Canberra Fish Kill in Ginninderra Creek

by Dr Caroline Wenger, Umbagong Landcare Group.

At the Ginninderra Creek stepping stones of Umbagong District Park in Latham, dead fish litter the water. Most of these are carp. Dead redfin have also been spotted.

The immediate cause of fish death is lack of oxygen due to a **blackwater event**. A blackwater event happens when a lot of organic matter is washed into waterways. As the organic matter decays due to microbial activity, dissolved carbon is released into the water, depleting oxygen levels and making the water appear black.

A water test by Waterwatch volunteer Lesley Harland on Saturday 18 Jan 2020, indicated dissolved oxygen levels were almost zero.

Dead carp at Umbagong District Park, Latham. *Photo: John Fitz Gerald.*

Blackwater events occur as a result of many factors including natural ones:

1/ Drought causes build-up of organic matter on the ground as plants shed their leaves and bark. In a bad bushfire season like this one, smoke brings in fine particles of soot and ash to settle on the ground. This means there is more organic matter lying about to be washed into the creek.

2/ Drought also causes death or dieback of groundcover so it is less able to filter water before it reaches the creek.

3/ Summer temperatures heat the water, which reduces the amount of dissolved oxygen it can hold. Warm water also increases microbial activity that breaks down the organic matter.

However, there are also human factors:

4/ Water run-off from suburban streets via artificial drainage means there is no opportunity for water to be filtered before it hits the creek.

5/ Organic matter in suburbs accumulates in gutters, which is rapidly washed into creeks in a flood. More organic matter accumulates in droughts.

6/ Human regulation of water systems (e.g. via dams and irrigation systems) reduces the number of mini-floods, so organic matter accumulates for longer on floodplains resulting in a massive dump of organic matter in a larger flood.

7/ Human-induced global warming increases severity and frequency of droughts and bushfires, and raises water temperatures. It also increases the magnitude of flood events (hot air can hold more water). It will therefore exacerbate natural factors leading to blackwater events.

What can we do to reduce fish kills?
We may not cry over carp, but, being the most hardy critters in the water, their death is bad news for the health of other organisms in the creek that need oxygenated water, including the many unseen invertebrates.

We can help prevent blackwater events by slowing run-off from urban areas and increasing the infiltration of water into our soils.

This strategy would hydrate our soils instead of draining the water away as quickly as possible. It is therefore a good climate change adaptation measure to combat drought. This means we need permeable surfaces on our properties and municipal ponds and wetlands to filter water before it hits the rivers.

We can rake up organic matter from the gutters outside our properties and use it as mulch. The government may also need to increase road sweeping, especially in areas where there is no wetland filtration.

With global temperatures warming, we can expect to see more blackwater events, more fish kills and worsening water quality. The ultimate solution is to halt greenhouse gas emissions and turn to cheaper renewable energy sources.

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