May 2011 in Our Catchment

Didn't we need that drop of rain! And couldn't we do with some more! Other things are going to plan...I heard the squeaky gate cries of gang gangs and saw them in the manna gums beside the Queanbeyan at Dane St on Wednesday, and the scarlet robins are about too. So it is winter and we should get some rain!

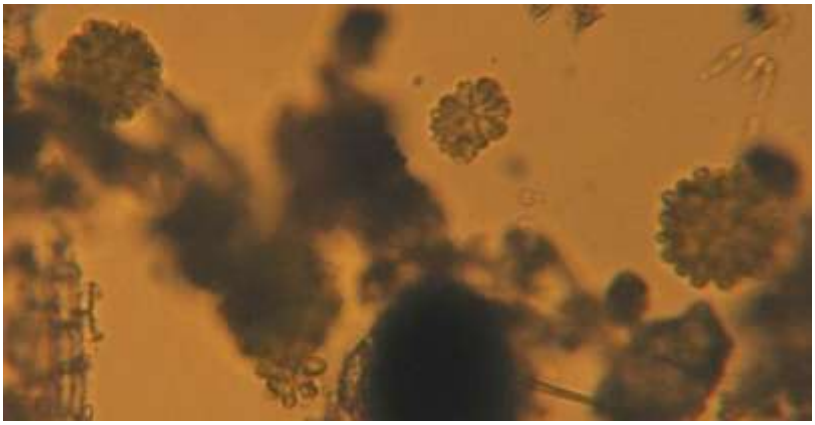
Your Results

Most of the water temperature reports from non-urban areas are three or four degrees lower than those for urban waterways. This may reflect altitude, but it may also reflect riparian and in-stream condition, there being more standing crop of reeds and bulrushes in non-urban waterways. There is a localised spike in pH in Lake Burley Griffin, and the drop in the Molonglo at Fyshwick may be to do with releases from the sewage works, as the nitrate readings there and at the ski ramp are elevated. The pronounced electrical conductivity in Burra Ck, and the downstream ends of Reedy, Woolshed and Jerrabomberra Creeks may be down to mineral concentration with slowing flows, and may also include groundwater input. Other factors upstream of the Williamsdale Rd causeway will make water quality at BUR055 interesting for the immediate future. Flushing in the other creeks should bring the EC level back down. Yarralumla Ck, like Sullivans Ck, runs off limestone, and so the lime content will generally be high. There are many possible causes of the surprisingly good Dissolved Oxygen readings, and I'll discuss that below.

Phytoplankton, the unseen oxygenators

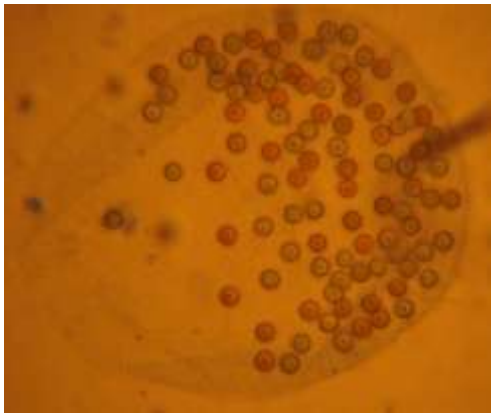
The rafts of silkweed floating round the edge of some wetlands at present actually bring the dissolved oxygen level down. While much of the raft is healthy and happily turning sunlight and CO_2 into sugar and oxygen, parts of the raft are busy making ladders of spores for the winter. There are bacteria consuming the yellow sunburnt threads, chitrids are infecting the sugar rich ones and caddis and midge larvae are chewing and poohing their way through the raft. The net effect of all this activity is a **drop** in escaping dissolved oxygen from the rafts.

In other places, especially some of the other wetlands, but sluggish rivers and creeks do it too, in spring and autumn there is a flush of planktonic algal activity. These suspended producer organisms, called phytoplankton, are in their growing phase, and so produce more oxygen than they consume (for daily life or reproduction). The animalcules that feed on them, the zooplankton, don't yet have such large populations that they are using oxygen faster than the phytoplankton can produce it, so just now, for no visible reason, many sites in the catchment have pleasantly elevated levels of dissolved oxygen, and the cooler water temperatures support its retention: DO is elevated, % saturation is up too.



Sometimes this flush is visible. The tea coloured waters of some of the pools in the rivers is a good indication that the golden green algae are present in significant numbers. *Synura* species are the most frequently encountered. Just too tiny to see, they may appear as golden brown streaks or clouds in a bottle of the tea coloured water left to stand in the sunlight. There are four clumps of *Synura* among the grit here.

More spectacular are the famous *Volvox* species. Volvox means the roller, and that is just what these balls of green cells do. They are around 1mm in diameter an you really can see them. They are common in Jarramlee Pond at Dunlop at present, and are often in Lake Burley Griffin. Are they in your part of the world? The one in the picture is full of spores for next spring.



Both *Volvox* and *Synura* are pursued and eaten by the tiny wheel animalcules or rotifers. There are even a few rotifers that have adapted to live within the Volvox spheres and wait for them to mature, and then eat them. Rotifers in turn are the food of the water fleas and other micro-shrimps, and so the chain of life goes on.

Calendar

18th/19th June next Molonglo Catchment Sampling weekend.

Stephen Skinner

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