

Weekly Algae Activity Reports feature on the Swan River Trust website, Channel 9 news each Friday evening and *The West Australian* weather page each Saturday.

The reports are an initiative of the Swan River Trust's [Swan-Canning Cleanup Program](#) in collaboration with the Department of Environment.

Community members asked for more frequent information about algal activity in the Swan-Canning river system following the autumn and winter 2003 algal blooms. The Algae Activity Report was developed to provide this information.

Department of Environment Aquatic Science Branch officers monitor the Swan River on Mondays and the Canning River on Tuesdays. In the event of a public holiday, sampling for that allocated day occurs on the Wednesday of the same week.

The Swan and Canning rivers are monitored weekly at 14 sites for water quality including the variables nutrients, oxygen, temperature, salinity, pH and phytoplankton as part of the Cleanup Program.

In November 2003 the Algae Activity Report was based on cell numbers per millilitre and the Australian and New Zealand Environment and Conservation Council guidelines for cyanobacteria that denotes 20,000 cells/mL as an algal bloom (see Table 1). However, research has shown that cell quantities did not necessarily correlate with discolouration of the water, scum formation and algal blooms.

| Algal Density (Cells/mL) | Ranking |
|--------------------------|---------|
| > 2000                   | Low     |
| 2000-20,000              | Medium  |
| < 20,000                 | High    |

Table 1. Algae Activity Report based on cell densities, November 2003-August 2005.

A review undertaken in mid-2005 showed that chlorophyll *a* – a green pigment used as an indicator for algal growth – provided more reliable information on possible water discolouration and scum formation.

A four-week trial was conducted by the Department of Environment Aquatic Science Branch during July and August 2005, using chlorophyll *a* and cell quantity concurrently.

The chlorophyll *a* results were first used for the Algae Activity Report on 2nd September, 2005.

High chlorophyll *a* content indicates high algal activity, which means there is a high risk of algal blooms, surface scum and water discolouration occurring. Low chlorophyll *a* content indicates low algal activity.

Background levels of chlorophyll *a* vary throughout the Swan and Canning rivers. The ranking system is based on statistically calculated background levels (see Table 2) using five years of weekly data.

| Chlorophyll <i>a</i> (µg/l)   | Low:<br>colour code blue | Medium:<br>colour code green | High:<br>colour code yellow |
|-------------------------------|--------------------------|------------------------------|-----------------------------|
| Lower Swan,<br>Lower Canning  | < 0.49                   | 0.49-1.4                     | > 1.4                       |
| Middle Swan,<br>Upper Canning | < 1.0                    | 1.0 - 6.0                    | > 6.0                       |
| Upper Swan                    | < 1.0                    | 1.0 - 9.6                    | > 9.6                       |

Table 2. Chlorophyll *a* levels and ranking system used for the Algae Activity Report, from September 2005.

The Trust has recently upgraded the colours for the Algae Activity Report, keeping red as the alert indicator. The scales were updated to represent the following information to the public on a weekly basis through the Algae Activity Report.

**Low** – blue – low level of algal activity

**Medium** – green – possibility of discolouration and/or scum formation

**High** – yellow – high probability of discolouration and/or possible scum formation

**Alert** – red – presence of potentially harmful species to aquatic life requiring public advice

This new approach better reflects the full range of algal activity throughout the year. The alert indicator allows the Trust to communicate a water quality or river health warning to the public. In the event that potentially harmful algal species are detected, they will be featured in the Algae Activity Report.

More detailed information about algae can be found in [River Science](#) brochures listed on the Swan River Trust website [www.swanrivertrust.wa.gov.au](http://www.swanrivertrust.wa.gov.au) under the *Resources and publications* heading. These are also available in hardcopy by contacting the Trust on 9278 0900.

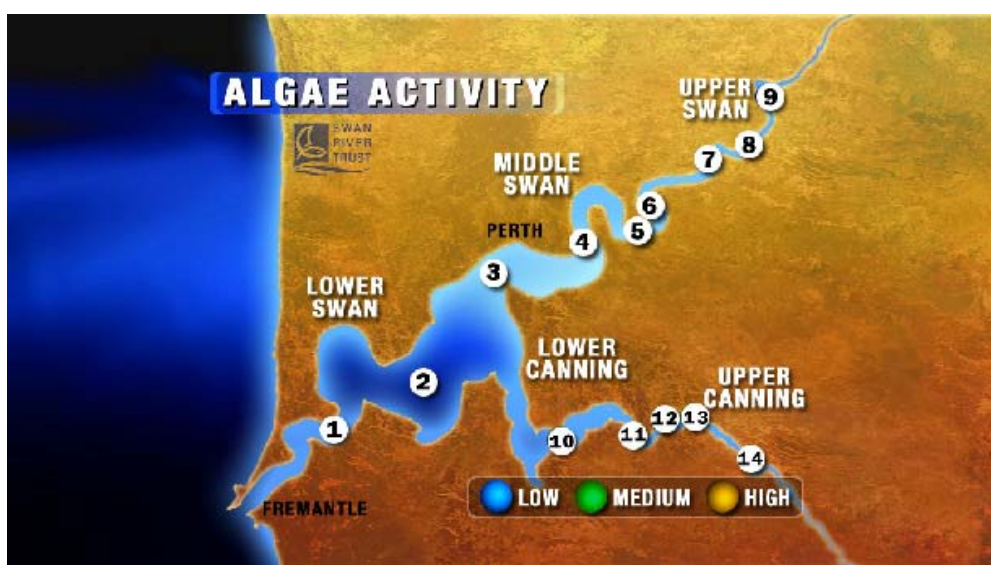


Figure 1. Weekly monitoring site locations in the Swan and Canning rivers.

|               | Monitoring site     | Site number |
|---------------|---------------------|-------------|
| Lower Swan    | Blackwall Reach     | 1           |
|               | Armstrong Spit      | 2           |
|               | Narrows Bridge      | 3           |
| Middle Swan   | Nile Street         | 4           |
|               | St John's           | 5           |
|               | Maylands            | 6           |
| Upper Swan    | Ron Courtney Island | 7           |
|               | Kingsley Street     | 8           |
|               | Success Hill        | 9           |
| Lower Canning | Salter Point        | 10          |
|               | Riverton            | 11          |
| Upper Canning | Kent Street Weir    | 12          |
|               | Bacon Street        | 13          |
|               | Ellison Drive       | 14          |

Table 3. Monitoring sites in the Swan and Canning rivers.

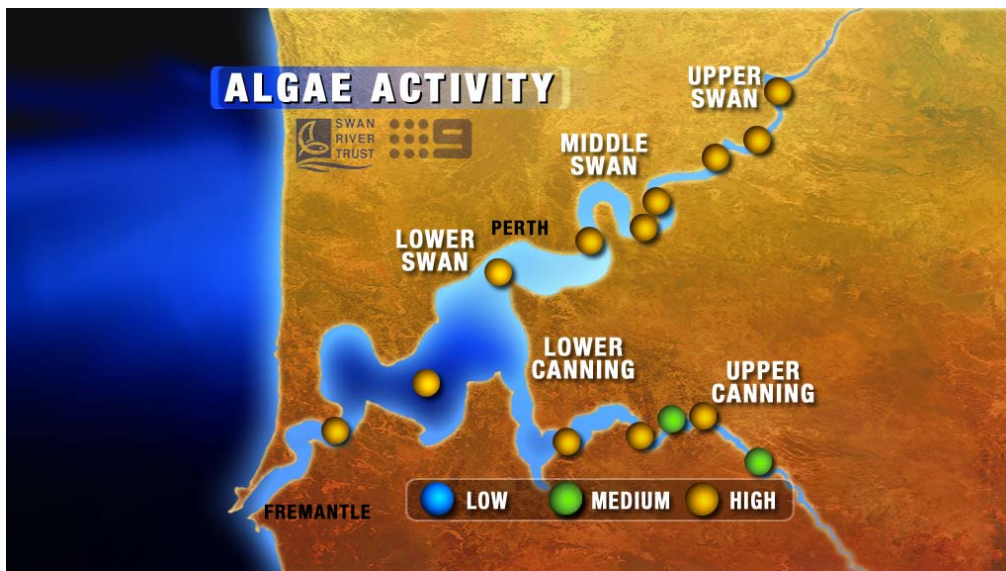


Figure 2. Sample Algae Activity Report map.