

Broken River

2007-2008 Monitoring Report



Google Satellite Map of the Goulburn Broken Catchment presenting Waterwatch water quality monitoring sites in the Broken River region

Broken River Results

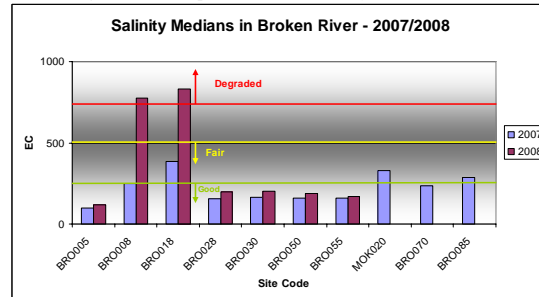
Electrical Conductivity

The part of conductivity in which we are interested is Total Soluble Salts or **salinity**. Aquatic plants and animals can only survive within certain salinity ranges so changes in salinity levels result in changes in the variety and types of plants and animals found.



A Waterwatch monitoring site in the mid reaches of the Broken River. The Broken River after Lake Nillahcootie.

Using the Index of Stream Conditions, the Broken River is rated as **“Degraded”** if levels are greater than 750 EC’s. In 2007, for most sites, the conductivity was below 400 EC’s from the top of the catchment south of Benalla, to its confluence with the Goulburn River in Shepparton. Conductivity in the upper part of the catchment has increased in 2008 to be rated as **“Degraded”**, most likely due to reduced flows (see graph below), but reducing after Lake Nillahcootie. This type of data can be useful for management agencies in determining sources of inputs into our waterways.

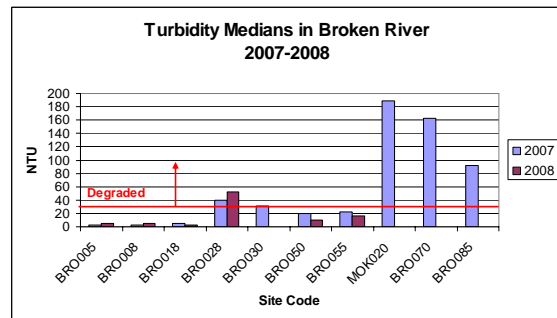


Turbidity

Turbidity measurements taken in Broken River in 2007 were generally excellent upstream of Lake Nillahcootie. Results deteriorate from this point to being rated as **“Degraded”** at all sites downstream from and including Lake Mokoan.

As for electrical conductivity, there seems to be a pattern of turbidity increasing downstream of both Lake Nillahcootie, and Lake Mokoan (see graph below). Downstream from where the Lake Mokoan outlet flows into the Broken River at Casey’s Weir, the turbidity is consistently higher than the **“Degraded”** rating.

Turbidity relates directly to rainfall and runoff. A hard fast rain washes a great deal of soil into the water. Erosion of river banks due to a lack of riparian vegetation is common in the Goulburn and Broken River catchments. Turbidity may also be the result of waste discharge, urban runoff and the presence of excess nutrients causing algal growth.



Certain catchment management practices such as the retention of vegetation along streams, fencing of waterways, farming practices such as contouring and stubble retention and elimination of stock access to waterways can lower turbidity in streams. Off creek watering of stock is another way of lowering the turbidity in streams.

Why monitor a waterway?

- Monitoring data may be used to:
- establish **baseline conditions** (where no prior data exists);
 - determine water quality trends;
 - identify current and emerging problems (**investigative or problem-orientated monitoring**); and/or
 - increase knowledge of the relationship between water quality and land use.

As part of a water quality monitoring program, you will be finding answers to these questions about the quality of the Broken River:

- Are there any large problems with water quality in the Broken River?
- Can any trends be identified in the Broken River?
- What are probable causes of problems identified in Broken River?
- What actions could be taken, and by whom, to help reduce or rectify this problem?

Broken River in 2007/08

Thanks to the efforts of a variety of monitors, both groups and individuals, there were many monitoring sites on the Broken River and its tributaries during 2007/08. The sites tested were too numerous to list but include sites in the upper, mid and lower reaches of the river. For example:

- BRO005 - Broken River at Barragunda
- BRO028 - Broken River downstream Lake Nillahcootie
- BRO050 - Lake Benalla
- BRO055 - Broken River after Benalla at the Pump Station
- MOK020 - Outlet of Lake Mokoan
- BRO055 - Broken River at Benalla
- BRO085 - Broken River at Archer St, Shepparton

Monitors recorded measurements for the four main parameters recorded by Goulburn Broken Waterwatch, which are:

1. **Electrical conductivity** - how much Total Dissolved Solids (especially soluble salts) is in the water
2. **Turbidity** - how cloudy the water is
3. **Phosphorous** - how much phosphorous (nutrients) is in the water
4. **pH** - how acidic or alkaline the water is.

Some sites were also monitored for Dissolved oxygen and pH.



The upper reaches of the Broken River. BRO008 - Broken River at Byrnes Road bridge



Upper Goulburn Broken catchment co-ordinator Jill Bredon with a group of students from Mansfield Primary School.

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Further Details

For further information on any of the data presented or about Waterwatch please contact:

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