

## Algae Alerts and Water Quality for the Far West Region

6<sup>th</sup> December 2024

The Far West Blue-Green Algal Reports are based on samples collected by WaterNSW and occasionally with the assistance of various shire councils that reside in the Far West region.

### Summary:

The Red Alert warning for high levels of potentially toxic blue-green algae for the area of the Darling River upstream of the Menindee Lakes, which includes the town of Wilcannia, as well as the sections of the river immediately upstream and downstream of Wilcannia remains in place. Algae samples have revealed the algae composition is mostly of potentially non-toxic algae. However, another low result will be required to lift this Red Alert.

The latest satellite imagery reveals that algae appear to be increasing upstream of Wilcannia, this is likely to migrate downstream towards the township. The imagery also indicates that the algae have migrated downstream towards Lake Weatherall. See satellite imagery.

Wilcannia is fitted with dual-reticulated water supply and residents should be mindful that any untreated water taps that source water directly from the river will also be affected by algae and therefore should also not be used for drinking and recreational use by stock, pets and humans.

### Algae forecast:

The hot weather forecast by the Bureau of Meteorology (B.O.M.) for the region, combined with declining river flows in the Darling River, will increase the risk of high levels of algae growth, especially in the lower end of the system.

**The algae risk is very high.**

### Red Alerts

Darling River at Wilcannia  
Darling River at Culpaulin

### Amber Alerts

Barwon River at Collarenebri  
Darling River at Trevallyn

### Green Alerts

Barwon River at Brewarrina Weir  
Bogan River at Gongolgon  
Darling River at Bourke  
Darling River at Louth  
Darling River at Tilpa

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**Satellite Images can be found on pages 2 & 3 of this report.** If satellite imagery is obscured by cloud cover or atmospheric disturbance it will be denoted by **n/a**.  
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# Satellite imagery

The key to the approximate total algae (blue green and non-blue green) concentrations using the Custom Algae Script can be found Table 1. 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 concentrations**.

**Note:** Satellite images are usually more recent than the sampling data and therefore may contribute to not agreeing with sampled algae results. So please check dates when comparing.

Table 1: Observed recreational risk levels based on the estimated Chlorophyll-a as mapped by the Custom Algae Script

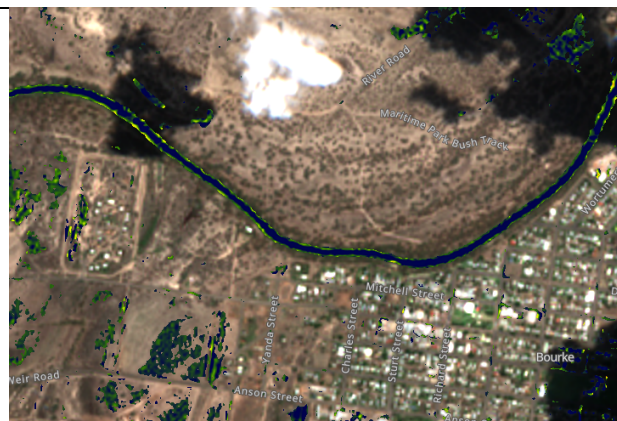
Map Colour	Risk Level – Photosynthetic activity based on Chlorophyll-a	Starting concentration guide range	RACC recreational alert values approx. equivalence
Blue	Very low	<0.05 mm3/L	No Alert
Green	Low	0.05 to 0.5 mm3/L	Green
Yellow	Medium	0.5 to 5.0 mm3/L	Amber
Red	High	5.0 to 20.0 mm3/L	Red
Dark red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



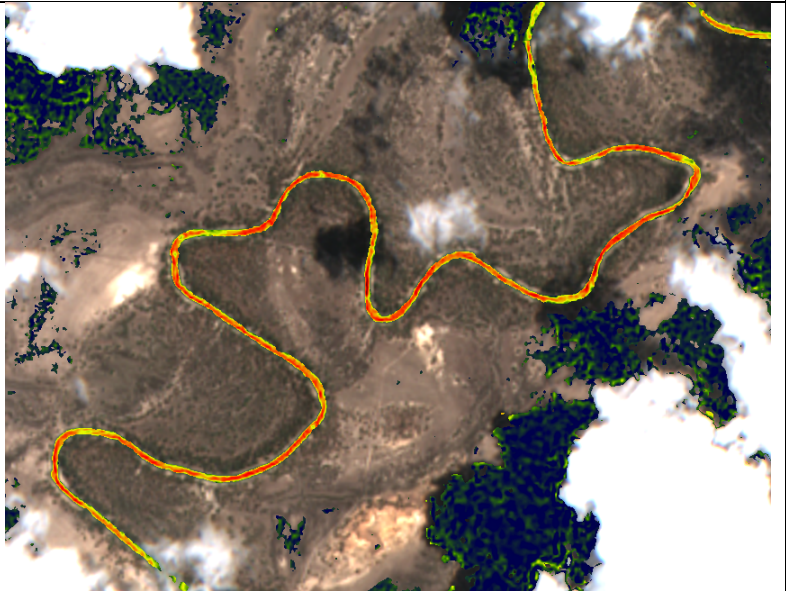
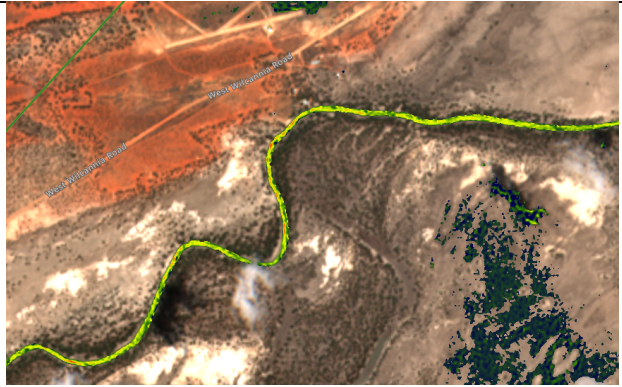
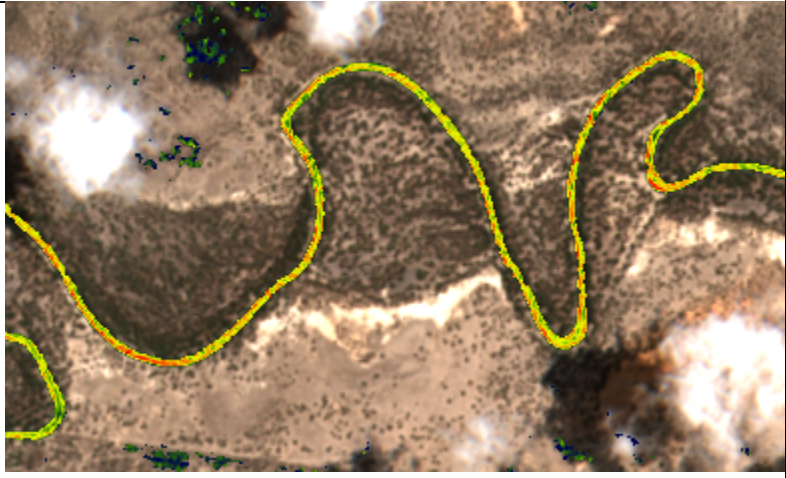
**Barwon River and Namoi River at Walgett 02-12-24**

SentinelHub [CC BY-NC 4.0] NSW-Custom Algae Script - TFullford, WaterNSW

**Barwon River at Brewarrina 05-12-24**



n/a

<p><b>Darling River at Bourke 05-12-2024</b></p>	<p><b>Darling River at Louth 03-12-2024.</b></p>
<p>n/a</p>	
<p><b>Darling River at Tilpa 03-12-2024.</b> SentinelHub [CC BY-NC 4.0] WaterNSW-Custom Algae Script - TFullford, WaterNSW</p>	<p><b>Darling River 15km u/s Wilcannia 03-12-2024.</b> SentinelHub [CC BY-NC 4.0] WaterNSW-Custom Algae Script - TFullford, WaterNSW</p>
	
<p><b>Darling River at Caulpaulin approx 25km below Wilcannia 03-12-24</b></p>	<p><b>Darling River at approx 40km u/s Late Wetherell 03-12-24</b></p>

## Results Table

These alert levels apply to **non-human consumptive or recreational contact and stock alert warnings**. Drinking water safety thresholds are much more stringent.

### Note:

- New results are shown in **bold**.
- \* indicates that sampling results show that algal numbers have reduced, however another low sampling result is required to reduce the alert status to a lower level.

Site Description	Latest Sample Date	Total Algal biovolume (mm <sup>3</sup> /L) <i>[not used for alert]</i>	Toxic BGA Biovolume (mm <sup>3</sup> /L)	BGA Biovolume (mm <sup>3</sup> /L)	Current Status (based on Latest Sample)	Previous Status	BGA Dominant Taxa	Comments and River Flows (ML/day) As per date of this report.
Barwon River at Mungindi	12-Nov-24	3.50	0.00	0.00	No Alert	No Alert		<b>Flow: 1,066</b>
Barwon River at Collarenebri	12-Nov-24	3.80	0.57	0.57	Amber	No Alert	<i>Dolichospermum circinale- Potentially toxic, taste &amp; odour</i>	<b>Flow: 871</b>
Namoi River at Walgett	05-Nov-24	3.79	0.00	0.00	No Alert	No Alert		<b>Flow: --</b>
Barwon River at Walgett Dangar Bridge	06-Nov-24	3.01	0.00	0.01	No Alert	No Alert		<b>Flow: 276</b>
Barwon River at Brewarrina Weir	05-Nov-24	23.39	0.00	0.17	Green	No Alert		<b>Flow: 206</b>
Bogan River at Gongolgon	05-Nov-24	0.67	0.00	0.04	Green	No Alert		<b>Flow: 0</b>
<b>Darling River at Bourke/ Boat Ramp</b>	<b>19-Nov-24</b>	<b>4.33</b>	<b>0.00</b>	<b>0.05</b>	Green	Green		<b>Flow: 214</b>
Darling River at Bourke Weir	---	---	---	---				
Darling River at 'Rose Isle'	--		--	--				
<b>Darling River at Louth</b>	<b>19-Nov-24</b>	<b>2.93</b>	<b>0.00</b>	<b>0.22</b>	Green	Green		<b>Flow: 270</b>
Darling River at Tilpa (Tilpa Weir)	20-Nov-24	3.06	0.33	0.11	Green			<b>Flow: 353</b>
Darling River at 'Trevallyn'	20-Nov-24	16.57	1.69	0.53	Amber		<i>Anabaenopsis - Potentially toxic</i>	
Darling River at Wilcannia	20-Nov-24	9.04	0.05	1.66	Red *	No Alert	<i>Dolichospermum circinale- Potentially toxic, taste &amp; odour</i>	<b>Flow: 385</b> Alert placed by satellite imagery and observations.

Site Description	Latest Sample Date	Total Algal biovolume (mm <sup>3</sup> /L) [not used for alert]	Toxic BGA Biovolume (mm <sup>3</sup> /L)	BGA Biovolume (mm <sup>3</sup> /L)	Current Status (based on Latest Sample)	Previous Status	BGA Dominant Taxa	Comments and River Flows (ML/day) As per date of this report.
Darling River at 'Caulpaulin'	20-Nov-24	18.77	8.65	0.32	Red *		<i>Dolichospermum circinale</i> - Potentially toxic, taste & odour.	Alert placed by satellite imagery and observations.

## 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: 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 <math>\geq 75\%</math>.  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><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> </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; 4.0</math> mm<sup>3</sup>/L for the combined total of all cyanobacteria if  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> </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>\geq 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><b>Action</b></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, 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

Go to the WaterNSW Algal Website

<http://www.watersw.com.au/water-quality/algae>

### Contacts

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