

International Joint Commission
Canada and United States



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SCIENCE ADVISORY BOARD Research Coordination Committee

Hilton Garden Inn Reagan National Airport Hotel, Salon #4
2020 Jefferson Davis Highway, Arlington, Virginia 22202

April 25, 2018, 8:30 – 12:00

Remote Participation
Toll free dial in number: 1-877-413-4781
Conference ID: 956 2917

MEETING RECORD

Attendees:

RCC: Deborah Lee, Gavin Christie, Chris Winslow, Christine Mayer, Ian Campbell, Kathy McKague, Kyle McCue, Michael Twiss, Patricia Chambers, Sandra Eberts, Val Klump, Yingming Zhao, Yves Michaud

IJC Staff: Lizhu Wang, Victor Serveiss, Glenn Benoy

1. Welcome and Approval of draft agenda

- Agenda is approved as is.

2. Priorities in discussion

- **Great Lakes Agriculture and Nutrient Issues**
 - During 2017 IAGLR conference, Ian noticed that many scientists from the US, working on socio-economic factors driving or hampering BMP adoption, were unaware of the considerable body of work on Controlled Tile Drainage being conducted outside the Great Lakes Basin in Canada and in the United States. Similarly, there were presentations from US researchers on simulations of the effectiveness of adopting specific BMP suites in the Maumee and other basins that were new to many of the Canadian researchers present. While such exchanges are the purpose of conferences, an IAGLR conference will rarely bring in researchers from

outside the basin who may have relevant research to share. Hence, there is a need to synthesize BMP research in and outside of the Great Lakes basin.

- The proposed work will conduct an inventory of searches in Google Scholar and/or Scopus, and canvass agricultural research institutions, government departments, funding agencies and university departments in Canada and in the United States.
- It will determine which BMPs are relevant to the biophysical constraints, agricultural production systems and the issues of the Great Lakes basin. There are differences between BMPs in the basin vs those outside of the basin because the difference in soil, regulation, topography, management, farm practice, climate, and type of tile drainages.
- Discussion:
 - The focus will be an inventory of BMP research and researchers. It was asked if the project could focus more on agricultural education since the research is out there, but is not used. It is mentioned that the inventory can be used as an education tool for marketing.
 - It was also discussed if the product of this project can be attached to the current online Research Inventory work. It was explained that the Research Inventory is an inventory of research projects, but this project is more for researchers on BMPs only.
 - There is some existing work on BMP inventory, but they are either old or have different focus.
 - It was suggested that it would be useful to have a workshop for making connections for individuals who are working on BMPs in the basin and facilitate them to make connection with others outside of the basin. It is also useful to assess what have been teaching on BMP uses in the universities.
 - It is envisioned that once the inventory is created, the other agencies can take it over to continue for the future.
 - This work will help policy makers to decide how to achieve 40% P reduction.
 - This project may also want to include a set of built-in questionnaires to be taken to the farmers. This work plan may also want to incorporate the consideration about what the next steps are going to be.
 - In 2017, Heidelberg University built a BMP tool box, and we may want to build on that work.
- Ian and Chris will modify the work plan, and Sandy will help by providing materials.
- **International Decade of Great Lakes Exploration and Research**
 - There are a number of workshops that have been held to develop a vision regarding long-term basic research needs and how to fund them. This has been done for marine system. A similar effort is needed for the Great Lakes system.

- A Town Hall Meeting has been planned on Wed June 20th at 4:00-5:30 to conduct a formatted discussion regarding fund to support basic science:
- There are 4 co-conveners; it will start with an introduction, put out a few suggestions on effort, what it looks like for the effort, and then have a panel discussion.
- An expected outcome is to produce a report, and explore the possibility of getting the National Academy of Sciences-USA and Royal Society of Canada to support a study, similar to the Sea Change report of a decadal survey of ocean sciences (<https://www.nap.edu/catalog/21655/sea-change-2015-2025-decadal-survey-of-ocean-sciences>).
- Discussion:
 - There is a Canadian group funded by the government (Council of Canadian Academies) may be able to help.
 - It may need to set up a strong framework; need to identify science at risk recognizing that we cannot manage the system if we do not understand the system; lay out what will happen if we do not make the investment; and consider investment and return as a justification.
 - It was asked how this will fit/connect with the GLWQA and GLRI, and it was answered that this is for fundamental research and science, while GLWQA and GLRI is more on monitoring and restoration. The basic research provides information for understanding and the others are for management and policy making.
 - Expected output and deliverable of this effort is a statement, which will need RCC endorsement.
- **Collaboration Among Boards**
 - Went over the project list; RCC is pleased to see this many collaborations going on with the other boards.

3. Overview of current RCC activities

- **GL Nutrient Adaptive Management**
 - The overall goal of the project is to develop a process of using modeling approaches to effect ecosystem management through an adaptive management framework.
 - It will answer where there are the gaps in modeling from the watershed to the lake and how models can be used in an adaptive management framework.
 - The deliverables include a detailed inventory of models capturing characteristics to determine usability in an adaptive management framework; a graphical representation of available models in relationship to one another to achieve a whole ecosystem model for assessing and predicting outcomes of management actions in an adaptive management framework; and advice on how progress towards P reduction goals can be measured and communicated in an adaptive framework.

- Contractor has conducted intensive reviews of models.
 - A workshop was held on March 14-15 with 32 workgroup members and regional experts attended; the Great Lakes Adaptive Management and Annex 4 nutrient task team presented their work and provided links among the efforts; and workshop used an online survey tool to identify priorities for addressing model gaps, unanswered adaptive management questions, and weaknesses in model performance.
 - It was discussed that it is important to link this work with the Annex 4 nutrient task team work; it is also mentioned that it may also be important to let the government program know that more monitoring is needed since that was identified as a high priority.
- **GL Surface and Ground Water Model Integration**
 - This project assesses the need for and feasibility of developing a fully-integrated surface and ground water model for the Great Lakes basin; provides a review of options on tools and approaches required for such a model. It will link atmosphere, hydrosphere, and geosphere.
 - Held 5 workgroup conference calls.
 - Contractor conducted regional expert survey, literature review, and produced a whitepaper on existing modeling initiatives.
 - Held a workshop with 45 participants who concluded that there is a need for a basin-scale model and recommended a path forward. Three basic needs are outlined: develop a conceptual model, develop a basin-wide frame work, and conduct a pilot study.
 - The next steps are to prepare summary report with recommendations on the path forward. Given current momentum, the workgroup will seek support for the development of hydrogeological conceptual model.
 - **GL Early Warning System**
 - The objectives of the project are to: synthesize current knowledge and approaches of environmental early warning systems and evaluate their applicability to the Great Lakes; develop a conceptual framework for a Great Lakes early warning system (including a procedure to identify threats ranging from those that are just over the horizon and may not yet be known, to those that are anticipated with some degree of confidence); conduct an experts workshop using the nominal group technique to select among five tentative frameworks using a consensus building approach; verify a list of current and potential Great Lakes stressors and threats including their extent, likelihood and severity; apply the framework to a case study; and make recommendations to IJC about a framework for identifying and ranking emerging threats.

- Good progress has been made. Completed reviewing and summarizing of near 70 references, and interviewed 15 experts.
- Produced a preliminary list of stressors compiled from interviews and literature; relevant components of Early Warning System frameworks have been identified; and governance structures have been explored.
- Planning of a workshop is underway on May 14-15, 2018, Windsor, ON; agenda is largely set, and speakers have been invited.
- Workshop will consist of two Panel Discussions on the perspectives on emerging ecosystem threats and stressors, and on perspective of the design and operation of early warning systems; and two breakout sessions to have discussions on prioritizing emerging threats and stressors and to select a preferred Early Warning System

- **GL Connecting Channel**
 - Great Lakes connecting channels include the St. Marys River, Straits of Mackinac, Chicago Sanitary & Ship Canal, St. Clair River, fluvial Lake St. Clair, Detroit River, Niagara River, and St. Lawrence River.
 - The project will conduct a critical review of water and habitat quality issues facing the connecting channels, including a synthesis of current knowledge and assessment of existing initiatives, bibliography of past connecting channel studies and databases, annotated bibliography of recent (after year 2000) connecting channel studies, and summary of current connecting channel surveillance and monitoring initiatives including AOCs and restoration activities.
 - The project will assess current institutional capacity to design and conduct connecting channel surveillance and monitoring programs, including identifying current federal, state, provincial, and other authorities responsible for monitoring the Connecting Channels, identifying current monitoring programs, and identifying institutional impediments and solutions to research, surveillance and monitoring needs.
 - The project will also identify needed infrastructure to facilitate future connecting channel surveillance and monitoring programs, including physical, biological monitoring, chemical monitoring, and rapid response.
 - The Scope of Work of this project has been submitted to the U.S. Department of State for approval and advertising for seeking a contractor.

- **CSMI Workshop**
 - A CSMI workshop was held at Maumee Bay Park & Convention Center, Ohio on October 11-12 to review key Lake Erie ecosystem issues and identify needed science and monitoring to assist in understanding and managing Lake Erie. Discussions and the resulting report will assist the GLWQA Annex 2 Lake Erie Partnership with

developing science and monitoring priorities for the 2019 Lake Erie CSMI intensive field year.

- The workshop was attended by 70 managers, researchers, and policy makers.
 - The workshop identified priorities along the four theme areas: nutrients and eutrophication - land-use based issues, including habitat questions; nutrients and eutrophication - lake-based issues, including toxicity questions; populations, communities and habitat, including invasive species; and contaminants and chemicals of concern.
 - A final workshop report has been submitted to the IJC and Lake Erie Partnership.
 - Process is underway for preparing a contract to conduct a similar workshop for Lake Michigan.
- **Great Lakes Research Inventory and Applications**
 - This is an effort to develop a new version of website to improve utility of a portal of database that captures the Great lakes research projects. It updates user interface, data displays, and search features. It also improves security and data integrity.
 - Current development work was completed by Mr. Leo Martinez, a website developer contracted through Kenjya-Trusant Group, LLC, a staffing provider to the U.S. State Department and IJC.
 - Current task order work will be finished around May 18th.
 - Big task, prior version was taken off-line by security breach and was two versions out-of-date, which requires extensive re-writing.
 - Original budget in September 2016 was approximately \$75,000, later extended to just shy of \$158,000 in staffing funds over 19 months.
 - Now the new IJC.org website and Research Inventory are both written in the same computer code, further development and maintenance work will be coordinated with providers of overall IJC website support.
 - New version will provide a customized link to USGS publications warehouse with records of approximately 12,000 Great Lakes research projects.

4. Input to TAP, Plan for Future Activities, and Next In-Person Meeting

- Had an in-depth discussion and productive meeting on the topic on April 24 with all Great Lakes board members.
- Several suggestions are discussed, including looking at the last IJC Triennial Report to identify new priorities, to identify how many recommended priorities that have been implemented, and to fit board projects into the “other advice”.

- It is mentioned that the Parties already know the areas that need improvement, but they do not have the resources to do it. TAP report can make recommendations to help the Parties to reprioritize their priorities.
- There is a considerable amount of discussion regarding who should be the audiences of the report. It has been identified that the federal governments of US and Canada, local and Tribble governments, NGO, and other public should be all interested in the report, although the federal governments are the ones to whom the recommendations for.
- Had a broad discussion on the “Study Committee” and preferred to call it “Steering Committee”. RCC has identified that Gavin Christie and Chris Winslow to represent RCC to serve on this Steering Committee.
- Did not decide when to have the next in-person meeting. A doodle poll will be sent out for the next conference call.

5. Preparation for Board Appearance

- Went over the pre-prepared slides and signed presenters for each part of the slide set.

6. Other business

- None

7. Adjourn

At 12:00 PM

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DRAFT AGENDA

<i>Time (EDT)</i>	<i>Agenda Item</i>	<i>Lead</i>
8:30-8:40	1. Welcome Approval of draft agenda	RCC Co-Chairs
8:40-10:00	2. Priorities in discussion <ul style="list-style-type: none">• Great Lakes agriculture and nutrient issues (Ian) (<i>Attachment 1</i>, work plan).• International Decade of Great Lakes Exploration and Research<ul style="list-style-type: none">• Town Hall Meeting (Val/Michael).• Expending the outline into a product (<i>Attachment 2</i>).• Collaboration among boards (<i>Attachment 3</i>, GL board project list) 3. Overview of current RCC activities <ul style="list-style-type: none">• GL Nutrient Adaptive Management – (Debbie/Gavin).• GL Surface and Ground Water Model	RCC Co-Chairs

	<p>Integration (Yves/Sandy).</p> <ul style="list-style-type: none"> GL Early Warning System (Michael T.) 	
10:00-10:15	BREAK	
10:15-10:40	<ul style="list-style-type: none"> GL Connecting Channel (Michael T.) CSMI Workshop (Chris W.) (Attachment 4, CSMI Cycle) Great Lakes Research Inventory and applications (Mark Burrows) 	Work Group Co-Chairs
10:40-11:30	4. Input to TAP, plan for future activities, and next in-person meeting	RCC Co-Chairs and all
11:30-11:50	5. Preparation for Board Appearance	RCC Co-Chairs and all
11:50-12:00	6. Other business	RCC Co-Chairs and all
12:00	7. Adjourn	