Native Fish Report Card Yarra River 2023

Port Phillip Region



Fish found in the Yarra River in our 2023 surveys

Farget Species

🝼 recorded in 2023



Australian Grayling
Prototroctes maraena



Murray Cod # Maccullochella peelii



Macquarie Perch #
Macquaria australasica

* Incidentally captured during NFRC surveys since 2017 but not measured as for target species.

Native species translocated outside of its natural range

Non-target species

recorded since 2017*

Large-bodied native species

- ✓ Australian Bass
- ✓ Golden Perch
- ✓ River Blackfish
- ✓ Short-finned Eel
- V Tupong
- 🗸 Barramundi #

Small-bodied native species

- ✓ Australian Smelt
- Common Galaxias
- ✓ Flatheaded Gudgeon
- Ornate Galaxias

Exotic species

- Brown Trout
- Eastern Gambusia
- Common Carp
- ✓ Goldfish
- ✓ Oriental Weatherloach
- 🗸 Roach
- Redfin











Yarra River 2023

Fish community

The NFRC Program began in 2017, with a focus on targeting the monitoring of population dynamics of key iconic fish species that have high recreational and/or conservation values, in large rivers across Victoria. In the Yarra River, the target species are Australian Grayling, Macquarie Perch and Murray Cod. Surveys occur in March/April each year, with 14 sites from upstream of Dights Falls to Yarra Glen fished in 2017-2021 and 11 sites fished from Heidelberg to Yarra Glen in 2022 and 2023. The Yarra River primarily uses boat electrofishing with bank-mounted electrofishing at two sites. The equipment and habitats surveyed are focused on these species, which are measured to determine population structures. Other fish species that are incidentally captured are recorded, but not measured to determine their population structures.

Summary of key health indicators for target species in 2023

Species	Key Health Indicators		
	Recent recruitment	Multiple size classes	Mature fish present
Aust Grayling*	-	-	-
Macquarie Perch	No	Yes	Yes
Murray Cod	Yes	Yes	Yes

Recent recruitment means young-of-year fish

*- Cannot be determined due to low abundance

Australian Grayling were once widespread throughout coastal Victoria, including the Yarra River system. Changes to flow regimes and barriers impact this species. The detection of Australian Grayling in five of the seven years is an encouraging sign that river conditions are enabling persistence of the species. Macquarie Perch have undergone a long-term decline in abundance with populations now fragmented and absent from much of its former range. Macquarie Perch were first translocated into the Yarra catchment in 1857 and the population is now considered important genetically. The population appears to be declining, however we have detected an increase in adults post the 2019 fishing regulation changes. Murray Cod were translocated into Yarra River in 1857 and are now a popular recreational species. There appears to be a small self-sustaining population, albeit with low abundances of adult fish. The following pages have more detail about the population structures of each target species.

Non-target species The non-target fish species that have been incidentally recorded in the Yarra River during

NFRC surveys since 2017 are:

Large-bodied native species As well as the target species, other recorded large bodied species are Australian Bass, Golden Perch, River Blackfish, Short-finned Eel and Tupong. Australian Bass and Golden Perch are native species which have been translocated to the Yarra River. While Barramundi has also been translocated to this river, it is a tropical species and thus conditions are not likely to be suitable for its survival. River Blackfish are a lowland species, generally found at altitudes below 200 metres. This species has suffered a decline in distribution and abundance across the State. Short-finned Eel and Tupong are diadromous (migrating between salt and freshwater) species found throughout coastal Victoria.

Small-bodied native species Australian Smelt and Flatheaded Gudgeon are common across all of Victoria. The Common Galaxias is a diadromous species found across coastal Victoria. The Ornate Galaxias is mainly confined to coastal systems in Victoria between Wilsons Promontory and Cape Otway and is usually found in clear, cool and well shaded upland creeks along mountain ranges and in larger streams at lower elevations. In the Yarra River the Ornate Galaxias were widespread and patchy in the lower areas, but more common above 200 metres altitude.

Exotic fish species Brown Trout occur throughout the Yarra River, but are not a dominant species in the NFRC sampling area and are more abundant at higher altitudes. Common Carp, Goldfish, Oriental Weatherloach, Roach and Redfin have been detected in all sampling years and are widespread throughout the Yarra River. Eastern Gambusia have been detected in five of the seven sampling years and are often detected in slower flowing habitats.

Other native fish species known from the Yarra

River Some fish species known to occur in the Yarra River have never been recorded during NFRC surveys. For example, no Climbing Galaxias, Dwarf Galaxias, Spotted Galaxias, Pouched Lamprey or Shortheaded Lamprey or Southern Pygmy Perch or Yarra Pygmy Perch have been detected in the surveys. The Climbing Galaxias, Spotted Galaxias, Pouched Lamprey and Shortheaded Lamprey are diadromous species in coastal Victoria. The Climbing Galaxias and Spotted Galaxias have patchy distributions and are hard to detect using NFRC sampling methodology. The Pouched Lamprey and Shorthead Lamprey were considered widespread but in recent times adults are rarely seen. Both lamprey species are usually active nocturnally. The Dwarf Galaxias, Southern Pyamy Perch and Yarra Pygmy Perch are often found in offstream habitats (billabongs, wetlands and lagoons).

Other notable species Surveys have also recorded Southern Victorian Spiny Crayfish.

* Electrofishing is a common fish survey method that employs a direct electric current to water to attract and temporarily immobilize fish for easy capture and recording.











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Yarra River 2023

Environmental and Management Context

Environment

Low flow conditions were present in all seven sampling seasons, albeit slightly higher in 2018 and 2021 and slightly lower in 2022. The NFRC worked collaboratively with a Melbourne Water Macquarie Perch project with 14 sites fished from 2017-20. As the Melbourne Water Macquarie Perch project has finished, 11 sites were fished in 2022 and 2023.

River rehabilitation efforts in the Yarra River

Many rehabilitation actions have occurred, and are underway, to improve the health of the Yarra River and its fish community. These are informed in particular by Melbourne Water's Healthy Waterways Strategy 2018-28 and a Co-Designed Catchment Program for the Yarra Catchment. Efforts include revegetation, weed control and fencing of riparian areas, reintroduction of instream woody habitat, allocations of water for the environment (through seasonal watering planning), removal of barriers to fish movement, pest control, management of water quality including stormwater, sewage and litter management.

Some monitoring of the fish community occurs in association with a variety of rehabilitation efforts. This includes monitoring the effectiveness of the new fish passage facilities at Dights Falls, fish responses to provision of water for the environment, the status of threatened species such as Macquarie Perch, fish monitoring in the upper Yarra, as well as eel and eDNA monitoring. <u>Melbourne Water</u>, DEECA and the <u>Victorian Fisheries Authority</u> support rehabilitation and management of the Yarra River and its fish community.

See the ARI website for more information on the <u>Native</u> <u>Fish Report Card program</u>.

The NFRC program, and related monitoring initiatives, provide improved understanding of the structure of fish communities and how rivers can be best managed.



Figure 1. Map showing the section of Yarra River where NFRC sampling occurs



Figure 2. An Australian Grayling



Figure 3. A Macquarie Perch











Australian Grayling Prototroctes maraena



Key Health Indicators

Recent recruitment - Cannot be determined Multiple size classes - Cannot be determined Mature fish present - Cannot be determined

Total number of fish caught	5
Fish per 1km of waterway	0.84
Largest fish by length (cm)	20.5
Largest fish by weight (kg)	0.09
% of the catch that is legal size	NA

YARRA RIVER

THREATENED SPECIES

Australian Grayling (*Prototroctes maraena*) is a diadromous species that has declined in distribution and abundance across its range. The species is listed as endangered in Victoria (FFG Act 1988) and nationally (EPBC Act 1992). The NFRC does not expect to capture enough Australian Grayling to measure key health indicators. Rather, threatened species such as Australian Grayling are targeted for monitoring to gain a greater understanding of the current status of the populations which is essential information to inform the management of such species.

Low abundances have been captured in 2018-19 and 2021-23 (Figure 4). Recruits, Juveniles and adults were all collected in 2023, the first time in seven years of NFRC sampling (Figure 4). Recruits have only been detected in 2022 and 2023. Juveniles have been detected the most consistently, detected in five of the seven years (2018-19 and 2021-23). Adults have been detected in (2018, 2021 and 2023) with highest abundances in 2023 (Figure 4; Figure 5). The presence of recruits in 2022 and 2023 and juveniles in 2018-19 and 2021-23 (Figure 4; Figure 5) indicates stream conditions were suitable for recruits to be attracted into the system from coastal/marine waters.

Stocking

No stocking has occurred.













Yarra River densities of Australian Grayling size classes from 2017 to 2023

Figure 4. The densities of recruits, juveniles and adult Australian Grayling for NFRC surveys in the Yarra River from 2017 to 2023

Australian Grayling size range percentage for Yarra River in 2023



Figure 5. The size range percentage of Australian Grayling measured from the Yarra River during NFRC surveys in 2023

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Victorian Fisheries

Native Fish



Macquarie Perch

Macquaria australasica



Key Health Indicators

Recent recruitment

- Multiple size classes
- 🔮 Mature fish present

Monitoring Results				
Total number of fish caught	34			
Fish per 1km of waterway	5.74			
Largest fish by length (cm)	38.7			
Largest fish by weight (kg)	1.25			
% of the catch that is legal size	NA			

YARRA RIVER

RECREATIONAL SPECIES

Macquarie Perch (*Macquaria australasica*) have been translocated, but the Yarra River population is considered an important population¹. Macquarie Perch are listed as endangered in Victoria (Flora and Fauna Guarantee Act 1988) and nationally (Environment Protection and Biodiversity Conservation Act 1992).

No recruits were detected in 2023 and have not been detected since 2018 (Figure 6). In 2023, the presence of juveniles of 10-15 centimetres indicates low levels of recruitment have occurred in 2022 that were not detected during sampling (Figure 7).

Low abundances of adults have been detected in all seven years of sampling, albeit higher in 2022 and 2023. The Victorian fishing regulations changed to a no take species in 2019 to protect this important population. The increase in adults recorded in 2022 and 2023 is an encouraging sign regarding the regulation changes. Future monitoring will see if the adult population continues to increase and leads to great recruitment success.

Stocking

No stocking has occurred.













Yarra River densities of Macquarie Perch size classes from 2017 to 2023

Figure 6. The densities of recruits, juveniles and adult Macquarie Perch for NFRC surveys in the Yarra River from 2017 to 2023





¹ Pavlova et al. (2017) Severe consequences of habitat fragmentation on genetic diversity of an endangered Australian freshwater fish: a call for assisted gene flow. Evolutionary Applications 10, 531 – 550.



deeca.vic.gov.au







Murray Cod Maccullochella peelii



Key Health Indicators

🐶 Recent recruitment

- Multiple size classes
- 🔮 Mature fish present

Monitoring Results				
Total number of fish caught	25			
Fish per 1km of waterway	4.22			
Largest fish by length (cm)	99			
Largest fish by weight (kg)	14.5			
% of the catch that is legal size	12			

YARRA RIVER

RECREATIONAL SPECIES

Murray Cod (Maccullochella peelii) are a translocated species in the Yarra River but are classed as a key recreational species in the Yarra system. Murray Cod are listed as endangered in Victoria (FFG Act 1988) and vulnerable nationally (EPBC Act 1992). Recruits were recorded in five of the seven years surveyed (2017-18, 2020 and 2022-23) with the highest number of recruits detected in 2022 (Figure 8). The highest abundances of juveniles were detected in 2023 with over 50% of Murray Cod in 2023 juveniles (Figure 9). However, the juveniles in 2023 were dominated by the 15-20 cm size class, likely survivorship of the increased detection of recruits in 2022 (Figure 8; Figure 9). Although in low abundances, adults have been detected in six of the seven years surveyed (absent in 2021). The low abundances of adults may indicate a high angling pressure.

Stocking

No stocking has occurred.













Yarra River densities of Murray Cod size classes from 2017 to 2023

Figure 8. The densities of recruits, juveniles and adult Murray Cod for NFRC surveys in the Yarra River from 2017 to 2023

Murray Cod size range percentage for Yarra River in 2023



Figure 9. The size range percentage of Murray Cod measured from the Yarra River during NFRC surveys in 2023











We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.





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