

Flows for the Future Newsletter

Our Fifth Edition

Welcome to the fifth edition of the Flows for the Future newsletter. You are receiving this newsletter as a valued member of our low flows community and you are important to the success of the program. We hope that you enjoy these updates and find them useful and informative.

Overview

Over the last few months we welcomed flows in some waterways for the first time in many years. Flows in the Marne River reached Cambrai for the first time in six years, and some of our gravity devices passed flows for the first time.

Our construction crew visited a number of participating properties to test out a new Flow Testing Rig. Read on to find out how the rig is used to calibrate devices and what you can do to ensure your device is working well.

Do you want to see a device in action? We took interested landholders on a tour with the Goolwa to Wellington Local Action Planning Association to see how our devices work. See page 3 for details.

We will continue to update you on progress for the program throughout the year. Wishing you and your family all the best for 2023!

How do we test flow rates?

A new custom flow test rig developed by the team helps to ensure flows are passed for a particular device. The heavier rainfall late last year provided an opportunity for the team to get out in the field and test some gravity devices.

Mounted on the back of a 4WD ute, the slip-on flow testing rig can test threshold flow rates (TFR) between 0.15 and 6.5 litres per second. When testing, the system can be adjusted in increments as small as 0.1 litres per second. The two hundred litre tank can be filled on site from a nearby water source, or be brought to site ready to go.

Before testing a device the diversion pipe is flushed out to ensure there are no blockages. Water is then pumped into the inlet sump. Using a Kroehn digital flow meter, the test rig flow rate is adjusted until it is approximately the same as the required device flow rate. Water is then pumped directly into the device inlet sump at a constant rate. This rate is adjusted until the sump stays at a constant level, providing a flow rate result. If needed, the size of the orifice can be increased or decreased so that the correct flow rate is being passed.

All of the devices tested so far are functioning well and according to their specifications.



A new custom flow testing rig



Above, Murray and Damian trial flows at Glenthorne National Park. Siphons are used to lower the dam water level to enable works around the embankment. This may be more suitable to dams where trenching is a challenge. Watch this space!

How do I maintain my gravity low flow device?

Field officers oversee the installation of gravity devices on properties. This includes ensuring sites are left clean and tidy, checking all removable components such as inlet grates and flushing points can be removed by hand, and fencing and gates are installed fit for purpose. The device inlet and surrounds are inspected to ensure there is no long term undercutting risk and that adequate scour protection has been installed.

Once the program is satisfied with the device construction and it is assessed to be functional, the device becomes the property of the landholder. To assist landholders to manage their device for optimal functionality, the team has produced a Device Maintenance Manual. Devices are simple to maintain, and this step-by-step guide has photos of



Field officer Murray tries out the new flow test rig

components and a suggested maintenance schedule.

You can download the manual at:

www.environment.sa.gov.au/topics/water/flows-for-future.

Species Spotlight, Prickly Tea-tree

The common name 'Tea-tree' is used for several plant species, including many belonging to the genus *Melaleuca* (from which we get Tea-tree oil) and the genus *Leptospermum*. The name originated from the practice of soaking the plant leaves in boiling water as a tea substitute.

The *Leptospermums* are a familiar component of our South Australian bushland, with species adapted to coastal, inland, mallee, forest, woodland and wetland/riparian habitats.

Prickly Tea-tree (*Leptospermum continentale*) is found along watercourses in the upper reaches of most of the Flows for the Future catchments. It is often one of the dominant understorey shrubs and is highly visible when flowering. It is an easy plant to propagate – the many woody capsules stay on the plant and contain HEAPS of seed! It is a species that produces many resources for insects – below you can see the Blue Ant (which is actually a wasp) fastidiously collecting pollen from a Prickly Tea-tree not far from Currency Creek.



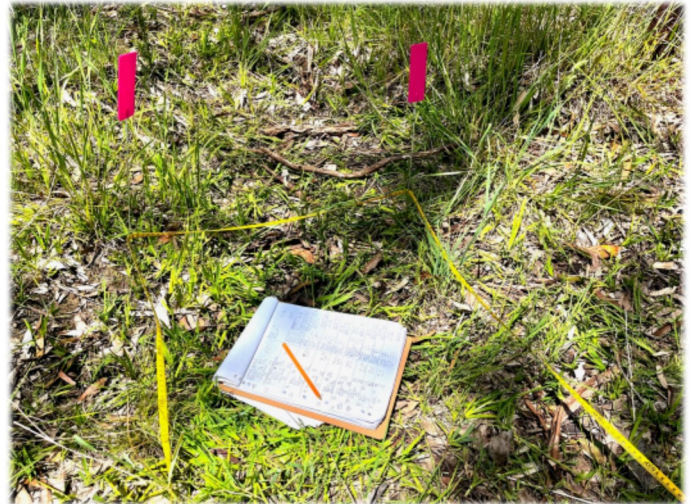
Does vegetation respond to changes in flow?

Tony and Catherine Lynch's 300 hectare farm near Tungkillo has been in the family since the early 1970s. Formerly a horse stud, they now run a beef cattle herd of around 150 head. The property is in the upper reaches of the Reedy Creek Surface Water Catchment that flows into the River Murray just south of Mannum.

Tony and Catherine have a gravity device installed on their property that allows low flows to pass around the dam to the watercourse. The small volumes of water passed do not significantly contribute to dam volume, but are critical to maintaining ecosystem health. Additionally, they have welcomed the team to collect data about the response of vegetation to the reinstatement of low flows.

The Lynchs recognise that passing low flows is just one component of restoring and maintaining catchment health. Combining land management initiatives such as fencing, revegetation and weed management along with restoring low flows will achieve the best outcomes for their property and the environment.

Most of the program's monitoring sites have been established on recognised watercourses, whereas this upper-reach area of Reedy Creek is highly ephemeral. Two survey areas are set up at the property, one fenced to exclude stock and the other open to grazing. Data was first collected at this site in January last year and again in May. The last round of data was collected in early November and will continue until the end of the program. By identifying and counting species within the survey plots, we hope to see improvements like the emergence of more aquatic plant species.



Tim and Tanya constructing survey plots. The data they collect will tell us about the health of Reedy Creek over time

In the moo'd for a landholder tour?

The Flows for the Future Program recently partnered with the Goolwa to Wellington Local Action Planning Association (GWLAP) in inviting interested dam owners to attend a field day where we visited low flow devices and saw them in action.

With a bunch of curious cows overseeing the tour, landholders and staff discussed the process of installing a low flow device, ongoing maintenance and the benefits of low flows to both local watercourses and the greater catchment.

For landholders looking to install a device on their own dam, a tour is a perfect opportunity to explore what's involved and the positive aspects that a device brings to a property.

Thank you to the participating landholders who invited the team to showcase a device on their property.

If you are interested in attending a tour please contact the team via F4F@sa.gov.au



The team show landholders a device in action

Bioblitzing!

In the Flows Program we talk a lot about catchment health, but how do we know if a catchment is healthy? Waterbugs are one of the most widely used indicators of catchment health – the number and variety of bugs at a site will change with water quality and flow regime changes. Waterbugs are a critical food source for fish, birds and frogs – if the bugs are struggling, then it is likely that our higher-order critters are too!

In spring the Flows team and the Goolwa to Wellington Local Action Planning Association joined citizen scientists, Landscapes staff and local Councils to collect waterbug samples, record water quality parameters and note other features of pool and 'riffle' (areas of fast flow) sites in the Marne, Bremer and Angas-Finniss catchments. We call these days 'Waterbug Bioblitzes', and at these events, participants are taught the standardised methods of sampling, and the basics of waterbug identification.

The 2022 Bremer Bioblitz was the first for this catchment – most sites were a bit of a mystery, and many involved a long walk from the car. Our aquatic ecologists report that the most widespread taxa for the Bremer sites were *Dytiscidae* (Diving beetles), *Chironomidae* (midges) and *Leptoceridae* (caddises, with at least three genera present). But the most remarkable thing was the variety of habitats in the catchment, mostly due to the larger volumes of water present this flow season. Sites ranged from wetland-like (Callington, Western Flat Creek) to fast-flowing (in one case too fast and deep to sample), and others in between.

Thank you to all the community volunteers who signed up for our Waterbug Bioblitzes this year!



Above, counting snails and damselfly larvae.

Clockwise from right, the team join citizen scientists to collect samples.



The Marne River flows through Bundilla

'Bundilla' was purchased by Peter Graetz's family in the late 1940s as part of the George Melrose, Rosebank – South Rhine Station. Bundilla is predominantly a sheep grazing property with some cropping land on the eastern flats. The Marne River runs through the property from the junction of the Marne (formerly the South Rhine) and North Rhine, exiting across the Three Chain Road.

The Marne Weir was built by hand with a little help from a TEA 'Fergie' tractor. Opening in March 1954, the weir diverted water to irrigate 7ha of Lucerne which continued into the '80s. Reduced spring flows made growing Lucerne unviable, so the weir diversion was then used to supplement oaten hay production.

When asked if Peter had any tales from living on the land, he laughed as he recalled one.

'Following the high rainfall and floods of 1992, the Marne flowed all summer—a very unusual occurrence indeed [I don't remember if this happened between '73,'74]. When the flow ceased late spring '93, I noticed dozens of Carp up to about 4 kg in size, which had migrated upstream from Wongulla during this extended flow. They were congregated at the pool of the base of the weir, which stopped their progress. A couple of women from Cambrai came across a similar thing, with lots of Carp stranded in the Kongolia lagoon. They had a plan to capture them and take them to the southeast to exchange for crayfish, however they ran into trouble keeping them fresh in the interim.'

With little to no flow between 2018 and 2020, Peter remarks 'this period of time has been the driest in my lifetime.' The higher rainfall late last year has seen the Marne flowing again through Peter's property. The Flows for the Future construction crew has installed a gauge board on Peter's property. Peter has agreed to extract his licensed allocation of water when flows are above the marked 'Threshold Flow Rate', allowing low flows to pass downstream.

Peter's property boasts a breathtakingly beautiful gorge, it's clear why he is fond of Bundilla.

'I have been fortunate to live here all my life, it's an excellent place to grow up and find your first yabby living under a large rock. Not much swimming as the water is a little cold, but plenty of adventures with friends.'



Pictured above, the Marne Weir at times of no flow, and with high flows late last year.

National Science Week

In August, staff were invited to promote the program as part of National Science Week. The team promoted a low flow device in Byethorne Park as part of a broader science trail featuring light projections and science events. The Mount Barker Council has an easily accessible device and interpretive signage.

New signage (right) was installed featuring a QR Code linking to a 'flows and healthy catchments' animation explaining why the program is working to restore flows.



Welcome Megan to the team

Growing up on a small horticultural property 50km south-east of Mildura with summers spent down the river skiing and long weekends camping, Megan had a love of the outdoors from an early age. Produce of choice on the family farm was citrus and avocados with Megan often pitching in to help with various farming practices such as slashing, irrigation operations, and fruit picking.



A true family farm, Megan helps harvest the first citrus crop in 1998.



After two years living on the Gold Coast, in 2019 Megan moved to suburban Adelaide.

In between jobs and with time for soul searching, Megan, with encouragement from her partner D'Arcy, (who works for the surface water team within the Department for Environment and Water), enrolled in a Bachelor of Science, with a major in Regenerative Agriculture. Megan just completed her degree in 2022—congratulations Megan!



Megan classifies a grain sample at Viterra

Megan spent two summers working as a grain classifier with Viterra (Apamurra site) and loved interacting with growers in a fast-paced environment. In her spare time she's a keen dirt-biker and has competed in the Finke Desert Race twice, amongst other events.

Megan, D'Arcy and their greyhound, Aston, now live in Mannum on a 92 acre off-the-grid property. Megan began working as a Field Officer for Flows for the Future Program in June. She loves working with landholders, especially when there are dogs to be patted. Megan is passionate about working with the community toward a healthy environment and sustainability. With her knowledge in agriculture and specialist skills we know she is a great addition to the team.

We would like to thank the Flows community for your support and contribution to healthy catchments.



The Flows for the Future Program is delivered under the Murray–Darling Basin Plan, jointly funded through the Australian Government Department of Climate Change, Energy, the Environment and Water and the South Australian Department for Environment and Water.

More information

Provide feedback, share your story or request to receive our next update electronically via
T: (08) 8391 2109 | E: F4F@sa.gov.au

www.environment.sa.gov.au/topics/water/flows-for-future