

Water quality summary for the Barwon–Darling surface water resource plan area (SW12)

Water quality technical reports provide an overview of the water quality condition for each water resource area in the Murray–Darling Basin.

Purpose

The *Murray–Darling Basin Plan* (2012) requires all basin water resource areas to have a water quality management plan. Water quality technical reports for each area provide specialised background information to support the plans.

The Water Quality Technical Report for the Barwon–Darling surface water resource plan area gives an overview of the water quality condition. The report also outlines the factors influencing water quality in the region. This includes the likely causes of water quality degradation.

Water quality targets

The report compares water quality data to Basin Plan water quality targets. These targets support environmental, social, cultural and economic benefits in the Murray–Darling Basin and help identify risks to aquatic ecosystems, recreational and irrigation use.

Future monitoring of progress towards the targets will assess the success of management actions taken to address water quality decline.

Water quality parameters

The report looks at water quality parameters listed in the Basin Plan that represent general water quality condition. These parameters are most likely to demonstrate change over time from management actions. They include:

- turbidity and suspended sediment
- nutrients
- dissolved oxygen
- pH
- water temperature and thermal pollution
- salinity
- harmful algal blooms
- toxicants
- pathogens.

Methods

The water quality data used in the report comes from 7 routine water quality monitoring stations within the Barwon–Darling surface water resource plan area.

We have developed a water quality index (WaQI) to communicate and report water quality condition. It combines data from a range of parameters to a common score and rating.

Water quality summary



Water quality technical report for water resource plans

For New South Wales, the WaQI uses parameters such as total nitrogen, total phosphorus, turbidity, dissolved oxygen and pH. Where data is available, it also considers temperature, salinity and blue-green algae.

The outcome provides a number between 1 and 100 categorised according to the following water quality rating:



Results

We used data collected between 2010 and 2015 to calculate index results for a range of sites in the Barwon–Darling surface water resource plan area. Results are shown in Figure 1. The Water Quality Technical Report for the Barwon–Darling surface water resource plan area has further details.

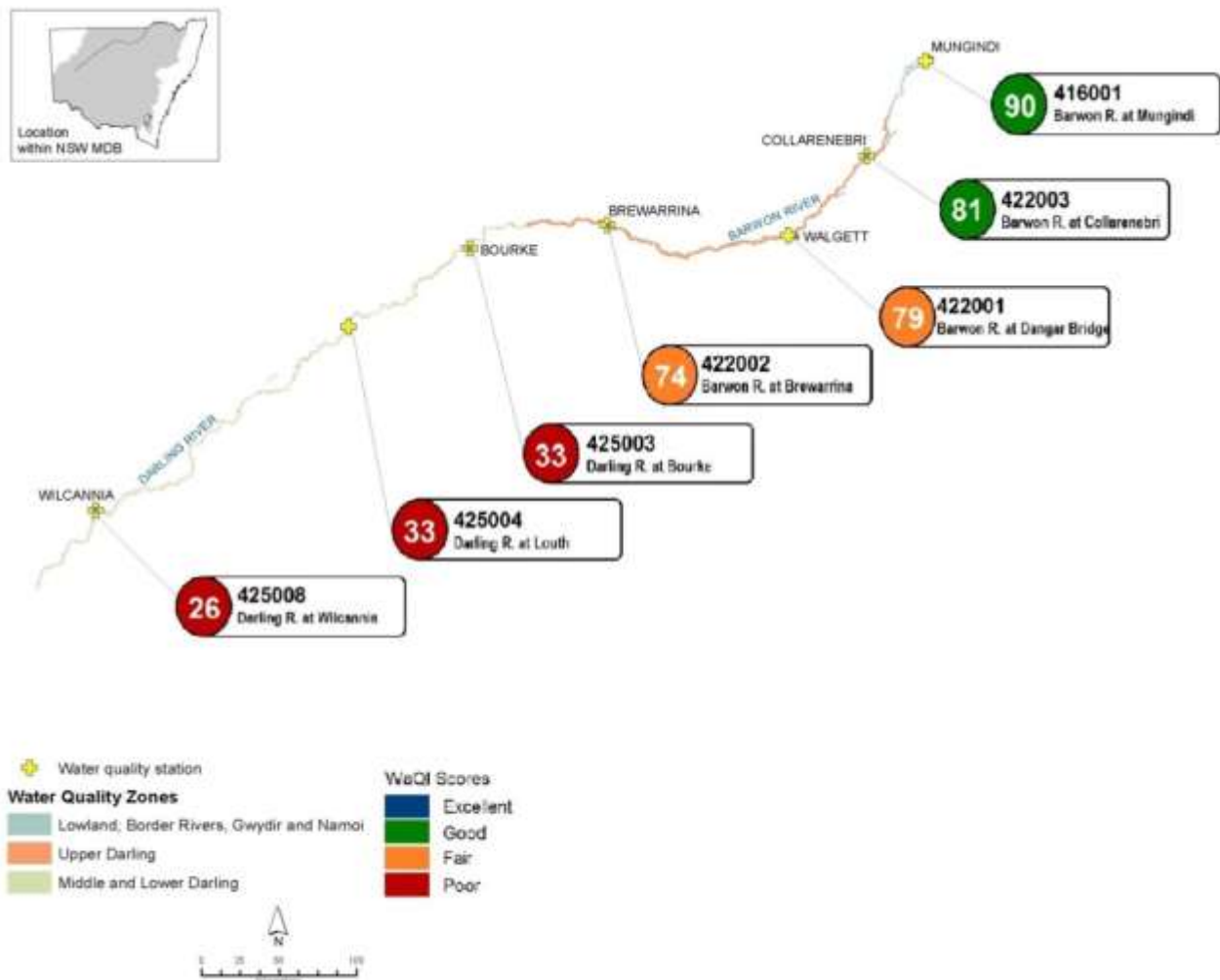


Figure 1 Water Quality Index Scores for the Barwon-Darling surface water resource plan area

Water quality issues within the Barwon–Darling catchment result from a combination of factors. These include changes to natural flow regimes, catchment conditions and land use. Table 1 lists the major water quality issues in the Barwon–Darling catchment.

Table 1. Summary of major issues and causes of water quality degradation

Issue	Location	Potential causes
Harmful algal blooms	Whole area	Stratification in pools, warm water temperatures and nutrient inputs in instream weirs.
Dissolved oxygen and pH outside of normal ranges	Whole area	Reduced flow and increased low flow and cease-to-flow periods disrupting dissolved oxygen dynamics and increasing eutrophication. Hypoxic events following major flooding and recommencement of flow during cease-to-flow periods
Increased nutrients and turbidity	Whole area	Stream bank and riparian condition, grazing and cropping practices, carp and feral species. Increased sediment and nutrient input associated with erosion.
Salinity	Middle and lower area	Increased during low flows. High salt inputs to the Barwon River at Brewarrina and Darling River between Bourke and Louth from shallow saline groundwater and near stream salinity.
Toxicants and pesticides	Upper and middle area	Pesticide use in cropping areas
Disruption to organic carbon cycling	Whole area	Reduced freshes and high flows from upstream catchments.

More information

Please see the full report for further information on the water quality condition and discussion of results. It can be accessed [here](#).

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