

Deputy Lord Mayor, Councillor Noon - QoN - Torrens Lake Water Quality Management: Current Measures, Costs and Outcomes

Tuesday, 8 September 2026
Council

Council Member
Deputy Lord Mayor, Councillor
Carmel Noon

Public

Contact Officer:
Tom McCready, Director City
Infrastructure

QUESTION ON NOTICE

Deputy Lord Mayor, Councillor Carmel Noon will ask the following Question on Notice:

'Could Administration please advise:

1. What measures are currently being used to manage and improve water quality in Torrens Lake, including biofiltration, monitoring, managed flow releases and any other treatment or maintenance measures?
2. Who is currently contracted or engaged to undertake this work, what are the contract terms and costs, and what measurable deliverables, performance standards or water-quality outcomes are they required to achieve?
3. What has Council spent on Torrens Lake water-quality management over the past three financial years, including capital works, contractors, monitoring, maintenance and other interventions?
4. What evidence is available that the current measures are improving water quality and reducing the frequency or duration of Lake closures, and what measurable indicators does Council use to determine whether the current approach is successful?
5. Where existing measures are not achieving the intended outcomes, what process does Council use to review their effectiveness, contractual performance and value for money, and to consider alternative evidence-based approaches, including technologies being successfully trialled or implemented by other Australian local governments, such as the nanobubble oxygen and ozone technology developed by South Australian company and used at Lake Albert by Wagga Wagga City Council in NSW, where following an extended trial Council has endorsed its continued use and authorised negotiations to purchase the installed technology?

REPLY

1. Water quality in the Torrens Lake / Karrawirra Parri is managed through a combination of monitoring, catchment management, pollutant reduction measures and reactive interventions.
2. As a member of the Torrens Lake Cyanobacteria Advisory Committee (TLCAC), the City of Adelaide (CoA) works collaboratively with the Department for Environment and Water (DEW), Green Adelaide and the Environment Protection Authority (EPA), on water quality management initiatives. The current agreed management approach continues to recognise managed flow releases from Kangaroo Creek Reservoir as the most effective and practical intervention available when cyanobacteria levels (blue green algae) are elevated. These releases are considered to be the most environmentally sound method to reduce the outbreak of blue green algae from the river system without causing harm to the various ecosystems that we must protect.
3. The CoA also undertakes a number of operational activities aimed at reducing pollutants entering the River Torrens. Council currently maintains 21 Gross Pollutant Traps (GPTs) across its stormwater network, 16 of which directly relate to the River Torrens. GPT's are designed to capture litter, organic matter and other

pollutants before stormwater enters the river system. Over the past three financial years, Council has invested \$312,800 in the programmed cleaning of these GPT assets.

4. In addition, Council undertakes dredging activities to remove accumulated sediment deposits that enter the lake system from upstream catchments, particularly following periods of significant rainfall. Over the past three financial years, Council has spent \$412,297 on dredging works to maintain lake capacity and remove silt build-up.
5. Council is also progressing the development of a comprehensive Stormwater Management Plan, which has been underway for the past two years. The Plan is expected to identify a range of future water quality improvement initiatives, including both end-of-line treatment measures and in-line stormwater management solutions. Potential opportunities being investigated include additional GPTs, constructed wetlands, upgrades to open swales, increased use of Water Sensitive Urban Design (WSUD) infrastructure such as bioretention rain gardens, and measures to improve permeability within Council-managed parks, reserves and squares.
6. Together, these measures contribute to a broader catchment-based approach to improving water quality outcomes within the Torrens Lake and reducing the volume of pollutants entering the river system
7. As noted above, water quality management within Torrens Lake is undertaken through the collaborative governance framework of TLCAC, which comprises representatives from the CoA, Green Adelaide, DEW, EPA, SA Water, Coastal Board, and the City of Charles Sturt. Under the current arrangements, TLCAC's primary function is to provide coordinated advice regarding the management of cyanobacteria and the use of managed flow releases from Kangaroo Creek Reservoir. Their Terms of Reference can be viewed [here](#).
8. The CoA does not currently engage or contract a third party to undertake a specific water treatment process within Torrens Lake. Rather, the city continues to work in partnership with the participating State agencies represented on TLCAC, which collectively provide the scientific, regulatory and environmental expertise required to manage the health of the broader River Torrens system. All participating agencies contribute staff resources and expertise in-kind, and there is no payment schedule established under the agreement.
9. Accordingly, there are no current contracts relating to a specific treatment technology, and therefore no associated contract terms, performance-based payments, prescribed water quality outcomes or technology-specific deliverables that the City can report on.
10. The current management approach endorsed by TLCAC continues to focus on water quality monitoring and the use of managed flow releases, which the Terms of Reference identify as the most successful proven method currently available to reduce cyanobacteria concentrations and maintain recreational use of the lake. The Terms of Reference also acknowledge that managed flow releases are not a long-term sustainable solution and support the exploration of alternative control measures where sufficient evidence exists
11. In relation to emerging treatment technologies, Administration understands that DEW, Green Adelaide and the EPA remain open to considering new and innovative approaches that may improve water quality outcomes. However, any proposal must be supported by robust scientific evidence, appropriate regulatory approvals and a demonstrated understanding of environmental risks.
12. Administration notes that TLCAC previously considered a proposal to trial ozone nanobubble technology in May 2025 and did not support the proposed trial based on the information available at that time. Advice received from the Chair of TLCAC indicated that the committee's concerns included uncertainty regarding the effectiveness of the technology, potential ecological impacts within a biodiverse flow-through river system, regulatory requirements, and the cost of undertaking a scientifically robust monitoring program. Based on the information presented at that time, the participating State agencies formed the view that there was insufficient evidence to demonstrate that the technology could be introduced without unacceptable environmental risk to the River Torrens ecosystem.
13. The City of Adelaide does not consider itself the authority responsible for independently assessing or approving emerging water treatment technologies for use within the River Torrens. Accordingly, the City has recently requested that TLCAC invite the proponent of nanobubble technology to present any updated scientific evidence, approvals, monitoring methodologies and trial results directly to a future TLCAC meeting. This will provide the appropriate forum for DEW, Green Adelaide, EPA and other committee members to assess whether there is sufficient merit for a formal proposal to be progressed through the relevant governance, regulatory and environmental assessment processes.
14. As per the following cost breakdown, Council has invested directly and indirectly into the management of the Torrens Lake. This includes capital investment in the weir to ensure operational control on flows and lake levels, dredging excessive sediment levels, water quality testing to ensure safety for active users of the lake, along with indirect expenditure to remove urban contaminants before they enter the river system, such as the city-wide cleaning of underground stormwater infrastructure and street sweeping which reduces the amount of contaminants entering the stormwater system.

15. Over the past three financial years, Council has spent the following:

Expenditure Type	Impact to water Quality	Project Type	Total 3 Year Actual Spend	Total 3 Year Planned Budget (includes 2026/27)
Capital	In-direct	Refurbishment of Weir Gates (combined South and North Gates)		\$3.2M
Operational	Direct	Monitoring Water Quality (includes all water bodies as well as the Lake)	\$548,601	
Operational	Direct	River Dredging - Reduction of Silt levels	\$412,297	
Operational	Direct	City Wide GPT Cleaning (16 GPT's of a total 21 GPTs are in River Torrens catchments)	\$312,800	
Operational	Direct	Stormwater Maintenance of upstream Open Channels, Underground Conduits, and Pit cleaning. Includes CCTV inspection.	\$2,360,043	
Operational	In-direct	Street Sweeping	\$10.3M	

16. As noted above the primary measure currently used to manage cyanobacteria risk and prevent lake closures is the managed flow release program coordinated through the TLCAC. It is important to note that the last managed flow was in 2019. The cyanobacteria levels have not been of a level which has required TLCAC to make a formal request to the Minister for a managed flow release.
17. While the City of Adelaide undertakes a range of direct and indirect activities that contribute to improving environmental outcomes, including stormwater asset maintenance, gross pollutant trap cleaning, sediment removal and the development of long-term stormwater quality improvement initiatives, Council does not currently measure water quality outcomes directly against these individual operational activities. As such, it is not possible to quantify the specific water quality benefit attributable to any one Council program or maintenance activity.
18. It is also important to recognise that lake closures are influenced by a broad range of external factors that extend beyond the City of Adelaide's boundaries and responsibilities. The River Torrens catchment receives urban runoff from numerous upstream Council areas before reaching the Torrens Lake. Consequently, a significant proportion of nutrients, sediment, litter and other urban contaminants entering the lake originate from upstream catchments and are transported downstream during rainfall events.
19. In addition to catchment inputs, climatic conditions play a significant role in influencing water quality and cyanobacteria, enterococci and Ecoli growth. Factors commonly associated with elevated counts include:
- 19.1. Extended periods of warm summer temperatures.
 - 19.2. Low-flow conditions and prolonged dry weather.
 - 19.3. Periods without rainfall followed by storm events.
 - 19.4. Significant rainfall events that mobilise nutrients, sediment, organic matter and litter from upstream catchments into the river system.
20. These factors collectively contribute to the conditions that can promote cyanobacteria, enterococci and Ecoli growth and increase the likelihood of lake closures.
21. Recognising the importance of addressing pollutant sources across the broader catchment, the Lord Mayor convened a workshop on 22 May 2026 with Mayors and Chief Executive Officers of Council's and key stakeholders who have direct interest in the management of the River Torrens. The workshop aimed to discuss opportunities for coordinated action to reduce urban contaminants entering the River Torrens. The intention is to establish an ongoing collaborative approach across local government to improve catchment management and water quality outcomes, with quarterly workshops proposed moving forward.

22. The CoA's primary responsibilities relate to managing infrastructure surrounding the lake environment, maintaining stormwater assets, monitoring lake water quality on behalf of TLCAC and user groups of the lake, managing the Torrens Weir, and dredging to improve amenity and enable commercial opportunities such as Popeye. Responsibility for broader aquatic ecosystem health, environmental regulation, biodiversity management and water quality policy rests largely with State Government agencies, including DEW, Green Adelaide and the EPA.
23. Consistent with this approach, the CoA has requested that TLCAC invite the proponents of the nanobubble technology to present any advancements since their May 2025 presentation. The CoA will continue to advocate for an evidence-based assessment of emerging technologies through the appropriate TLCAC and State Government processes so that DEW, Green Adelaide and EPA can consider any new scientific evidence and determine whether a formal application for a trial warrants further consideration.
24. The table which can be viewed [here](#) depicts the past three years of Ecoli and Enterococci levels on a quarterly basis. The various readings are all subject to temperature and rainfall variances. Those readings shaded, are those that exceed the Public Health Secondary Contact level of 2500. The data indicates that the water quality is more often well within exceedance levels.
25. Under the TLCAC governance arrangements, participating agencies undertake annual reviews of the cyanobacteria management program, including review of monitoring results, season outcomes, managed flow release effectiveness and broader program performance. TLCAC also acknowledges that managed flow releases are not a long-term sustainable solution and supports the ongoing investigation of alternative measures to inhibit cyanobacteria growth within the lake.
26. From a CoA perspective, the effectiveness of operational activities such as gross pollutant trap maintenance, stormwater infrastructure maintenance and dredging works is generally assessed against operational objectives, asset performance and service delivery requirements rather than against measurable lake water quality outcomes. This is because the City is only one contributor within the broader River Torrens catchment, and water quality outcomes are influenced by significant upstream catchment inputs, climatic conditions and environmental factors beyond Council's direct control.
27. Where opportunities for improvement are identified, Council works collaboratively with State agencies and local government partners through TLCAC and other regional forums to consider alternative evidence-based approaches. This includes ongoing participation in catchment-wide discussions aimed at reducing nutrient, sediment and litter loads entering the River Torrens from upstream catchments.
28. The COA is also developing a Stormwater Management Plan that will examine a range of future water quality improvement initiatives, including additional gross pollutant traps, wetlands, Water Sensitive Urban Design (WSUD) infrastructure, bioretention systems, open swale improvements and other stormwater treatment opportunities. These initiatives are intended to improve pollutant capture and reduce contaminant loads entering the river system over time.
29. In relation to emerging technologies, Administration understands that DEW, Green Adelaide and EPA remain open to considering new evidence-based treatment options. However, any proposal must demonstrate scientific merit, environmental safety, regulatory compliance and a clear management benefit. Administration notes that TLCAC considered a proposal for ozone nanobubble technology in May 2025 and did not support a trial based on the information available at that time, citing uncertainty regarding effectiveness, potential ecological impacts, regulatory requirements and the costs associated with a scientifically robust monitoring program.
30. Recognising ongoing community interest in this technology, the CoA has requested that TLCAC invite the proprietors of the nanobubble technology to present any updated scientific evidence, approvals, trial outcomes and monitoring methodologies to a future committee meeting including how this technology would operate in an urban environment as opposed to a rural setting. This would enable DEW, Green Adelaide, EPA and other TLCAC members to assess whether there is sufficient merit to warrant a formal proposal and further consideration through the appropriate governance, environmental and regulatory assessment processes.

Staff time in receiving and preparing this reply	To prepare this reply in response to the question on notice took approximately 18.5 hours.
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