




COMMUNICATION UPDATE

TO:	Mayor and Members City Council
DATE:	July 28, 2025
SUBJECT:	Harmful Algal Bloom Strategy Update (HW2505) (City Wide)
WARD(S) AFFECTED:	City Wide
SUBMITTED BY:	Cari Vanderperk Director, Watershed Management Hamilton Water Division Public Works Department
SIGNATURE:	

The purpose of this communications update is to inform Council of the work that has been completed in 2025 on the City's Harmful Algal Bloom Strategy and next steps.

Key Facts:

- A Harmful Algal Bloom occurs when certain types of algae in water grow very quickly and in large amounts, often making the water look green or blue-green where scum or mats of algae can form. Some of these algae can produce toxins that are dangerous to people, pets, and wildlife. To date, Harmful Algal Blooms have been much more limited in 2025 compared to 2024 based on test results and regular site visits.
- Hamilton Water staff regularly inspect the West Harbour and review real-time monitoring data for surface water conditions provided by the federal Department of Fisheries and Oceans.
- Currently, existing aeration and circulation equipment is running in Piers 5, 6, and 7 as part of the Waterfront development project led by the Municipal Land Development Office.
- To support improvements in water quality and aesthetics in the West Harbour, Hamilton Water engaged Stantec to conduct investigations and analysis, and to make recommendations regarding mitigative measures that the City can implement.

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

This update is intended to provide Council with interim information in advance of a Public Works Committee report that is expected in Q1 2026.

Background:

This update is intended to provide Council with information to help address constituent inquiries and emphasize the safety of the City's drinking water systems.

At the December 2, 2024, Public Works Committee, Hamilton Water staff presented a report titled Public Works Harmful Algal Bloom Strategy PW24087. This briefing serves as an update on current progress and implementation plans for 2025 and 2026.

During the summer of 2024, nearshore areas along Bayfront Park, Macassa Bay, Pier 4 Park Beach, and Piers 5-8 in the West Harbour experienced a Harmful Algal Bloom. This event impacted parks, recreational activities, and aesthetic conditions, including causing odours in the West Harbour area and Lake Ontario. The severity of Harmful Algal Blooms fluctuates annually depending on several factors. Harmful Algal Blooms form when conditions are right—especially when there are high levels of nutrients like phosphorus and nitrogen in the water, warm temperatures, and urban runoff or combined sewer overflows. Since these conditions persist in Hamilton Harbour, eliminating Harmful Algal Blooms isn't possible in the short term.

During the summer and fall of 2024, Hamilton Water consulted with internal staff from Public Health Services, Parks, the Municipal Land Development Office, and Tourism Hamilton to better understand historical issues and past practice. External consultations with Hamilton Harbour Remedial Action Plan partners (i.e. conservation authorities, the Bay Area Restoration Council, Royal Botanical Gardens, and technical experts from the federal and provincial governments), academia and local yacht club representatives focused on the effectiveness of various mitigative solutions. Based on feedback from both internal and external partners in 2024, Report PW24087 identified five potential mitigative options that received consensus for further investigation. Those options include:

1. **Aeration** – adding air to the water to improve quality.
2. **Floating treatment wetlands** – human-made floating islands with plants that clean the water.
3. **Mechanical circulation** – using machines to move water (depending on the algae type).
4. **Mechanical removal** – physically taking algae out of the water (depending on the algae type).

5. **Nearshore and aquatic plantings** – planting vegetation to help filter and clean water naturally.

To support improvements in water quality and aesthetics in the West Harbour, Hamilton Water engaged Stantec, an engineering consultant, to provide the following:

- A background review of existing datasets including water quality, sediment quality, ecological data, and bathymetry (i.e. depth and shape of the lake bottom). This task is crucial as conditions could deteriorate further when deploying some of the five mitigative solutions depending on the underlying sediment and water quality.
- A professional opinion on recommended locations and extent for deploying the five mitigative options.
- Identifying any other emerging technologies or best practices that support the mitigation of Harmful Algal Blooms.
- Assess factors such as lifecycle costs, local land use considerations, environmental benefits, and regulatory/permitting implications for all solutions.
- Support the completion of technical specifications and requirements for a future procurement process for installation of mitigative solutions, along with contract/vendor support during commissioning and warranty periods.
- Develop a performance monitoring plan that will determine the effectiveness of the installed mitigative solutions. The plan will include performance measures such as the extent of algal bloom reduction, lifecycle cost tracking, water and sediment quality monitoring, beach closure periods and community feedback, among others.

Industry Engagement:

In early 2025, Hamilton Water talked to many companies offering algae control products, such as ultrasonic devices or chemicals to kill algae. Historically, both of these options were not supported by regulators or Hamilton Harbour Remedial Action Plan partners due to secondary environmental and ecological impacts. Many of the vendors were in early stages of product development and expressed interest in running pilot tests in Hamilton, which might be considered in the future.

Funding Opportunities:

Staff spent considerable time in Q1 2025 exploring funding opportunities to help support the project. Applications were submitted under two separate federal funding programs –

the Great Lakes Freshwater Ecosystem Initiative as well as EcoAction Stream 2: Freshwater Sustainability and Innovation.

Unfortunately, the Great Lakes Freshwater Ecosystem Initiative funding application was not successful.

The EcoAction Stream 2: Freshwater Sustainability and Innovation application was submitted in April 2025, but no funding announcements or decisions have been made to-date.

What's Happening in 2025?

Hamilton Water staff visit the West Harbour regularly, and now have access to an online portal from the federal Department of Fisheries and Oceans that provides real-time monitoring data of surface water conditions in Hamilton Harbour.

Currently, existing aeration and circulation equipment is running in Piers 5, 6, and 7 as part of the Waterfront development project led by the Municipal Land Development Office. The City's focus now is on other areas like Bayfront Park, Pier 4 Park, Macassa Bay, and Pier 8, while continuing to maintain the current equipment.

Because selecting the right experts and finalizing project plans took time, new solutions are unlikely to be installed in 2025 beyond what's already in place. However, if conditions worsen, there is an opportunity to deploy small-scale measures where existing electrical servicing can support the addition of new equipment, such as additional aerators or circulation measures.

The use of equipment may require permits from the Hamilton Conservation Authority, the Ministry of Natural Resources and Forestry, and the Department of Fisheries and Oceans so timelines for additional measures might be impacted by these authorities.

What's Next?

Collectively Public Works staff plan to expand efforts in 2026 once all the planning and approvals are in place. Hamilton Water will provide a report to the Public Works Committee when Stantec's report is finalized which is expected in Q1 2026.

APPENDICES AND SCHEDULES ATTACHED

N/A