Quarterly results April to June 2024

In response to flooding events and fish deaths in March 2023, the EPA, in partnership with the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW), is monitoring the health of the Darling-Baaka River.

This report provides the monitoring results from April to June 2024. Monthly water samples were collected from 34 sites (see map below) and measured for:

- temperature
- dissolved oxygen
- nutrients
- pH
- chlorophyll a
- algae,
- pesticides and metals measured several times (Table 2).

Download the April – June raw data (ZIP 18MB).

Automatic monitoring smart buoys recorded water quality every 30 minutes. During June, the Smart buoys locations were changed to allow more of the river to be monitored. One buoy was moved from upper Menindee to Pooncarie and an additional Smart buoy deployed on the Anabranch.

View the real-time data .

Guidelines used in this report

Previous reports produced as part of this project have used water quality guidelines for lowland river ecosystems of South East Australia (ANZECC 2000). However, due to the climate and characteristics of the river and in consultation with experts in the field who were presented with 12 months of data, it was agreed that it would be more suitable to use South Central Australia guidelines (ANZECC, 2000). For pesticides and metals, guidelines are the 95% species protection level (i.e. the level that protects 95% of species; ANZG, 2020).

Nutrients

Samples showed consistently high levels of total nitrogen (TN) and total phosphorous (TP). On average, TN and TP exceeded these guidelines by up to 1.5 and 3 times respectively (Table 1). High nutrients levels can lead to algal blooms and may be harmful to animals and humans.

Pesticides and metals

Pesticides were sampled twice during this reporting period; in May (12 sites) and June (10 sites). The broad-spectrum herbicides Atrazine, Simazine and Diuron, were detected but remained below guideline values. During May, metolachlor exceeded the 95% species protection level guideline values (Table 1) at sites 9, 11 and 12, with the highest recorded value of 0.74 µg/L (S12). Metolachlor is the active ingredient in a variety of commercial herbicides. Repeat testing at site 9 in late June measured concentrations below guideline values. Concentrations of aluminium, zinc, and copper exceeded guideline values at sites 2, 6 and 7 (Table 1), with site 9 also exceeding guidelines for copper and zinc. During late June (after a large freshwater influx caused by rain), guideline values were exceeded for aluminium (S2), chromium (S1 & S9) copper (S1-9 & S28) and zinc (S1-S8).

Algae

Algal levels were very high in the study area, with chlorophyll-a concentrations ranging from 20 to 130 µg/L.

Dissolved oxygen

All dissolved oxygen (DO) levels recorded were within the recommended concentrations (>4mg/L)

Overall assessment

The areas of concern for the current samples were elevated nutrient, pesticides, metal, DO,and chlorophyll levels. A summary of results from this quarter is provided below, with full results available for download.

Contact enquiries.waterscience@environment.nsw.gov.au for more information.

Table 1

Default guideline values for a 95% level of species protection for toxicants in freshwater ecosystems (ANZG , 2020).

Toxicant	95% species protection guideline value
Metolachlor	0.46 µg/L
Aluminium	55 µg/L
Chromium	1 µg/L
Copper	1.4 µg/L
Zinc	8 µg/L

Water quality summary

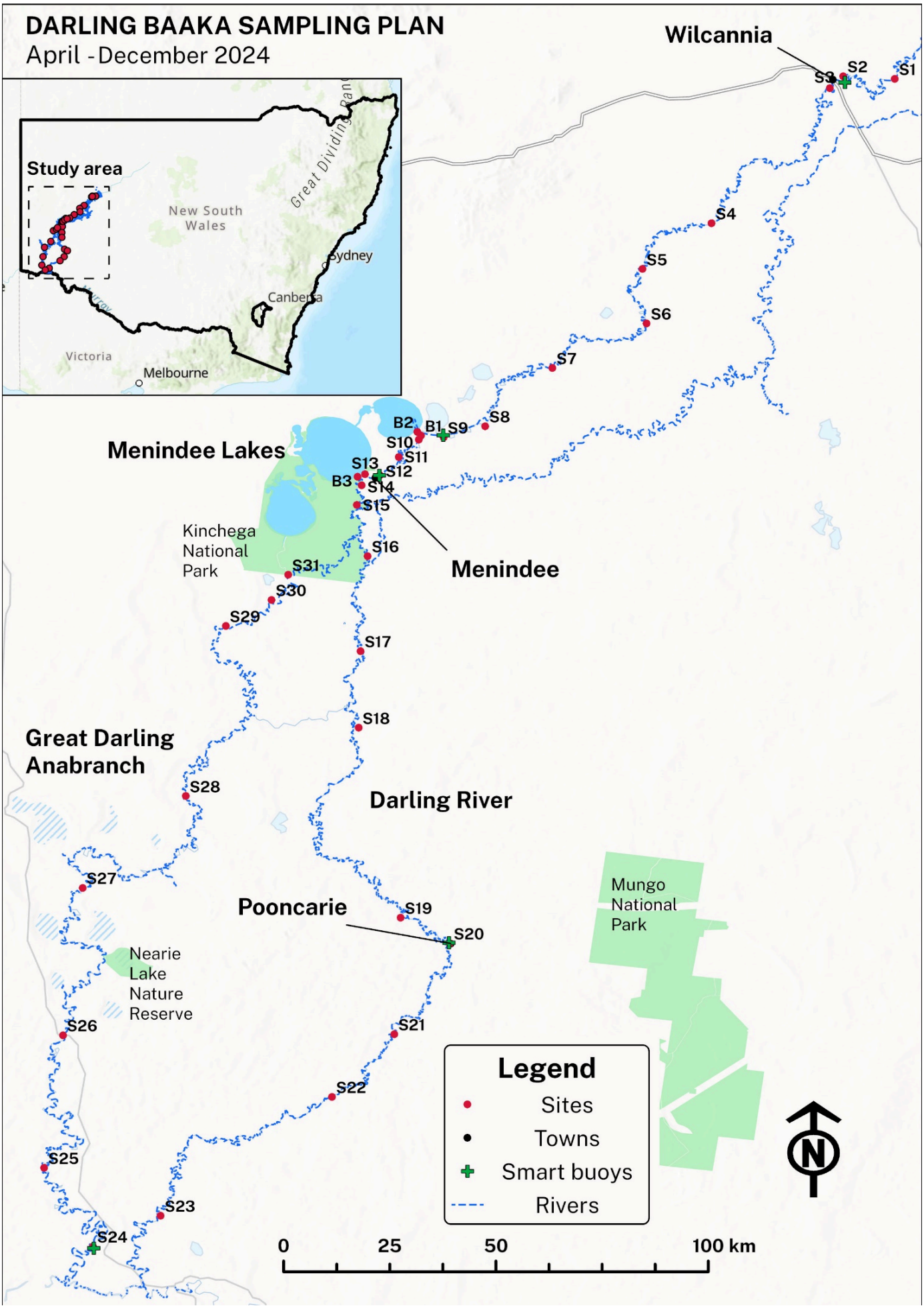
Date 1: 15–20 April Date 2: 17–25 May Date 3: 19–22 June

Sampling site	Dissolved oxygen			Nutrients						Pesticides			Metals		
				Date 1		Date 2		Date 3							
	Date 1	Date 2	Date 3	TN	TP	TN	TP	TN	TP	Date 1	Date 2	Date 3	Date 1	Date 2	Date 3
S1			✓					✗	✗			✓			✗
S2		✓	✓			✗	✗	✗	✗		✓	✓		✗	✗
S3			✓					✗	✗			✓			✗
S4			✓					✗	✗			✓			✗
S5			✓					✗	✗			✓			✗
S6		✓	✓			✗	✗	✗	✗		✓	✓		✗	✗
S7		✓	✓			✗	✗	✗	✗		✓	✓		✗	✗
S8		✓	✓			✗	✗	✗	✗			✓			✗
S9		✓	✓			✗	✗	✗	✗		✗	✓		✗	✗
S10		✓	✓			✗	✗	✗	✗						
S11 (E2)		✓	✓	✗	✗	✗	✗	✗	✗		✗			✓	
S12 (E3)		✓	✓	✗	✗	✗	✗	✗	✗		✗			✓	
S13 (E4)		✓	✓	✗	✗	✗	✗	✗	✗						
S14		✓	✓			✗	✗	✗	✗						
S15		✓	✓			✗	✗	✗	✗						
S16		✓	✓			✓	✓	✗	✗						
S17 (E11)	✓	✓	✓	✗	✗	✗	✗	✗	✗		✓			✓	
S18 (E12)	✓	✓	✓	✗	✗	✗	✗	✗	✗						
S19 (E14)	✓	✓	✓	✗	✗	✗	✗	✗	✗						
S20 (E15)	✓	✓	✓	✗	✗	✗	✗	✗	✗		✓			✓	
S21		✓	✓			✗	✗	✗	✗						
S22		✓	✓			✗	✗	✗	✗		✓			✓	
S23		✓	✓			✗	✗	✗	✗		✓			✓	

S24		✓	✓			✗	✗	✗	✗		✓			✓	
S25		✓	✓			✗	✗	✗	✗						
S26		✓	✓			✗	✗	✗	✗						
S27								✗	✗			✓			✓
S28								✗	✗						✗
S29 (E7)	✓	✓	✓	✗	✗	✗	✗	✗	✗		✓			✓	
S30		✓	✓			✗	✗	✗	✗						
S31 (E6)		✓	✓			✗	✗	✗	✗						
B1		✓	✓			✗	✗	✗	✗						
B2		✓	✓	✗	✗			✗	✗						
B3		✓	✓			✗	✗	✗	✗						

✓ Meets guidelines ✗ Outside of guidelines

Guidelines used are for lowland river ecosystems in South Central Australia (ANZECC 2000)



Map 1: Sample sites for the Darling-Baaka River health project April 2024 - June 2024

Raw data available

Scan this QR code to access the report's raw data online.

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