



River Torrens Environmental flows

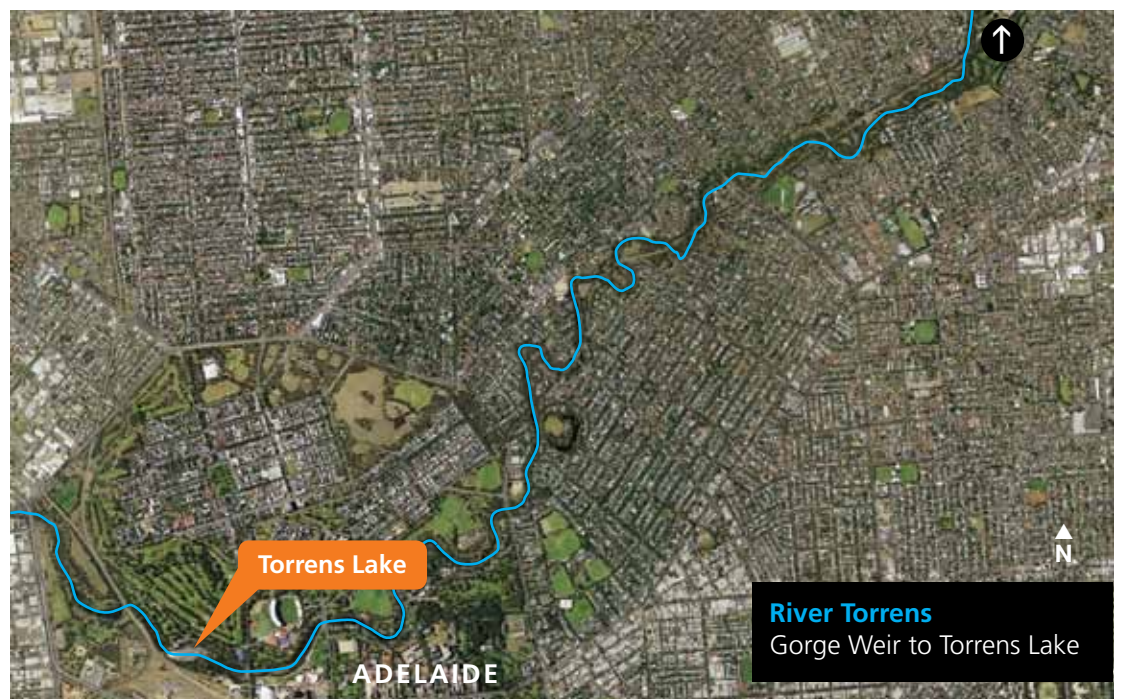


Gorge Weir to Torrens Lake

The Adelaide and Mount Lofty Ranges Natural Resources Management Board, SA Water and the Department for Water are collaborating on a trial to provide environmental flows to the River Torrens.

Environmental flows seek to mirror natural seasonal flows, but in a modified way that takes into account water security and flood protection. Full flows cannot be returned to the River

Torrens because water is required for human consumption and industry, but we can plan to achieve the best possible environmental benefits with the flows available.



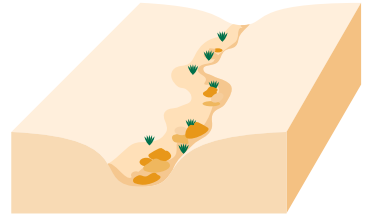


Environmental flows River Torrens

The environmental flows will be delivered in four basic phases that mimic natural seasonal flows

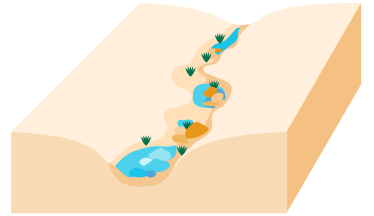
No flow

A dry phase where the river separates into a series of pools. Periods of no flow are important in recycling of nutrients and creating food sources for aquatic animals. They also give native fish an advantage over introduced fish species.



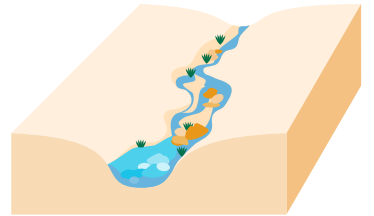
Low flow

These minimum flows are experienced over low rainfall months and are vital to maintaining the right water temperature and quality in pools, which provide an essential refuge for fish and other water-dependent life in dryer seasons.



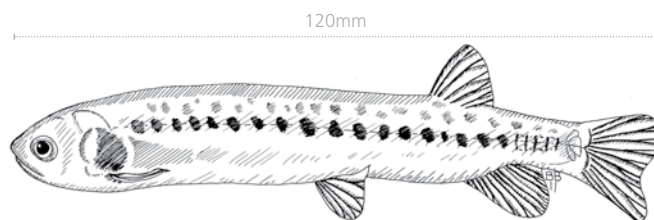
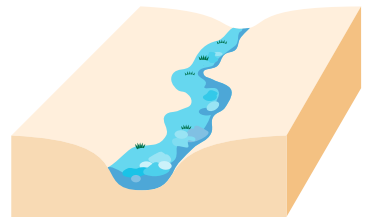
Fresh flow

These flows provide higher volumes of water and create more habitat for fish and allow them to travel between pools. The flows are essential to maintaining viable and widely distributed populations of fish.



Flush flow

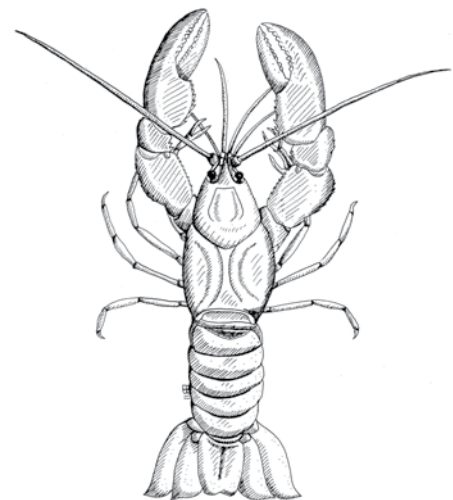
These high-volume, high-velocity flows scour sediment and vegetation that build up during lower flows. Over time sediment fills spaces between rocks, significantly reducing habitat for bugs, fish and other aquatic animals such as yabbies. Flush flows also allow fish to migrate both up and downstream and can provide important passage to the sea during breeding events.



Mountain galaxias is a native fish found in the Torrens River



Pool and community open space in Torrens Linear Park



Yabbie





The flows are part of a broader program that also includes the South Para and Onkaparinga Rivers. The trial commenced in December 2011 and will run for three years. It will test the anticipated benefits of the environmental flows to aquatic health predicted by scientific investigations conducted over a number of years.

The results will guide decision-making so ongoing environmental flows can optimise benefits to the rivers of the Mount Lofty Ranges.

Why an environmental flows trial?

Water supply dams and diversion weirs are located along the South Para, Torrens and Onkaparinga Rivers for the purpose of storing and diverting water to Adelaide. The dams and weirs are an essential part of ensuring Adelaide receives a reliable water supply.

However, diverting water from rivers has significantly interrupted the cycle of natural flows in our rivers and this has had a knock-on effect to the health of vegetation, fish and other organisms. In some cases, rivers experience no flow up to 90% of the time, whereas prior to diversion they may have flowed all year round. This has contributed to the local extinction of one species of fish with another three at risk of becoming extinct.

River Torrens trial reach (Gorge Weir to Torrens Lake)

For more than 160 years the Torrens River has been used for water supply, horticulture, recreation, commerce and drainage. A quality water supply for Adelaide was obtained by collecting water from the upper catchment at the Gorge Weir, storing it in Thorndon Park reservoir and piping it to Adelaide. While this secure water supply allowed development to continue on the Adelaide Plains, it contributed to the continuing decline in river water quality and aquatic habitat.

The trial reach on the lower Torrens River extends from the Gorge Weir to the start of Torrens Lake in the centre of Adelaide. It passes through a number of council areas, including Adelaide Hills Council, City of Tea Tree Gully, Campbelltown City Council, City of Norwood Payneham and St Peters, the Town of Walkerville, Adelaide City Council and City of Port Adelaide Enfield.

Gorge Weir collects inflowing water for transfer to the Hope Valley Reservoir for storage, so flows immediately downstream of the weir are most affected.

No flows are recorded for more than 84 per cent of the time (1970–2011) but big spills still occur every five years or so. The channel has become choked due to reed beds trapping sediment from stormwater and local run-off. Instream pools are decreasing in depth due to sediment accumulation, and habitat diversity is decreasing as reeds colonise areas that were originally deep pools and fast-flowing shallow river beds.

Fish and macroinvertebrate (bug) communities are generally healthy, although the Mountain galaxias fish species has a poor survival rate. Numerous introduced fish have been recorded.

Environmental flow regime for the River Torrens (Gorge Weir to Torrens Lake)

The flow regime for the River Torrens has been determined based on scientific investigations. Based on these investigations the following annual flows are proposed.

- a 0.25 ML per day continuous low flow all year
- a higher sustained flow of 40 ML per day for 20 days in November
- a total annual environmental water flow volume of 890 ML



1 The Carp gudgeon is a native fish which is found in the Torrens

2 Redfin are pests and voracious predators of native fish. Redfin are found in the Torrens

Photos courtesy of Dr D McNeil and Dr M Hammer





Environmental flows River Torrens

Expected benefits for the River Torrens (Gorge Weir to Torrens Lake)

- Improved water quality to levels conducive for aquatic life survival during the year
- Improvements in aquatic habitat
- Increased survival of adult native fish
- Reduction in introduced Eastern gambusia populations
- A healthy macroinvertebrate (bug) community, which underpins the health of the aquatic ecosystem.
- Healthy stands of native aquatic vegetation



Measuring the trial

A rapid and positive response to the flows can be expected for aquatic macroinvertebrates (bugs), while fish may take a number of years to respond fully. To make sure the environmental flows deliver intended benefits in the long term, the Board, SA Water and the Department for Water will be closely monitoring conditions in the River to evaluate the success of the trial. The results will further be used to refine the flows to optimise their environmental benefits.

The results will be made available to the community at key stages throughout the trial, with a full evaluation of the outcomes available following completion of the three year trial.

For further information visit
www.amlnrm.sa.gov.au/Water/Surfacewater/Environmentalflows.aspx

Board office contact details

Eastwood

205 Greenhill Road
Eastwood SA 5063
(08) 8273 9100
reception@adelaide.nrm.sa.gov.au

Gawler

8 Adelaide Road
Gawler South SA 5118
(08) 8523 7700
gawler.office@adelaide.nrm.sa.gov.au

Lobethal

1 Adelaide Lobethal Road
Lobethal SA 5241
(08) 8389 5900
lobethal.office@adelaide.nrm.sa.gov.au

Willunga

5 Aldinga Road
Willunga SA 5172
(08) 8550 3400
willunga.office@adelaide.nrm.sa.gov.au



Aerial photography/Cadastral data
supplied by Customer Service Centre Client Services
Department of Environment and Natural Resources