

Friday, June 17, 2022

Hume Dam/Murray River/ Edward Wakool System

All monitoring stations at Hume Dam remain on amber alert. Amber alerts are also current for several sites along the Murray River, the Edward/Wakool Rivers, and the Gulpa Creek.

The data derived from recent June sampling suggests there has been a reduction in cyanobacteria growth rates at river sites, compared to the previous month. The latest observations for Hume Dam however show only a minor change in the algal population with *Woronichinia* the dominant phytoplankton species present (Figure 1).



Figure 1 May to June biovolume at both river locations and Hume Dam

Menindee Lakes and lower Darling River

Low to no cyanobacteria (BGA) to report for Menindee Lakes or the lower Darling River.

Riverina/Murray Forecast (7 days)

Partly cloudy. Slight chance (20%) of a shower in the southeast, near zero chance elsewhere. Overnight temperatures falling to around 7, with daytime maximum temperatures reaching between 14 and 17. (Source: <u>BOM Riverina forecast</u>)

See, Table 1 and Figure 2 below for latest results and alert locations.

Table 1 Murray and Sunraysia Cyanobacteria Alerts 17 June 2022

Site	Description	Latest Sample Date	Cyanobacteria Total Count (cells/mL)	Cyanobacteria Biovolume (mm3/L)	Potentially Toxic Count (cells/mL)	Potentially Toxic Biovolume (mm3/L)	Current Status (based on Latest Sample)	Previous Status	Cyanobacteria dominant potentially toxic taxa	Cyanobacteria Comments
MURRAY	RIVER SYSTEM									
DLH001	Lake Hume, Heywood's Bay nr Bethanga	7/06/2022	72,356	1.62	8,987	0.229	AMBER	AMBER	Microcystis Unknown	Potentially toxic, taste & odour
DLH002	Lake Hume, Hume Dam Resort	7/06/2022	62,677	1.63	5,268	0.421	AMBER	AMBER	Aphanizomenonaceae Unknown	Potentially toxic, taste & odour
DLH003	Lake Hume, Ebden	7/06/2022	55,812	1.31	2,662	0.070	AMBER	AMBER	Aphanizomenonaceae Unknown	Potentially toxic, taste & odour
DLH004	Lake Hume, Dam Wall	7/06/2022	63,492	1.38	622	0.190	AMBER	AMBER	Microcystis Unknown	Potentially toxic, taste & odour
DLH010	Hume Dam Bowna Arm	7/06/2022	121,041	2.53	11,365	0.3	AMBER	AMBER	Microcystis Unknown Microcystis aeruginosa Chryosporum ovalisporum Dolichspermum circinale	Potentially toxic, taste & odour
N1000	Murray R. Union Bridge Albury	3/06/2022	19,786	0.372	1,525	0.080	AMBER	GREEN	Chrysosporum ovalisporum	Potentially toxic, taste & odour

N11001		2/0//0000	(107)	1 5 1 2	4 400	0 42 4				Detention
NTOOT	MUIIDY K.	3/06/2022	64,376	1.515	4,40Z	0.434	GREEN	AMBER	Chrysosporum ovalisporum	Potentially
	Corowa									foxic,
										taste &
										odour
Yarrawa	onga Weir	6/06/2022	9,923	0.5			AMBER	No		
(leeward	d) GMW							Alert		
Yarrawa	onga Supply	9/06/2022	6,820	0.40	534	0.037	AMBER		Aphanizomenonaceae	Potentially
(raw wa	iter) NE Water								Microcystis sp.	toxic taste
										and
										odour
N1008	Mulwala	3/05/2022	101.002	0.92	6,451	0.394	AMBER	GREEN	Chrysosporum ovalisporum	Potentially
	Canal Offtake	-,, -			-, -			_	- ,	toxic.
										taste &
										odour
N1007	Murray R. @	3/06/2022	19,194	0.874	3,448	0.218	AMBER	AMBER	Chrysosporum ovalisporum	Potentially
	below	0,00,2022	,		0,110	0.2.0		/		toxic.
	Yarrawonaa									taste &
	ranamenga									odour
N1051	Murray R.	3/06/2022	18.600	0.630	1.450	0.032	AMBER	AMBFR	Microcystis (unknown)	Potentially
	Cobram	0,00,2022	,	0.000	.,	0.002		/		toxic.
	(Barooga)									taste &
	(2010090)									odour
Cobram	WTP raw	17/05/2022	21 448	0.32	9.59	0.07	GREEN	AMBER	Aphanizomenonaceae	Potentially
water ((SVW)	17,00,2022	21,110	0.02	/0/	0.07	ORLEN	7 UVIDEIX	Dolichospermum sp	toxic
	5 (()								Microcystis (unknown)	taste &
										odour
N1013	Murray R	3/06/2022	36 320	0.384	198	0.01		AMBER	Microcystis (unknown)	Potentially
		070072022	50,520	0.004	470	0.01	ORLEN	TIMDER		toxic
	10001110001									taste 8
N1052	Murray P	4/04/2022	110 704	1 007	14 000	0.044			Chrysosporum ovalisporum	Potontially
INTU32	NUTUY K.	0/00/2022	117,704	1.007	14,277	0.740	ANDER	ANIDER		rolerinally
	FICHIC POINT									IOXIC,
										taste &
										odour

Bamah (GVW)	WTP, raw water	17/05/2022	158,204	0.953	948	0.077	AMBER	AMBER	Aphanizomenonaceae (straight) Dolichospermum sp.	Potentially toxic, taste & odour
N1050	Murray R. Moama (Echuca)	6/06/2022	55,467	1.009	9,100	0.548	AMBER	AMBER	Chrysosporum ovalisporum	Potentially toxic, taste & odour
Torrumb	arry Weir GMW	6/06/2022	36,044	1.4			AMBER			
N1003	Murray R. Barham (Koondrook)	7/06/2022	52,418	0.584	5,730	0.212	AMBER	AMBER	Aphanizomenonaceae Dolichospermum sp. Microcystis sp.	Potentially toxic, taste & odour
N1054	Murray R. Murray Downs (Swan Hill)	7/06/2022	87,133	1.535	9921	0.62	AMBER	AMBER	Aphanizomenonaceae Chrysosporum ovalisporum Microcystis sp.	Potentially toxic, taste & odour
N1055	Murray R. Tooleybuc (Piangil)	7/06/2022	97,156	2.171	4,652	0.37	AMBER	AMBER	Aphanizomenonaceae Dolichospermum sp. Microcystis sp.	Potentially toxic, taste & odour
BILLBON	IG CREEK, EDWAR	D & WAKOOL	RIVERS							
N1020	Billabong Ck. Walbundrie	2/06/2022	24,680	0.037			GREEN	GREEN		
N1006	Gulpa Ck. Mathoura	6/06/2022	67,697	1.527	1,808	0.089	AMBER	AMBER	Chrysosporum ovalisporum	Potentially toxic, taste & odour
N1002	Edward R Deniliquin	6/06/2022	41,811	0.470	6,133	0.387	AMBER	AMBER	Chrysosporum ovalisporum	Potentially toxic, taste & odour
N1053	Edward R. Old Morago	7/06/2022	59,517	2.561	1,659	0.038	AMBER	AMBER	Microcystis Unknown	Potentially toxic,

										taste & odour
N1005	Edward R. Moulamein	7/06/2022	65,603	1.423	1,039	0.03	AMBER	AMBER	Microcystis sp. Raphidiopsis raciborskii	Potentially toxic, taste & odour
N1010	Wakool R. Wakool- Barham Road	7/06/2022	139,513	2.603	22,273	1.370	AMBER	AMBER	Chrysosporum ovalisporum	Potentially toxic, taste & odour
N1004	Wakool R. @ Stoney Crossing	7/06/2022	125,774	1.286	2,168	0.180	AMBER	RED	Chrysosporum ovalisporum	Potentially toxic, taste & odour
N1009	Wakool R. Kyalite	7/06/2022	73,141	1.561	16,337	1.418	AMBER	RED	Aphanizomenonaceae Unknown	Potentially toxic, taste & odour
MENIND	EE LAKE SYSTEM 8	LOWER DARI	ING RIVE	R				•		
N1086	Darling River at Menindee Weir 32	27/05/2022	968	0.01			No Alert	GREEN		
N1090	Menindee Lakes at Lake Wetherell Site 4	24/05/2022	503	0.04	312	0.04	GREEN	GREEN	Aphanizomenonaceae Unknown	Potentially toxic, taste & odour
N1093	Pamamaroo Outlet / Regulator (Site 10)	24/05/2022	0				No Alert	GREEN		
N1095	Darling River BHWB Pumping Station @ Menindee	27/05/2022	5,116	0.03			No Alert	GREEN		

N1087	Lake Wetherell Site 1	26/05/2022	1,452	0.01		No Alert	No Alert	
N1089	Lake Wetherell Station 3	23/05/2022	8,958	0.01		No Alert	No Alert	
N1128	Cawndilla Outlet	23/05/2022	3,457	0.02		No Alert	GREEN	
N1088	Lake Wetherell Site 2	26/05/2022	968	0.01		No Alert	No Alert	
N1094	Menindee Lakes at Copi Hollow	24/05/2022	0			No Alert	No Alert	



Figure 2 BGA Alert status for the Murray Sunraysia 17 June 2022

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 2 Description of the Alerts applied to Recreational Waters

Red Alert	
≥ 50 000 cells/mL toxic M.	High levels of Blue Green Algae detected
aeruginosa	Indicates "bloom" conditions
ok biovolume equivalent of ≥4	Toxicity should be presumed
mm ³ /L for the combined total of all cyanobacteria where a known toxin producer is	 Water will appear green or brownish and may have a strong musty taste and odour
dominant	Surface scums could occur
OR The total biovolume of all	Extreme care should be exercised, and contact with the water should be avoided
cyanobacteria exceeds 10	Action
mm ³ /L OR	Issue Media Release
Cyanobacterial blooms are consistently present	Water supply authorities to increase filtering with activated carbon as appropriate
	Local authority and health authorities to warn the public that the water body is considered to be unsuitable for primary contact recreation
Amber Alert	
Amber Alert ≥5000 to <50 000 cells/mL M. aeruginosa	Indicates blue-green algae are multiplying
Amber Alert ≥5000 to <50 000 cells/mL M. aeruginosa OR	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour
Amber Alert \geq 5000 to <50 000 cells/mL M. <i>aeruginosa</i> OR biovolume equivalent of \geq 0.4 to \leq 4 mm ³ /L for the combined total	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour Action
Amber Alert ≥5000 to <50 000 cells/mL M. aeruginosa OR biovolume equivalent of ≥ 0.4 to < 4 mm ³ /L for the combined total of all cyanobacteria	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour Action Water supply authorities to consider filtering with activated carbon
Amber Alert ≥5000 to <50 000 cells/mL M. aeruginosa OR biovolume equivalent of ≥ 0.4 to < 4 mm ³ /L for the combined total of all cyanobacteria	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour <i>Action</i> Water supply authorities to consider filtering with activated carbon
Amber Alert ≥5000 to <50 000 cells/mL M. aeruginosa OR biovolume equivalent of ≥ 0.4 to < 4 mm ³ /L for the combined total of all cyanobacteria	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour <i>Action</i> Water supply authorities to consider filtering with activated carbon
Amber Alert ≥5000 to <50 000 cells/mL M. aeruginosa OR biovolume equivalent of ≥ 0.4 to < 4 mm ³ /L for the combined total of all cyanobacteria Green Alert	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour Action Water supply authorities to consider filtering with activated carbon Investigations into the causes of the elevated levels and increased sampling to enable the risks to recreational users to be more accurately assessed.
Amber Alert ≥5000 to <50 000 cells/mL M.	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour Action Water supply authorities to consider filtering with activated carbon Investigations into the causes of the elevated levels and increased sampling to enable the risks to recreational users to be more accurately assessed. Low levels of potentially toxic species detected – suggesting base crop of blue green algae may be on the increase
Amber Alert ≥5000 to <50 000 cells/mL M.	 Indicates blue-green algae are multiplying Water may have a green tinge and musty taste and odour Action Water supply authorities to consider filtering with activated carbon Investigations into the causes of the elevated levels and increased sampling to enable the risks to recreational users to be more accurately assessed. Low levels of potentially toxic species detected – suggesting base crop of blue green algae may be on the increase Action

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 mm³/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

Contact

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Directly lodge a query for RACC coordinators across the state at, <u>RACC@waternsw.com.au</u>