

# Murray and Sunraysia – Algae Alert Status

06 December 2024

This Blue-green algal (BGA) alert report is based on routine monitoring at sites in the Murray & Sunraysia Algae Reporting Area. The sites are monitored by WaterNSW and local water authorities. Satellite imagery may be used to supplement the monitoring data.

**Table 1 shows the following red and amber, blue-green algal alerts:**

## **Murray River**

Lake Hume at Ebden and at the Hume dam Resort as well as the Murray River at Curlwaa are on **Amber** alert for blue-green algae.

## **Billabong Creek, Edward River & Wakool River**

There are no amber or red alerts.

## **Menindee Lakes and lower Darling River**

The Darling River at Wilcannia as well as Lake Menindee outlet regulator are on **Red** alert for blue-green algae.

Lake Wetherell (sites 3 & 4) as well as lakes Copi Hollow and Lake Cawndilla outlet regulator are on **Amber** alert for blue-green algae. The Darling River upstream of Weir 32, Tolarno and Burtundy are on **Amber** alert for blue-green algae.

**Some satellite images are shown on page 4 of this report.**

## **Blue-green algal outlook**

In the upper reaches of the catchment near Albury, some days are expected to be partly cloudy, while others are expected to be sunny. Storms are possible today and tomorrow. Maximum day air temperatures will be between 26 °C and 36 °C with minimum temperatures ranging from 11 °C to 21 °C (Source -[BOM 7-day weather forecast](#)). These conditions are likely to create favourable circumstances for blue-green algal growth.

At Menindee, most days are forecast to be sunny. Storms may occur today and tomorrow as well as a shower on Tuesday. Maximum day air temperatures are expected to be between 30 °C and 40 °C with minimum temperatures ranging from 15 °C to 24 °C. These environmental conditions are expected to create favourable circumstances for blue-green algal growth.

These alert levels apply to **recreational contact**. Drinking water safety thresholds are much more stringent.

Table 1: Combined Murray and Sunraysia Alerts

Site	Description	Latest Sample Date	Cyanobacteria Total Count (cells/mL)	Cyanobacteria Biovolume (mm <sup>3</sup> /L)	Potentially Toxic Cyanobacterial Count (cells/mL)	Potentially Toxic Cyanobacterial Biovolume (mm <sup>3</sup> /L)	Current Status (based on Latest Sample)	Previous Status	Cyanobacteria dominant potentially toxic taxa	Cyanobacteria Comments
<b>MURRAY RIVER SYSTEM</b>										
	Manus Lake (SVC) Lake pontoon	18/11/2024	4,700	0.000	0	0.000	No Alert	RED		
DLH003	Lake Hume, Ebden	2/12/2024	50,772	2.617	2,572	0.065	AMBER	No Alert	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
DLH001	Lake Hume, Heywoods Bay nr Bethanga	4/11/2024	49,334	0.041	408	0.010	GREEN	No Alert	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
DLH002	Lake Hume, Hume Dam Resort	2/12/2024	42,465	3.056	5,430	0.138	AMBER	GREEN	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
DLH004	Lake Hume, Dam Wall	4/11/2024	50,559	0.033	0	0.000	No Alert	GREEN		
N1000	Murray R. Union Bridge Albury	5/11/2024	4,236	0.003	85	0.002	No Alert	No Alert	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
N1001	Murray R. Corowa	5/11/2024	10,275	0.011	0	0.000	No Alert	No Alert		
	Yarrowonga Weir (outlet) GMW	2/12/2024	38,439	2.726	0	0.000	AMBER	GREEN		
N1008	Mulwala Canal Offtake	5/11/2024	41,522	0.068	612	0.014	GREEN	No Alert	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
N1007	Murray R. @ below Yarrowonga	5/11/2024	7,819	0.012	0	0.000	No Alert	No Alert		
N1051	Murray R. Cobram (Barooga)	5/11/2024	36,133	0.256	8,274	0.200	GREEN	No Alert	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
	Cobram WTP, raw water (GVW)	12/11/2024	27,059	0.160	0	0.000	GREEN	GREEN		
N1013	Murray R. Tocumwal	5/11/2024	340	0.000	0	0.000	No Alert	GREEN		
N1052	Murray R. Picnic Point	4/11/2024	16,766	0.041	680	0.016	GREEN	GREEN	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
	Barmah WTP raw water (GVW)	11/11/2024	8,476	0.085	0	0.000	GREEN	GREEN		
N1050	Murray R. Moama (Echuca)	4/11/2024	43,754	0.080	544	0.013	GREEN	GREEN	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
	Torrumbarry Weir GMW	2/12/2024	11,480	0.242	0.000	0.000	GREEN	GREEN		
N1003	Murray R. Barham (Koondrook)	5/11/2024	4,770	0.009	0	0.000	No Alert	No Alert		
N1054	Murray R. Murray Downs (Swan Hill)	5/11/2024	28,579	0.038	0	0.000	No Alert	GREEN		
	Murray River U/S Woorinen pumps GMW	18/11/2024	18,240	0.600	0	0.000	AMBER			
N1055	Murray R. Tooleybuc (Piangil)	5/11/2024	2,382	0.003	0	0.000	No Alert	No Alert		
N1064	Lake Benanee Rec Area	6/11/2024	3,402	0.004	0	0.000	No Alert	No Alert		
N1028	Murray R. Euston (Robinvale)	6/11/2024	4,627	0.006	0	0.000	No Alert	GREEN		
N1065	Murray R. Mount Dispersion	6/11/2024	15,787	0.011	0	0.000	No Alert	AMBER		
N1062	Murray R. Buronga	5/11/2024	14,412	0.050	0	0.000	GREEN	No Alert		
	Merbein (LMW)	18/11/2024	8,053	0.085	0	0.000	GREEN	GREEN		
N1027	414206 - Murray River at Merbein	5/11/2024	38,208	0.067	340	0.008	GREEN	No Alert	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
N1063	Murray R. Curlwaa	5/11/2024	25,954	0.453	0	0.000	AMBER	GREEN		
N1066	Murray R. Fort Courage	5/11/2024	26,150	0.065	1,238	0.030	GREEN	GREEN	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
	Lock 9 (LMW)	18/11/2024	15,335	0.100	0	0.000	GREEN			
N1077	Murray R. Lock 8	5/11/2024	42,798	0.112	2,719	0.065	GREEN	No Alert	<i>Microcystis sp.</i>	Potentially toxic, taste & odour
N1078	Lake Victoria Outlet Regulator	5/11/2024	11,759	0.008	0	0.000	No Alert	No Alert		

Table 1: Continued

BILLBONG CREEK, EDWARD & WAKOOL RIVERS									
N1020	Billabong Ck. Waibundrie	4/11/2024	1,270	0.007	0	0.000	No Alert	No Alert	
N1015	Billabong Ck. Jerilderie	4/11/2024	9,672	0.074	0	0.000	GREEN	No Alert	
N1006	Gulpa Ck. Mathoura	4/11/2024	10,754	0.054	357	0.042	GREEN	No Alert	<i>Aphanizomenonaceae sp.</i>
N1002	Edward R Deniliquin	4/11/2024	51,525	0.069	0	0.000	GREEN	GREEN	
N1053	Edward R. Old Morago	5/11/2024	15,446	0.026	0	0.000	No Alert	No Alert	
N1005	Edward R. Moulamein	5/11/2024	24,088	0.028	0	0.000	No Alert	No Alert	
N1010	Wakool R. Wakool-Barham Road	5/11/2024	40,011	0.025	0	0.000	No Alert	GREEN	
N1004	Wakool R. @ Stoney Crossing	5/11/2024	0	0.000	0	0.000	No Alert	GREEN	
N1009	Wakool R. Kyalite	5/11/2024	0	0.000	0	0.000	No Alert	No Alert	
MENINDEE LAKE SYSTEM & LOWER DARLING RIVER									
N1042	Darling River at Wilcannia	20/11/2024	1,370,442	1.664	578	0.053	RED	GREEN	<i>Dolichospermum circinale</i>
N1087	Lake Wetherell Site 1	25/11/2024	1,973	0.000	0	0.000	No Alert	No Alert	
N1088	Lake Wetherell Site 2	25/11/2024	57,758	0.051	0	0.000	GREEN	No Alert	
N1089	Lake Wetherell Site 3	25/11/2024	96,387	1.133	442	0.054	AMBER	GREEN	<i>Aphanizomenonaceae sp.</i>
N1090	Lake Wetherell Site 4	25/11/2024	112,428	0.977	0	0.000	AMBER	AMBER	
N1091	Lake Tandure Site 8	25/11/2024	41,344	0.042	0	0.000	GREEN	GREEN	
N1092	Lake Pamamaroo Inlet (Site 9)	25/11/2024	38,296	0.036	0	0.000	No Alert	GREEN	
N1129	42510013 Centre Pamamaroo (Site 13)	26/11/2024	26,130	0.038	0	0.000	No Alert	GREEN	
N1093	Lake Pamamaroo Outlet (Site 10)	25/11/2024	33,206	0.032	0	0.000	No Alert	GREEN	
N1094	Menindee Lakes, Copi Hollow	26/11/2024	835,081	1.084	0	0.000	AMBER	AMBER	
N1339	Lake Menindee outlet regulator	26/11/2024	4,145,556	53.924	97,329	12.198	RED	GREEN	<i>Aphanizomenonaceae sp.</i>
N1128	Lake Cawndilla Site 34 Outlet	26/11/2024	942,916	1.451	170	0.004	AMBER	GREEN	<i>Microcystis sp.</i>
N1095	Darling R. Menindee bhwb pump	26/11/2024	59,887	0.094	0	0.000	GREEN	GREEN	
N1086	Darling R u/s Weir 32	26/11/2024	762,209	5.825	4,426	0.474	AMBER	AMBER	<i>Dolichospermum sp.</i>
N1043	Darling R. Tolarno	5/11/2024	1,812,752	1.841	0	0.000	AMBER	No Alert	
N1040	Darling R. Pooncarie	5/11/2024	307,025	0.354	0	0.000	GREEN	No Alert	
N1041	Darling R. Burtundy	5/11/2024	852,302	0.858	0	0.000	AMBER	No Alert	
N1074	Darling R. Ellerslie	5/11/2024	22,319	0.022	0	0.000	No Alert	GREEN	
N1075	Darling R. Tapio	5/11/2024	97,680	0.111	0	0.000	GREEN	AMBER	
Non routine monitoring Wentworth Weir Pool									
N1366	Pomona (@ Boat Ramp)	21/10/2024	149,701	0.179	0	0.000	GREEN	GREEN	

## Satellite imagery

The key to the approximate total algae (blue green and non-blue green) concentrations using the Custom Algae Script can be found in Table 3. The actual values can potentially vary by a significant margin due to the geology of the waterbody, species of algae, turbidity, aquatic plants, time of day of the image capture, aerosols in the atmosphere, etc. This variability is a result of the nature of satellite imagery being a large-scale remote sensing format and is not function of the technology or the script itself. For this reason, these colours and descriptors are not the official “Algae Alert Level” but rather provides information on the **potential risk on algae formation**.

Table 3: Observed risk levels based on the estimated photosynthetic activity for Custom Algae Script

Map Colour	Risk Level -	Starting concentration guide range	RACC recreational alert values approx. equivalence
Blue	Very low	<0.05 mm3/L	No Alert
Green	Low	0.05 to 0.5 mm3/L	Green
Yellow	Medium	0.5 to 5.0 mm3/L	Amber
Red	High	5.0 to 20.0 mm3/L	Red
Dark red	Extreme	> 20 mm3/L	Red

## Observations about the satellite images

Figure 1 indicates that Hume Dam had mostly very low-level phytoplankton activity on 22/11/2024. Some areas of low to medium phytoplankton activity were also present. Later images show extensive cloud cover.

The satellite image of the Menindee Lakes on 03/12/2024 (Figure 2) shows mostly very low-level phytoplankton activity in lakes Tandure and Pamamaroo. Weir 32 weir pool had very low to low phytoplankton activity but low phytoplankton activity towards the weir structure. Lake Wetherell (sites 3 & 4), Copi Hollow and Lake Menindee had low to medium level phytoplankton activity. Phytoplankton activity in Lake Cawndilla appeared to be very low level for most part. Some patches of low-level to high-level activity were also present.

Figure 3 indicates that the Murray River near Wentworth had very low phytoplankton activity on 03/12/2024, while the anabranch appears to have had low phytoplankton activity. The lower Darling River is hidden from view due to cloud cover.

Lake Victoria had mostly very low phytoplankton activity on 01/12/2024 (Figure 4).

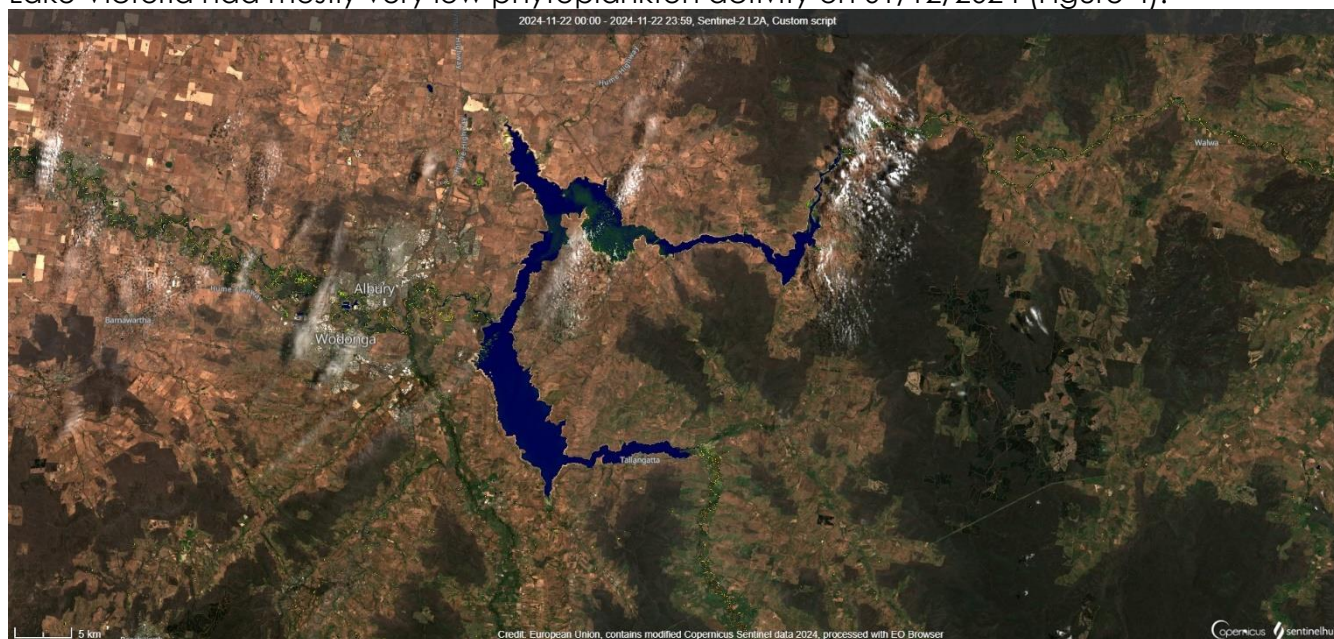


Figure 1: Hume Dam 22/11/2024 SentinelHub [CC BY-NC 4.0] NSW-Custom Algae Script - TF, WaterNSW.

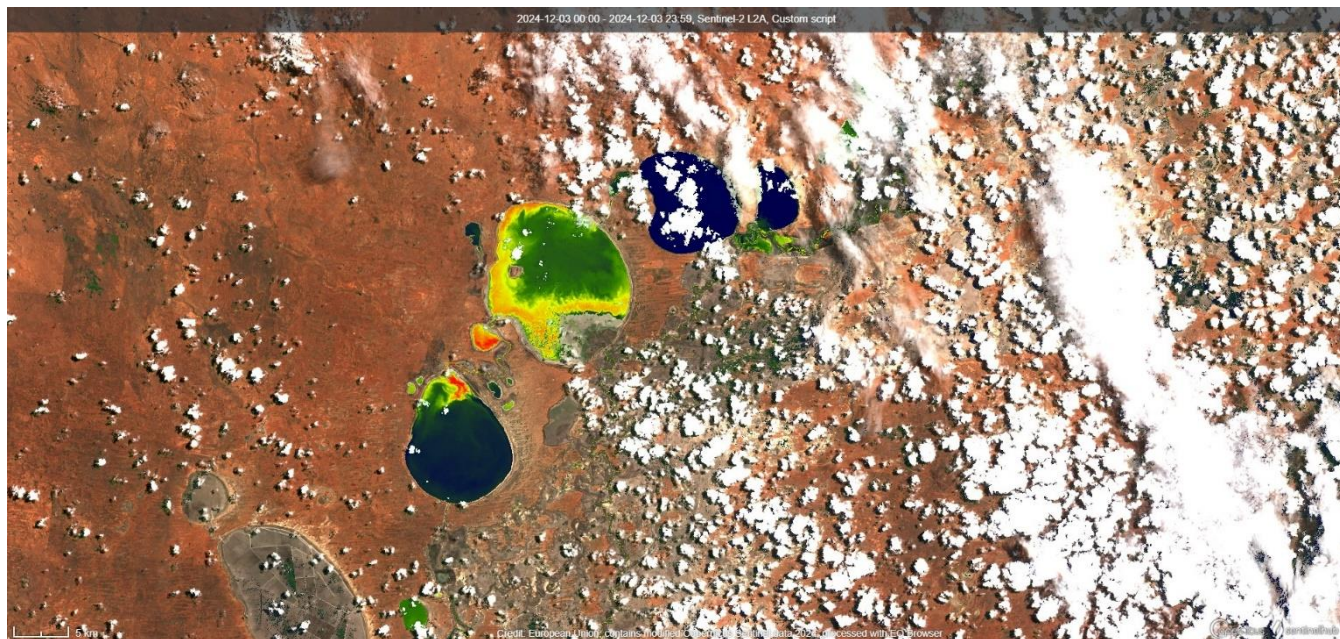


Figure 2: Menindee Lakes 03/12/2024 SentinelHub [CC BY-NC 4.0] NSW-Custom Algae Script - TF, WaterNSW.

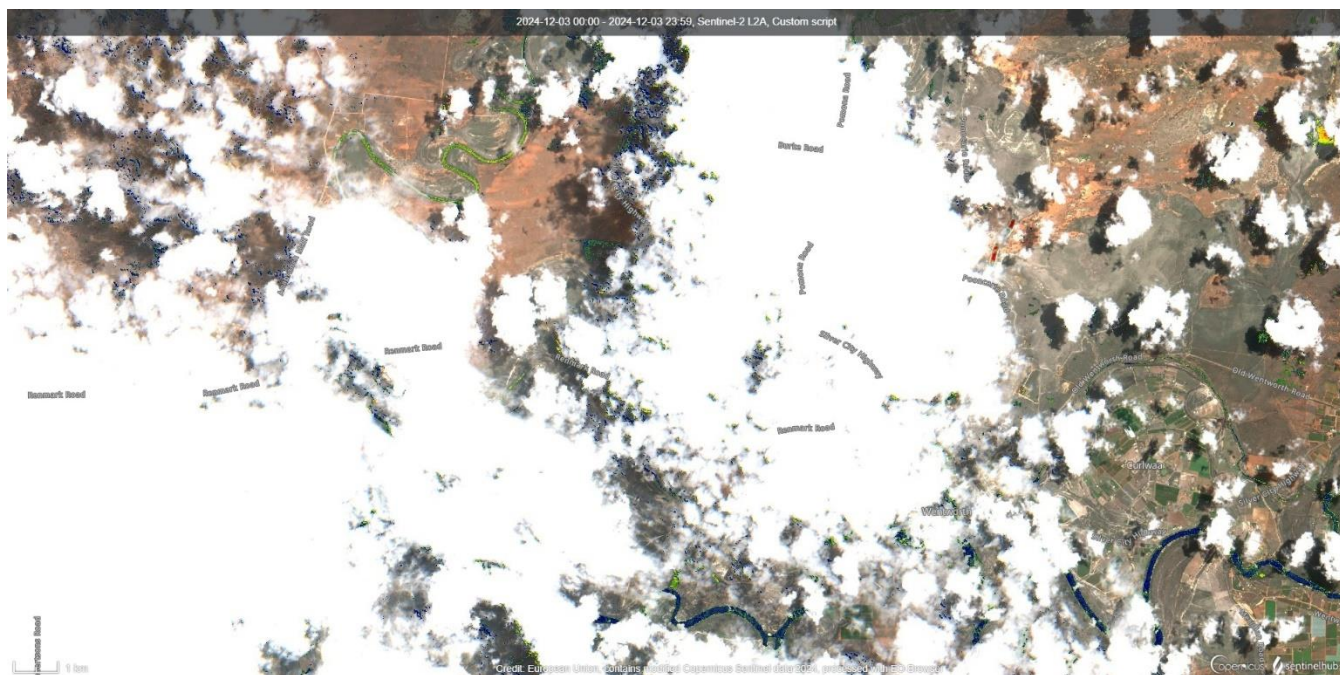


Figure 3: Murray River near Wentworth, Lower Darling River and Great Darling Anabranch 03/12/2024 SentinelHub [CC BY-NC 4.0] NSW-Custom Algae Script - TF, WaterNSW.

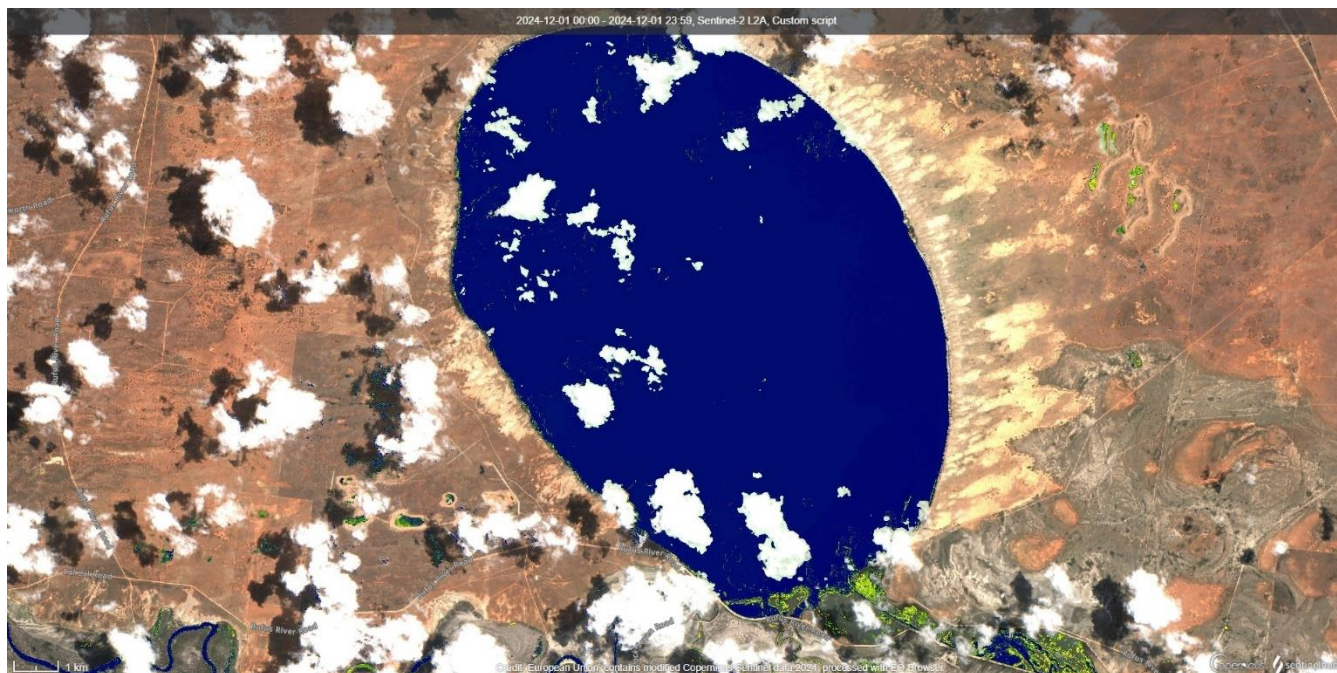


Figure 4: Lake Victoria 01/12/2024 SentinelHub [CC BY-NC 4.0] NSW-Custom Algae Script - TF, WaterNSW.

## Alert Definitions for Recreational Waters

Alert Definitions as specified in The National Health and Medical Research Council (NHMRC) *Guidelines for Managing Risks in Recreational Water 2008*.

The interim use of these guidelines is endorsed by the Scientific Subcommittee of the NSW Algal Advisory Group.

### RED ALERT

These alert levels represent 'bloom' conditions. Water will appear green or discoloured and clumps or scums could be visible. It can also give off a strong musty or organic odour.

Algae may be toxic to humans and animals. Contact with or use of water from red alert areas should be avoided due to the risk of eye and skin irritation. Drinking untreated or boiled water from these supplies can cause stomach upsets.

Alternative water supplies should be sought or activated carbon treatment employed to remove toxins. People should not fish when an algal scum is present. Owners should keep dogs away from high alert areas and provide alternative watering points for stock.

### AMBER ALERT

Blue-green algae may be multiplying, and the water may have a green tinge and musty or organic taste and odour. The water should be considered as unsuitable for potable use and alternative supplies or prior treatment of raw water for domestic purposes should be considered. The water may also be unsuitable for stock watering. Generally suitable for water sports, however people are advised to exercise caution in these areas, as blue-green algal concentrations can rise to red alert levels quickly under warm, calm weather conditions.

### GREEN ALERT

Blue-green algae occur naturally at low numbers. At these concentrations, algae would not normally be visible, however some species may affect taste and odour of water even at low numbers and does not pose any problems for recreational, stock or household use.

### Key to Alerts for Recreational Waters

<p><b>RED Alert</b>  <math>\geq 50\,000</math> cells/mL toxic <i>M. aeruginosa</i>  OR  biovolume equivalent of <math>\geq 4</math> mm<sup>3</sup>/L for the combined total of all cyanobacteria where a known toxin producer is dominant in the total biovolume  OR  The total biovolume of all cyanobacteria <math>\geq 10</math> mm<sup>3</sup>/L  OR  Cyanobacterial scums are consistently present</p>	<ul style="list-style-type: none"> <li>• High levels of Blue Green Algae detected</li> <li>• Indicates “bloom” conditions</li> <li>• Toxicity should be presumed</li> <li>• Water will appear green or brownish and may have a strong musty taste and odour</li> <li>• Surface scums could occur</li> <li>• <b>Extreme care should be exercised, and contact with the water should be avoided</b></li> </ul> <p><b>Action</b></p> <ul style="list-style-type: none"> <li>• Issue Media Release</li> <li>• Water supply authorities to increase filtering with activated carbon as appropriate</li> <li>• Local authority and health authorities to warn the public that the water body is unsuitable for primary contact recreation</li> </ul>
<p><b>AMBER Alert</b>  <math>\geq 5\,000</math> to <math>&lt; 50\,000</math> cells/mL <i>M. aeruginosa</i>  OR  biovolume equivalent of <math>\geq 0.4</math> to <math>&lt; 4</math> mm<sup>3</sup>/L for the combined total of all cyanobacteria where known toxin producers are dominant in the total biovolume  OR  <math>\geq 0.4</math> to <math>&lt; 10</math>mm<sup>3</sup>/L combined total for all blue-green algae where known toxin producers are not dominant</p>	<ul style="list-style-type: none"> <li>• Indicates blue-green algae are multiplying</li> <li>• Water may have a green tinge and musty taste and odour</li> </ul> <p><b>Action</b></p> <ul style="list-style-type: none"> <li>• Water supply authorities to consider filtering with activated carbon</li> <li>• Investigations into the causes of the elevated levels and increased sampling to enable the risks to recreational users to be more accurately assessed.</li> </ul>
<p><b>GREEN Alert</b>  <math>&gt; 500</math> to <math>&lt; 5\,000</math> cells/mL <i>M. aeruginosa</i>  OR  biovolume equivalent of <math>&gt; 0.04</math> to <math>&lt; 0.4</math> mm<sup>3</sup>/L for the combined total of all cyanobacteria</p>	<ul style="list-style-type: none"> <li>• Low levels of potentially toxic species detected – suggesting base crop of blue green algae may be on the increase</li> </ul> <p><b>Action</b></p> <ul style="list-style-type: none"> <li>• Continue/increase routine sampling to measure cyanobacterial levels</li> </ul>

### Livestock Drinking Water Guidelines Based on ARMCANZ (2000), Orr and Schneider (2006) and WQRA (2010)

This guideline should be used when water is used for livestock drinking water purposes.

- If visual scums are present, then a High alert should be declared. This would be applicable for both farm dams and publicly managed water bodies (streams, rivers, etc). Such advice should also be given to farmers who phone the department seeking information on managing blooms in their dams.
- Where blooms dominated by *Microcystis aeruginosa* are present, then the ANZECC/ARMCANZ (2000) guideline of 11,500 cells/mL should be used. Excess of this cell count will constitute a **High alert**.
- Where blooms dominated by *Dolichospermum circinale* are present, then the Orr and Schneider (2006) guideline of 25,000 cells/mL should be used. Excess of this cell count will constitute a **High alert**.
- **Blooms of blue-green algae other than *M. aeruginosa* and *D. circinale*** are also common in NSW. These can be of either known potentially toxic species, or of species not considered to be toxin producers. When these blooms are present, a total blue-green algal biovolume in excess of 6 mm<sup>3</sup>/L will constitute a **High alert**. (These are based on Very High alert recommendations for raw water sourced for potable human supply published by WQRA (2010), in lieu of there being nothing else available).

## Further Information and Contacts

### Links to websites of VIC and other agencies

[Link to Snowy Valleys Council](#)

[Link to North East Water](#)

[Link to Goulburn-Murray Water blue-green algal alerts](#)

[Link to Goulburn Valley Water blue-green algal information](#)

[Link to Lower Murray Water blue-green algal alerts](#)

### Go to the WaterNSW Algal Website

[www.waternsw.com.au/algae](http://www.waternsw.com.au/algae) or at WaterInsights:

Murray regulated river - <https://waterinsights.waternsw.com.au/11904-new-south-wales-murray-regulated-river/updates>

Lower-Darling regulated river - <https://waterinsights.waternsw.com.au/12104-lower-darling-regulated-river/updates>

### Contacts

Gerhard Schulz (Coordinator)

[Gerhard.Schulz@waternsw.com.au](mailto:Gerhard.Schulz@waternsw.com.au)

Telephone: 0457 505 850