

Hypoxic Blackwater update

With the return of wetter conditions after a prolonged dry period, hypoxic (low oxygen) blackwater is an emerging and high water quality risk for many river valleys in NSW. This information sheet provides background on hypoxic blackwater and the current (22 September 2020) situation in the lower Lachlan.

What is Hypoxic Blackwater?

Hypoxic (low oxygen) 'blackwater' is a feature of lowland river systems and occurs during flooding when organic material (sticks, leaves, bark and grass) is broken down in the flood water, or is washed off the floodplain and into the river. The breakdown of this material by bacteria can lead to a sudden decrease in the oxygen available to fish and other aquatic organisms.

The black appearance of the water is due to the release of tannins as the organic matter breaks down. This process is more common during spring and summer flooding. At high water temperatures there is naturally less dissolved oxygen in the water and the breakdown of organic matter occurs more quickly.

The incidence of such events is increasing because of the reduction in the smaller freshes in river systems that help reduce the build-up of leaf litter. The last major hypoxic blackwater events in the southern inland valleys occurred in 2016.

What can be done?

Blackwater is a natural event, but is occurring more frequently than in the past. There are only limited options available to manage such events. The key tool is to ensure that landholders are aware of the increasing risks and events when they occur.

Everyone is also encouraged to advise NSW Fisheries if they see numbers of dying or dead fish in certain areas. The Fishers Watch phone line is **1800 043 536**.

It may be possible to reduce the duration and/or severity of hypoxic blackwater events through more frequent flushing of forests and floodplains in winter and early spring when water temperatures are low. Environmental water can be used to produce small floods to flush material from lower areas.

It is usually not possible to prevent hypoxic blackwater events from occurring, as they often extend over a large area. The impacts on the environment can be harmful, but are usually short-term as the river water re-oxygenates as the floodwater subsides.

These events do provide nutrients to drive the overall production of our river and wetland systems. In the longer term, native fish, water birds and other organisms will benefit from the increased production in the river, boosting food supplies and supporting breeding cycles.

What are the indicators?

Because of the dry conditions there has been a substantial build-up of leaf litter in the Lachlan, Murray and Murrumbidgee valleys in the river forests and floodplains.

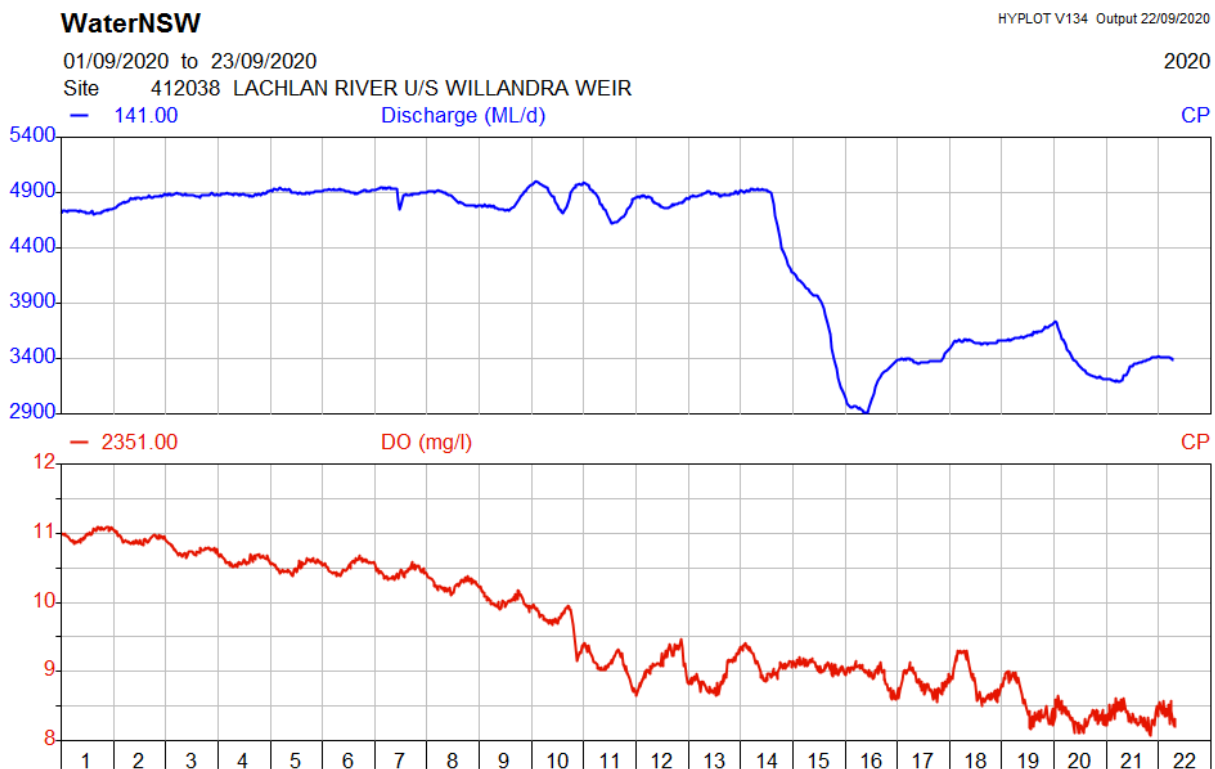
Recent assessments have found levels to be higher than the levels in 2016 when the last substantial blackwater events occurred. This leaf litter, when washed into the river and combined with temperatures above 25 degrees Celsius, can cause the dissolved oxygen (DO) levels in the river to crash rapidly. DO levels less than 2 mg/L can cause fish deaths.

Lower Lachlan dissolved oxygen levels

As at 22 September 2020, dissolved oxygen levels in the lower Lachlan, between Hillston and Booligal, have dropped dramatically. While the quality of the water being released from Lake Brewster is good, the runoff from the Toriganny floodplain is adding water of very low dissolved oxygen levels, impacting on water quality further down in the catchment.

The following graphs show:

- The flow volumes at Willandra Weir and the DO levels at this site which are still at good levels – above 8 mg/L.
- The flow volumes at Hillston Weir and the DO levels at this site – which are still at reasonable levels above 6 mg/L.
- The flow volumes at Booligal and the DO levels at this site – which are at low levels – less than 2 mg/L.



Hypoxic Blackwater in Spring 2020

Update No 1 22 September 2020



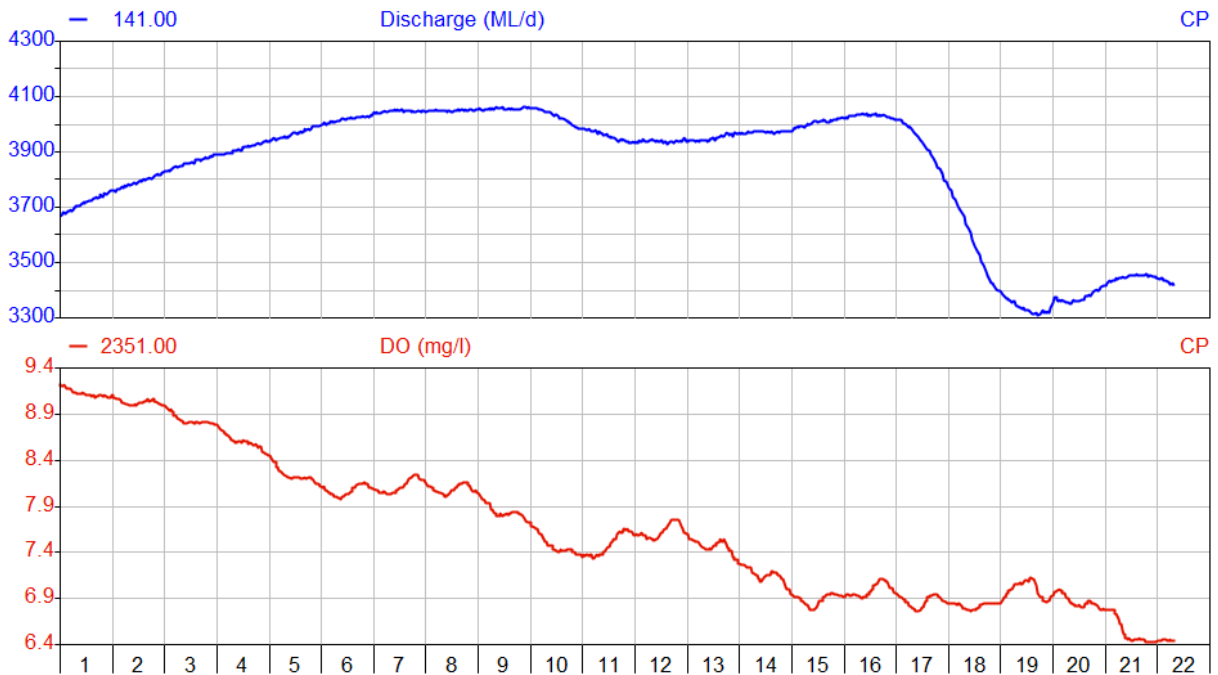
WaterNSW

HYPLOT V134 Output 22/09/2020

01/09/2020 to 23/09/2020

2020

Site 412039 LACHLAN RIVER AT HILLSTON WEIR



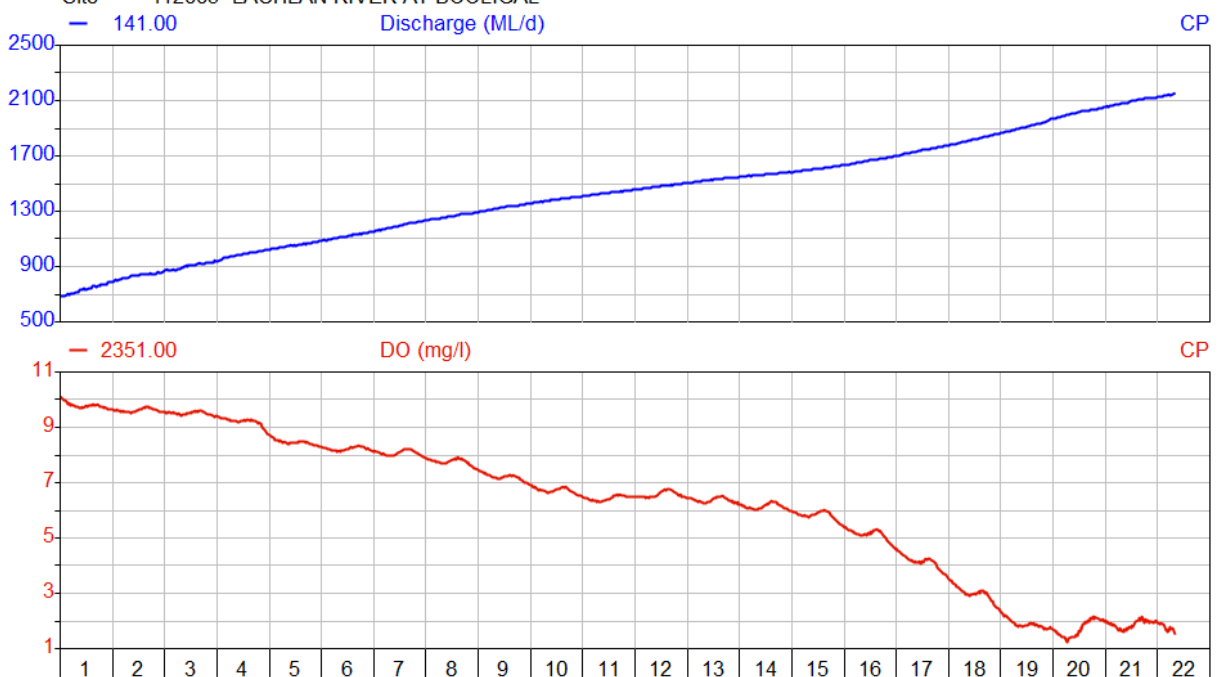
WaterNSW

HYPLOT V134 Output 22/09/2020

01/09/2020 to 23/09/2020

2020

Site 412005 LACHLAN RIVER AT BOOLIGAL



Local reports are indicating that the water is black and smelling strongly. No fish deaths have been reported as yet and cooler temperatures later in the week may improve the situation. With the better quality water upstream, there is the opportunity for fish to travel to areas of better water quality.

As high releases are already being made from Lake Brewster, there is no potential to increase releases to provide dilution further downstream. However, water was previously ordered for environmental purposes and may assist when it reaches the lower Lachlan, however; this will take about a week.

The situation will continue to be monitored and regular updates provided.

More information

DPIE-Water: [Hypoxic blackwater](#)

DPI Fisheries: [Fish kills in NSW](#)