

River Murray flow-dependent fish populations

Biodiversity | Inland waters



South Australia's environmental trend and condition report cards 2023



Trend
Stable



Condition
Poor



Reliability
Fair

STATE

Trend

The population age structure of flow-dependent fish in the South Australian River Murray is stable but varies between species.

The assessment is based on Murray cod and golden perch – two iconic fish species throughout the Murray–Darling Basin. Each species requires a particular set of flow cues and conditions for spawning and recruitment.

The age structure of Murray cod is improving, with recent recruits detected in all years since 2012–13. Golden perch population age structure is considered stable, although 2020–21 was the first year since 2013–14 that young-of-the-year were observed in South Australia.

The contrasting outcomes of these flow-dependent fish are due to the different spatial scales of connected, flowing habitat required for spawning and recruitment of each species. Murray cod can recruit at scales of 1–10 kilometres, and golden perch recruit at scales over 100 kilometres.

Condition

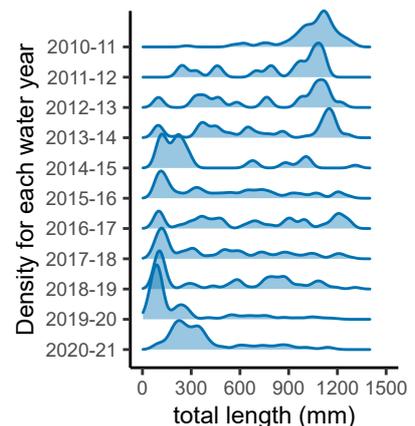
The condition of flow-dependent fish populations in the South Australian River Murray is poor.

The condition of Murray cod and golden perch populations is determined by the age classes within the population over the past decade. A desirable, resilient population has recent recruits, sub-adult and adult fish present each year. Population age structure is based on total fish length for Murray cod, and age for golden perch.

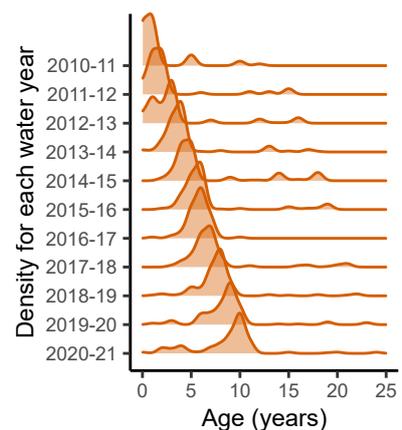
Murray cod (top figure) were in good condition, with 9 of the past 10 years showing a desirable population age structure. Golden perch (bottom figure) were in poor condition, with a desirable population age structure in 4 of the past 10 years.

Flow-dependent fish populations are in poor condition. Murray cod are improving, while golden perch are stable.

Murray cod



Golden perch



Why are River Murray flow-dependent fish important?

Murray cod and golden perch are iconic, large-bodied fish of the Murray–Darling Basin. Murray cod is a nationally threatened species. It is an important cultural and recreational species, which also plays an important role in river ecosystems as a key predator. Golden perch is an important commercial, recreational and cultural species in the Murray–Darling Basin and is an important indicator of hydrological connectivity over hundreds or thousands of kilometres.

What are the drivers?

Recruitment of Murray cod and golden perch is strongly influenced by the diversity of flowing habitats (water velocities) and river connectivity. Elevated flows in spring–summer that increase the diversity of flow habitats and river connectivity will help support regular recruitment and build resilience in these populations.

River regulation, consumptive water use and drought has reduced river flows and connectivity in the South Australian River Murray. This has affected the movement and reproduction of flow-dependent fish.

What is being done?

Delivery of water, including water for the environment, aims to improve flows for the reproduction and recruitment of flow-dependent fish. Restoration of spring flow pulses in the river channel are considered particularly important.

Complementary actions, such as re-snagging of channel habitats, and new approaches to managing weirs and other regulating structures will benefit flow-dependent fish.

For further information see: [technical information](#)



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