Fact Sheet

Upper Barwon River and Boundary Creek low pH event June/July 2018

What has caused the low pH levels in the Upper Barwon River and Boundary Creek?

The source of the low pH water is likely to be acid sulphate soils in Big Swamp that have previously dried out and then been soaked by heavy rainfall, flushing low pH water into Boundary Creek. The low pH water has then flowed into the upper Barwon River.

The point where Boundary Creek enters the Barwon River is approximately 10 km from the township of Birregurra and Big Swamp is located approximately 13 km from the township of Birregurra (both distances are as the crow flies).

Rainfall intensity and timing is the key determinant of whether a low pH water quality event occurs. Rain in the catchment activates, collects and transports acid from acid sulphate soils in the catchment. Acid is more readily mobilised after prolonged periods of low rainfall followed by soaking rain.

What is pH?

pH is a figure expressing the acidity or alkalinity of a solution on a logarithmic scale of zero to 14 on which 7 is neutral; lower values are more acid and higher values more alkaline.

What factors have contributed to the drying of Big Swamp?

Big Swamp is a known acid sulphate soil site and has been the subject of extensive studies over the past decade.

Recent technical work by Barwon Water has confirmed that the operation of the Barwon Downs borefield over the past 30 years is responsible for two thirds of the reduction of base flow into Boundary Creek. The dry climate experienced during the same period accounts for the remaining third. Studies also confirmed drying of Big Swamp has resulted in activation of acid sulphate soils and subsequent releases of acidic water into Boundary Creek.

Barwon Water is committed to remediating Big Swamp and Boundary Creek to improve stream flow and water quality. Barwon Water recently formed a community and stakeholder working group to develop a remediation plan for the swamp and the creek.

The group is made up of community and stakeholder representatives from the Corangamite Catchment Management Authority (CMA), Colac Otway Shire(COS) Council, Land and Water Resources Otway Catchment (LAWROC), People for a Living Moorabool (PALM), Upper Barwon Landcare Group, Boundary Creek landowners, Traditional Owners and other interested community members.

This group will work together over the coming months to assist Barwon Water in designing and implementing a remediation plan for the creek and Big Swamp.

What are the authorities doing about the events?

All the relevant authorities, including Barwon Water, the Department of Environment, Land, Water and Planning (DELWP), Southern Rural Water (SRW), Environment Protection Authority Victoria (EPA), Agriculture Victoria (Ag Vic), Department of Health and Human Services (DHHS), COS and Corangamite CMA are working together in response to the low pH. This includes overseeing regular water sampling and updates to landowners and broader community.

We know that waterways recover naturally from acid events as the catchment upstream dries out and the pH returns to more neutral levels. The community will be informed about any changes to the current situation.

How long will this incident last?

While it's difficult to say exactly when pH levels will return to normal levels for these waterways, previous incidents show that increased rainfall in the catchment may dilute the acidic water. Monitoring is continuing twice a week at several sites and agencies will continue to keep the public informed about the pH levels.

Can I drink the water from the river?

People should always avoid drinking untreated river water because this may contain contaminants including disease-causing micro-organisms and chemicals that can be harmful to health. Reticulated drinking water supplies are safe to drink.

Are fish from the affected water safe to eat?

Fish that are dead, dying or swimming erratically should not be handled or eaten. For more information visit https://www.environment.gov.au/water/quality/publications/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1

Is the water safe for skin contact?

Acidic water may cause eye and skin irritation. Water used for direct contact such as wading, swimming, bathing or showering should be in the pH range 6.5–8.5. Avoid direct skin contact with water outside this pH range. If contact is made, remove any affected clothing and wash yourself thoroughly with clean water.

For more information visit https://www.environment.gov.au/water/quality/publications/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1

If people have any associated concerns for their health they should visit a doctor or call Nurse-On-Call on 1300 60 60 24.

Is the water safe for my livestock?

Drinking water guidelines for livestock recommend a pH range between 6.5 to 8.5. If the pH is highly acidic (less than 5.5), acidosis and reduced feed intake may occur. Animals are likely to refuse to drink water below pH 4.0. Livestock managers should watch their livestock for refusal. Where animals are reluctant to drink the available stream water an alternative supply should be found such as farm dam water filled from pasture run off. For more information visit http://go.vic.gov.au/3FLY6R

Is the water safe for my dog?

Don't let your dog swim in or drink the affected water. If contact is made, thoroughly wash your dog with clean water. If you're concerned, seek veterinary advice.

Are there also heavy metals in the affected waterways?

Metals can occur naturally in waterways from weathering of soils and rocks, and can also be introduced to waterways from a range of human activities. When pH of water falls, metal particles can be more easily mobilised.

Testing for metals in Boundary Creek has been conducted as part of the technical studies and groundwater monitoring program undertaken by Barwon Water since 2012. This information is available on Barwon Water's YourSay website and was shared with relevant agencies, including DELWP

Further testing for metals in Boundary Creek and the Barwon River is currently being undertaken.