# Understanding fish communities of the Barossa 2025

## Upper to Mid North Para River (Flaxman Valley)

To effectively manage the natural resources of the Barossa it is important to understand its current condition. This assessment provides current knowledge of the Barossa fish populations to help inform the management of water resources.

The Barossa Valley has a rich vine and wine history and is situated in the northeastern part of the Adelaide Mount Lofty Ranges. To sustainably manage the area's natural resources, the Northern and Yorke (N&Y) Landscape Board, in partnership with the Department for Environment and Water, undertakes planning work. This includes the management of water resources of the Barossa Prescribed Water Resources Area (PWRA) through a Water Allocation Plan. This provides the water needs of economic, social, cultural and environmental users. To make sure that decisions are made on the most current environmental information, a selection of sites across the Barossa PWRA were sampled for fish communities. Fish are important indicators of watercourse health and environmental change. Monitoring patterns in the number and extent of the different species provides valuable information on changing conditions.

## Status of fish communities of the Barossa region

In 2025, 15 sites across the Barossa PWRA were sampled to provide an update on the status of the fish community. All fish species encountered were identified, measured and

counted. Data was also recorded for water quality (flow, salinity, pH, temperature and dissolved oxygen); habitat and other animal species opportunistically caught.

## How are fish faring?

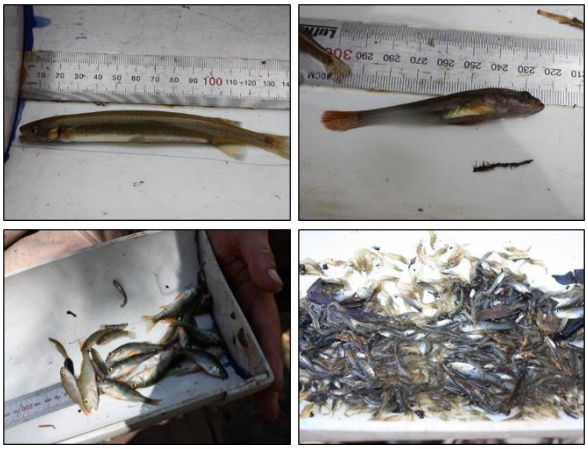
Sampling undertaken in 2013, 2018, 2023, 2024 and 2025 across the Barossa PWRA by staff from Nature Glenelg Trust and coordinated by N&Y Landscape Board showed that the fish communities across the region are generally in a poor state (Table 1). The area was dominated by alien fish species, especially the declared noxious Eastern Gambusia (*Gambusia holbrooki*) and to a lesser extent Redfin Perch (*Perca fluviatilis*).

***Table 1.*** *Summary of the fish catch in different years across the Barossa PWRA for native fish (blue) and alien fish (green).*

| | 2013 | 2018 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|
| **Mountain Galaxias** | 123 | 304 | 162 | 152 | 154 |
| **Common Galaxias** | 0 | 0 | 14 | 0 | 1 |
| **Flathead Gudgeon** | 2616 | 2091 | 1843 | 2142 | 2377 |
| **Carp Gudgeon** | 0 | 502 | 2749 | 7 | 8 |
| **Western Bluespot Goby** | 406 | 79 | 3 | 158 | 10 |
| **Eastern Gambusia** | 3191 | 4331 | 29395 | 8347 | 5392 |
| **Redfin Perch** | 481 | 35 | 7 | 37 | 152 |
| **Goldfish** | 6 | 0 | 2 | 0 | 1 |
| **Total** | **6825** | **7349** | **34175** | **10843** | **8095** |

The most common native species was Flathead Gudgeon (*Philypnodon grandiceps)* in most years, i.e. 2013, 2018, 2024 and 2025. Carp Gudgeon (*Hypseleotris* spp.) was first recorded in 2018 and the most dominant native species in 2023, but populations were not sustained during sampling in 2024 and 2025. There was a strong population of the locally threatened and more sensitive Mountain Galaxias (*Galaxias olidus*, though they were localised to Jacob Creek and Tanunda Creek only due to sections of permanent flow and better water quality.

***Figure 1.*** *Selection of fish species sampled in 2025 monitoring (clockwise from top left): Mountain Galaxia, Flathead Gudgeon, alien Gambusia and freshwater shrimps; and alien Redfin Perch.*



## How will the information be used?

The outcomes of the fish sampling will be used to inform the amendment of the water allocation plan for the Barossa PWRA that is currently underway. Furthermore, knowledge of where the different species of fish are present throughout the catchment allows for water planners to account for their needs in the planning process. Mountain Galaxias, for example, require longer flowing periods and better water quality than other native species of fish. This knowledge allows for a more targeted approach to water planning in the Barossa PWRA. It also increases our understanding of how the watercourses of the Barossa PWRA function and allows for more scientifically informed management of water resources for the benefit of all users.

# Upper to Mid North Para River (Flaxman Valley)

## Summary:

The Flaxman Valley lies in the eastern section of the Barossa PWRA and contains pool-riffle-run habitats. Six sites were sampled in 2025 in this sub-catchment. The salinity varied from 4554 µScm$^{-1}$ at Council reserve upstream (US) 4$^{th}$ Weir to a very high 30,000 µScm$^{-1}$ at Wootoona pools. All sites were less fresh (i.e. higher salinity) in 2025 than in 2024 with 3094 – 8118 µScm$^{-1}$, apart from Mt McKenzie Gauge (4991 µScm$^{-1}$ in 2025 and 5635 µScm$^{-1}$ in 2024). Worth mentioning is that the dissolved oxygen content at Wootoona pools was much lower (6.3 mgL$^{-1}$) in 2025 than in 2024 (14.1 mgL$^{-1}$). All sites had no flow at the time of sampling in 2025.

***Table 2.*** *Summary of pool condition, flow and water quality parameters for sites sampled in the Flaxman Valley.*

| **Pool condition** (water level) | **Flow** | **Salinity** (µS cm$^{-1}$) | **pH** | **Temperature** (°C) | **Dissolved oxygen** (mg L$^{-1}$) |
|---|---|---|---|---|---|
| **Wootoona Pools** Concentrated (0.8m) | None | 30,000 | 8.43 | 18.4 | 6.3 |
| **Mt McKenzie Gauge** Concentrated (1.2m) | None | 4991 | 7.89 | 19.9 | 9.4 |
| **Council Reserve upstream 4$^{th}$ Weir** Low (2$^{+}$m) | None | 4522 | 8.24 | 24.5 | 5.0 |
| **Thorn-Clarke Ford** Low (2$^{+}$m) | None | 6028 | 9.17 | 22.8 | 4.8 |
| **Gumhill** Low (1.8m) | None | 9466 | 8.57 | 26.6 | 8.4 |
| **Seelander Quarry** Low (1.2m) | None | 8900 | 8.47 | 25.4 | 7.7 |

## Fish catch:

Higher numbers of the native Flathead Gudgeon, a freshwater generalist, were observed in 2025 (1668 fish) compared to 2024, 2023, 2018 and 2013 with 1080, 714, 502 and 158 fish, respectively, which is encouraging. The majority of Flathead Gudgeon was found at Seelander quarry (1047 fish) and their number was much higher than that recorded in 2024 (685 fish), 2023 (170 fish), 2018 (421 fish and 2013 (127 fish). Numbers of Flathead Gudgeon at Gumhill property were also higher in 2025 (526 fish) compared to 2024 (370 fish), 2023 (326 fish) and 2013 (30 fish). Numbers at Thorn-Clarke Ford were higher in 2025 (95 fish) compared to 2024 (25 fish), but lower than in 2023 (213 fish). The broad length structure of Flathead Gudgeon (25–92 mm) is indicative of recent recruitment and survivorship over multiple years. The translocated native Carp Gudgeon was only recorded in very low numbers at Thorne-Clarke ford (3 fish) and Council reserve US 4$^{th}$ Weir (4 fish). Similar as in 2024 and 2023, the alien Eastern Gambusia was the only species recorded at Mt McKenzie (1359 fish) and Wootoona pools (575 fish). The alien Redfin Perch was the most abundant species recorded at Council reserve upstream 4$^{th}$ Weir (152 fish) and was not caught at any other site. Eastern Long-necked Turtle (Figure 2), Short-necked Turtle, Common Yabby, Freshwater Shrimp and Freshwater Prawn were sampled opportunistically.

## More information

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***Figure 2.*** *Eastern Long-necked turtle*

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