



Water Watch Program

Testing Measures of Water Quality

Monitoring involves six measures of water quality:

- 1. Electrical conductivity** provides a measure of salinity (dissolved salt increases water's conductivity).
Levels measured by BERG MM at the Augusta Street testing site are well outside the desirable "fresh water" levels set by Waterwatch. Our readings are consistent with those of tidal estuaries and are very different to the upstream values found at Uralla Road bridge and The Briars. Levels set for estuaries in other countries suggest that BERG MM's readings are well within healthy limits.
Salinity will also vary in the estuary, depending on whether or not the creek mouth is open, and how much water is flowing downstream.
- 2. pH** is a measure of acidity. Some of the influences on this in Balcombe Creek are the rock and soil characteristics of the creek bed as well as plant activity and oxygen levels. pH levels measured are within the limits that Waterwatch identifies as healthy.
- 3. Turbidity** – the cloudiness of water – is caused by suspended particles that reduce the passage of light. The particles can be soil (clay, silt, sand), algae, plankton, micro-organisms, and other substances. Major contributors include soil erosion and run-off from unsealed roads. In cloudy water, less light reaches aquatic plants, frog spawn, and other living things. Turbid water also absorbs more heat and so tends to be warmer than clear water. Levels of turbidity measured at all sites are within the limits that Waterwatch identifies as healthy.
- 4. Dissolved oxygen** is essential for creatures with gills – not only fish, but the tiny creatures (macroinvertebrates) that populate waterways. The higher the water temperature, the lower the level of dissolved oxygen in water, so there is a link here to turbidity.
Dissolved oxygen levels measured at all three sites are often below the 50% threshold that is considered healthy for freshwater streams. Lack of riffles in a flowing creek undoubtedly lessens the DO, particularly when the estuary entrance is closed. Dissolved oxygen levels measured at the Augusta Street test site are slightly borderline, but within the limits that Waterwatch identifies as healthy.
- 5. Phosphorus** is released by rotting organic matter and is essential for plant growth. Australian flora are adapted to the naturally low levels in Australian soils. But agricultural and garden fertilisers contain phosphorus to meet the higher needs of exotic crops and garden plants, and run-off can carry this into waterways. High levels of phosphorus support toxic algal blooms.
Phosphorus levels measured at the Augusta Street testing site are within the limits that Waterwatch identifies as healthy.
- 6. Macroinvertebrates** are the tiny but visible insects, worms, snails, shrimps, water fleas and the like that are a key part of the food chain in waterways. The diversity and abundance of these creatures is an excellent indicator of stream health.
Every six months BERG MM counts both numbers of species and numbers of macroinvertebrates at the Augusta Street testing site. Our testing indicates a healthy environment, though species are limited due to the salinity of the estuary environment.