Australian Government
Commonwealth Environmental Water Office

Southern Spring Flow 2020 - Update #3

14 December 2020

Spring Flow is winding back

Since early September 2020, water for the environment has been released in the River Murray and onto low-lying areas of the floodplain. The main part of this flow is slowly passing through the lower Murray in South Australia.

In the mid-Murray, environmental flows in the main river channel are gradually reducing and will end in mid-December.

In the lower Murray, the environmental flow is currently moving through the river system. A small additional volume of water for the environment is being released from Lake Victoria to maintain higher flow rates for a short period to support native perch breeding (see below).

Some small-scale deliveries will continue in the Barmah-Millewa Forest to encourage native fish to leave the floodplain before it dries and to support waterbird breeding (see below).

At its peak, flows reached 15,000 ML/d (megalitres / day) downstream of Yarrawonga between late October and mid-November and ~18,000 ML/day in the Lower Murray between early November and early December.

The flow objectives were:

- help native fish breed and move—such as Murray cod, golden and silver perch;
- improve food-web health by flushing food and nutrients from the floodplain into the river and transporting them through the system, and
- support native wetland plants in the river channel.

Objectives	Provide food and shelter for native fish and other aquatic animals along the River Murray, from Hume Dam to the Coorong.
Start date	September 2020 (Hume Dam release)
Total duration	September – December 2020
Flow rate	Combined with other flows to target up to 3.0m (~15,000 ML/d) downstream of Yarrawonga Weir.
Target areas	River Murray channel and key wetlands and creeks in Barmah-Millewa forest, Edward-Wakool system, Chowilla, Pike and Katarapko floodplains, Coorong, Lower Lakes and Murray Mouth.

Monitoring and some great results!

Native fish are breeding!

Hundreds of fish eggs—suspected to be callop, also known as golden perch—have been detected below Lock 4 (near Berri, SA) and below Lock 1 (near Blanchetown, SA). This monitoring is led by the South Australian Research and Development Institute (SARDI).

One of hundreds of native perch eggs recently detected in the lower Murray (jelly-like ball above jar), SARDI.

This is encouraging news for recreational fishers, as regular breeding activity is important to improve the currently ageing callop population. While eggs are a

good indication of spawning, survival to the juvenile life stage (called recruitment) is crucial, and will (fingers crossed!) be confirmed in autumn monitoring.

Reports of fish spawning informed some quick action to arrange delivery of a small additional amount of water for the environment to the lower Murray. The additional water aims to support the right flows needed for callop eggs and larvae to develop and spread throughout the river system.

As the flow passes through Lake Alexandrina to the Coorong in SA it is also helping native fish like congolli and common galaxias to migrate upstream from salt to freshwater. The flow is also providing food and suitable spawning conditions for estuarine fish in the Coorong (e.g. black bream).

Waterbirds

Recent bird surveys in the Boals Deadwood—a wetland in Barmah Forest (Victoria)—have recorded signs of colonial waterbirds starting to breed. Over 300 birds—mostly Australian white ibis with straw-necked ibis and few royal spoonbills—have been spotted. Site managers are hopeful of a bird breeding event this year as it's been four years since colonial-nesting waterbirds last bred successfully in Barmah Forest.

Australian white ibis eggs in the Barmah Forest, Keith Ward GBCMA.

Monitoring has also recorded waterbird breeding activity in Reed Beds and Gulpa Creek wetlands in Millewa Forest. Small water deliveries will be made into the forest to support this breeding activity as waterbirds are known to abandon their nests if water levels drop too low. Higher water levels also offer more protection of nests from feral animals such as pigs.

Food webs and water quality

A team of scientists are currently monitoring water quality and river food webs at eight sites between Tocumwal (NSW) and Renmark (SA).

Researchers are also trialling HydraSpectra cameras, a new technology that measures water quality in real-time. Data collected will help to show how river conditions change over time and between locations. This information will help river managers to make decisions about the use of different types of flows to improve water quality.

Water quality camera (HydraSpectra) deployed at, Barmah on the River Murray, Victoria. CSIRO.

A food web monitoring project is underway in the lower Murray, with small water bugs (micro-invertebrates) being sampled at 49 sites along the river in SA from August to December. Water bugs are an important part of the diet of juvenile native fish.

Some blackwater may be seen on parts of the floodplain as flows reduce. This blackwater will be quickly diluted in the Murray. Blackwater is normal and provides an important food source for yabbies, small fish and other aquatic animals. Continuous monitoring is being done along the River Murray to detect changes in water oxygen levels.

Timing of flows is important

A significant amount of effort goes into coordinating the Southern Spring Flow in the Murray with higher flows from other major rivers. These rivers included the Goulburn, Murrumbidgee and Baaka (Lower Darling) Rivers (see map below).

Getting the timing of river flows right means native fish get an opportunity to move between different river systems and ensures more food is delivered into rivers.

This year's flow was managed between different organisations—three states and two Commonwealth agencies. It included river operators from NSW, Victoria and the MDBA as well as environmental water holders from NSW, Vic, SA and the Commonwealth. As a result of this coordination, flows between the four major Southern Basin rivers combined in a peak flow of around 18,000 ML/d at the South Australian border.

The flow also contributed to spring pulses provided in the Colligen Creek-Niemur River and Yallakool Creek-Wakool River systems. Objectives are focused on native fish and river connectivity. Flows in the Edward/Kolety-Wakool system are planned to continue into early summer, targeting silver perch spawning. Water quality, including dissolved oxygen levels, is being monitored closely during the warmer months.

In the SA riverland, flows are supporting managed inundation on the Pike and Katarapko floodplains.

While in the lower Murray, water for the environment will be delivered in summer-autumn to support native fish and improved water quality.

How can I keep track of this flow?

More about this flow:

https://www.environment.gov.au/water/cewo/catchment/southern-spring-flow-2020

More about the river:

- Real-time River Murray flow information.
- River Murray Weekly Report – river operations, inflows, river gauge heights, rainfall and salinity
- Whose water is in the river—monthly update of water for the environment and other water users.
- What is hypoxic blackwater?

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Figure 1: Map showing flow coordination between major southern basin rivers – the River Murray (Dark Blue), Goulburn (Light Blue), Murrumbidgee (Yellow) and Lower Baaka/Darling Rivers (Brown).