

## June 2013 in Our Catchment

We have had some rain, on sampling Saturday...almost the usual amount for June. Isn't it good! You can see some of the effects in the lower ECs and elevated turbidities.

### Your Results

Parameter	Where it comes from	How it affects things	Local events
Electrical Conductivity	The ground water and soil determine the EC	Limey soils are naturally more conductive, more dissolved CO <sub>2</sub> ; waterlogging also increases mineral content.	Quite a few of the waterways are now running in the 700s and 800s, but in general the levels have come down
Turbidity	This is how much light can penetrate the water.	Silt and dissolved humus change turbidity	The rain had stirred up the water in the little dams on the west side of Mt Majura.
Oxygen Saturation	Oxygen gets into water through flow, wave action and plants growing.	More than 120% saturation causes embolisms in animals, big or small; below 60% and it is hard for things to breathe.	There were some very satisfactory oxygen saturation in the Queanbeyan River, at Chimney Creek and the upper parts of Jerrabomberra Ck. Sadly, the bottom of Sullivans Creek still has very depressed oxygen saturation.
Algal Growth	Most algae, planktonic and benthic, are seasonal; blanket weeds are perennial	Smothering and blooms interfere with biodiversity	Some reports of foxtails and other winter algae. There are still coatings of diatom mousse in more quiet water.

### More about Morisset Street

As noted last time, the Queanbeyan City Council have been hard at work reshaping the bed of the Queanbeyan River immediately downstream of the low level bridge in Morisset St. There are many good things that will come out of this work: the complexity of the stream will be enhanced; the mouth of Buttles Creek will be opened and made more secure; and the local riparian vegetation has been pruned but preserved.

Stream complexity is really important for overall waterway health. There really is nothing more dead than an open concrete drain! We now have a quiet run from the lower weir, under the bridge and to the island just above the mouth of Buttles Creek. The high bank is on the eastern side, and there is a sand bar at the lower end on the western side. Then there are two channels, on either side of the new island. The eastern one is narrow, designed to be a chute and has its bank protected by straw bales. The western one has a new cascade above the old riffle. Below the island, and in front of the new, riffled, mouth of Buttles Creek, there is an excavated deeper pool before the river sweeps round a gentle bend towards the Marco Polo Creek drain outlet and then past the cemetery, under the viaduct to join the Molonglo in Oaks Estate.

Flowing water uses energy and so can do work for the stream. The quiet reaches allow gentle sedimentation, but this can include losses in oxygenation. The cascades can cut down sedimentation while cranking up the oxygen capture. The riffles can diffuse the cascade energy, and exploit the extra oxygen. It is both a physical and a biological process. The deep pool allows mixing, from the two channels and Buttles Ck (when it is flowing) while providing for deep water processes, including fish nurseries. The logs from the floods weren't wasted either...they go into the deep hole to shelter small fish and their food animals.



Preserving parts of the vegetation communities is very sensible. They are not always easy to cultivate, and they have selected to live there so they must be suited to the climate, even the water speedwell and the purple top. A good example is a sedge, *Bolboschoenus caldwellii*, that forms knobby tubers at the edge of the water. The sedge's growth habit has several spin-offs for the stream bed. The sedge is tall, perennial and will be there to slow the flow of summer floods. The tubers fit among and around the cobbles and gravel in the riffle and stabilise it. They also collect vegetable debris that adds to fertility at the site.

This aquatic humus is not so stable that it cannot be given a good washout from time to time. *Bolboschoenus* provides homes for yabbies, mayfly and caddis fly larvae and especially damsel and dragonfly nymphs. When they have fully grown, and the long days have warm nights, the nymphs have a ready built tower to climb, split the chrysalis and dry their new wings in a sheltered tangle. The young tips are one of the favourite foods of Purple Swamp Hens. And this is only one of the plants still here!

### Calendar

20 <sup>th</sup> and 21 <sup>st</sup> July	Waterwatch Monitoring	Your sites
--	-----------------------	------------

*Stephen Skinner*

Waterwatch Coordinator, Molonglo Catchment Group

The operation of the Molonglo Catchment Group and Waterwatch program is assisted by the Australian Government's Caring for our Country and the ACT Government. Some administrative assistance is provided by the Australian Government's GVESHO program.