in the lower Murrumbidgee, Molonglo and lower Queanbeyan rivers. The species was probably eliminated from the Molonglo River by the collapse of mine dumps at Captains Flat, and effectively disappeared from the Upper Murrumbidgee catchment above Lake Burrinjuck. Development of methods for artificial breeding and the commencement of stocking by NSW Fisheries of Lake Burrinjuck in the early 1970s saw the return of the species to the catchment. In the Upper Murrumbidgee catchment the species appears to have its upstream limit at an altitude of approximately 570 m near Tharwa, with the Gigerline Gorge impeding further upstream movement. Golden Perch were not recorded in the Numeralla, Bredbo, Kybean, or Big Badja rivers in a fish survey in 1998–99. The species is not present in the Cotter River above Cotter Reservoir or the Queanbeyan River above Googong. The species has not been recorded in the Naas/Gudgenby catchment or Tidbinbilla River (apart from individuals stocked in a farm dam).

Conservation Status			
National	ACT	NSW	VIC
not listed	not listed	not listed	Vulnerable (NRE 2000)

## Fishing Pressure Directed at this Species

Heavy: there is substantial fishing pressure for Golden Perch in the urban lakes, Googong Reservoir, Lake Burrinjuck and the Murrumbidgee River. Along with Murray Cod, it is probably the most sought after native species.

## Stocking Locations

- Lake Burley Griffin (1973–1999)
- Lake Ginninderra (1977–2001)
- Lake Tuggeranong (1991–2001)
- Gungahlin Pond (1995–2002)
- Yerrabi Pond (1998–2001)
- Queanbeyan weir (Queanbeyan City Council)
- Lake Burrinjuck (NSW Fisheries)
- Lake George (NSW Fisheries)
- Captains Flat Reservoir (NSW Fisheries)
- Googong Reservoir (1981–2001)
- Yass Weir (NSW Fisheries)

## Potential Threats

River regulation has disrupted migrations and spawning behaviour.

## Conservation Reserves Where the Species Has Been Recorded

- Googong Foreshores
- Woodstock Nature Reserve
- Stony Creek Nature Reserve
- Bullen Range Nature Reserve
- Gigerline Nature Reserve
- Lower Molonglo Nature Reserve

## General References

Anderson *et al.* 1992b; Harris & Rowland 1996; Koehn & O'Connor 1990a; Lake 1967a,b,c; Mallen-Cooper *et al.* 1995; Merrick & Schmida 1984; Musyl & Keenan 1992.

## Local References

Burchmore *et al.* 1988; Greenham 1981; Kukolic & Rutzou 1989; Lintermans 1991, 1992a,b, 1995a,b,c, 1996, 1997a,b, 1998a, 2000a; Lintermans & Kleber 1995; Lintermans & Rutzou 1990d, 1991a; Robinson 1982.

#### 4.1.6 Family Terapontidae: Freshwater Grunters or Perches

The Terapontidae contains a total of about 22 species in eight genera in Australian freshwaters, of which one species is recognised as nationally threatened. Many terapontids occur in northern Australian streams. There is one species found in the Upper Murrumbidgee catchment, the Silver Perch.

Common Name:	Silver Perch
Scientific Name:	<i>Bidyanus bidyanus</i> (Mitchell 1838)
Other Common Names:	Bidyan, Black Bream, Silver Bream,
Other Scientific Names:	<i>Terapon bidyanus</i>



Photo: Gunther Schmida

#### Biology and Habitat

A moderate to large fish (maximum length ~500 mm and maximum weight 8 kg, usually 350 mm and 2 kg), found in similar habitats to Murray Cod and Golden Perch, i.e. lowland, turbid, slow-flowing rivers. This species is bred artificially in a number of government and commercial hatcheries and is widely stocked in farm dams and reservoirs. The species is currently the subject of considerable interest as to its potential as an aquaculture species. Fish mature at 3–5 years and spawn in spring and summer after an upstream migration, when large schools often form. Their diet is omnivorous containing aquatic plants, snails, shrimps and aquatic insect larvae. Reports that the species becomes mainly herbivorous once they reach lengths of 250 mm are incorrect, at least for lake populations, as their diet in Googong Reservoir shows little change with fish size (Lintermans unpublished data).

#### Distribution, Abundance and Evidence of Change

Formerly widespread over much of the Murray-Darling Basin (excluding the cooler upper reaches), the species has declined over most of its range. Numbers of Silver Perch moving through a fishway at Euston Weir on the River Murray River have declined by 93% between 1940 and 1990. The ACT probably represented the

upstream limit of the species distribution in the Murrumbidgee catchment. In the Canberra region the species has been recorded from the Murrumbidgee River where numbers recorded in the fish trap at Casuarina Sands between 1980 and 1991 declined noticeably from the mid 1980s. Formerly a 'run' of Silver Perch from Lake Burrinjuck migrated upstream to the lower reaches of the Murrumbidgee River in the ACT in spring/summer, but this migration has not been recorded since the late 1970s/early 1980s. Silver Perch have not been recorded further upstream than Kambah Pool in the ACT. Greenham (1981) reported anecdotal angler records of Silver Perch from the Molonglo River in the 1940s and 1950s but no contemporary records are known from this river (other than stocked fish). There is no record of Silver Perch from the Paddys, Naas, or Gudgenby rivers. There are occasional angler records of Silver Perch from the Queanbeyan River below Googong Reservoir but these fish are assumed to be of stocked fish displaced downstream from the reservoir. The most recent records of Silver Perch in the ACT are angler reports from the Murrumbidgee River at Casuarina Sands in 2000 and 2002.

Conservation Status			
National	ACT	NSW	VIC
<i>ASFB</i> Potentially Threatened	Endangered	Vulnerable	Critically Endangered
<i>IUCN</i> Vulnerable	(angling prohibited)	(angling prohibited in rivers)	(NRE 2000)

#### Fishing Pressure Directed at this Species

Formerly moderate, except for the annual migration up the Murrumbidgee from Lake Burrinjuck when fishing could be intense. Now a protected species in the ACT and in rivers (not lakes) in NSW.

#### Stocking Locations

- Lake Burley Griffin (1974–1983)
- Lake Ginninderra (1976–1982)
- Googong Reservoir (1983–2000)
- Cotter Reservoir (1987, no longer stocked)
- Queanbeyan weir (Queanbeyan City Council)
- Lake Burrinjuck (NSW Fisheries)
- Lake George (NSW Fisheries)
- Captains Flat Reservoir (NSW Fisheries)
- Yass weir (NSW Fisheries)

#### Potential Threats

- River regulation has severely impacted this species through disruption of migration and reproductive behaviour.
- Interactions with alien species (possibly Carp) are also suspected to be a threat.

#### Conservation Reserves Where the Species Has Been Recorded

- Woodstock Nature Reserve
- Stony Creek Nature Reserve
- Bullen Range Nature Reserve
- Googong Foreshores

#### General References

Clunie & Koehn 2001a,b; Kibria *et al.* 1998; Koehn & O'Connor 1990a; Lake 1967a,b,c; Mallen-Cooper 1993; Mallen-Cooper *et al.* 1995; Merrick 1996; Merrick & Schmida 1984.

#### Local References

Burchmore *et al.* 1988, Kukolic & Rutzou 1989; Greenham 1981; Lintermans 2000a.