

# Murray and Sunraysia Regional Algal Coordination Committees Combined Blue Green Algae Report



## Summary - Murray and Sunraysia

**Friday, June 4, 2021**

Several Amber alerts remain current for the Murray River and the Edward/Wakool Rivers.

For the lower Darling River and Menindee Lakes there are no to very low algal counts

At Yarrawonga sampling results provided by North East Water show a highly diverse algal community present in levels that may slightly impair water quality. Data from sampling conducted during May 2021 shows cyanobacteria continue to remain persistent at Amber Alert levels. Surface aggregations can be observed on the southern side of the lake (see, satellite imagery below in Figure 2). The highest wind speed and wind direction (WSW, S SW) for the month of May was consistent with the long-term records for Yarrawonga.

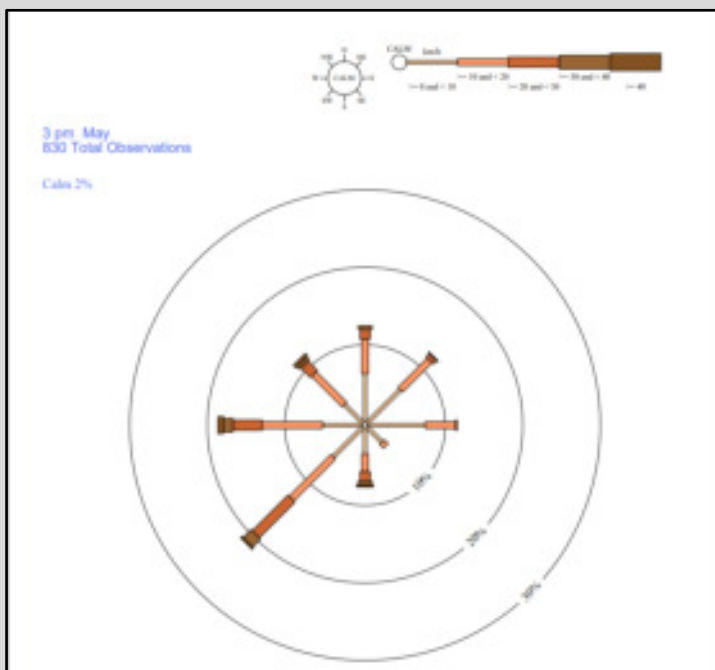


Figure 1 Rose of Wind direction vs wind speed (May 1993 to Aug 2020 (retrieved from [BOM climate data](#)4-Jun-21)

For all Amber/Green Alerts please refer to Table 1

See, <https://www.watarnsw.com.au/water-quality/algae> for additional information.

Blue-green algal information particular to Victoria may be accessed at the following: [Goulburn-Murray Water](#) or [Lower Murray Water](#)

Table 1 Combined Murray and Sunraysia alert status 4/06/2021

Site	Description	Latest Sample Date	Cyanobacteria Total Count (cells/mL)	Cyanobacteria Biovolume (mm <sup>3</sup> /L)	Potentially Toxic Count (cells/mL)	Potentially Toxic 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>										
DLH003	Lake Hume, Ebdon	24/05/2021	8,220	0.640	914	0.098	AMBER	GREEN	<i>Woronichinia</i> sp.	Potentially toxic
DLH001	Lake Hume, Heywoods Bay nr Bethanga	24/05/2021	2,160	0.127	69	0.002	GREEN	No Alert	<i>Microcystis</i> <i>Unknown</i>	Potentially toxic, taste & odour
DLH002	Lake Hume, Hume Dam Resort	24/05/2021	4,940	1.031	1,070	0.078	AMBER	GREEN	<i>Woronichinia</i> sp.	Potentially toxic
DLH004	Lake Hume, Dam Wall	24/05/2021	6,830	0.738	989	0.054	AMBER	No Alert	<i>Woronichinia</i> sp.	Potentially toxic
N1000	Murray R. Union Bridge Albury	4/05/2021	4,860	0.031		0.028	No Alert	AMBER	<i>Dolichospermum</i> sp.	Potentially toxic, taste & odour
N1001	Murray R. Corowa	4/05/2021	15,070	0.187		0.146	GREEN	AMBER	<i>Radiocystis</i> sp.	Potentially toxic
Yarrowonga Weir GMW (outlet)		3/05/2021	13,418	0.39			GREEN		<i>Aphanizomenonaceae</i> Family - <i>Straight</i>	Potentially toxic
Yarrowonga @North East Water WTP (raw water)		20/05/2021	57,721	0.544	2945	0.204	AMBER		<i>Aphanizomenonaceae</i> family - <i>straight</i>	Potentially toxic, taste and odour
N1008	Mulwala Canal Offtake	4/05/2021	75,150	1.3	2,380	0.165	GREEN	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour

N1007	Murray R. @ below Yarrowonga	4/05/2021	31,240	1.881	1,180	1.825	AMBER	AMBER	<i>Aphanizomenon gracile</i>	Potentially toxic
N1051	Murray R. Cobram (Barooga)	4/05/2021	35,416	1.012	2,630	0.282	GREEN	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
Cobram WTP, raw water (GVW)		27/04/2021	6,637	0.116	926	0.070	No Alert	AMBER	<i>Aphanizomenonaceae family - straight</i>	
N1013	Murray R. Tocumwal	4/05/2021	28,950	0.438	5,010	0.383	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
BarmahWTP, raw water (GVW)		26/04/2021	28,018	1.110	4,144	0.639	AMBER	AMBER	<i>Aphanizomenonaceae family - straight</i>	
N1052	Murray R. Picnic Point	3/05/2021	25,850	0.992	3,090	0.925	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1050	Murray R. Moama (Echuca)	3/05/2021	23,880	0.264	2,930	0.185	AMBER	No Alert	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
Torrumbarry Weir GMW		3/05/2021	72,446	0.380			GREEN		<i>Synechococcales small (iauv &lt;20)</i>	
N1003	Murray R. Barham (Koondrook)	3/05/2021	15,190	0.933	2,290	0.145	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1054	Murray R. Murray Downs (Swan Hill)	4/05/2021	82,420	2.748	4,150	0.367	AMBER	AMBER	<i>Dolichospermum smithii</i>	Taste & Odour
N1055	Murray R. Tooleybuc (Piangil)	20/04/2021	304,500	0.790	1,108	0.166	AMBER	No Alert	<i>Aphanizomenon gracile</i>	Potentially toxic
N1064	Lake Benanee Rec Area	3/05/2021	31,340	0.204			GREEN	No Alert	<i>Anabaenopsis sp.</i>	
N1028	Murray R. Euston (Robinvale)	10/05/2021	117,200	5.329	6,040	3.332	AMBER	No Alert	<i>Dolichospermum smithii</i>	Taste & Odour

N1065	Murray R. Mount Dispersion	10/05/2021	259,200	4.119	5,130	0.538	AMBER	No Alert	<i>Aphanizomenonaceae Unknown</i>	Potentially toxic, taste & odour
N1062	Murray R. Buronga	10/05/2021	283,500	5.443	23,380	1.415	AMBER	No Alert	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
Psyche Pumps (LMW)		24/05/2021		4.860		0.580	AMBER			
N1292	Murray R. Wentworth	11/05/2021	193,000	5.587	19,660	0.834	AMBER		<i>Microcystis Unknown</i>	Potentially toxic, taste & odour
N1027	Murray R. Merbein	10/05/2021	220,600	5.885	36,550	1.813	AMBER	No Alert	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1063	Murray R. Curlwaa	24/05/2021	207,600	0.769	4,270	0.225	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1066	Murray R. Fort Courage	11/05/2021	51,460	4.398	10,620	1.570	AMBER	No Alert	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1077	Murray R. Lock 8	5/05/2021	71,400	1.028	14,460	0.913	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1078	Lake Victoria Outlet Regulator	5/05/2021	384,900	1.411			AMBER	AMBER	<i>Raphidiopsis raciborskii</i>	Potentially toxic Taste and odour
<b>BILLBONG CREEK, EDWARD &amp; WAKOOL RIVERS</b>										
N1020	Billabong Ck. Walbundrie	4/05/2021	0	0.000		0.000	No Alert	GREEN	<i>No toxic species</i>	0
N1015	Billabong Ck. Jerilderie	3/05/2021	1,110	0.001		0.000	No Alert	No Alert	<i>No toxic species</i>	0
N1021	Billabong Ck. @ Darlot									
N1006	Gulpa Ck. Mathoura	3/05/2021	33,320	0.586	4,800	0.303	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1002	Edward R Deniliquin	4/05/2021	30,430	0.453	5,950	0.398	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour

N1053	Edward R. Old Morago	4/05/2021	84,030	0.394	1,680	0.106	GREEN	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1005	Edward R. Moulamein	4/05/2021	102,400	0.898	3,770	0.427	AMBER	AMBER	<i>Dolichospermum circinale</i>	Potentially toxic, taste & odour
N1010	Wakool R. Wakool-Barham Road	3/05/2021	285,900	1.019	676	0.043	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
N1004	Wakool R. @ Stoney Crossing	4/05/2021	175,500	0.704	3,300	0.295	AMBER	AMBER	<i>Dolichospermum sp.</i>	Potentially toxic, taste & odour
N1009	Wakool R. Kyalite	4/05/2021	469,000	0.918	1,800	0.114	AMBER	AMBER	<i>Chrysosporum ovalisporum</i>	Potentially toxic, taste & odour
<b>MENINDEE LAKE SYSTEM &amp; LOWER DARLING RIVER</b>										
N1089	Lake Wetherell Site 3	24/05/2021	6,640	0.003			No Alert	No Alert	No toxic species	
N1090	Lake Wetherell Site 4	24/05/2021					No Alert	No Alert	No toxic species	
N1091	Lake Tandure Site 8	24/05/2021	38,440	0.019			No Alert	GREEN	No toxic species	
N1092	Lake Pamamaroo Site 9	24/05/2021	6,210	0.006			No Alert	No Alert	No toxic species	
N1093	Lake Pamamaroo Site 10	24/05/2021	12,860	0.049			GREEN	No Alert	Unknown	
N1086	Darling R u/s Weir 32	6/05/2021	11,540	0.013	1,160	0.000	No Alert	No Alert	No toxic species	
N1040	Darling R. Pooncarie	6/05/2021					No Alert	No Alert	No toxic species	
N1041	Darling R. Burtundy	3/05/2021	553				No Alert	No Alert	No toxic species	
N1075	Darling R. Tapio	3/05/2021	89,430	0.088	0	0.000	GREEN	GREEN	Unknown	

## 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 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.

Table 1 Description of the Alerts applied to 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  OR  The total biovolume of all cyanobacteria exceeds 10 mm<sup>3</sup>/L  OR  Cyanobacterial blooms 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> </ul> <p><b>Extreme care should be exercised, and contact with the water should be avoided</b></p> <p>Action</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> </ul> <p>Local authority and health authorities to warn the public that the water body is considered to be unsuitable for primary contact recreation</p>
<p><b>Amber Alert</b>  <math>\geq 5000</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</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>Action</p> <ul style="list-style-type: none"> <li>• Water supply authorities to consider filtering with activated carbon</li> </ul> <p>Investigations into the causes of the elevated levels and increased sampling to enable the risks to recreational users to be more accurately assessed.</p>
<p><b>Green Alert</b>  <math>&gt; 500</math> to <math>&lt; 5000</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>Action</p> <p>Continue/increase routine sampling to measure cyanobacterial levels</p>

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). 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
  - 
  - **Go to the WaterNSW Algal Website**
  - 
  - <http://www.waternsw.com.au/water-quality/algae>
  - 
  - **Call**
  - NSW algae hotline 1800 999 457
  - 
  - **Contact**
  - 
  - Dr Elizabeth Symes
  - [elizabeth.symes@waternsw.com.au](mailto:elizabeth.symes@waternsw.com.au)
  - Telephone: 02 6022 5326
  - Mobile: 0439 199 077
  - 
  - **Directly** lodge a query for RACC coordinators across the state at, [RACC@waternsw.com.au](mailto:RACC@waternsw.com.au)



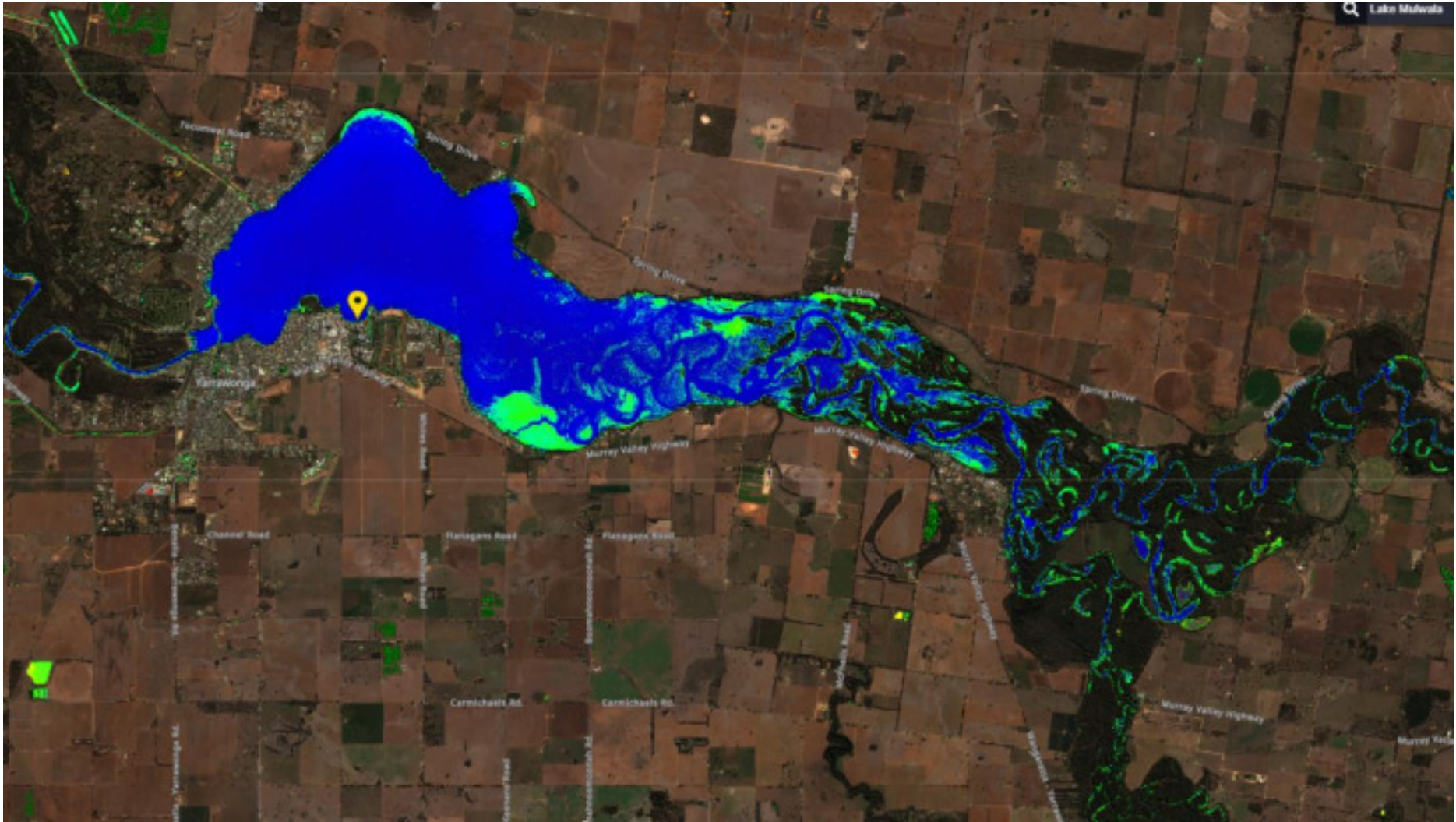


Figure 1 Sentinel 2 imagery captured on 22/05/2021 with custom script applied Lake Mulwala. Note surface aggregation of algae on the southern side of the lake (Stevenson Court)