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## **Joint Meeting**

### **Great Lakes Science Advisory Board**

January 21-22, 2015

NOAA- Great Lakes Environmental Research Laboratory  
4840 S. State Road, Ann Arbor, MI 48108

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### **PARTICIPANTS**

**RCC Member:** Anne Neary, Norm Grannemann, Christopher Winslow, Michael Twiss, Yves Michaud, Gavin Christie (by phone), Val Klump, Debbie Lee, Patricia Chambers, Andrew Muir, Kyle McCune

**SPC Member:** Francis Henry Lickers, Christina Semeniuk, Jeff Ridal, Clare Robinson, Carol Miller, Dale Phenicie, David Allan, Lucinda Johnson, Chris Metcalf, Michael Murray, Scott Sowa,

**IJC Staff:** Lizhu Wang, Raj Bejankiwar, Mark Burrow, Cindy Warwick, Vic Serveiss, Jennifer Boehme, Clayton Sereres, Jessica MacKinnon, Trish Morris

**IJC Commissioners:** Gordon Walker (Canadian), Dereth Glance (American)

### **MEETING RECORD**

**Wednesday, January 21, 2015**

#### ***SESSION 1: SPC-RCC JOINT MEETING***

##### **1. Introductions (SAB Members, Secretaries, Liaisons, and Other Participants)**

The Co-chairs welcomed everyone to the 3<sup>rd</sup> SAB Meeting. All present members were introduced. New member Deborah Lee (NOAA GLERL Director) was identified.

##### **2. RCC and SPC Activity Update:**

- SPC Ecosystem Indicator Work - Jeff Ridal
  - It was noted that several different indicator efforts are currently underway though the IJC and SOLEC.
  - The direction from IJC commissioners was to take the IJC's 16 ecosystem indicators as previously formed and identify 4-6 that could provide compelling stories for communication to the public. The SPC created a framework with filters to rank the 16 indicators with respect to communication, which went to the WQB and RCC for feedback.

- The ecosystem indicator workgroup, which now has 15 members, includes WQB and RCC members.
- The 6 selected communication indicators include: harmful and nuisance algae, fish species of interest, water levels, phosphorous concentration and loading, PBTs in biota, and water temperature. There are 28 measures associated with these indicators.
- Now, the SPC's focus will be to review which of the indicators and measures have available data and can be used for communication. The workgroup has identified leads for each of the communication indicators.
- A recommendation from RCC members was that the workgroup reconsider replacing water level and water temperature with aquatic invasive species and chemical of mutual concerns indicators but to show how levels and temperature influence the other biological and chemical indicators. SPC members noted that all 16 indicators were important and would still be included in reporting. The SPC decided that they could not include more than 6 communication indicators.
- RCC Indicator Work - Norm Granneman
  - RCC is focusing on the integrity and availability of data for the IJC indicators. The IJC indicator report titled "Great Lakes Ecosystem Indicator Project Report," identified some data, but gaps remain. As an extension of the report, the RCC recently requested proposals (RFP) for a contractor to identify available data, integrate available data, and identify data gaps in the current IJC indicators list. The findings of the contractor could be useful for the current SOLEC indicator efforts. The contract is in the process of being signed with MSU and U of M, after which a meeting will be scheduled between the contractor and RCC workgroup.
  - SPC requested that the RCC send the RFP to workgroup leads so that SPC and RCC will not duplicate efforts
- Agreement Objective Index Work - Anne Neary
  - It was noted that indices were discussed in the September RCC meeting and in the October Semi-Annual meeting in Ottawa. To identify the index development process, IJC staff (through a contractor) conducted an in-depth literature review on methods of developing composite indices.
  - A presentation will be given at the RCC meeting in the afternoon. Should the RCC continue the effort of index development, they will request inputs from SPC and WQB.
- Work on Emerging Issues - Carol Miller
  - The definition of an emerging issue was discussed and shared. The SPC believes emerging issues are items worthy of IJC focused attention.
  - SPC came up with a list of emerging issues topics (15) which were presented in list format. Examples of the topics included: energy and environment, energy and water, declining lake productivity, climate changes, microplastics and information coordination. Many of these topics are in discussion and more could be added as required.

- For each of the 15 topics, SPC has identified a lead who will be writing up a few paragraphs/white paper about the emerging issues. After the additional information is obtained, SPC will have a discussion and try to reach consensus on the most relevant issues.
- SPC may need a consultant or workshop in the future to further develop their emerging issues efforts and a work plan with budgets.
- Emerging Monitoring Technologies - Norm Grannemann.
  - Michael Twiss is leading RCC efforts to investigate emerging monitoring technologies.
  - A survey has been developed and will be sent out in next month or so.
  - It was noted that the emerging monitoring technology effort may compliment some of SPCs emerging issues, such as new technologies identified to monitor fish populations.
- Current Contract Work by SPC and RCC
  - HPAB will prepare a white paper on human health impacts of cyanotoxins. A draft is expect at end of March 2015.
  - The ECT contract that is looking at economic impacts has begun and is in its second week. Sanjiv K. Sinha from ETC was present and indicated that they are looking at the economic impacts of algal blooms in the western basin of Lake Erie. It was noted that the table of contents was shared with the IJC for review. The contractor mentioned that they will look at 4 scenarios of varying time; however, the details are still being developed. Furthermore, the contractor is in discussion with Environment Canada as they are conducting a similar project (started in early October 2014 and finishing in March 2015) and the contractor wants to ensure the same scenario and comparable methods are being used in both studies.
  - A community based public marketing project, funded by GLRI was discussed. IJC staff is coordinating the project. The project will focus on the use of fertilizers in Lake Erie basin, survey of practices and preferences. Getting approval for the survey could take another 3 months.
  - RCC is working on databases of various sorts and interested in geospatial data in general. The Research Project Inventory database was developed and managed in the past by RCC; however, it needs updating/ changes to become a useful tool. The RCC is determining the best way to move forward with this effort. Many groups within the Great Lakes Basin are working on this topic and networking might be needed in the future.
- Other On-Going Efforts by SPC - Jeff Ridal
  - The SPC will be working on prioritizing recommendation from the last Biannual reports.
  - SPC will be reviewing the AOC delisting reports
  - The WQB's legacy issues working group has focused on three topics -- phosphorus, PCBs, and PBDEs. SPC members are collaborating with this working group.

- Update on IJC Work Towards The Triennial Report - Cindy Warwick
  - The Commissioners have chosen the Triennial Report management Team.
  - The report will have numerous sections, i.e. other advice and recommendations. Hence, IJC will not have to wait until this report is released in 2017 to deliver advice and recommendations
  - The Management Team is determining what methods are needed to achieve the purpose and how to measure progress for general and specific objectives without repeating the SOLEC process.
  - WQB's planned work and the emerging issues work discussed by SPC go into the other advice section.
  - Not all documents need to go into the Triennial Report.

### **3. Discussion on Common Interests, Overlaps Between Various Projects, and Opportunities for Further Coordination and Collaboration**

- The effort of identifying available data and data sources as part of the SPC's communication indicator identification effort could be potentially collaborated with RCC's Indicator Data Integration effort.
- A SPC member indicated that the SOLEC and IJC ecosystem indicators were found to have about 83% overlap in metrics; a SPC member suggested that the SAB communicate to inform the Lakewide Action and Management Partnerships when continuing with the indicator development.
- Further discussion regarding communication indicators:
  - It was noted that the communication indicators could possibly be ranked not only by importance, but also by how well we can communicate them to the public.
  - It was noted that the 6 communication indicators do not have to be broken down evenly among biological (2), physical (2), and chemical (2). Instead they could consist of only chemical (3) and biological (3) with the information from the physical indicators being incorporated into the biological and chemical indicators.
  - It was also noted that "cross-walking" the communication indicators to the objectives could be valuable to determine disconnections. For example there are two nutrient related indicators, but no invasive species indicators.
- Commissioner Glance informed all that the IJC has a tentative plan to hold a Great Lakes related meeting in November 2015 in Windsor, Ontario. The general purpose of the meeting is to bring all together and discuss the Priority Cycle and current board work.

### **4. Presentation on State of The Great Lakes Indicators - Paul Horvatin (EPA) and Nancy Stadler-Salt (EC) via WebEx.**

- Paul Horvatin and Nancy Stadler-Salt presented a power point presentation and a document titled "The 2016 Great Lakes Indicator Suite: Merger and Make-up".
- The two documents were used by the Parties to convey the State of the Great Lakes Reporting Indicators and timeline.
- A question and answer session followed this presentation.

***Thursday, January 22***

## ***SESSION 3: SPC-RCC RE-JOINT MEETING***

### **1. SPC Reporting Back - Jeff Ridal and Carol Miller**

- Ecosystem indicators and metrics
  - All 6 IJC communication indicators match with SOLEC indicators.
  - RCC has agreed to work together with SPC on the effort of answering the questions related to data spatial coverage, existing monitoring efforts, length of monitoring records, data owner, data calibration and end point, and data cost need for each of 6 communication indicators.
- Emerging Topics
  - SPC members have updated the emerging issues list.
  - The SPC will try to categorize issues into common themes.
  - SPC will then have an internal survey of prioritization of topics based on items such as what can SPC contribute, how quickly can SPC contribute, and what change can SPC make
  - Work plans will then be developed for each selected emerging issue.
  - Overall good discussion was sparked, information was exchanged about what other boards and annex committees are working on.

### **2. RCC Reporting Back - Anne Neary**

- Composite Index Presentation
  - Literature review presentation on indices was presented by Clayton Sereres, which covered various index categories, index examples, how to construct an index, and challenges.
  - The RCC had a constructive discussion surrounding composite indices.
  - RCC decided not to independently pursue index development based on the amount of effort and expertise needed at this time, as well as the fact that SOLEC appears to be incorporating the General Objectives into their process.
  - The RCC still sees value in using an index and therefore will coordinate a meeting with SOLEC to recommend they consider using an index in their future reporting as a communication tool. RCC members will review the SOLEC 2011 report, in particular the “story telling” sections and make recommendations where applicable.
- SOLEC Presentation
  - After the SOLEC presentation and review of the indicator sheet, RCC felt that SOLEC has done a good job of indicator selection with emphasis on indicators for which data are available.
  - The RCC would, however, recommend to SOLEC identifying critic data gaps in the indicators and estimating the costs associated to obtaining such data.
  - The RCC will also identify and inform SOLEC where the IJC indicator work may be advantageous to adopt to fill the data gaps and/or enhance SOLEC reporting. It is particularly noted that there are general gaps related to nearshore vs offshore for ecosystem indicators and sources of water vs treated water between IJC indicators and SOLEC indicators.

- The RCC indicator efforts will be beneficial to IJC and the Parties to help determine the future resources and associated costs needs for filling data gaps. Also, the future development of the RCC's emerging monitoring technology survey could be built around and support the data gap effort, where possible.
  - The RCC may coordinate a meeting with SOLEC to recommend the following columns and edits be added to their indicator chart:
    - availability of data
    - current and future investments
    - stability of investments
    - the chart be broken down on a lake by lake basis
  - The RCC will also communicate with SOLEC regarding how their current data integration work could support the SOLEC indicator data gaps.
- **Emerging Monitoring Technologies Presentation**
    - RCC will refine the survey by April 2015 and will hire a intern to distribute the survey, follow up, and report results.
    - SPC noted that there could possibly be cross over between modeling, such as SPARROW and the emerging monitoring technology survey.
    - SPC wanted to make sure the RCC is collaborating with GLOS. RCC discussed collaboration with GLOS and others in their individual meeting sessions.

### **3. Closing Comments**

- Cindy Warwick remarked that the IJC would be sending a program effectiveness survey out in February 2015 and would appreciated RCC and SPC members participation.
- The SPCs Jeff Ridal thanked all that were part of the meeting and the GLERL facility and staff for the hospitality.

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## **Research Coordination Committee (RCC) Meeting**

### **Great Lakes Science Advisory Board**

January 21-22, 2015

Great Lakes Environmental Research laboratory  
4840 S. State Rd., Ann Arbor, MI 48108

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### **PARTICIPANTS**

**RCC Member:** Anne Neary, Norm Grannemann, Christopher Winslow, Michael Twiss, Yves Michaud, Gavin Christie (by phone), Val Klump, Debbie Lee, Patricia Chambers, Andrew Muir, and Kyle McCune

**IJC Staff:** Lizhu Wang, Mark Burrow, Cindy Warwick, Vic Serveiss, Jennifer Boehme, Clayton Sereres, and Trish Morris

**IJC Commissioners:** Gordon Walker (Canadian), Dereth Glance (American)

### **MEETING RECORD**

#### **1. Development of An Index for Each of the Nine GLWQA General Objectives**

- The idea of developing an index for each of the nine GLWQA general objectives was proposed in RCC's meeting in September 2014. The primary purpose of the idea is to explore if it would help with the assessment of progress reporting and create a better way of communication. The RCC charged IJC staff to conduct a literature review on the methods of such index development.
- GLRO contractor, Clayton Sereres, presented a summary of literature review on composite indices titled "Preliminary Steps in the Construction of a Composite Index for Assessing Progress Toward Achieving the GLWQA".
  - i. The presentation covered an introduction, composite indices review and construction methods with highlights on normalization, weighting and aggregation of metrics; Environmental Performance Index example; and key messages found throughout literatures.
  - ii. A list of literatures and links to individual reviewed index websites were also provided to the RCC members.
- **Discussion around three questions:**
  - i. Do we continue the effort of developing the indices for 9 objectives with the 21 ecosystem and human health indicators?

- ii. Do we work with, comment, and critique the SOLEC process and make recommendations?
- iii. How can RCC indicator efforts assist IJC's Triennial Report and provide added value to SOLEC process?
  - The RCC discussed questions regarding potential index methodology with emphasis on the normalizing, weighting and aggregation. It was determined that many of the methods were complicated to comprehend and communicate with users; therefore simplified, transparent methods would be needed if RCC will continue this effort.
  - It was mentioned that a baseline would be needed to determine progress. RCC decided that it would be difficult to determine the baselines at this time for the Great Lakes.
  - RCC debated if it would be advantageous to develop one overall index score combining all General Objectives or to have individual scores for each of the nine General Objectives. It was also discussed about whether there should be an individual index per lake.
  - It was discussed if RCC should develop its own index or add to SOLEC's current work. RCC decided not to pursue index development based on the amount of effort and expertise needed at this time, as well as the fact that SOLEC appears to be incorporating the General Objectives into their process as shown in the earlier SOLEC presentation handout titled "State of Great Lakes: Indicators and Timeline".
  - RCC does, however, feel there is value in the index development; therefore RCC proposed that they may recommend that indices be used in future SOLEC reporting.
  - RCC plans on coordinating a meeting with the SOLEC team to discuss the use of indices and IJC indicators.
  - It was agreed that RCC's current indicator work regarding integration of IJC's indicator data, identification of data gaps and monitoring program gaps should be a substantial contribution to the Triennial Report.
  - The RCC will determine what kind of research infrastructure it would take to fill the identified data gaps and the associated funding needed. This review and information will aid the Commission as it will provide them information for which they can advocate for additional resources in the future.
  - RCC members agreed to review the list of SOLEC indicators in more detail after the meeting to determine where data gaps exist. One immediate data gap identified by the RCC on the chart was nutrient loading.
- Decisions:
  - Do not pursue the effort to develop an index for each of the GLWQA general objectives.



- Compare the proposed 2016 State of The Great Lakes Indicators with IJC indicators to identify which IJC indicators are not included in the proposed 2016 State of The Great Lakes Indicators, and then further identify associated data gaps, monitoring program gaps, and differences between the two sets of indicators.
- Plans to organize a meeting with the State of The Great Lakes Indicators team to discuss the use of indices and potential added on value that RCC can provide.

## 2. Indicator Data Integration – contract, relevance to with indices

- The purpose of the current RCC contract was explained and summarized as follows: to identify data sources, integrate available data, and identify data gaps, which will be used for further identifying monitoring gaps.
- It was suggested that RCC, potentially together with the contractors, may want to meet with SOLEC Team to discuss how the data availability identification effort can provide added value and to prevent duplication. The information and efforts obtained from the indicator comparison will be useful for this discussion.

## 3. Emerging Monitoring Technology

- Michael Twiss provided a presentation on the current status of the emerging monitoring technology survey that he has constructed.
- Each section of the survey was reviewed, discussed, and incorporated inputs from RCC members.
- Michael Twiss will make the edits that the RCC agreed upon before further developing the survey.
- Michael Twiss requested funding from the RCC for an intern to help develop the emerging monitoring technology survey.

## 4. Research Project Inventory

- The current state of the Research Project Inventory was noted to be incomplete and requires additional efforts. Previously, several RCC members have identified 5 options for the future of the Research Project Inventory. Action is required to ensure it becomes a useful tool for the RCC in the future.
- Andrew Muir and Norm Grannemann will coordinate and select a student intern (likely from Michigan State University) to conduct a literature review/analysis of the 5 options and to recommend the top ones to the RCC. An example options included updating and/or creating a new inventory. RCC requested fund to support this student intern.

## 5. Data Management and Sharing

- It was discussed that many agencies and groups are developing data management and sharing systems to serve for their own uses. However, those systems are inconsistent, focus on different geospatial areas, and lack a binational standard. It was felt that RCC should play a role in coordinating and facilitating such efforts, but no specific approach was identified.
- RCC decided to look into what others are doing on data sharing and management systems.
  - i. GLOS was identified an example of such system. RCC may want to invite GLOS executive director, Kelly Paige, to give a presentation on what they are currently doing in terms of data management at the next RCC face to face meeting.
- Annex 10 has a Data Management and Sharing Task Team, and the Council of Great Lakes Governors has a Blue Accounting effort. They are developing data management and sharing strategies. It was noted that RCC could potentially work with those groups.
- RCC decided that it would be useful to go back to the past IJC report titled “2013 Geospatial Management Programs and Projects in the Great Lakes” and look into updating it with recent information.
  - i. RCC discussed using a future intern for both the further Research Inventory project and updating the past IJC report. Using the same intern would be advantageous as both projects have overlapping themes. This intern would likely start in September 2015.

#### 6. Program Effectiveness Indicators

- Program effectiveness indicator report is an IJC internal report, which has been submitted to the Commissioners.
- Commissioners will determine the next steps moving forward regarding this effort. Ecosystem and Human Health Indicators are moving forward in regards to future efforts.

#### 7. SPC's Communication Indicators

- RCC members re-iterated what they mentioned in the joint RCC and SPC meeting in the morning on January 21 regarding that SPCs did not replace Water Level and Temperature indicators with aquatic Invasive Species and Chemical of Mutual Concern as communication indicators. However, the RCC will support the SPC decision on how to organize the communication indicators.

#### 8. Other Notes:

- Anne Neary made the announcement that she will be retiring in the very near future. Therefore, this will be her last meeting as the Canadian Co-Chair. Interim MOE staff Ian Smith or the new MOE hire will step into her role; however, the details will be decided after these meetings.

RCC decided to have its next face-to-face meeting in Washington DC during the April Semi-Annual Meeting.

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## SPC Meeting Record

3rd Meeting of the Science Priority Committee of the Great Lakes Science Advisory Board

January 21-22, 2015

NOAA- Great Lakes Environmental Research Laboratory (GLERL)

4840 S. State Road, Ann Arbor, MI

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### MEMBERS PRESENT:

Lickers, Francis Henry	Akwesasne
Semeniuk, Christina	Univ of Windsor
Ridal, Jeff (Co-chair)	SLRI
Robinson, Clare	Western
Miller, Carol (Co-chair)	Wayne State
Phenicie, Dale	CGLI
Allan, J David	U of M
Johnson, Lucinda	U of Min. Duluth
Metcalf, Chris	Trent
Murray, Michael	NWF
Sowa, Scott	TNC
Bejankiwar, Raj	IJC
MacKinnon, Jessica	IJC
Serveiss, Vic	IJC-Wash
Morris, Trish	IJC (Jan 22)
Burrows, Mark	IJC

Secretary: Raj Bejankiwar, SPC, IJC-GLRO

Liaisons: Vic Serveiss, IJC, Washington DC, USA

ON THE PHONE: Steve Renzetti

### Record of Discussion, Wednesday, January 21, 2015

#### *SESSION 2: SPC SEPARATE COMMITTEE MEETING*

- Raj Bejankiwar will be away January 26<sup>th</sup> - February 20<sup>th</sup>, please contact Mark Burrows and Jessica MacKinnon regarding SAB business during his absence.

**Ecosystem Indicator WG** – (Later decided that SPC would work with SOLEC on this initiative, and to use contracted help on data collection and processing.)

- Presentation by Christina Semeniuk and Scott Sowa on the current state of the ecosystem indicator work group. SPC had chosen top 6 indicators, and resulting 28 metrics. This was an objective approach, filtering what would be easiest to communicate to the public.

- To avoid missing the details of how the metrics are interpreted by experts, a comment column will be added to the sheet. When filling out the sheet, experts should make note of future costs that may be required for addressing the issue, not just preliminary costs. Experts should also keep track of the information they have used, compile information to keep an objective account of the work
- Participants discussed the term “calibration” and how it might be interpreted in the context of the project. It was later clarified that this referenced having context/benchmarks for quantitative metrics.
- SOLEC vs. SPC work – SPC work was to review what SOLEC had been working on, to see if SOLEC was heading in the right direction, and suggest changes as needed. While not entirely independent of each other, the overlap between the updated SOLEC indicators and the SPC indicators shows convergence because SPC was not restricted to stay within the direction of the SOLEC indicators.
- IJC is mandated to report to the parties about progress towards achieving the general and specific objectives of the Great Lakes Water Quality Agreement, which also involves objectively assessing the state of the Great Lakes and validating what the government’s report. Essentially, a “report card” of how well the Parties to the GLWQA are doing. IJC checks/reviews the SOLEC report from the governments to see if the claims are supported by the science.

**Action Item:**

- Action Item: Leads will be sent an email with the task of completing the metric assessments
- Scott Sowa to look into contract partnerships, review statement of work from the 3 RCC contracts/SOLEC contracts, with April deadline in mind

**Emerging Issues**

- Carol Miller presented table of potential topics for consideration as emerging issues suggested by SPC

**Action Items:**

- SPC Members assigned to each topic need to write “Study and White Papers”, ready for tomorrow (January 22<sup>nd</sup>)
- Raj, Jessica, Carol & Jeff to create timeline and prioritization survey on emerging topics

**LEEP Phase II- Contracts etc.**

- **Economic Impact study:** Although it is clear that HABs in western Lake Erie have profound negative economic impacts, most estimates of those impacts are generally based on anecdotal evidence or estimates of the value of Lake-based industries and activities. IJC asked for contract proposals to assess the economic

impacts of harmful algal blooms on the Lake Erie watersheds as part of LEEP Phase II. IJC-GLRO has a signed contract with Sanjiv K. Sinha of Environmental Consulting and Technology Inc. (ECT) Dave Allan, Glen Benoy, and Raj Bejankiwar are on the management team, will be supervising biweekly calls. At the kick off meeting January 5<sup>th</sup>, EC had developed a table of contents. Raj Bejankiwar discussed the study's timeline:

- In March ECT will reach out to SPC for comments
- March-June, peer review refinement
- Report will be presented to SPC in July

Environment Canada has a similar study, so IJC and ECT are working to make sure that work duplicated. Currently, Environment Canada is focusing on ecosystem values and water-shed focused best management practices.

LEEP Phase 2 is based on existing data, will not be collecting new data, will include case study on Toledo. IJC has been working with SPARROW Modelling, US ARMY Corps of Engineers has already done SWAT modeling for many Great Lakes watersheds.

**Action Item:** Raj Bejankiwar to forward Sanjiv K. Sinha's email to SPC

- **Human Health Impacts of HABs:** Health Professionals Advisory Board (HPAB) has a contract with Todd Morris, and has been working on it since October. Global literature review of impacts of cyanotoxins on animals and humans. Will prepare synthesis, review/limitations of analytical techniques, and may offer numeric recommendations for drinking water criteria, or at least a process required for doing so. A draft report will be released soon.

**Action Item:** Review HPAB report on cyanotoxins/drinking water

- **IJC- Areas of Concern/Recovery:** IJC has been assigned a specific role concerning AOCs in the GLWQA, to be consulted by governments. The work plan has been approved. Previously, IJC received two reports of delisting, staff reviewed and agreed delisting was justified. An SPC member from each country (Chris Metcalfe and Michael Murray) have agreed to help with this process, there has been discussion on whether the work plan needs to be adjusted. In the coming year there will likely be no American de-listing proposals, while in Canada, the St-Lawrence River will likely be proposed for delisting as an AOC.

**Record of Discussion, -Thursday, January 22, 2015**

***SESSION 3: SPC SEPARATE COMMITTEE MEETING***

- 15<sup>th</sup> & 16<sup>th</sup> biennial report – 4 page document received
- Ecological indicator metrics are final, but from each of the leads we will ask for a 3-5 page overview which will include summary paragraphs (Pending further direction from Scott Sowa)
- Discussed DPSIR framework, connecting indicators with response to drive us to recommendations to the commission, diagnostic as opposed to symptoms.

#### **Action Items:**

- Raj Bejankiwar to follow up on review of 15<sup>th</sup> and 16<sup>th</sup> biennial report feedback. Will circulate to SPC for comment
- Jeff Ridal to follow up with Bill Bowerman about Eagles indicators, Jessica MacKinnon to get indicator metric list to Henry with deadline for feedback

**Emerging Issues:** A roundtable discussion occurred about the emerging topics where leads shared their topics with the group and the group could add comments/questions such as, “what will this become, scope, budget considerations, timeline, prioritization process, etc.” The following SPC members presented topics:

- Dave Allan: Energy in the Great Lakes Basin
- Michael Murray: Chemicals of Emerging Concern, Climate Change, Green Chemistry, Ecological Impacts of Harmful Algal Blooms (HABs)
- Clare Robinson: Groundwater
- Jeff: Microplastics in Surface Water
- Christina Semeniuk: Social Economic Ecological Systems
- Lucinda: Stresser Interactions
- Scott Sowa: Information Coordination

#### **Action Items:**

- Jessica MacKinnon to propose timeline, send updated list of draft submittals, present draft submittals in template form.
- SPC to submit and/or revise draft summary paragraphs of emerging issue to Jessica MacKinnon in template form. Submit files with your initials in the title of the document.
- Jeff and Carol to see if topics have connections and can be organized into categories
- Jessica MacKinnon to send out survey & corresponding summary documents to SPC for prioritization of emerging topics, SPC members to fill out survey.
- Co-chairs to compile results and inform SPC during a conference call, settle on small number of topics
- SPC to develop work plans with associated budgets by end of February for review and approval by the Commission at the upcoming semi-annual in April.

IJC GLRO Director Trish Morris was now in attendance, introductions & welcome

**WQB legacy working groups:** asked SPC to volunteer and be resource: Dave Allan, Michael Murray, Dale Phenicie, and Bob Hecky have been volunteering.

- Currently nutrient legacy issues have become more of a watershed management and governance issue, and are reviewing what had been the effectiveness of governance to measure nutrients, looking at documenting failures of the past. WQB legacy working group will be meeting in Windsor in February. SPC volunteers noted it is important to recognize what other work has been done by experts, effort level required.

**Adequacy of EPA support for public engagement in LAMPS**

- EPA recently defunded public forums for each of the lakes, which followed defunding from the Canadian side several years earlier.

**Action Item:** Lucinda Johnson, Carol Miller, Jeff Ridal will draft letter on SPC position of funding and public forums.