

**Submission
No 13**

**INQUIRY INTO INQUIRY INTO PFAS CONTAMINATION
IN WATERWAYS AND DRINKING WATER SUPPLIES
THROUGHOUT NEW SOUTH WALES**

Organisation: Blue Mountains City Council

Date Received: 26 November 2024

Inquiry into PFAS contamination in waterways and drinking water supplies throughout New South Wales

Draft BMCC response

EXECUTIVE SUMMARY

The Blue Mountains Local Government Area is home to 80,000 residents, hosts over 4 million domestic and international tourists a year; is located within the surrounds of the Greater Blue Mountains World Heritage Area; and has 350km² of sub-catchment areas which drain into Sydney Water Drinking Catchments and the primary drinking water source of Greater Sydney.

The Blue Mountains City Council is a primary stakeholder at the interface of affected communities and potentially catastrophic environmental impacts leading from PFAS contamination.

The level of concern demonstrated by our local community cannot be ignored, and Council calls for a *“full and proper account of what caused the elevated PFAS levels, and the impacts to the environment and community health”* (Mayoral minute passed by Councillors, 30 October 2024),

Council requests rigorous public testing for contamination, investigations into the cause of contamination, proposals to eliminate PFAS from the area’s drinking water and remediation and prevention strategies. In addition, timely completion of the review of PFAS levels in the Australian Drinking Water Guidelines and appropriate responses to ensure the safety of drinking water supplied to the Blue Mountains community, in keeping with the new guidelines, is critical.

About the City of Blue Mountains

The Blue Mountains Local Government Area (LGA) is located just over 50km west of Sydney’s CBD on the traditional lands of the Dharug and Gundungurra people. It is one of only two cities in the world surrounded by a World Heritage National Park.

Blue Mountains waterways sustain an enormous diversity of life, contribute to local and regional drinking water supplies for over five million people, and provide a significant recreation and tourism resource for Greater Sydney and the world. The living waterways of the Blue Mountains also hold great cultural significance for Dharug and Gundungurra people.

Recent findings of elevated PFAS contamination in local drinking water storages demonstrate how vulnerable Blue Mountains water resources are to urban stormwater runoff. This is in part due to the general pattern of local development, with ridgetop developments draining to sensitive downstream environments, including streams, rivers, lakes, drinking water storages, swamps, and bushland within the Greater Blue Mountains World Heritage Area.

PFAS in the Blue Mountains – local context

In June 2024, testing by Sydney Water detected PFAS on the outlet of the Cascade Water Filtration Plant at Katoomba which supplies water to 41,000 people in the Blue Mountains.

Subsequent testing by WaterNSW revealed elevated levels of PFAS in Medlow Dam, of five Blue Mountains dams which supply raw, untreated water to the Cascade Water Filtration Plant. In August 2024, WaterNSW disconnected Medlow Dam and downstream Greaves Creek Dam from supply.

Investigation into the source of PFAS contamination in Medlow Dam and Greaves Creek Dam at Medlow Bath is ongoing at the time of this submission.

Residents have been assured by Sydney Water that local tap water is within the current Australian Drinking Water Guidelines and is safe to drink. However, in October 2024, the National Health and Medical Research Council (NHMRC) released draft updated guidelines for PFAS in drinking water. Notably, all the recent test results of drinking water from the Cascade filtration plant, as published by Sydney Water, are above the new draft guidelines for PFAS. Levels have varied between two and four times the new proposed guideline of 0.004 µg/L.

BMCC has received a range of inquiries from the public and local stakeholders, demonstrating that it is alarming to residents and visitors of the Blue Mountains to discover that our pristine waterways are contaminated with PFAS chemicals. There are many calls and concerns raised about direct impacts to the environment and long-term impacts on human health.

Blue Mountains City Council (BMCC) has no regulatory or compliance powers in relation to contamination of the local water storage. However, it has focused on assisting Water NSW and other NSW agencies to disseminate information to the public in a timely, full and transparent manner and aiding WaterNSW with investigations into the historical causes of water storage contamination at Medlow Bath.

Council is also liaising with and supporting NSW authorities to undertake PFAS testing in Medlow Bath and at other sites in the Blue Mountains, including fire-fighting facilities.

Council's Aquatic Scientists have 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 significantly below the National Health and Medical Research Council's PFAS guidelines for recreational water quality.

At their 30 October meeting, Councillors passed a mayoral minute seeking ***“a full and proper account of what caused the elevated PFAS levels, and the impacts to the environment and community health”***. Under the motion, the Council will write to the NSW Minister for Water Rose Jackson and Trish Doyle MP by January 2025, requesting rigorous public testing for contamination, investigations into the cause of contamination, proposals to eliminate PFAS from the area's drinking water and remediation strategies.

The Council will also write to Federal Minister for Health and Aged Care Mark Butler and Susan Templeman MP, requesting timely completion of the review of PFAS levels in the Australian Drinking Water Guidelines.

DRAFT RESPONSE TO TERMS OF REFERENCE

This draft response is structured around the terms of reference.

(a) the adequacy and extent of monitoring and data collection on PFAS levels in waterways and drinking water sources

The recent discovery of elevated levels of PFAS in, and the subsequent closure of, Greaves Creek Dam and Medlow Dam shows that the extent of monitoring and data collection on PFAS levels in Blue Mountains waterways and drinking water sources prior to June 2024 was inadequate.

Council notes that many drinking water supplies across Australia have not until recently been routinely tested for the broad range of PFAS because it has not been required by state and territory health authorities. As a result, the recent discovery of PFAS levels in Blue Mountains drinking water supply has come as a shock to the community.

The inadequate extent of monitoring and data collection is highlighted and further exacerbated by several factors ignored by authorities in relation to the risk of PFAS contamination in Medlow Bath:

- The dangers of PFAS have been known for many years. They have been widely used in many domestic and industrial products since the 1950s, including fire-fighting foams.
- Many PFAS chemicals are highly mobile in water, and do not break down naturally in the environment.
- It is known that increased levels of PFAS can be found near sewage treatment plants, landfills, and places where fire-fighting foams have been used.

- The Blue Mountains is a highly bushfire prone area, with a history of use of firefighting foams.
- Medlow Dam and Greaves Creek Dam are less than 2km from a major transport corridor, with a history of major crash incidents requiring the use of firefighting foams. The waterways feeding these dams connect directly to the Great Western Highway and Medlow Bath urban areas via conventional stormwater infrastructure.
- The link between connected or effective imperviousness of catchments and the health of receiving waterways is well established in Australian research (e.g. the work of Walsh and others at the Waterway Ecosystem Research Group of Melbourne University).

Given this context, the fact that the PFAS contamination was not detected sooner, and that contamination has occurred for an unknown period, it is understandable that many community members see this as a breach of trust by Government agencies.

Rigorous monitoring, and transparency with investigation results will be a critical step towards restoring trust. It is vital for the community to feel confident that action is being taken to protect public health, based on the best available evidence.

The lack of a long-term monitoring program for PFAS in the Blue Mountains drinking water supply means there is no data about the historical trends for PFAS contamination or the possible exposure of our community to these chemicals over time. These unknown factors are exacerbating community fear and uncertainty.

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 have 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 testing in local waterways also reveals elevated levels of other pollutants, such as insecticides and hydrocarbons, which may potentially be harmful to human health (see section (o)). This begs the question of what other pollutants we should be testing for, but currently aren't.

Recommendations:

Council calls for further investigations to establish a greater understanding of the extent, sources, and impact of PFAS contamination in Blue Mountains waterways. This includes:

- A thorough independent investigation into the cause of the current contamination.
- Establishing a requirement for public authorities supplying raw or processed water for drinking to test and publish results for chemicals harmful to human health including PFAS.
- Establishing base level measures for contaminated land and or water.
- A review of the risk profiles of local water storages in the light of new information about PFAS contamination.
- An expansion of testing regimes to include other pollutants potentially harmful to human health.
- A comprehensive PFAS Management Program across all water storages.
- A PFAS investigation program at all fire-fighting stations and training sites and road crash sites in the Blue Mountains where fire-PFAS-containing fighting foams were historically used.
- Greater investment in research to close the knowledge gaps on the health effects of PFAS.
- State government support for local governments to undertake increased aquatic monitoring and testing including testing for recreational water quality and ecological health.

(b) the adequacy of the reporting and disclosure requirements to the public of monitoring and findings on PFAS contamination of water

Council notes that many drinking water supplies across Australia have not until recently been routinely tested for the broad range of PFAS, or disclosed those results publicly, because it has not been required by state and territory health authorities.

To reestablish trust and confidence in the community, BMCC calls for the state government to be open and transparent with information about PFAS contamination and testing results for PFAS and other pollutants harmful to human health and the environment.

It is now clear that substantial gaps have existed to date in testing undertaken to identify communities at risk from PFAS contamination. It is unclear which public authority is responsible for identifying communities at risk, the nature of the risk assessment process or even whether criteria have been established to identify high risk communities.

Recommendations:

- Establish in legislation one public authority with overarching responsibility for managing PFAS contamination in NSW.
- Establish a requirement for public authorities supplying raw or processed water for drinking to test and publish results for chemicals harmful to human health including PFAS.
- Establish base level measures for contaminated land and or water (if this does not already exist).
- Establish mandatory levels of physical investigation required to determine if communities are at risk.
- Provide greater transparency about risk assessment process undertaken to identify communities at risk, including risk assessment criteria.

(c) the identification of communities at risk from PFAS contamination

Given the levels of PFAS detected in the drinking water supply for a substantial portion of the Blue Mountains community, more information is needed to address potential health risks. Council has received enquiries from community members with existing health concerns, as well as the parents and carers of young people, who are worried about the potential long-term health impacts of PFAS in drinking water. Further information and community education is needed on this matter. Also see (a).

It is now clear that substantial gaps have existed to date in testing undertaken to identify communities at risk from PFAS contamination. It is unclear which public authority is responsible for identifying communities at risk, the nature of the risk assessment process or even whether criteria have been established to identify high risk communities.

Recommendations:

- Support further research into the health impacts of PFAS exposure.
- Increase community education and engagement about the health impacts of PFAS exposure and ways to minimise exposure.
- Provide greater clarity around which public authority is responsible for identifying communities at risk.
- Provide greater transparency about risk assessment process undertaken to identify communities at risk, including risk assessment criteria.
- Establish mandatory levels of physical investigation required to determine if communities are at risk.
- Identify acceptable remediation levels and define compensation pathways.
- Also see recommendations under (b).

(d) the adequacy and effectiveness of government engagement with and support for communities disproportionately affected by PFAS contamination, including First Nations communities

Government engagement with the Blue Mountains community is ongoing at the time of this submission. Continued open and transparent engagement is required to inform and support the Blue Mountains community, particularly given the current test results of drinking water from the Cascade filtration plant, as published by Sydney Water, are above the new draft NHMRC guidelines for PFOS. Levels have varied between two and four times the new proposed guideline of 0.004 µg/L.

BMCC seeks a timely response from Sydney Water as to how existing PFAS levels in Medlow and Greaves Creek Dams and PFOS levels at the Cascade filtration plant are to be managed to within Australian Drinking Water Guidelines post review.

Recommendations

- See recommendations under (b)

(e) sources of exposure to PFAS, including through historic and current firefighting practices

Council is concerned about the community's potential exposure to PFAS via drinking water supplied from Sydney Water's Cascade filtration plant in Katoomba, where elevated levels of PFOS have been recorded since testing began in July 2024.

While residents have been assured by Sydney Water that local tap water is within the current Australian Drinking Water Guidelines and is safe to drink, Council notes that all the recent (October) test results of drinking water from the Cascade filtration plant, as published by Sydney Water, are above the new draft NHMRC guidelines for PFOS. Levels have varied between two and four times the new proposed guideline of 0.004 µg/L.

Lack of testing prior to July 2024 means the historical exposure of the community to PFOS via drinking water from the Cascade filtration plant is unknown.

Sources of potential PFAS contamination currently being investigated include fire-fighting foams used during emergency response. While Council does not currently have any records of Council owned or managed land that have PFAS contamination exceeding guideline levels, BMCC expects there are potentially other PFAS contaminated sites in the city associated with the use of foams for emergency response and training. BMCC understands that progressive testing of RFS stations is being conducted and urges for the timely completion of these investigations and public disclosure of result.

Our testing at recreational water quality sites shows background levels of PFAS at all seven locations. There is no specific point source. BMCC is concerned that the human and environmental health impacts are unknown for even background levels of PFAS. It is also unknown whether acceptable biological levels have been set for the broader environment.

Recommendations

- Support further independent research to close the knowledge gaps on the health and environmental impacts of PFAS.
- Establish base level measures for contaminated land and or water (if this does not already exist).
- Identify which authority is responsible for identifying communities at risk and overseeing remediation.
- Establish mandatory levels of physical investigation required to determine if communities are at risk.
- Provide greater transparency about risk assessment process undertaken to identify communities at risk, including risk assessment criteria.
- Progress current investigations into PFAS contamination at RFS sites in a timely manner and publish the results.

(f) the health, environmental, social, cultural, and economic impacts of PFAS

Health and social impacts

BMCC is deeply concerned about the elevated levels of PFAS in the upper Blue Mountains drinking water catchment and the potential impacts on human health. We understand that the long-term health impacts are unknown for even background levels of PFAS. More studies are required, it appears that Australia is heavily reliant on overseas studies which may not be translatable to the local context.

Concerns about PFAS contamination are shared by our community, with Council receiving many enquiries from the public about this issue, including the viability of swimming at local recreation sites. It is known that exposure to PFAS contamination causes not only physical health issues, but also significant distress and trauma in affected communities, leading to mental health issues.

Since August of this year, there has been increasing media coverage of water storages in the Blue Mountains, specifically Medlow and Greaves Creek Dams (Medlow Bath), being contaminated with elevated levels of PFAS.

A community-led PFAS action group and Facebook page has been established. The group ran a community briefing in September which was attended by several hundred people.

It would be alarming to most residents and visitors of the Blue Mountains that our pristine waterways are contaminated with PFAS, and many would be questioning the long-term impact on their health.

Environmental impacts

Council is concerned about the long-term impacts of PFAS exposure on ecological health, including on World Heritage values.

The Blue Mountains LGA is located within the surrounds of the Greater Blue Mountains World Heritage Area, inscribed in 2000 for its 'exceptional representation of Australia's biodiversity'. Our LGA is home to around ten percent of the listed threatened species in New South Wales, many of which are endemic to the area.

The Blue Mountains LGA also has 350km² of sub-catchment areas which drain into Sydney Water Drinking Catchments and the primary drinking water source of Greater Sydney.

BMCC is concerned that preliminary testing of seven recreational water quality sites across the LGA has revealed background levels of PFAS at every site. There is no specific point source and the environmental health impacts of PFAS exposure, even at background levels, are currently unknown.

Cultural impacts

BMCC is concerned about the potential cultural impacts of PFAS contamination on Dharug and Gundungurra people, for whom the living waterways of the Blue Mountains hold great cultural significance. For Dharug and Gundungurra people, water plays a significant spiritual role in the creation of Ngurra (Country). The lifeblood of Dharug and Gundungurra Ngurra is water – physically and spiritually it binds together all living things. It is considered a custodial responsibility to look after Ngurra, and any impact on the environment impacts the spirituality of Traditional Custodians and their ability to practice culture.

Economic impacts

BMCC is concerned about the impact of PFAS contamination on the Blue Mountains' reputation as a pristine, world-class tourism destination. The Blue Mountains Local Government Area hosts over 4 million domestic and international tourists a year, visitation which significantly underpins the local economy. PFAS contamination has the potential to irreversibly damage the Blue Mountains 'clean, green' brand. Should people choose not to visit the Blue Mountains, this would have significant flow on effects for local businesses and employment.

Recommendations

- Support further independent research to close the knowledge gaps on the long-term health and environmental impacts of PFAS.
- Establish base level measures for contaminated land and or water (if this does not already exist).
- Support research into the health, cultural and economic impacts of PFAS contamination in the Blue Mountains.

(g) the impacts, monitoring and mitigation of contamination on livestock, domestic animals and wildlife, including water birds, fish and other aquatic life

BMCC is concerned about the impact of PFAS exposure on wildlife, including water birds, fish, and other aquatic life.

A recent study by CSIRO and the Queensland Department of the Environment, Tourism, Science and Innovation has measured concentrations of PFAS in adult turtles and their hatchlings.

The study, one of the first of its kind to investigate how exposure to PFAS impacts Australian wildlife, found major health effects in turtles at sites with high concentrations of PFAS:

<https://www.sciencedirect.com/science/article/pii/S0048969724064696?via%3Dihub>

Council is partnering with the University of Western Sydney to undertake a study into the long-term impact of anthropogenic pollutants, PFAS and heavy metals on the future viability of platypus populations in the Blue Mountains World Heritage Area over the next 3 years.

Recommendation

- Support independent research into this emerging area to better understand the impacts of PFAS exposure on wildlife.

(h) the structure, capacity, capability and resourcing of New South Wales Government agencies and water utilities to detect, monitor, report on, respond to and mitigate against PFAS contamination of water supplies, including the adequacy of infrastructure and resources

It is not clear at the time of writing if any public authority has overarching responsibility for managing PFAS contamination in NSW. This must be clearly defined in legislation in NSW.

In addition, until recently, there has been inadequate proactive coordination between NSW agencies on the issue of PFAS contamination in drinking water storages. Recent collaboration seems have been driven by a reactive response.

An effective response to the challenges that PFAS presents our drinking water storages will require whole-of-government solutions, from detection, monitoring, and reporting, to regulation, compliance, and public education across multiple government agencies.

PFAS is an emerging issue that also has the potential to impose a heavy resourcing burden on governments. To date, it appears that resourcing for this issue has been inadequate, or non-existent, and as a result, public authorities have avoided the establishment of appropriate testing and monitoring regimes.

Additional substantial investment by the state government is required to enable:

- Expanded testing regimes across water storages.
- The investigation and clean-up of contaminated sites.
- The upgrade of filtration infrastructure to remove / reduce PFAS concentrations to within the new NHMRC guidelines (once adopted).
- Support for impacted communities, including compensation.
- Public education focusing on the prevalence, avoidance, and health impacts of PFAS.
- PFAS mitigation strategies, including better management of urban stormwater.
- Management of long-term human health impacts from exposure to PFAS.

Recommendations:

- Establish in legislation one public authority with overarching responsibility for managing PFAS contamination in NSW.
- Establish a state-based taskforce to improve government inter-agency coordination.
- Increase investment in PFAS detection, monitoring, reporting, response, and mitigation.

(i) the adequacy and effectiveness of New South Wales's legislative and regulatory framework in testing for, monitoring, mitigating, and responding to PFAS contamination, including the adequacy of health-based guidance values, as compared to the standards and practices of other Australian and international jurisdictions.

Council welcomes the National Health and Medical Research Council's (NHMRC) current review of the Australian Drinking Water Guidelines (ADWG) and urges the timely completion of this review.

Council notes that internationally, there has been an increased focus on PFAS and their impacts on the environment and human health for some time. In response to increasing evidence associated with PFAS, the United States Environment Protection Authority introduced stricter standards for drinking water back in 2022. These standards set acceptable PFAS levels that are much lower than the current ADWG.

Council notes the recent proposed changes to Australian Drinking Water Guidelines which include a significant lowering of the acceptable PFAS levels in drinking water, based on a range of health effects:

- **PFOA** – The health-based guideline value is proposed to be lowered from 560 ng/L to **200 ng/L** based on new health concerns (cancer effects).
- **PFOS** – The health-based guideline value is proposed to be lowered from 70 ng/L to **4 ng/L** based on new health concerns (bone marrow effects).
- **PFHxS** – A new, separate health-based guideline value for PFHxS of **30 ng/L** is proposed, based on thyroid effects.
- **PFBS** – A new, separate health-based guideline value for PFBS of **1000 ng/L** is proposed, based on thyroid effects.
- **GenX chemicals** - A health-based guideline value for GenX chemicals could not be set at this time due to a lack of data.

At the time of submission, Sydney water is assuring customers that the levels of PFAS in drinking water supplied from their nine water treatment plants are “well inside the **current ADWG**, ensuring the continued delivery of safe, high-quality drinking water.”

Should the new ADWG be adopted, this assurance from Sydney Water will be cold comfort to those of the Blue Mountains community, who are **currently being exposed to between two and four times the new proposed guideline of 0.004 µg/L for PFOS in their drinking water – a situation which has been ongoing for an unknown period.**

BMCC calls on the state government to urgently plan for strategies to address the possible gap between the proposed ADWG and the quality of water currently being supplied through Blue Mountains taps.

Council also notes that many drinking water supplies across Australia have not until recently been routinely tested for the broad range of PFAS because it has not been required by state and territory health authorities. The state government clearly needs to urgently review and tighten these requirements in the light of the discovery of significantly raised levels of PFAS in Medlow Bath dams.

It is also not clear at the time of writing if any public authority has overarching responsibility for managing PFAS contamination in NSW. This must be clearly defined in legislation in NSW.

Recommendations:

- Establish in legislation one public authority with overarching responsibility for managing PFAS contamination in NSW.
- Establish a regulatory framework that sets PFAS testing and reporting requirements for certain land uses or end uses of water.
- BMCC is not aware of any legislation that prohibits use of PFAS or supports avoidance of PFAS in products and materials, or any regulatory framework to control its use. Legislation to support this would be beneficial.
- Also see recommendations above in (h).

(j) public sector resourcing and coordination amongst relevant agencies in preventing controlling and managing the risks of PFAS to human health and the environment

Responding to the challenges that PFAS presents our drinking water storages is a complex task that will require whole-of-government solutions, from detection, monitoring and reporting, to regulation, compliance, and public education across multiple government agencies.

Until recently, there appears to have been minimal proactive coordination between NSW agencies on the issue of PFAS contamination in drinking water storages. Recent collaboration seems to be driven by a reactive response.

BMCC recommends the establishment of a state-based PFAS taskforce to improve government inter-agency coordination around this issue.

It is also not clear at the time of writing if any public authority has overarching responsibility for managing PFAS contamination in NSW. This must be clearly defined in legislation in NSW.

Recommendations:

- Establish in legislation one public authority with overarching responsibility for managing PFAS contamination in NSW.
- Establish a state-based taskforce to improve government inter-agency coordination.

(k) international best practices for water treatment and filtration, and the environmentally sound management and safe disposal of PFAS

Council seeks more information from the NSW Minister for Water on the merits of and proposal to reduce or eliminate PFAS from our drinking water.

Council urges the NSW Minister for Water to advocate for the finalisation of the AWDG as a matter of the highest priority. It is vital that the Blue Mountains community can have confidence in the safety of their drinking water.

If the draft AWDG are adopted, including the significantly lower guidelines for PFAS, the quality of drinking water supplied to the Blue Mountains community must be brought in line with the new standards to ensure the safety of the local community as a matter of utmost urgency.

It is unclear whether the Cascade filtration plant at Katoomba has the capacity to manage current levels of PFAS contamination to the standard required, particularly if the NHMRC sets stricter guidelines for PFAS. BMCC seeks clarification from Sydney Water as to what steps will be taken, and in what timeframe, to ensure the Blue Mountains drinking water supply is delivered within NHMRC guidelines, noting that these guidelines are likely to change in future.

Recommendation:

- Provide detailed information to Council on the likelihood and timeframes for the upgrade of the Cascade drinking water plant if required under impending new NHMRC guidelines.

(l) the effectiveness of remediation works on specific sites and international best practices for remediation and management of contaminated sites

Council requests that a response be provided by the NSW Minister for Water on remediation strategies and responsibilities for the remediation and management of the PFAS contamination at Medlow Bath. As this is an emerging issue for Australia, Council also urges the state government to invest in more research to determine how best to remediate contaminated sites in a local context.

BMCC also seeks to understand which NSW public authority will have overarching responsibility for the remediation and management of PFAS contamination at Medlow Bath.

Recommendations

- Establish in legislation one public authority with the responsibility for managing PFAS contamination in NSW, including remediation.
- Identify which parties are responsible for decontamination.
- Establish guidelines for acceptable biological levels of PFAS in the environment.

(m) areas for reform, including legislative, regulatory, public health and other policy measures to prevent, control and manage the risks of PFAS in water supplies

Legislative and regulatory frameworks

As noted above, tighter legislative and regulatory frameworks would improve identification of PFAS contamination and accountability by public authorities in NSW.

Other policy measures - PFAS and urban stormwater runoff

The contamination of waterways and drinking water supplies with PFAS highlights the **dangers of having urban areas directly connected to natural waterways via conventional stormwater infrastructure** (i.e. catchments with high levels of effective imperviousness).

The link between connected or effective imperviousness of catchments and the health of receiving waterways is well established in Australian research. For example, Walsh *et al* state that: “Conventional urban stormwater drainage, delivering runoff from impervious surfaces to streams and rivers through hydraulically efficient pipes and sealed drains, severely degrades receiving stream ecosystems,” and point to the “complex cocktails of pollutants associated with impervious runoff” as a key factor impacting waterway health. <https://journals.plos.org/water/article?id=10.1371/journal.pwat.0000004> Walsh CJ, Burns MJ, Fletcher TD, Bos DG, Poelsma P, Kunapo J, et al. (2022) Linking stormwater control performance to stream ecosystem outcomes: Incorporating a performance metric into effective imperviousness. PLOS Water 1(2): e0000004. <https://doi.org/10.1371/journal.pwat.0000004>

Urban stormwater runoff is one of the most significant outstanding environmental problems in the Blue Mountains, as shown by over 25 years of waterway health monitoring, and is recognised as a key threat to drinking water storages. Furthermore, the International Union for the Conservation of Nature recognises urban runoff as a ‘high threat’ to the waterways and swamps of the Greater Blue Mountains World Heritage Area, which contributed to the recent upgrading of the area’s conservation risk rating to ‘significant concern’ (IUCN, 2020).

Council responses and challenges

Council has been undertaking significant work to improve stormwater management in the Blue Mountains LGA, including:

- The adoption of a Water Sensitive Blue Mountains Strategic Plan (WSBMSP): <https://www.bmcc.nsw.gov.au/waterways/water-sensitive-blue-mountains-strategic-plan>, which advocates for a whole-of-water-cycle approach to water management.
- Aquatic Monitoring across more than seventy sites.

- Retrofitting old stormwater infrastructure with stormwater treatment trains and biofiltration systems in partnership with state government agencies including WaterNSW and Sydney Water.
- Projects to harvest and reuse stormwater on Council properties.
- Restoration programs in priority sub catchments.
- Education and engagement programs to improve community water literacy and engagement in water management.

While these initiatives are achieving promising site by site results, **resources and funding are insufficient to address the scale of the issue** and progress is incremental. Ongoing lack of capacity and resourcing continues to hinder progress in improving local urban stormwater management.

Additional support is required from the state government to fully implement the WSBMSP and embed water sensitive principles and practice across the LGA.

Recommendations for integrated water management

To protect our vulnerable drinking water catchments and reduce the transportation of contaminants such as PFAS into our waterways, integrated water management, including improved management of urban stormwater runoff, is vital. Council recommends establishing:

- A state-wide Integrated Water Management program, including **adequate resourcing**, to support local government efforts to better manage water resources at the local scale, including urban stormwater runoff.
- **Guidelines** on the implications of PFAS pollution for stormwater treatment and Water Sensitive Urban Design (WSUD).
- A **rainwater tank rebate** program. Rainwater tanks, particularly if plumbed into the laundry and bathroom, are an effective means to reduce stormwater runoff and hence pollutant loads. Other benefits of rainwater tanks include increased water security in a changing climate, particularly during drought, increased bushfire resilience, and reduced pressure on local water storages. This is particularly relevant given the current closure (and unknown long-term future) of two of the five dams currently supplying the upper Blue Mountains with drinking water.
- A **community education** campaign focused on preventing stormwater pollution run in partnership with Water NSW / Sydney Water / Local Councils and NSW Health.

Recommendations to PFAS contamination prevention

BMCC makes the following recommendations to the NSW government:

- Establish a clear **mechanism to facilitate interagency collaboration** on PFAS issues, such as a state-based PFAS Taskforce.
- Review environmental **legislation** with a view to better regulation of PFAS and other emerging contaminants, including progressing Commonwealth framework legislation to establish a National Standard for the Environmental Risk Management of Industrial Chemicals. This standard will set a nationally consistent environmental management approach for the use and disposal of industrial chemicals, including PFAS (www.pfas.gov.au).
- Advocate for the Australian Government to ratify the listing of PFOS and PFOA under the Stockholm Convention (www.pfas.gov.au).
- Implement awareness and **education programs** for industry and community about PFAS.
- Support **research** into more environmentally friendly alternative chemicals to PFAS.
- Tighten **reporting requirements** for companies which use products containing PFAS chemicals so that consumers can better understand which products contain PFAS.

(n) the impact of taking contaminated water sources offline on water security, including the effects of diverting water between communities; the social, economic, and logistical implications of such diversions, and the challenges posed by PFAS contamination to water availability, drought management and emergency supply planning, and

Adopting a state government-supported integrated water management program, as recommended under (m), will not only help protect drinking water storages from pollution but also delivers other benefits, including:

- improved water security in a changing climate
- less pressure on existing water storages
- greater resilience in a changing climate,
- and improved local bushfire resilience.

To ensure the future water security and safety of the Blue Mountains, it is essential that Sydney Water confirm how the Cascade filtration plant will meet our drinking water requirements under the proposed tighter AMHRC drinking water guidelines for PFAS.

(o) any other related matters.

Other pollutants in waterways

PFAS is just one of many pollutants that enter our waterways and water catchments via conventional urban stormwater infrastructure. Other pollutants include pesticides, fertilisers, nutrients, rubbish, sewage, hydrocarbons, and heavy metals.

A 2017 assessment by Council and the University of Melbourne analysed creek sediment samples from twenty-nine sites across 9 Blue Mountains sub catchments for a range of pesticides, heavy metals and petroleum hydrocarbons. These contaminants were widely detected in Blue Mountains streams, at concentrations known to be toxic to aquatic life such as invertebrates and fish. This included:

- Bifenthrin (a synthetic pyrethroid insecticide, principally used to treat termites) - present at moderate to extreme toxicity ratings in 100% of sites tested.
- Total petroleum hydrocarbons - detected at moderate to extreme toxicity ratings in 86% of sites and metals at moderate to high toxicity ratings at 100% of sites.

This study included sites in the Kedumba, Leura Falls, and Jamison catchments, that feed into Sydney's drinking water supply at Lake Burragorang (Warragamba Dam).

Urban stormwater runoff continues to be the primary vector that is transporting these contaminants into Blue Mountains streams. (Sharp, S.M. Myers, J. and Sharley, D.J., *Blue Mountains Sediment Survey 2017*, Centre for Aquatic Pollution Identification and Management, Technical Report No. 87, University of Melbourne, Victoria, Australia).

This vulnerability to urban runoff was highlighted in 2012, when a stormwater-borne pesticide killed over a thousand Giant Spiny Crayfish and many thousands of other invertebrates in Jamison creek, at the headwaters of Lake Burragorang (Warragamba Dam). Unfortunately, this was not an isolated case. Another major crayfish kill, impacting up to one thousand crayfish, occurred in 2023 at a tributary of Hazelbrook Creek. The incident was discovered by a local tour guide. Both pollution incidents were preventable.

Improved stormwater management, as recommended under (m) will also reduce the risk of these other pollutants impacting on waterways and drinking water catchments.

There also needs to be rigorous analysis of other potentially harmful chemicals in our drinking water supplies to inform testing regimes for drinking water quality.

The need for more community education

A potential barrier to the effectiveness of urban stormwater runoff mitigation programs, and by extension, the reduction of pollutants flowing into our waterways, is poor levels of water literacy in the community.

We know that low community water literacy is a barrier to the community's active participation in water management and to behaviour change campaigns.

<https://wscaustralia.org.au/building-community-water-literacy/>

A National Survey of Australians' Water Literacy and Water-related Attitudes among the community conducted by the Cooperative Research Centre for Water Sensitive Cities found that Australian's generally have a low level of water literacy. The research showed that most Australians do not know that stormwater is not treated before entering waterways, that separate pipes carry domestic wastewater and stormwater, or what a catchment is.

https://watersensitivecities.org.au/wp-content/uploads/2016/05/IN_A2-3_WaterLiteracyInAustralia.pdf.

We also know anecdotally from work with our community in the field that:

- Many people do not think about where water goes when it rains.
- Most do not realise the direct connections between urban areas and our local creeks.
- That stormwater is generally unfiltered before it discharges into waterways.

While investigations are yet to uncover the cause(s) of PFAS contamination at Medlow Bath, it is likely that greater community awareness of the dangers of PFAS, understanding of which products contain PFAS and the direct connection between stormwater drains and drinking water storages would have helped prevent or minimise the impact.

Recommendations

- Increased investment in community education to improve community water literacy, promote the uptake of water sensitive behaviours and address waterway pollution at its source.
- Develop and fund a state-based community education campaign focused on preventing stormwater pollution run in partnership with Water NSW / Sydney Water / Local Councils and NSW Health.
- More community education and information about the dangers of PFAS and which products contain these chemicals.