

CIGLR Summit/Working Group Final Report

Summit title: Developing a Conceptual Framework and Vision for Coordinating Great Lakes Connecting Waters Research and Monitoring

Summit lead and affiliation: Dr. Robin L. DeBruyne, U.S. Geological Survey Great Lakes Science Center

Steering committee members and affiliations: Dr. Lauren Fry, NOAA Great Lakes Environmental Research Laboratory; Dr. Ashley Moerke, Lake Superior State University, Center for Freshwater Research and Education; Dr. Edward F. Roseman, U.S. Geological Survey Great Lakes Science Center

Summit dates: July 17-19, 2023, Center for Freshwater Research and Education, Lake Superior State University, Sault Ste. Marie, MI

Background

Please provide brief background information related to the summit or working group. This may be similar to what was provided in your proposal.

Great Lakes connecting waters are the arteries of the Great Lakes. They include the St. Marys River connecting lakes Superior and Huron, Straits of Mackinac connecting lakes Michigan and Huron, St. Clair-Detroit River System connecting lakes Huron and Erie, Niagara River and Welland Canal connecting lakes Erie and Ontario, and the St. Lawrence River extending from Lake Ontario to the Gulf of St. Lawrence in the Atlantic Ocean.

Great Lakes connecting waters are globally unique ecosystems. All are significant ecologically and economically valued systems because they are major sources of fisheries production, provide municipal and industrial water supplies, are transportation and industrial epicenters, possess Tribal and First Nations indigenous heritage, and are highly susceptible to catastrophic events and climate change influences, making them uniquely vulnerable ecosystems. Most are binational (except the Straits of Mackinac and Welland Canal), contain Areas of Concern, or suffer some level of anthropogenic disturbance and effects of invasive species. With some exceptions, connecting waters are not consistently featured in LAMPs, Cooperative Science and Monitoring Initiative activities, nor Great Lakes Fishery Commission lake committee's strategic planning.

The need and usefulness of a collective impact collaborative for Great Lakes connecting waters is emphasized in two recent reports calling for expansion and enhancement of communication and collaboration within the Great Lakes. Our intention is to answer the call to action presented by Twiss et al.'s IJC report titled *Monitoring Infrastructure and Activities of Great Lakes Connecting Waters: An Assessment and Recommendations* by developing a coordinated long-term plan for connecting waters research, surveillance, and monitoring; establishing and building upon existing long-term monitoring programs; identifying targeted experimental research needs; and developing event-based monitoring within each waterway. Twiss et al. (2021) also emphasize the need for implementing real-time water quality monitoring networks and data access platforms in connecting waters, a major source of drinking water for many municipalities. Carl et al. (2021) provide similar suggestions for the broader Great Lakes basin in their report titled *U.S. Geological Survey Great Lakes Science Forum - Summary of remaining data and science needs and next steps (USGS Report No. 2021-1096)*. Both reports emphasize

empowering First Nations and Tribes to assist with data collection, monitoring, analyses, and incorporation of traditional ecological knowledge; improving environmental literacy and training future generations of scientists and managers about connecting waters; and developing routine communication and outreach about connecting waters ecology and management through scientific forums, public stakeholder interactions, and media. Development of the proposed collaborative network will help achieve these commitments through structured coordination and collaboration.

The Connecting Waters Summit was held to develop recommendations for building and coordinating partnerships and collaborations, facilitating connecting waters research and monitoring plans, and facilitating the development of a coordinated collective impact framework across and within connecting waters. This includes coordination with Lakewide Action and Management Plans, Areas of Concern programs, Great Lakes Fishery Commission lake committees, Great Lakes Commission, International Joint Commission, federal, state, provincial, tribal and First Nations, and the various stakeholders, managers, and scientists to develop a collective impact framework for Great Lakes connecting waters.

Summit/Working Group Summary

Please provide a summary of the proceedings of the summit or working group.

Our goal was to develop a conceptual framework and priorities for connecting waters science and monitoring that provides a communication network to share information and lessons learned from management actions and identify and fill information gaps.

To provide some history of the Great Lakes Connecting Water where the summit was held (St. Marys River), a Soo Locks Boat Tour was arranged for Monday evening (Day 1) for all participants who could attend. Many environmental challenges on the St. Marys River are common to the other connecting waters and participants appreciated seeing the river, meeting the other participants, and thinking about the summit content. The evening also had a social for workshop participants held at LSSU's Center for Freshwater Research and Education.

Tuesday morning (Day 2) began with an overview of the workshop impetus, goals, and general agenda for day (Appendix A). The morning was centered around two presentations and panel discussions to get participants thinking about the workshop goals, but as an overview of options to set up the framework and providing everyone with a common baseline of information and considerations as we moved forward with the day. The first presentation and panel were provided by Samantha Tank (Great Lakes Commission) and Edward Roseman (USGS Great Lakes Science Center) covering '*Connecting Waters and Collaboratives*'. The second panel covered '*Connecting Water Science and Monitoring Priorities*' and was given by Michael Twiss (Algoma University), Amy Roe (US Fish and Wildlife Service), and Abraham Francis (Clarkson University). After the discussion panel, the participants were put into small groups to 'pair-and share' their experiences around the presentation topics. These discussions were prompted by questions provided by the summit organizers. The questions were broad to have participants think about other collaboratives or monitoring programs (successful/unsuccessful elements) and any suggestions or lessons learned to increase success. A notetaker was assigned to each group to capture the experiences shared with the group and any pros/cons brought up.

The afternoon was centered around developing details for a draft framework governance structure (Goal 1) and identifying the science and monitoring priorities for the proposed collaborative (Goal 2). The summit participants self-selected into one of the two groups for the first half of the afternoon. The first group drafted a governance structure that allows for each connecting water to have an independent structure/framework/collaborative, but all connecting waters would select a number of members (e.g., 2) to represent their needs on a steering committee comprised of equal number of members representing each connecting water. Also, the group consensus was that there needs to be a backbone entity to support all of the individual initiatives and facilitate the larger collaborative. This governance structure allows for pre-existing collaboratives to continue (e.g., St. Clair-Detroit River System Initiative), but also for newly forming collaboratives to be placed based on the existing resources for each connecting water. The second group compiled multiple lists and discussion points regarding the needs, socio-economical considerations, cultural considerations, goals of the larger collaborative, processes for establishing larger priorities, specific stakeholders to include, and identified other frameworks in the different connecting waters to complement our efforts. After the afternoon break, we convened as a single large group to review what each group drafted and provide additional input and suggestions. Summaries of the group findings were put on large note paper and participants could add any suggestions, comments, or questions directly. After participants were satisfied with the draft framework and list of science and monitoring priorities, we convened from the summit until our group dinner.

The Wednesday morning (Day 3) session began with a recap of Tuesday's activities and a review and discussion of any additional points people wanted to include with the two sets of notes for the breakout groups. Then we did an activity where each participant wrote a statement of their impressions of the summit and the goals the steering committee put forth. These statements were shared around and ranked 4 times (by 2 people at each switch, so 8 people) on 1 to 5 scale, all anonymously. The statements with the higher totals resonated the most with those participants that reviewed them. These statements are available in the shared summit google drive. To end the summit, we agreed upon the major outputs of the summit and the next steps. Then we began drafting a letter to select Water Quality Agreement Annex chairs and an outline of the manuscript. Copies of all presentations, notes, photos, and documents are available in the shared google drive.



Figure 1. Participants of the ‘Developing a Conceptual Framework and Vision for Coordinating Great Lakes Connecting Waters Research and Monitoring’ held at LSSU’s Center for Freshwater Research and Education facility and sponsored by the Cooperative Institute for Great Lakes Research. The summit was held along the St. Marys River and a Great Lakes luxury cruise ship can be seen in the background.

Outcomes and Impacts

Please provide information on the outcomes and impacts of the summit or working group, including any products that have resulted and new partnerships that may have emerged.

One of the largest impacts the summit had on the steering committee is in terms of the framing the goals and inclusion as this effort moves forward. More emphasis should be placed on the socio-cultural aspects of the connecting channels and capacity building across the connecting channels for the coordinated environmental monitoring and assessments. Continued collaborations where possible will be important to continue the relationship and trust building across agencies and organizations (state, federal, tribal, private, NGOs).

Products and actions resulting from this summit include:

1. A letter was sent to some of the Great Lakes Water Quality Agreement Annex Co-chairs requesting a meeting to align any efforts we have with any of their ongoing efforts regarding the connecting waters. The letter was officially sent from Ashley Moerke and Ed Roseman on behalf of the working group with a copy of the agenda and list of participants. A response confirming receipt was received from Elizabeth Hinchey and Kate Taillon, but no further discussion followed. A copy of the original letter and response is in the shared Google Drive.
2. A slide deck providing a detailed summary of the summit and goals was made for the participants and other partners to use to garner support across the connecting waters and their communities. This presentation has been the basis for multiple presentations covering the summit to facilitate a single message while allowing for the presenter to tailor the message to the specific communities/connecting water/agency/entity.
3. Members of the steering committee and other participants sponsored a connecting waters symposium (list title here) at the 2024 IAGLR Conference in Windsor, Ontario. The symposium presentations covered all connecting waters and a range of topics, all relevant to what was discussed in July 2023. An overview of the Connecting Waters Summit was given as part of the symposium (DeBruyne presenter).
4. The proceedings from the IAGLR 2023 symposium, along with any other relevant submitted connecting waters manuscript, are being published in a Journal of Great Lakes special section for research, monitoring, and perspectives for the Great Lakes Connecting Waters. The special guest editors were either summit participants or wanted to be but could not due to travel restrictions.
5. The steering committee is drafting a manuscript detailing the summit process, conclusions, and recommendations. This manuscript will be submitted to the Journal of Great Lakes special section on Great Lakes Connecting Waters currently accepting manuscripts for inclusion. Authorship for the manuscript is based on the participants desire to be an author but all participants were provided the opportunity to provide comments on draft structure (early process) and will be sent the finalized draft manuscripts to provide any additional comments to ensure our characterization of workshop proceedings are accurate.

Future Plans

Please describe any future plans to continue exploring the summit or working group topic.

This summit strengthened ties across the basin with similar connecting waters groups (e.g., St. Lawrence River – The River Institute and St. Clair-Detroit River System Initiative). The summit organizers and many participants remain in contact and are looking for funding opportunities to continue to move forward with the ideas behind this summit and the ideas and processes put forth during the summit. Time (and funding) is what is needed to build the collaborative with trust, commitment, and investment from the local communities.

Participant List

<i>Last Name</i>	<i>First Name</i>	<i>Organization</i>
Fegan	<i>Dani</i>	<i>US Fish and Wildlife Service</i>

Twiss	<i>Michael</i>	<i>Algoma University</i>
Mckay	<i>Michael</i>	<i>GLIER-University of Windsor, member of IJC Science Advisory Board</i>
Tank	<i>Samantha</i>	<i>Great Lakes Commission</i>
Child	<i>Matthew</i>	<i>International Joint Commission</i>
Moerke	<i>Ashley</i>	<i>Lake Superior State University</i>
Fry	<i>Lauren</i>	<i>NOAA Great Lakes Environmental Research Laboratory</i>
Aikens	<i>Rusty</i>	<i>Sault Tribe of Chippewa Indians</i>
Ridal	<i>Jeffrey</i>	<i>SLR Institute of Environmental Sciences</i>
Pearsall	<i>John</i>	<i>The Nature Conservancy</i>
Calappi	<i>Tim</i>	<i>U.S. Army Corps of Engineers</i>
Hoard	<i>Christopher</i>	<i>U.S. Geological Survey</i>
DeBruyne	<i>Robin</i>	<i>U.S. Geological Survey, Great Lakes Science Center</i>
Roseman	<i>Edward</i>	<i>U.S. Geological Survey, Great Lakes Science Center</i>
Roe	<i>Amy</i>	<i>US Fish and Wildlife Service</i>
Verhamme	<i>Edward</i>	<i>Limnotech</i>
Francis	<i>Abraham</i>	<i>Clarkston University</i>
Bahrou	<i>Andrew</i>	<i>Michigan Department of Environment, Great Lakes, and Energy</i>

In addition to the workshop attendees named listed above, we had two confirmed workshop participants that had conflicts arise last minute and were not able to attend. It was too late to secure suitable replacements. Also, the Canadian Federal Government and Ontario Provincial Government were still observing strict COVID-19 travel restrictions, so we were unable to have significant Canadian representation at the workshop though many expressed wanting to attend.

Appendix A

Developing a Conceptual Framework and Vision for Coordinating Great Lakes Connecting Waters Research and Monitoring

July 17-19, 2023
Sault Ste. Marie, MI

AGENDA

[Day 1: Monday, July 17]

Morning/afternoon	Travel to Sault Ste. Marie
3:00 – 5:00pm	Famous Soo Locks Boat Tour (ticket provided)
5:00 – 7:00 pm	Catered social at LSSU’s Center for Freshwater Research and Education, 100 Salmon Run Way (transportation available)

[Day 2: Tuesday, July 18]

Gather at Center for Freshwater Research and Education [CFRE]. A light breakfast will be provided.

8:30 – 8:45 am	Introductions and Welcome by Greg Dick, CIGLR Director
	Summit overview and goals, products- Robin DeBruyne, USGS Great Lakes Science Center
9:00 – 10:15 am	Connecting Waters and Collaboratives panel presentations and discussion groups – Ed Roseman (USGS Great Lakes Science Center), Samantha Tank (Great Lakes Commission)
10:15 – 10:45 am	Refreshment and snack break
10:45 – 12:00 pm	Connecting Waters Science and Monitoring Priorities panel presentations and discussion groups - Michael Twiss (Algoma University), Amy Roe (USFWS), Abraham Francis (Clarkson University)
12:00 – 12:30 pm	Group discussion and strategy for afternoon breakouts
12:30 – 1:30 pm	Lunch break [catered by Wicked Sister at CFRE]
1:30 – 2:45 pm	Breakout working groups
2:45 – 3:15 pm	Refreshment and snack break
3:15 – 5:00 pm	Large group review and consensus, wrap-up
5:00 pm	Adjourn
6:00 pm	Group dinner at Sault Ste. Marie Country Club (transportation available from hotel)

[Day 3: Wednesday, July 19]

8:00 – 8:30 am	Gather at CFRE. A light breakfast will be provided.
8:30 – 9:00 am	Review previous day, manuscript outline
9:00 – 11:00 am	Summit statement exchange, manuscript development, Annex letter finalizing
11:00 am – 12:00 pm	Final reporting, future directions for products, and wrap up
12:00 pm	Boxed lunch provided
1:00 pm	Adjourn