

# Native fish of the Darling River

Managing water for fish and connectivity



## Flows for golden perch

The Darling River is home to a significant population of golden perch.

Research has shown that golden perch that are spawned in the Darling River contribute enormously to populations in the mid-Murray, including the Edward–Wakool and Goulburn rivers, right through to the lower lakes in South Australia and the Darling River itself.

Flow pulses in the river trigger golden perch movement and breeding. The resulting eggs hatch as they drift downstream. Many small fish from the upper reaches of the Darling River and its northern tributaries end up in the waters of Menindee Lakes. There they can feed and grow until the lakes

reconnect with the river and the young fish are able to disperse throughout the river system.

Monitoring during the 2010–11 floods documented this mass dispersal (movement) to other rivers. The dispersal of young fish happened again when environmental flows reconnected the Menindee Lakes to the Lower Darling and Murray rivers in 2017.

Opportunities for golden perch to breed and disperse have been reduced by river regulation and changes to flow patterns. Historically, natural flows and flood events would have provided regular inflows into the Menindee Lakes. The lakes would sometimes retain this water for several years, allowing for subsequent flows to reconnect the lakes with the river.



Today, it is only during periods of high flow that water from the Darling River fills the four main lakes that make up the Menindee Lakes system.

Lake Cawndilla – part of the Menindee Lakes system – now provides one of the only viable release points for golden perch to enter the Darling Anabranh and the rivers of the southern basin.

To support this vital fish population and its connection to the rest of the river system, the Office of Environment and Heritage (OEH) is managing environmental flows that allow native fish to move from the Menindee Lakes into the Murray River via the lower Darling and Darling Anabranh.

## Supporting Murray cod

Murray cod have different flow requirements.

While golden perch need pulses of water to trigger spawning, endangered Murray cod spawn in response to water temperature, and need access to nesting habitat that is more readily available when higher flows are moving through the river.

The Darling River, downstream of Menindee, supports a robust population of the iconic Murray cod. The population includes a mixture of ages which indicates regular breeding success in the past. However, a number of cease-to-flow events in the past 10 years has impacted on the breeding success of this native fish population.

Unlike golden perch which are known to travel long distances in a lifetime, Murray cod can complete their entire lifecycle within a relatively small stretch of the river, sometimes spanning just a few kilometres.

Murray cod nest among vegetation on raised sections of the river bed known as in-stream benches. There, larval fish find some protection from predators and other threats. During periods of low or no flow, these in-stream benches are exposed and essential breeding habitat cannot be accessed by the fish.

As well as spawning cues and provision of habitat, water is essential to kickstart the aquatic food web. The movement of water through the river channel, flood runners and floodplains releases vital nutrients and carbon which can be picked up by water plants, plankton, insects and ultimately native fish of all sizes. Ensuring a steady supply of food for the lifetime of the fish is a critical part of flow management.

Environmental water plays a vital role in ensuring native fish can complete their lifecycles. However, natural flows are the key as they provide the necessary volumes of water required to trigger fish breeding, maintain habitat, fill the Menindee Lakes and connect them to the Murray River.

Cover photo: water arrives on the Darling Anabranh, P Brown/OEH.

Above left to right: Golden perch, G Schmida; Murray cod, G Schmida; Water moves through the Darling Anabranh, P Brown.

© 2017 State of NSW and Office of Environment and Heritage

ISBN: 978 1 76039 767 8

OEH 2017/0197

May 2017