May/June 2016 in Our Catchment

As of 30 June 2016 there are over 4800 Molonglo catchment water quality records in total. Of those, you provided 563 water quality records over the year. That's very impressive and gives us a great view of what is happening across the Molonglo catchment. And when combined with the data from the other Upper Murrumbidgee catchments, that's a very powerful picture of water quality and catchment health. It has been a good year and none of it would be possible without you getting out there every month sampling water quality and adding your data to the Waterwatch database. Thank you everyone, what great citizen scientists you are!

Dr Dan will be madly analysing and collating all our data to produce scores and ratings for water quality, water bugs and riparian vegetation over all the sites in our catchment, with data collected at multiple sites being combined into "reach" health data. This all goes towards our Catchment Health Indicator Program report, which will be complete and ready for release in October.

Your Results

May and June could hardly have been more different from the previous two months. Rainfall in May across the catchment was roughly equal to the long term monthly averages, but over June I don't have to tell you that it was very wet. Not all the rainfall data is available, but what there is shows rainfall figures between 3 and 5 times more than the long term averages.

So what effect does all that rain have? Firstly of course, all those dry creeks start flowing, and low flows become high flows or even floods. Many of you remarked that you could see flows had recently been much higher at your site, with flattened vegetation and debris caught in trees and bushes. As expected, almost all sites had reductions in electrical conductivity, as the dissolved minerals were diluted by rainwater. The few exceptions were probably collecting muddy runoff.

Pools and dams reached as high as 18 degrees C in May, though generally temperatures were considerably lower, and all sites were measured at 12 degrees C or below in June. Most sites moved closer to a neutral pH (of 7) when looking at changes from May to June.

Turbidity was high at many sites, particularly Jerrabomberra Creek and the Molonglo River above Queanbeyan, reflecting high runoff and lots of mobile soil making its way into the waterway because of a general lack of riparian vegetation to capture that sediment. Stock also have ready access to both of these waterways through these sections, and the subsequent damage to river banks and streambank vegetation results in more sediment entering the water. Sites sampled before the sampling weekend in June, when there was heavy rain throughout the catchment, had much lower turbidity too.

Total phosphorus (total P) was very low almost everywhere. The exceptions were some of the urban wetlands, which is usual, the bottom-most urban sites on Yarralumla Creek and Weston Creek, one rural creek with several months of elevated total P, and one site on the Molonglo River above Lake Burley Griffin. In keeping with my recent email asking you to record high turbidity events and raise them with the EPA or your local council, one Waterwatcher in Queanbeyan has done just that, with a site which had poor turbidity (70 NTU), high total P and high nitrates. The water quality results at this site are clearly indicating that something is going badly wrong upstream, and Sue has taken photos, provided her Waterwatch results, and asked the local council to investigate. And this is not the first time she has done this. Thanks Sue!

What I didn't say in my email about high turbidity events is what should be considered high turbidity: as a general rule of thumb, anything over **30 NTU** in our rivers, creeks and stormwater drains (which end up in our rivers), is high turbidity. We would not report that turbidity for an urban wetland.

Nitrates were higher at quite a few sites in May, with two creeks flowing from Googong township, and several sites on the Molonglo River above Lake Burley Griffin, being of particular concern. Dissolved oxygen is low at about half the sites around our catchment, with most of these having DO% between 60 and 80%, which is considered poor to degraded. Some of these sites have low DO because of low flows in May, but many reflect the poor condition of our creeks and rivers, particularly the lack of riparian and instream vegetation, and our urban catchments/creeks which are often little more than concrete drains.

Other News & Events

Our Biggest Blue-Green Algae Bloom

Dr Klaus Joehnk from CSIRO Land and Water told us at a meeting in May that the Murray Darling system recently experienced its biggest blue-green algae (cyanobacteria) bloom ever. It lasted from Feb to May 2016, and extended from the Hume Dam to Lock 9 on the border with SA, along approximately 1600 km of the Murray River. It was highly toxic in Hume Dam, but not so toxic in the Murray River as it spread down.

Dr Joehnk's primary research area is environmental modelling of climate-driven aquatic systems, including continental scale modelling of aquatic systems and the dynamics of cyanobacteria blooms.

Feather Map

This is a citizen science project that meshes nicely with Waterwatch. "Become a citizen scientist today by collecting wetland bird feathers you find on the ground or in the water and help our researchers create the first ever Feather Map of Australia."

The Australian Nuclear Science and Technology Organisation (ANSTO) and the University of NSW (UNSW) are undertaking a citizen science project called the Feather Map of Australia Project.

The aim of the initiative is to understand and improve the health of wetlands and wetland birds across Australia. This project takes the feathers sent in, and uses modern nuclear techniques to provide useful information about the nutritional ecology and habitats of birds. You can learn more and find out how to get involved at www.ansto.gov.au/feathermap

How Times Change

The Murrumbidgee was stocked with trout from the 1880s. By the 1940s, native fish were on the wane. "We always caught fish: rainbow and brown trout and the occasional Macquarie perch or cod. No big fish." Dick and Gay Lawler fished in the Murrumbidgee River close to Michelago. "We used to fish and we used to catch trout. We knew we would have a meal of trout every weekend when we came out, without fail. And we used to catch enough to smoke them and give them away as Christmas presents to friends... We used to catch as many trout as we wanted until 1991." Darren Rosso, ACT ranger, says that's when carp "completed their invasion of all suitable habitat in the ACT, apart from the lower Cotter. It's been pretty tragic." (these are bits & pieces taken from '*Upper Murrumbidgee: Talking fish – making connections with the rivers of the Murray-Darling Basin*', by J Frawley *et al*., a Murray Darling Basin Authority publication.)

Yurung Dhaura Aboriginal Team - Caring for the Cotter Catchment

'Yurung Dhaura', Ngunnawal for 'Strong Earth', was the name chosen by the ACT NRM Council's first Indigenous trainee team. The two-year project enabled seven Aboriginal trainees in total to develop skills in environmental restoration, Traditional Knowledge and leadership, and they went on to win an ACT Landcare award. The team was funded under the Australian Government's Caring for our Country program and hosted within the ACT Parks and Conservation Service. The connection with Waterwatch is that Martin Lind had the team doing Waterwatch for 2 years and he features in the video.

This great video on https://www.youtube.com/watch?v=FHgJtjyUdgw shows '*The Yurung Dhaura Land Management Team - Caring for the Cotter Catchment*'. It is 28 mins long, and it is so interesting, touching on cultural stuff and showing us a bit about the fantastic projects and people involved. It took a while to get the entire video out there but it is such a beautiful, strong story, I just loved it. It's really worth watching. I know a lot of these people and I hope they are all incredibly proud of their part in it.

Thinking about frogs

'*In Search of Lost Frogs*' is a photo gallery posted on the *bioGraphic* website in May 2016. "Recently rediscovered - or discovered for the first time - these survivors offer hope for future conservation efforts." Be patient, as it may take a little while to load. Photos include the ventriloquial frog, glass frogs, harlequin frogs, the Borneo rainbow toad, and the Solomon Islands eyelash frog (!), plus some new species: http://biographic.com/posts/sto/in-search-of-lost-frogs

bioGraphic is a website "powered by the California Academy of Sciences, a renowned scientific and educational institution dedicated to exploring, explaining, and sustaining life on Earth."

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