

**Great Lakes Water Quality Board
216th Meeting**

Summary of Discussion

April 14, 2022 9:00 AM – 2:30 PM ET
Virtual Meeting

U.S. Member Participants

Jon Allan (Co-Chair)
George Elmaraghy
Frank Ettawageshik
Steve Galarneau
George Heartwell
Sara Hudson
Elizabeth Kirkwood
Eileen Murphy
Joe Tomandl III

Canadian Member Participants

Gayle Wood (Co-Chair)
Niharika Bandaru
Mark Fisher
Michael Goffin
John Jackson
Irving Leblanc
Mark Mattson
Chris McLaughlin
Chris Paci
Chloe Stuart
Mark Wales

US Member Regrets

Sandy Bihn
Christopher Korleski
Kelsey Leonard
Monica Lewis-Patrick
Brandon Hofmeister

Canadian Member Regrets

Carolyn Johns
François Houde
Brian Tucker

Observers

Cristina Giannetas – Ontario Ministry of the Environment, Conservation and Parks
Emily Santoro - Ontario Ministry of the Environment, Conservation and Parks
Carola Torchia - Environment and Climate Change Canada
Melanie Ward - Ontario Ministry of the Environment, Conservation and Parks

Invited Guests

Michael Azulay - Ontario Ministry of the Environment, Conservation and Parks
Sally Cole-Misch – Consultant
Dave Dempsey – Consultant
Melissa De Young - Pollution Probe
Carolyn DuBois – The Gordon Foundation
Max Herzog - Cleveland Water Alliance
Sandra Kosek-Sills - Ohio Lake Erie Commission
John Livernois - SAB-SPC Member, University of Guelph
Michael Murray - SAB-SPC Member, University of Michigan
Michelle Selzer – Michigan Department of Environment, Great Lakes, and Energy
Jennifer Vincent – Environment and Climate Change Canada
Colleen Yancey – University of Michigan

Other Attendees

Sandra George - Environment and Climate Change Canada
Deborah Lee – IJC SAB-RCC member, NOAA Great Lakes Environmental Research Laboratory
Kathy McKauge – IJC SAB-RCC member, Ontario Ministry of the Environment, Conservation and Parks
Scott Sowa – The Nature Conservancy
Michael Twiss – IJC SAB-RCC member, Clarkson University
Santina Wortman – U.S. Environmental Protection Agency

Commission Staff

Raj Bejankiwar - Great Lakes Regional Office
David Burden – Great Lakes Regional Office (Director)
Rajendra Poudel - Great Lakes Regional Office
Allison Voglesong Zejnati – Great Lakes Regional Office
Li Wang – Great Lakes Regional Office
John Wilson - Great Lakes Regional Office

Commission Liaisons

Victor Serveiss – U.S. Section

Secretariat

Antonette Arvai – Great Lakes Regional Office

Action Items

- 1. Board Secretary will circulate the 2023 TAP Report Outline to WQB members.**
- 2. The GRLO watching brief support staff will work with the watching brief co-leads and GLRO communications staff to post the microplastics watching brief on the WQB’s webpage.**
- 3. Board Secretary will circulate an e-mail to the WQB seeking suggestions, per the GLCA’s request. Suggestions will be compiled and sent to the GLCA Co-Chairs.**

1. Welcome and Indigenous Acknowledgement (*J. Allan & G. Wood*)

The WQB Co-Chairs welcomed members and guests to the 216th meeting of the Board. The co-chairs acknowledged the traditional First Nations and Tribal territories on which the meeting was conducted that day, given the virtual gathering of participants from various locations. New member Dr. Brian Tucker was welcomed to board, filling the Métis seat. U.S. members Frank Ettawageshik and Sara Hudson and Canadian member Chris McLaughlin were congratulated on their reappointments. It was recognized that April 15th would mark the 50th anniversary of the first signing of the Great Lakes Water Quality Agreement in 1972, by then President Nixon and then Prime Minister Trudeau.

2. Co-Chairs’ Update (*G. Wood*)

The co-chairs have been providing monthly written updates to members to ensure timely communication of co-chair activities relevant to Board operations. A verbal update was provided during the meeting on the following:

- The Triennial Assessment of Progress Work Group (TAP), led by the WQB Co-Chairs and comprised of the Co-Chairs of the Science Advisory Board and a Health Professional Advisory Board designate, completed a 2023 TAP report outline. The outline was accepted by Commissioners in early April and will be shared with the board.
- Commissioners approved the two WQB work plans submitted for the 2022 work cycle - (1) Follow-up and Critical Analyses of the Third Great Lakes Regional Poll Data and (2) Climate Change Adaptation for Community Resilience Across the Great Lakes Region.
- The WQB Co-Chairs appeared before the Commission during the IJC’s Spring Semi-Annual Meeting on April 7th to provide an update on WQB projects and activities.

Action Item: Board Secretary will circulate the 2023 TAP Report Outline to WQB members.

3. Project Updates (*G. Wood*)

The consultant team supporting the work of the Board’s *Great Lakes Water Quality Agreement (GLWQA) 50th Anniversary Review* project provided a presentation on the outcomes of their work.

Members were also provided an opportunity to ask questions on written project updates provided in advance of the meeting. A summary of the project updates is provided below.

GLWQA 50th Anniversary Review Consultant Presentation (M. DeYoung, D. Dempsey & S. Cole-Misch)

The focus of the project is to review the GLWQA and its Annexes, to assess the context of how the GLWQA is focused and organized, and whether it could or should be structured differently to better facilitate progress towards its objectives and goals. The consultant conducted a literature on the GLWQA and its history; conducted interviews and surveys of key partners and groups; and reviewed and assessed of the effectiveness of the current version of the Agreement. Some topics covered included, the role of First Nations, Tribes and Métis in the Agreement; science and data collection; and measuring progress and accountability. Based on the information collected and assessed the consultant identified opportunities for improvement via a set of short-term recommendations (those that could be implemented without changes to the Agreement) and long-term recommendations (those that would require changes to the Agreement).

With the completion of the consultant's report the work group will now develop its own report and consider priority recommendations to forward to the Commission.

Great Lakes Horizons

The goal of the project is to understand the forces that will have a material effect on the Great Lakes (ecologically, economically, socially and culturally) over the next 30+ years. Four regional scoping sessions were completed between Dec. 2021 and Feb. 2022 to get reactions to overall priority themes and threats/opportunities identified in an earlier part of the project. The consultant is beginning draft scenario writing (e.g., positive future, status quo/mixed bag, negative future).

Manure Management

A Collaborative consisting of ~30 people including farmers, members of local government, agricultural organizations, watershed organizations, academics and corporate representatives has held five meetings since forming in Oct. 2021. They have developed a list of tasks for a consultant to collect information on manure/nutrient inputs, policies/programs and management practices. A consultant is expected to be hired in the coming months.

Nuclear Decommissioning

The WQB's Decommissioning of Nuclear Power Facilities in the Great Lakes Basin report and accompanying communications plan was approved for release by Commissioners in mid - January. The communications plan includes activities such as developing a summary video, a public webinar, and by - invitation webinar with government agencies and regulators. The summary video has been completed and was viewed by the WQB during the meeting. The video along with the report will be publicly released on Apr. 19th. The public webinar is to be held on Apr. 29th.

Great Lakes Regional Poll

Stats from the public release of the poll report and public webinar were provided. More than 185 people attended the webinar, with a webinar satisfaction survey rating of 3.4 out of 4. The report also received 1,306 unique pageviews. The work group has also produced two briefing booklets that will be distributed to Indigenous, Canadian and US decision makers at the end of April 2022. The work group is also developing a more detailed work plan to implement their follow-up analysis of the poll data, such as trend analysis and other demographic and geospatial analyses.

Watching Briefs

Fossil Fuel Development and Transportation

Recent developments were highlighted that included, updates on the Line 5 litigation. Enbridge has stated that it will continue to operate Line 5 until it receives a court order to cease operations. Senate Resolution 114 was approved by the Michigan Senate, calling for the adoption of policies that will help

lead to energy independence in Michigan and called on Governor Whitmer to "immediately cease their efforts to shut down the Line 5 pipeline and instead work proactively to lower energy costs for the residents of this state."

Microplastics in the Great Lakes

Recent developments were highlighted that included, 175 nations, as part of the UN Environment Assembly, endorsing an *End Plastic Pollution* resolution that commits the nations to develop an international, legally-binding agreement by 2024 that would address the full-life cycle of plastic; and California becoming the first state to adopt a strategy for the reduction of microplastics – a multi-year roadmap with actions to reduce and manage microplastics pollution.

The WQB co-leads of the watching brief requested that the microplastics watching brief be publicly posted on the WQB's webpage, which the WQB approved. The watching brief will be posted with the assistance of the GLRO communications staff.

Action Item: The GRLO watching brief support staff will work with the watching brief co-leads and GLRO communications staff to post the microplastics watching brief on the WQB's webpage.

Great Lakes Coastal Assembly

The WQB continues to be apprised of the work of the Great Lakes Coastal Assembly (GLCA). The Board's 2019 work on wetlands served as a catalyst for the GLCA to think more broadly about how to advance and accelerate coastal wetland efforts. The GLCA has developed a draft Coastal Wetland framework to help establish a baseline extent of coastal wetlands, determine targets for coastal wetland conservation, and identify where to focus coastal wetland conservation efforts to achieve targets. The GLCA will be piloting the framework in Lake Erie and they are currently creating a Great Lakes Coastal Wetlands Framework Steering Team to guide the pilot project. They are seeking Tribal contacts in the Lake Erie basin to invite onto the Steering Team and requested the WQB to provide suggestions.

Action Item: Board Secretary will circulate an e-mail to the WQB seeking suggestions, per the GLCA's request. Suggestions will be compiled and sent to the GLCA Co-Chairs.

4. Presentation Emerging threats and benefits from Harmful Algal Blooms: unlocking chemical secrets and pharmaceutical potential via 'omic' approaches (J. Allan)

Colleen Yancey, a PhD candidate in the Earth and Environmental Sciences department at the University of Michigan, provided a presentation on her research on cyanobacteria in harmful algal blooms that occur in the western Lake Erie basin. Lake Erie algal blooms can harbour cyanobacteria that produce toxins, particularly microcystin produced by the cyanobacteria *Microcystis*. Cyanobacteria also produce other compounds, some of which may have medicinal properties, but are less well studied. "Omics" technologies (e.g., genomics, transcriptomics and metabolomics) can help provide new insights into the microbial world by discovering genetic sequences that drive the synthesis of chemical compounds and studying the chemical structures of those compounds, which may or may not be toxic or have medicinal properties. This can help answer questions about whether these compounds enhance dominance of *Microcystis* by inhibiting production of other cyanobacterial communities; ascertain long-term impacts of *Microcystis* dominance and compound production; if there are other toxins at dangerous levels that threaten drinking water; and help advance pharmaceutical discovery and research. Future work is expected to pair omics data with water quality data to start building models and find correlations.

5. Panel Presentation: Great Lakes Data Collection, Integration and Sharing (J. Allan)

Two presenters were invited to discuss data collection and sharing platforms that support science, policy and decision-making in the Great Lakes.

Great Lakes DataStream

by Carolyn DuBois (Executive Director of the Water Program, The Gordon Foundation)

The DataStream initiative was started ~10 years ago by The Gordon Foundation, after discovering that it was difficult to find data on the health of the Mackenzie River basin in western Canada, even though there was a lot of research and monitoring occurring. The DataStream initiative was piloted in the region to first bring in community collected data, and then academic/other data and make it accessible and available to inform management decision-making and understand the health of the basin. DataStream is an open-access, free to use site for water quality data, launched in 2016, with the Great Lakes region being added in 2019. A key report that helped inform the Great Lakes DataStream was the IJC's Science Advisory Board Report on *Information Coordination and Flow*, which validated many of the issues identified, such as the need for improved data management and delivery to decision makers and the public. DataStream provides data on a variety of water quality and sediment parameters (e.g., temperature, pH, metals), working with a diversity of organizations from Indigenous governments to academics. Data is currently uploaded by various organizations but is also working toward auto-integration with other on-line platforms. The DataStream platform is used for regional and national freshwater assessments; informing research and decision-making; informing the design of new monitoring systems; and communicating results back to local communities.

Lake Erie Volunteer Science Network: Organizing Communities for Credible Water Quality Monitoring
By Max Herzog (Program Manager, Cleveland Water Alliance)

The Cleveland Water Alliance (CWA) is a nonprofit group that leverages technology to support economic development and innovation around water in the Lake Erie region. There are several groups in the region that conduct volunteer citizen water quality sampling and using that data for local decision-making. Many of these groups began as a result of resident demand to become involved in managing their local water resources. CWA began the Lake Erie Volunteer Science Network to work with these groups on key areas of collaboration and coordination, such as piloting new water quality monitoring technologies; developing curriculums to engage students; and contributing monitoring data to a shared platform. The Network helps with ensuring a shared approach to data standardization, by identifying shared purposes and priorities; building consensus around assessing baseline watershed conditions; and standardizing water chemistry collection methods. The CWA is also working with the IJC's Science Advisory Board on their project to develop a roadmap for citizen science best practices.

6. Panel Presentation: Lake Erie Domestic Action Plans (Joe Tomandl)

Under the Great Lakes Water Quality Agreement (GLWQA) the United States and Canada committed to establishing binational phosphorus load reduction targets for Lake Erie by February 2016, and to develop, by 2018, domestic action plans (DAP) for meeting the targets. Speakers were invited to present on the action plans developed by Michigan, Ohio, and Canada-Ontario, including progress to date.

Ohio Domestic Action Plan

By Sandra Kosek-Sills (Environmental Specialist, Ohio Lake Erie Commission)

Ohio's DAP focuses on four main areas for action – agricultural BMPs, wetland restoration, support for home sewage treatment system remediation, and watershed planning. Significant resources from Ohio have been allocated for the first three actions, with recent investments of \$168 million in 2021-22. As part of the H2Ohio program, over 1 million acres of land are enrolled in Voluntary Nutrient Management Plans. Based on model projections for the Maumee watershed, some of the top conservation practices that lead to water quality benefits include the use of voluntary management

plans, soil testing, subsurface fertilizer placement and manure incorporation. There have also been almost 12,000 acres of wetlands restored via 83 projects. Funding has also supported addressing contaminated drinking water wells and wastewater projects serving disadvantaged communities. Given the various actions in place, in 2021 the estimated load reduction for the Maumee watershed was over 283,000 pounds of the 1 million pound load reduction goal. The severity status of Lake Erie harmful algal blooms (HAB) has varied but continues to exceed the target (in 2021 the severity was 6 compared to the target of 2). The Ohio Department of Higher Education continues their HAB Research Initiative, which has developed guidance on producing safe drinking water, identified risks of algal toxins to human health and how blooms behave. They are currently addressing approaches to reducing nutrient runoff to aquatic ecosystems.

Michigan Domestic Action Plan for Lake Erie

By Michelle Selzer (Lake Coordinator, Water Resources Division Great Lakes Management Unit, Michigan Department of Environment, Great Lakes, & Energy)

Michigan's DAP planning and implementation focuses on point source reduction at four wastewater treatment plants (WWTP) and non-point source reduction through the MI Agriculture Environmental Assurance Program (MAEAP). WWTPs that discharged over 90% of the total phosphorus to Detroit River were targeted for more stringent permit phosphorus limits, of which all plants are meeting their limits. Non-point source challenges were met by identifying known areas of concern near waterbodies and directly engaging with the landowner for BMP implementation. Eighteen priority watersheds have been identified for non-point source reduction strategies, some of which include improving nutrient management with 4R practices, increasing use of cover crops, and increasing the acreage of no-till and/or reduced till practices. Research is also being undertaken to evaluate Michigan's standards for soil phosphorus levels and manure application rates, to establish standards that are more protective of water quality. The state met its 2020 goal to reduce total phosphorus loads by 20%. In 2020 Michigan also released an adaptive management framework to reduce phosphorus loadings.

Canada-Ontario Lake Erie Action Plan

By Jennifer Vincent (Manager, Great Lakes Harmful Pollutants, Environment and Climate Change Canada) & Michael Azulay (Senior Policy Advisor Waterways Protection Office, Great Lakes and Inland Waters Branch, Ministry of the Environment, Conservation and Parks)

The Canada-Ontario plan includes numerous time-bound actions within five areas – reduce phosphorus loadings, effective policies, improve knowledge, educate and build awareness and strengthen coordination. Investments have been made for infrastructure upgrades, which has significantly reduced municipal wastewater phosphorus loadings since 2008. Several projects have also been implemented to protect and restore wetlands to help filter nutrients. Investments have been made to help farmers improve soil health, reduce phosphorus runoff, and conduct research to support agricultural decision-making (e.g., fertilization decision support tools). Research is also being conducted to understand phosphorus loads and dynamics in the lake and the influence of invasive mussels as well as how agricultural land management affects phosphorus loadings. While some progress is being made in reducing phosphorus loadings, that can be counteracted by climate change and loss of habitat. Challenges still exist with, accurately measuring phosphorus reductions to track progress; improving understanding of ongoing impacts of climate change and invasives; and understanding the scale and rate of implementation needed to achieve targets.

7. Presentation: SAB-WQB Nutrient Synthesis Project (G. Wood)

The SAB and WQB have partnered on the Nutrients Synthesis project, which assesses federal Lake Erie Domestic Action Plans (DAPs) and their implementation to date, while considering recent IJC nutrient-related recommendations. The project is co-led by WQB Co-Chair Gayle Wood and two members of

the Science Advisory Board Science Priority Committee, Dr. Michael Murray (Adjunct Associate Professor University of Michigan) and Dr. John Livernois (Professor, University of Guelph). Dr. Murray and Dr. Livernois provided an update on the project.

The objectives of the project are to (1) assess federal (and state and provincial) DAPs and their implementation to date, in light of recent IJC nutrient-related recommendations and other information from the literature concerning actions needed to address nutrient-related impacts in Lake Erie and (2) identify additional management efforts as well as research and monitoring work needed to better address nutrient problems in Lake Erie. The project began with the hiring of a consultant in Sept. 2020. A final consultant report was received by the work group at the end of Mar. 2022. Some of the gaps identified by the consultant included lack of geospatial data on implementation of agricultural best management practices (BMPs); lack of clarity on the cost-effective ways to incentivize BMP adoption by producers; and lack of understanding of winter limnology and nutrient cycling in Lake Erie. The consultant also provided short-term and long-term recommendations to address the identified gaps.

The work group is currently developig its own report, based on the work of the contractor. Once the work group's report is completed it will be forwarded to the SAB and WQB for review (expected in fall 2022).

8. Schedule of WQB Meetings (*J. Allan*)

The WQB's meeting schedule for 2022 was reviewed, as below.

- 217th Meeting – July 20, 2022 @ 10:00 – 11:30 AM ET
- 218th Meeting – September 2022, Niagara Falls, ON [Dates TBC]
 - WQB meeting will be held in - person during/near the time of the U.S. and Canadian governments' Great Lakes Public Forum, being held September 27-29, 2022.

9. Public Comments and Closing Remarks (*J. Allan & G. Wood*)

No members of the public were present at the end of the meeting. Members were thanked for their continued high-level of engagement and commitment to the work of the WQB, IJC and Great Lakes protection. The co-chairs thanked members and others for their participation in the meeting.