

SPC Meeting Record

2nd Meeting of the Science Priority Committee of the Great Lakes Science Advisory Board
Wednesday, September 24-25, 2014
Great Lakes Regional Office Conference Room- Windsor (ON)

MEMBERS PRESENT:

Chris Metcalfe, Trent Univ.	Lucinda Johnson, Univ. of Minn.-Duluth
Clare Robinson, Western Ontario Univ.	Stephen Renzetti, Brock Univ.
Christina Semeniuk, Univ. of Windsor	Carol Miller, (U.S. Co-Chair), WSU
Jeffrey Ridal, (Can. Co-Chair, SPC), Waterloo	
David Lodge, Univ. of ND	Robert Hecky, Univ. of Minn.-Duluth, (Ret.)

Secretary: Raj Bejankiwar, SPC, IJC-GLRO

Liaisons: Vic Serveiss, IJC, Washington DC, USA; Glenn Benoy, IJC, Ottawa, Canada

ON THE PHONE:

Mike Murray

Record of Discussion, Wednesday, September 24, 2014

1. Introductions (SPC members, secretaries, liaisons, and other guests)

The Co-chairs welcomed everyone to the 2nd Meeting of the Board and also spoke about the people not present. Members introduced themselves.

2. Recap of tasks assigned to SPC by the Commission in April 2014 (Carol and Jeff)

Jeff explained the task assigned by the IJC Commission to the SPC which involved four topics and emerging issues if there were people interested. Carol added some comments involving emerging issues.

3. Ecological Indicator WG: Progress Update/ Next Steps (Scott and Christina)

Christina gave a presentation on progress to date then opened up the conversation for discussion on prioritization of the Tier I (Communication) indicators. Chris Metcalfe supported the idea of including six indicators in Tier I, with two indicators from each of the biological, chemical, and physical categories. However, if the goal is to speak to the public, it may be better to go with the top 6 (David). At Tier 2, there is still opportunity to include chemical, as well as other, indicators. Clarification is needed on “What is an indicator?” and “How much control do we have to effect changes in the values of the physical indicators?” which could be answered by whether and how the indicator affects “swimmable/fishable/drinkable”, and how much do the

physical characteristics reflect environmental quality (such as lake elevation – which is artificially controlled to a great extent).

A complement of six indicators may not tell the full story, and the IJC may opt to change the top six as the environment changes (David), or who the indicators are catered towards (Steven), or which lake is being assessed.

There are two remaining issues;

- 1) Decision (which top six?)
- 2) Decision support (how do we stay consistent?)

A benchmark, weighting system, or background of metrics may be helpful to gauge the most communicative six indicators. Another suggestion was that a “super indicator” (aggregated index) approach may be helpful:

Biological- Chemical- Physical- Human Health

An information management system may also be helpful to provide information to the people that need it.

4. IJC’S Triennial Assessment of Progress Report: Updates (Jeff, Carol and Raj)

Jeff spoke about the involvement of WQB/RCC in the IJC’s Triennial Assessment of Progress Report. The proposal of a “multi board” task group was approved by all SPC members present. Jeff and Carol discussed another item, about SPC’s involvement. Clarity is needed on how much time SPC will need to commit and the role it will play.

5. AOC (Chris Metcalfe and Mike Murray)

Mike spoke about the process of assessing delisting reports, particularly AOCs. Chris spoke more specifically about White Lakes AOC and Deer Lake AOCs, and the background of each site. Jeff questioned how the SPC LEEP will be incorporated into the triennial assessment of progress.

ACTION: Refined list of expertise

6. LEEP- Economic Impact Study (Steven Renzetti)

Discussion was held on what is to occur next for the LEEP report, assessment on the LEEP reports, and also look at how economy changes will affect what values are being measured, observed, and predicted. Costs and the benefits are important to take into account.

Role of SPC

- i) Direct IJC to do (a) + (b) and follow reviews

AND/OR

- ii) Study “bits” of (a) + (b) that are ‘emerging’!

Environment Canada:

- Half of benefits (part of (b))
- David Lodge: fisheries input (Lake Erie)

Recommendation from Steven: IJC undertake economic study and assess the relative costs of the recommendations related to implementing agricultural practices. Mention that workshops could involve different stakeholders; scientists, economists, agronomists, and economists.

- Case study paper before workshop
 - a. Look at different approaches
- Workgroup: Bob/ Steven/ David Allan/ Mike Murray
 - b. WQB connection
 - c. Ian Campbell (RCC)

7. Prioritization of the recommendations from 15th and 16th Biennial Report (Bob Hecky)

The recommendations for formats were different. All recommendations were not reviewed. All members remain.

ACTION: Raj- Collate

Record of Discussion, -Thursday, September 25, 2014

1. Update on LEEP Phase II (Raj)

Raj outlined the economics and health impact studies, and Renzetti elaborated on aspects related to economics. It is important to recognize that health impacts should also include drinking water quality issues (eg., Toledo). Clarification on the role of the SPC LEEP workgroup is important. The SPC workgroup should work to define new areas of focus without consideration of priority cycle timelines, potentially with the input of the commissioners.

2. Update on Indicator Priority

Discussion on whether two members from each of the WQB and RCC should join to the SPC indicator workgroup or report to the SPC as a whole. IJC indicators are distinct from LaMP indicators (governments). There is a process where Performance Effectiveness Indicators (PEIs) can be narrowed down into 8 (doctor/ patient metaphor).

3. Update on HABs- Human Health Impact work

4. RCC- Update on their projects

5. WQB- Update on their plans

6. Briefing to the commission at the Fall semi-annual meeting in Ottawa (October 2014)

The board requested input into triennial reporting process. There is need for clarification on how the SPC work relates to general and specific objectives, and how SPC workgroups feed into triennial reporting. Short-list of indicators for public dissemination does not necessarily have to accord with the indicators set used to address General and Specific objectives. Screening of tier 1 indicators to identify those best for the telling the stories of the GLs; then there is tier 2...

- SPC: vi (LEEP)
- HPAB: i, ii
- SPC: ix (indicators)

Triennial assessment period is the period of time needed to assess the entire period (1972 onwards) - is this completely necessary? There is need to coordinate the responses between the SPC, RCC and WQB to Commissioners at the semi-annual meeting.

7. Next steps for SPC/ Calendar/ Emerging Issues, etc.

Article 7.1 (k) (v) other advice and recommendations, as appropriate

There are many emerging issues for the IJC under the GLQWA. RCC is working on and will be releasing a whitepaper on emerging monitoring technologies. Other topics which may be included in this report include: energy (solar, hydraulic fracturing, pipelines, rail transport,

wind), micro pollutants, climate change, impact of behavioural economics on valuation, application of quality of life metrics, integrative modelling (i.e. social-economic-ecological modelling, hydro/bio/health/economic modelling as a DSS-“ecosystem services”), “green” chemistry, microplastics, extreme events/weather, urban infrastructure deficits, green infrastructure, algal bloom effects on fish(and commercial fisheries), and increasing vs decreasing lake productivity (with each lake to be looked at independently).

It is essential that information will be coordinated to avoid overlap. Stressor interactions and cumulative impacts under changing environmental conditions should be included. In these emerging issues, approaches to remediating existing and future pollution should also be taken into account.

There is a need for clarification of the implications associated with IJC decision(s) to address an emerging issue.

Action Item: Members to provide a brief statement to Raj outlining the involvement of the proposed emerging issues. This information will be collated and provided to the members prior to the next SPC meeting.



INTERNATIONAL JOINT COMMISSION
Great Lakes Science Advisory Board
Science Priority Committee (SPC) Meeting
September 24-25, 2014

Great Lakes Regional Office Conference Room – Windsor (ON)

Draft Agenda

Day 1: Wednesday, September 24, 2014

12:00 PM to 3:00 PM	<ul style="list-style-type: none">▪ Introduction (SPC members, secretaries, liaisons and other guests)▪ Recap of tasks assigned to SPC by the Commission in April 2014 (Carol and Jeff)▪ Ecological Indicator WG: Progress Update/Next Steps (Scott and Christina)
3:00 PM to 3:15 PM	Break
3:15 PM to 5:00 PM	<ul style="list-style-type: none">○ IJC's Triennial Assessment of Progress Report: Updates (Jeff, Carol and Raj)○ Other Reporting:<ul style="list-style-type: none">-AOC (Chris Metcalfe and Mike Murray)-LEEP-Economic Impact Study (Steven Renzetti)-Prioritization of the recommendations from 15th and 16th Biennial reports (Bob Hecky)
5:00 PM to 5:45 PM	<p>Presentation on "Microplastics in the Great Lakes Basin" by Dr. Sherri Mason (Professor, The State University of New York at Fredonia)</p> <p>Followed by dinner at nearest restaurant downtown</p>

Day 2: Thursday, September 25, 2014	
8:30 AM to 12:00 PM	<ul style="list-style-type: none"> • Update on LEEP phase II (Raj) • Update on Indicator Priority • Update on HABs-Human Health impact work • RCC- Update on their projects • WQB –Update on their plans <ul style="list-style-type: none"> ▪ Briefing to the commission at the Fall semi-annual meeting in Ottawa (in October 2014) ▪ Next steps for SPC/Calendar/Emerging issues etc. <p>Adjourn</p>
1:30 PM to 4:30 PM	Detroit River AOC Tour

RCC Meeting Record

2nd Meeting of the Science Priority Committee of the Great Lakes Science Advisory Board
September 24-25, 2014
Great Lakes Regional Office, Windsor, ON

MEMBERS PRESENT

Anne Neary (Ca Co-Chair), Norm Grannemann (U.S. Co-Chair), Christopher Winslow, Carl Richards (by phone), John Bratton, Michael Twiss, Yves Michaud

Secretary: Lizhu Wang/Mark Burrows, RCC, IJC-GLRO

Liaisons: Glenn Benoy, IJC, Ottawa, Canada; Vic Serveiss, IJC, Washington DC, USA

IJC staff: Jennifer Boehme, IJC-GLRO

MEETING NOTES

1. Role of RCC in preparing IJC's Triennial Report – Discussion on how RCC activities should contribute to the Triennial Report

The Committee focused on its discussion of Items 2 and 3 of the Table entitled *Triennial Assessment of Progress Report: Preliminary Concepts on Steps and Roles*. Immediate input requested by the Commissioners was on items 2 and 3 in the table.

Table Item 2: What do we hope to accomplish with the report:

- Strive to galvanize public action
RCC comments: Agree that it is important to help the public understand their connection to the Great Lakes and the connection their actions in the watershed have in impacting the health of the lakes. Agree that this is one of the things the report should seek to accomplish.
- Make an impact on the Great Lakes environment and/or Great Lakes community
RCC Comments: Ensure the report is informed by science, ties back to identifiable actions, and includes recommendations with clear measures of success – short term, mid-term, and long term actions, recognizing different models for delivery to meet the objectives.
- Provide measureable account of progress under the Agreement.
RCC Comments: Providing measureable account of progress needs to understand where we have measurements and specifying where we may not be able to measure but where we think it will be important. For example, Ontario has measurements on some but not all indicators, although other agencies may have some information. The data

integration task we have underway will help us understand where all data is located and where the gaps are. Recommend providing examples of success stories.

- Be as bold with its recommendations as the science will support
RCC comments: We can't be bold with new and emerging issues, especially for issues where we do not have the science to be bold

Additional Purpose recommended by RCC:

Another purpose for the report discussed by the RCC is related to Article 7.1 (k) **Other Advice and Recommendation.** RCC recommends using the report to summarize the outcomes of multiple reports that have addressed the issues of the lake health and the evaluations of progress and programs for the Great Lakes region. For example, highlighting new legislation, such as the US climate action plan workshop in September, new Great Lakes Restoration Initiative Action Plan recently announced in Chicago by US EPA, the introduction of the Great Lakes Protection Act in Ontario (if it goes ahead) are all topics that should be acknowledged in the report. This will serve to summarize all recent initiatives and actions in one place for the public to help them understand actions that the governments are taking.

Table Item 3: Scope Report Themes

Discussed which objectives will be the focus of the report.

RCC recognized that working together with the SPC, WQB, and HPAB will be important for making a full recommendation and answering key science and policy questions. Mentioned that a call with all co-chairs prior to Oct 20 recommendations would be helpful.

Evaluation of Progress Theme – Focus on success in progress on aspects of Lake ecosystem health, then identify gaps that are technology/understanding limited, government program limited, resource limited, and/or social pressures limited. Those should be in the report.

Monitoring and Data Management/Sharing Theme - RCC as a group has the knowledge to understand programs underway, limitations, resources availability, expenses, and political and social pressures. RCC has the capability to identify gaps, suggest different ways of achieving objectives, recognize fiscal constraints. Because huge amounts of data coming with new technologies, we are positioned to discuss new ways of data management, collaboration, technology, common data framework, and data sharing strategies. (I do not think we support centralized data storage, rather we support access to other data storage systems.)

Climate Change Theme - (this sentence is duplicated in the last sentence) Discussed the fact that although there is a separate climate change annex, climate change is a global stressor on all components of ecosystems and cannot be addressed separately but must be carefully considered and mainstreamed into the work of all annexes. RCC recommends examining in the report whether or not it is being adequately addressed and the role of the climate change annex versus, complimentary to and collaboratively with the other annexes.

Aquatic Invasive Species Theme – An important issue should be flagged as a possible theme.

Gaps that need greater focus

- 1) **Land use change** – landscape is changing rapidly. Are we keeping up with understanding of its impacts?
- 2) **Change in agriculture and practices** – we should be evaluating agricultural practices and their impact on water quality. Does the RCC have expertise to do this?

What the Triennial Report should aim to accomplish

The report should provide the audiences with science based, clear, concrete, simple message that can be linked back to short and long-term actions.

2. Recap of tasks identified by RCC during the April meeting and the two following conference calls – How RCC’s tasks linked to the triennial report

- **Research Activity Inventory – On Going** (web link: <http://RI.ijc.org>). This is an inventory of those who are doing research work on Great Lakes. The webpage established is for people to enter their work. It would be helpful if it would link to all the work that is publicly available. Ohio State, NOAA, EC, and NRCan have such type of lists.

Purpose of task: enable public, researchers and government agencies to share info on who’s doing what. Inform and enable better collaborative delivery on GLWQA.

Discussed key words that can be used for searches.

- **Research Capacity of Agencies and Organizations**
This is an effort to inventory research boats, laboratories, equipment, and people. A report has been generated by the Council of Great Lakes Research Managers previously. There is a RCC final report but the report should be a living document that can be finalized as a RCC white paper. The draft maps are available at the following link: http://ijc.org/en/_cglrm/Maps.

Next steps – RCC to review and feedback. Evaluate additional research capacity needs by the new GLWQA. Agreed that it is helpful background information to inform

Commissioners on scope of commitment to Great Lakes Governments and research institutions.

Decision: Commitment to revive, review, and decide how it can be used e.g., to develop an index measurement similar to \$ devoted to R&D as % of GDP.

- **Great Lakes Association of Science Ships** – all boats of >20 feet. Sharing of resources for Parties. Captains have a meeting annually to sharing information and develop collaboration. During the past, RCC has some levels of involvement and support to the meeting. Web Link: www.CanAmGLASS.org.
- **Geospatial data management programs and projects in the Great Lakes** – RCC can use or do further work on it as necessary. Could put RCC logo on it – now it is a white paper. Should finalize and decide what to do with it.
- **Ecosystem Indicators** – is a separate agenda item and will be discussed later.
- **New Technologies** – is a separate agenda item and will be discussed later.
- **Coordinated Science and Monitoring Initiative (CSMI)** – is a separate agenda item and will be discussed later.

Action: It would be helpful to put RCC's tasks in a table with where tasks originated from, when started, progress/state of completion, next steps, anticipated outcomes, and final use/endpoint such as advice to Commissioners, assistance to the parties, triennial report etc.

3. Emerging Monitoring Technology: Progress Update/Next Steps

Objectives:

- To provide a comprehensive review of electronic sensing technologies currently in use to assess aquatic ecosystem health;
- To evaluate the current status and capabilities of emerging sensing technologies to assist with compliance to the GLWQA;
- To provide suggestions where emerging technologies could support IJC needs for water quality protection and ecosystem integrity.

Approach:

- Survey RCC members to describe all emerging technologies currently operational (or planned) within their purview in order to readily address the scope of efforts in place and planned across the basin.

- Seek input from other non-RCC members, e.g. SPC, WQB, GLOS, etc., in order to be as comprehensive as possible.
- Summarize and analyze survey results with respect to the use of emerging technology (ETs) to support data information needs of the IJC (indicators, CSMI) with an aim to evaluate how future needs can be met by establishing the proper sensor technology infrastructure in the near future.

Study Location - All the lakes and tributaries:

- To capture big events
- There is buoy sensor by OH Sea Grant that can monitor blue-green algae concentration.
- Use the online survey GLRO used with help of GLRO staff
- Need to define what is emerging monitoring technology
- Targeting to April semi-annual

Everyone is appreciative of Michael Twiss' work. He will make progress by October 20 meeting so that there is something to report on. Need to discuss value of this work to parties and Commissioners.

4. Comments on SPC Ecosystem Indicator effort

- SPC established 4 filters to reduce the 16 ecosystem indicators into a smaller set. The 4 filters are Compiling, Visible, Accurate measure of state of the lake, and Easy to understand.
- The top ranked 5 indicators are biological and the SPC recommend select 2 from each physical, chemical, and biological measures.
- RCC recognized that 2 indicators from each group are an arbitrary number. Also some biological indicators can integrate physical and chemical indicators. Biological indicators in addition to the 2 picked may also be selected and the 3 groups do not have to be even numbered.
- Discussed the potential of combining indicators into an index. Proposed one integrated index with more information underneath of it for each of the objectives of the Agreement.
 - RCC discussed that the 6 indicators be mapped against the general objectives and examine whether any of the general objectives would requires indicators other than those in the 6 (e.g., groundwater and anything else necessary).
 - Some further steps could include that for each general objective and the indicators that meet that objective, we can weight them in their relative contribution toward the general objectives and develop an index value for each general objective (1 to 10, 1- 5, red, yellow, green etc.). Some indicators may not now have good data, but that doesn't preclude including them in the index calculation. As indicator data becomes increasingly available it will influence the index more over time and provide more certainty around the index value.
- SPC requested that 2 person from RCC to join the SPC Ecosystem Indicator workgroup. RCC appointed Kyle McCune and Val Klump to serve on this workgroup.

- **ACTION:** RCC members will provide additional comments on the SPC report and send comments to Li within a week.

5. Indicator data integration for IJC Progress Reporting and Storytelling

- Discussed the draft of RFP for indicator data integration. Overall, the RCC felt the work is very important, but the budget is too small and the time is too short to complete such a big task.
- IJC staff distributed a copy of the Ecosystem Indicator Data Availability Report done by the previous RCC, which identified the majority of the data sources.
- In depth discussion was conducted and made the following recommendations:
 - Pull out some of the complicated indicators to set up smaller contracts this year. Those indicators could potentially include Land Cover and Fragmentation Status, Abundance and Distribution of Fish-Eating and Colonial Nesting Birds, and Seasonal and Long-Term Fluctuations in Great Lakes Water Levels.
 - Modify the RFP into 3 phases, including (1) assessment of data availability, (2) establish methods on how to summarize those data, (3) integrate and summarize those data and identify data gaps. Increase the budget and expend the RFP across FY 2014-2015 and 2015-2016.
 - A workgroup was established that include Gavin Christie, Michael Twiss, Andrew Muir, Norm Granneman, and Ann Neary (help as needed).
 - **Action:** Li will modify the RFP and send it to the workgroup for review. Look at a bigger contract with phases and across fiscal years with three delivery dates. Phase 1 and phase 2 by the end of FY 2014-2015, and phase 3 in FY 2015-2016.
 -

6. Cooperative Science and Monitoring Initiative (CSMI)

- Proposal to fund workshop to on work planning for Lakes Superior and Lake Huron. During the past, each year IJC provided \$20K for a workshop and \$15K for other things, such as synthesizing, reporting, product production. Currently, the EC is contracting to get data synthesized. Mark has asked the CSMI leads to make a request to IJC so that IJC can allocate fund to such efforts. So far, Mark has not received the request.

7. How RCC should involve in the Blue Accounting effort

- Michael Twiss noted that FN, Metis are not mentioned and the effort should engage with them. It was asked that if RCC should write a letter to endorse this effort. This endorsement can link IJC indicators with the needs of using Blue Accounting information. Presently, no specific funds are available for the effort.

8. Briefing to the commission at the Fall Semi-annual Meeting in Ottawa

- Time has been set aside for Co-chairs to meet on Oct 22 3:30–5:30 in Ottawa to discuss the collaborate effort on indicators. RCC Co-chairs will brief Commissioners in the

morning of October 23. All Co-chairs (HPAB, WQB, SAB-RCC, SAB-SPC) will brief Commissioners together at the end of individual Board brief.

9. Others

- SPC and RCC joint meeting in January 2015 – date and location to be determined.
- RCC will have a conference call during the week of Oct 13. Li will send out a Doodle Pull.



INTERNATIONAL JOINT COMMISSION

Great Lakes Science Advisory Board Research Coordination Committee (RCC) Meeting September 24-25, 2014

Great Lakes Regional Office Newly Established Conference Space
100 Ouellette Ave, 8th Floor, Windsor, ON N9A 6T3

Remote Participation Phone Number: **1-877-413-4781**; Access code: **956 2917**

Draft Agenda

Day 1: Wednesday, September 24, 2014

12:00 PM to 3:00 PM	<ul style="list-style-type: none">▪ Introduction (RCC members, secretaries, liaisons and other guests)▪ Role of RCC in preparing IJC's Triennial Report – Discussion on how RCC activities contribute to the Triennial Report (Norm and Anne)▪ Recap of tasks identified by RCC during the April meeting and the two following conference calls (Norm and Anne)
3:00 PM to 3:15 PM	Break
3:15 PM to 5:00 PM	<ul style="list-style-type: none">▪ New technology to address monitoring needs: Progress Update/Next Steps (Michael and Norm)<ul style="list-style-type: none">○ Workgroup○ Detailed work plan▪ Comments on SPC Ecosystem Indicator effort (Kyle, Norm)
5:00 PM to 5:45 PM	Join SPC for Presentation: “ <i>Microplastics in the Great Lakes Basin</i> ” by Dr. Sherri Mason (Professor, The State University of New York at Fredonia) Followed by dinner at nearest restaurant downtown

Day 2: Thursday, September 25, 2014

8:30 AM to 10:30 AM	<ul style="list-style-type: none">• Indicator data integration for IJC Progress Reporting and storytelling (Lead by Norm and Ann)<ul style="list-style-type: none">○ Indicators that need data and have available data○ Level of data to be synthesized○ Where the synthesized data should reside○ Identify potential contractor candidates○ Establish a workgroup• Research Inventory Workgroup (Andrew, Norm, Ian)• CSMI (Norm)
10:30 AM - 10:45 AM	Break
10:45 AM – 12:00 AM	<ul style="list-style-type: none">• How RCC should involve in the Blue Accounting effort• Update on SPC projects (Norm and Anne)• Update on WQB plans (Norm and Anne)• Briefing to the commission at the Fall Semi-annual Meeting in Ottawa (October 2014) <p>Next steps for RCC/Calendar/Emerging issues, etc.</p> <p>Adjourn</p>
12:15 PM to 5:00PM	Departure from and return to Holiday Inn for Detroit River AOC Tour