NSW Inquiry into PFAS contamination in waterways and drinking water supplies throughout NSW

Response to committee question taken on notice

COMMITTEE QUESTION:

The CHAIR: *Also, the water testing that you've undertaken is just about recreational water quality guidelines, isn't it? It's not about the guidelines—which are less, I understand—for ecologically sensitive rivers.*

Is the council looking at conducting water tests for that? Are you aware of those guidelines, which are much more strict than the recreational guidelines, I understand?

EMMA KENNEDY: *We do the recreational water quality testing but we also do ecological testing. So we do two different types of testing.*

The CHAIR: *The testing that you referred to in your submission, was that just the recreational water guidelines?*

EMMA KENNEDY: *No.*

The CHAIR: *Would you be able to provide—*

WILL LANGEVAD: *We could take that on notice.*

EMMA KENNEDY: *We'll take that on notice.*

The CHAIR: *Could you provide the Committee with the results of both?*

EMMA KENNEDY: *Yes.*

Submission reference:

Council has an extensive and long-running waterway health monitoring program, including annual aquatic macroinvertebrate surveys of over seventy sites, and weekly recreational water quality testing at key swim sites during the warmer months. This has not historically included testing for PFAS.

Due to community concern, Council's Aquatic Scientists recently conducted one round of PFAS testing at six local recreational and swimming sites. Testing results show PFAS is present at most sites, but at levels below the National Health and Medical Research Council's PFAS guidelines for recreational water quality.

Council does not currently have resourcing to conduct ongoing PFAS testing but can play a role in sharing information with the Blue Mountains community. Additional funding could potentially enable Council to extend their water quality monitoring program to include testing for PFAS.

COUNCIL RESPONSE TO QUESTION TAKEN ON NOTICE:

Blue Mountains City Council's Waterways Health Monitoring Program

Blue Mountains City Council (Council) has a an extensive and long-running (25 years) waterway health monitoring program which includes:

- Ecological waterway health monitoring
- Recreational water quality monitoring
- Freshwater crayfish surveys
- Project-based monitoring to assess the effectiveness of interventions such as stormwater treatment systems
- Incident monitoring of events such as pollution incidents or fish kills
- Targeted monitoring of aquatic fauna such as platypus, turtles and fish
- Research collaborations with independent academic institutions

Council's aquatic monitoring program enables us to track trends over time, guide priorities for waterway health investment and educate our community. In October 2024, Council published an online Waterway Health Explorer – which gives the public access to a wealth of data from 25 years of waterway monitoring for our core programs. Launch the Waterway Health Explorer here: https://www.bmcc.nsw.gov.au/waterquality

Council has no regulatory or compliance powers in relation to drinking water storages and does not test water quality for drinking water.

Ecological Waterway Health Monitoring

Council conducts annual ecological waterway health monitoring at over 70 sites, including:

- Aquatic macroinvertebrate monitoring – an overall ecological waterway health rating is calculated based on aquatic macroinvertebrate (waterbug) surveys (ratings derived from overall diversity, EPT (mayfly/stonefly/caddisfly) diversity, SIGNAL-SF (sensitivity) scores and EPT prevalence as a proportion of total macroinvertebrates).
- Ecological water quality monitoring – parameters tested include Electrical Conductivity (EC), pH, Dissolved Oxygen (DO), Turbidity, Alkalinity, Nitrate-nitrogen, Faecal coliforms, and Available phosphate. These results are assessed against local trigger values derived from $80^{th}/20^{th}$ percentile values for Blue Mountains reference and 'slightly disturbed' sites.

Recreational Water Quality Monitoring

Council tests weekly for faecal contamination (using enterococci as a microbial indicator) at several local waterways between October and March. Results are assessed against the NHMRC Guidelines for Managing Risks in Recreational Water:

https://www.nhmrc.gov.au/about-us/publications/guidelines-managing-risks-recreational-water#block-views-block-file-attachments-content-block-1

Council has partnered with NSW Beachwatch to enable more regular updates on recreational water quality for local residents and visitors. Weekly 'star ratings', annual reports and council's enterococci data for Megalong Creek, Minnehaha Falls and Wentworth Falls Lake, can be accessed via the Beachwatch website.

Recreational Water Quality and PFAS

Council's monitoring program has not historically included testing for PFAS. However, in 2024, elevated levels of PFAS chemicals were discovered in the Upper Blue Mountains drinking water catchment and WaterNSW subsequently disconnected Medlow and Greaves Creek Dams from supply. Community concern, along with local media coverage of the issue, ran high. Community concern also emerged about the risk of PFAS exposure to swimmers at popular recreational sites.

In response to these concerns, and to provide reassurance to our community, Council conducted a single round of testing for PFAS chemicals in water samples from the city's recreational water quality monitoring sites in November 2024. Independent analysis was provided by NATA accredited company ALS Environmental (Sydney).

Results from all sites were well below the guideline values for PFAS in recreational water quality (National Health and Medical Research Council - https://www.nhmrc.gov.au/sites/default/files/documents/attachments/guidance-on-PFAS-in-recreational-water.pdf). As such Council does not intend to routinely test for PFAS as part of the Recreational Water Quality Monitoring Program.

Table 1 summarises PFAS results and how they compare with the recreational water quality guidelines.

Table 1: PFAS results at BMCC Recreational Water Quality Monitoring Sites and comparison with NHMRC RWQ guidelines

Site name	Megalong Creek	Minnehaha Falls	WF Lake Jetty	WF Lake Beach	GB Lagoon Ramp	GB Lagoon Beach	NHMRC RWQ guidelines
Date	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	
Perfluorooctanoic acid (PFOA) ug/L	<0.0005	0.0009	0.0008	0.0008	0.0071	0.007	10
(% guideline value)	(<0.005%)	(0.009%)	(0.008%)	(0.008%)	(0.071%)	(0.07%)	
Sum of PFHxS and PFOS ug/L	0.0005	0.0138	0.0072	0.0068	0.0136	0.013	2
(% guideline value)	(0.025%)	(0.69%)	(0.36%)	(0.34%)	(0.68%)	(0.65%)	

Ecological water quality guidelines – PFAS

Community concern over PFAS exposure risks from swimming was the driver for BMCC testing PFAS levels at recreational water quality monitoring sites. However, the results can also be compared to ecological water quality guideline values.

Table 2 below sets out PFOA and PFOS results compared to the Ecological Water Quality Guidelines contained within the PFAS National Environmental Management Plan (2020 - https://www.dcceew.gov.au/sites/default/files/documents/pfas-nemp-2.pdf), at both the 99% (high conservation value systems) and 95% (slightly to moderately disturbed systems) species protection levels.

At all sites tested, PFOA levels were well below the Ecological WQ guideline for 99% species protection. PFOS levels at all sites tested, however, were above the Ecological Guideline for 99% species protection – ranging from around double the guideline value at Megalong Creek to nearly forty times the guideline value at Glenbrook Lagoon. At the 95% species protection level, PFOS results at all sites tested were well below the Ecological Guideline value.

Table 2: PFAS results at BMCC Recreational Water Quality Monitoring Sites and comparison with Ecological WQ Guidelines

Site name	Megalong Creek	Minnehaha Falls	WF Lake Jetty	WF Lake Beach	GB Lagoon Ramp	GB Lagoon Beach	Ecological WQ guideline values
Date	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	6/11/2024	
PFOA (ug/L)	<0.0005	0.0009	0.0008	0.0008	0.0071	0.007	19 ug/L (99% species protection) 220 ug/L (95% species protection)
% guideline values (PFOA): 99% species protection	<0.0026%	0.0047%	0.0042%	0.0042%	0.0374%	0.0368%	
95% species protection	<0.00023%	0.0004%	0.0004%	0.0004%	0.0032%	0.0032%	

PFOS (ug/L)	0.0005	0.0026	0.0045	0.004	0.0088	0.0078	0.00023 µg/L (99% species protection) 0.13 ug/L (95% species protection)
(% guideline values (PFOS): 99% species protection 95% species protection	217.39% 0.38%	1130.43% 2.00%	1956.52% 3.46%	1739.13% 3.08%	3826.09% 6.77%	3391.30% 6.00%	

Considering that all these sites except Glenbrook Lagoon flow to the Blue Mountains World Heritage Area, the highest level of protection is desirable and PFOS results exceeding this guideline value are cause for concern. Results exceeding the guideline value suggest aquatic species may be subject to detrimental effects from this contaminant.

At the time of writing there are no known management actions available to address background levels of PFAS in waterways. As outlined in our Inquiry submission, Council recommends further investment, research, and guidance from the NSW government into the monitoring, impacts, mitigation and future management of PFAS.

Ecological water quality guidelines review

At the time of writing, it was not clear if there is a definitive ecological water quality guideline for PFAS as new guidelines are still under development. Council notes that the Ecological Water Quality Guidelines contained within the PFAS National Environmental Management Plan – HEPA 2020 are for PFOS and PFOA only. With many thousands of PFAS chemicals in the environment, the monitoring and management of PFAS is a complex and emerging field. Council will respond to future directions from NSW and Federal governments to guide Council on the monitoring and management of PFAS in local waterways.

We are aware that there is a draft PFOS guideline under review: https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants/toxicants/draft-pfos-fresh-2023, which currently has a less stringent guideline value for PFOS at the 99% species protection level. In the meantime, the most current set of guidelines that we were able to locate were contained within the PFAS National Environmental Management Plan – HEPA 2020. This is the guideline we have used to interpret our results from an ecological perspective. If an updated or more relevant guideline becomes available, Council will be guided by these.

Platypus and PFAS monitoring project

Council is actively working with independent academic institutions to support ongoing research into ecological effects of PFAS.

BMCC has partnered with Western Sydney University to undertake a research project (with WIRES grant funding), analysing heavy metals and anthropogenic pollutants including PFAS in water, sediment, macroinvertebrates and platypus within the Kedumba River catchment (tributary of Sydney's major drinking water storage at Lake Burragorang). Results (not yet available) are expected to reveal the prevalence of PFAS and other contaminants in these waterways (including Jamison Creek (Wentworth Falls), Leura Falls Creek and Kedumba Creek (Katoomba), and whether there is evidence of contaminant bioaccumulation in aquatic macroinvertebrates and platypus. This project commenced in 2023 and is due to conclude in 2026.

As outlined in our submission, Council urges the NSW Government to support independent research into this emerging area to better understand the impacts of PFAS exposure on wildlife.