

## GREAT LAKES EXECUTIVE COMMITTEE (GLEC) MEETING SUMMARY

December 8 to 9, 2015

Metro Toronto Convention Centre, South Building, Room 714  
222 Bremner Boulevard, Toronto, Ontario M5V 3L9

### WELCOME AND INTRODUCTIONS

The December 2015 Great Lakes Executive Committee (GLEC) meeting was opened with a First Nations welcome and opening ceremony by Pauline Shirt, First Nations Elder.

Welcome and introductory remarks from the GLEC Co-Chairs, Michael Goffin and Susan Hedman, were followed by introductions of meeting participants.

A list of meeting attendees can be found in Appendix A.

### JUNE 2015 GLEC MEETING SUMMARY AND STATUS OF ACTION ITEMS

The June 2015 GLEC Meeting Summary was accepted by GLEC members without any revisions.

- **ACTION:** June 2015 GLEC meeting minutes to be posted on binational.net.

All action items from the June 2015 GLEC meeting were highlighted as complete or to be addressed during the meeting.

### ANNEX UPDATES

#### Annex 1: Areas of Concern

Annex Co-Leads Wendy Carney (US Environmental Protection Agency) and Jon Gee (Environment and Climate Change Canada) provided an update on advancing work toward delisting Areas of Concern in the United States and Canada, and discussed two resource documents being developed:

To help enhance implementation of the Areas of Concern Annex, a task team was established to analyze and document the evolution of the AOC programs in Canada and the United States. The *Areas of Concern Situation Analysis Report* provides information, advice and recommendations for advancing the purpose of the AOC Annex by U.S. and Canada. The report includes a review and comparison of U.S. and Canada agency roles and practices regarding Areas of Concern; a review of the status of and processes for the development and implementation of Remedial Action Plans (including delisting criteria, Beneficial Use Impairment removals, AOC delisting and public involvement); key challenges, targets and objectives; and recommendations on guidance needs and information sharing.

The *Guidance Document on Areas of Concern in Recovery*, which provides guidance on the process and guiding principles for designating an AOC as an AOC in Recovery in both the U.S. and Canada. The draft guidance document includes a review of the provisions in the 2012 Canada-U.S. Great Lakes Water Quality Agreement (GLWQA) pertaining to the designation of an AOC in Recovery; roles and responsibilities of U.S. and Canadian agencies; a description of the process and requirements for designating an AOC as an AOC in Recovery; key policy or technical challenges associated with designating an AOC as an AOC in Recovery; and provides two hypothetical case studies as examples to assist practitioners in applying the guidance.

Both draft reports have received, and will take into consideration, comments from “AOC Practitioners” and will be posted on binational.net for review and comment.

- **ACTION:** The AOC Annex Co-Leads to post the “Situation Analysis” and “Areas of Concern in Recovery Guidance” reports on binational.net for review.

## **Annex 2: Lakewide Management**

Annex Co-Lead John Marsden (Environment and Climate Change Canada) provided a brief update on the posting of the 2015 LAMP Annual Reports to binational.net and the development of Lake Ecosystem Objectives. The first Objectives, for Lake Erie, will be ready for consultation in early 2016.

John Marsden also discussed other key commitments of the *Lakewide Management* Annex including:

A preview of the draft Nearshore Framework, which highlighted: the close coordination with the work being done under the Habitats and Species Annex to conduct a baseline survey of existing nearshore and off-shore habitat against which to set a target of net habitat gain; the conceptual model for the Nearshore Framework; and, next steps, which include posting the draft framework on binational.net by February 2016 for public comment.

An overview of the draft Lake Superior LAMP 2015, which will document and coordinate management actions related to: establishing Lake Ecosystem Objectives; assembling, assessing and reporting on State of the lake including current and future threats; identifying science priorities for assessment of threats and to support management actions; undertaking surveys, inventories, studies and outreach, as required; identifying the need for further action; developing and implementing lake-specific binational strategies; and developing the nearshore framework to be implemented collaboratively through the lakewide management process for each Great Lake.

Highlights of outreach and engagement webinars held from July to September 2015 to update the stakeholder community about the Annex’s progress on and discussions regarding possible approaches for outreach and engagement; highlights of potential upcoming outreach and engagement opportunities (such as LAMP Annual Reports, Lake Ecosystem Objectives, the Nearshore Framework, the Lake Superior LAMP 2015, Science priorities, Binational strategies, and ongoing communications); and, the upcoming establishment of lake-specific outreach and engagement subcommittees and strategies for each Lake Partnership.

- **ACTION:** The Lakewide Management Annex Co-Leads to post draft Nearshore Framework on binational.net for comment in February 2016; finalize the Lake Superior LAMP following public input (extended to January 29, 2016); and, initiate the work of the Lake Partnership outreach and engagement subcommittees.

### **Annex 3: Chemicals of Mutual Concern**

Annex Co-Leads Vincenza Galatone (Environment and Climate Change Canada) and Louise Wise (U.S. Environmental Protection Agency) provided the following Annex updates:

The formal designation of the first eight Chemicals of Mutual Concern by Canada and the U.S. is pending. The recommended chemicals are: Mercury, Polychlorinated Biphenyls, Perfluorooctane sulfonate, Perfluorooctanoic acid, Long-Chain Perfluorinated carboxylic acids, Polybrominated Diphenyl Ethers, Hexabromocyclododecane and Short-Chain Chlorinated Paraffins. Once designated, a list of existing environmental quality criteria, standards and guidelines for first eight Chemicals of Mutual Concern will be compiled and made publically available on binational.net in 2016. Draft Binational Strategies will be piloted for two of the eight Chemicals of Mutual Concern and are expected to be available for review and input in June 2016; the development of Binational Strategies for the remaining six Chemicals of Mutual Concern will be undertaken in accordance with lessons learned from the first two pilot Binational Strategies.

The next round of candidate Chemicals of Mutual Concern is planned for winter, 2016. Annex Co-Leads reminded GLEC that a process for non-government stakeholder to propose chemicals for consideration as candidate Chemicals of Mutual Concern is posted on binational.net. Furthermore, a review of Annex implementation to date was undertaken and possible changes to enhance implementation approaches are being considered for the next round.

- **ACTION:** The Chemicals of Mutual Concern Annex Co-Leads to post a list of existing environmental quality criteria, standards and guidelines for the proposed CMCs; complete and make publicly available draft Binational Strategies for two CMCs (pilot); and, launch the next round of candidate CMC identification and evaluation.

### **Annex 4: Nutrients**

Annex Co-Leads Susan Humphrey (Environment and Climate Change Canada) and Tinka Hyde (US Environmental Protection Agency) provided an overview of the final recommended binational phosphorus load reduction targets for the western and central basins of Lake Erie and for specific nearshore areas that have a significant localized impact, as well as a summary of the key input received during the consultation on these targets. Adoption of the targets by the Parties is pending.

Next steps were also highlighted, including: continuing work to identify Eastern Basin targets; the preparation of a binational phosphorus reduction strategy; and, the development of domestic action plans by February 2018, while numerous on-the-ground actions by various jurisdictions continue.

## **Annex 5: Discharges from Vessels**

Annex Co-Leads Chris Wiley (Transport Canada) and Lorne Thomas (US Coast Guard) provided an update on the ratification of the International Maritime Organization (IMO) Ballast Water Management Convention by Morocco, Indonesia and Ghana during November, 2015, which brought the convention ever closer to meeting the requirements for entry into force. The Convention will come into force 12 months after the date on which 30 IMO member states, representing 35% of the world's tonnage, ratify it; whether this tonnage requirement has been met is being calculated.

Annex Co-Leads also updated on the Binational Hydrocarbon Working Group examining the movement of crude oil and hazardous substances on the Great Lakes, as well as discussions between Transport Canada, the Canadian Coast Guard and the U.S. Environmental Protection Agency about sewage standards in the U.S. and State no discharge zones.

Lorne Thomas presented on the response effort that removed the light oil products oil and benzol from the Argo, a tanker barge that sank in Lake Erie in 1937. Discussions are underway between the U.S. Coast Guard, the U.S. Environmental Protection Agency, and the Ohio Environmental Protection Agency to assess any residual risks posed by the shipwreck.

## **Annex 6: Aquatic Invasive Species**

Michael Hoff, for Annex Co-Leads Gavin Christie (Fisheries and Oceans Canada) and Todd Turner (U.S. Fish and Wildlife Service), provided Annex updates on:

Implementation efforts of the Early Detection and Rapid Response Initiative including the continuation of Early Detection field work such as early detection eDNA sampling for Asian carp; Rapid Response efforts such as recent response exercises, as well as a summary of the response activities for the Grass Carp discovered in Lake Ontario and Erie during July to September 2015, which were found to be all from pond origin.

Species Risk Assessments efforts being undertaken such as the completion of the peer-review of the Grass Carp Binational Ecological Risk Assessment and a Socioeconomic Risk Assessment underway; and, a US Fish and Wildlife web resource of Risk Assessments for about 180 species.

The completion of a Pathway Risk Analysis in the U.S. of barge shipping-related transport of fishes within the Chicago Area Waterway System. The detection of juvenile Asian carp much further upstream in Illinois waterways than previously detected are resulting in plans to implement enhanced risk management activities to keep Asian Carp out of Great Lakes.

Containment and control technologies in the U.S. and Canada including near-real-time eDNA tool being tested in the U.S. to support Lake Erie efforts for interdicting illegal transport of Asian carps; complex sound, microparticles, and carbon dioxide are being tested as environmentally sound approaches to help contain Asian carps in the Mississippi River; and mesocosm studies are being undertaken in Canada for AIS containment and disruption.

The development of a U.S. species risk assessment tool that can project AIS climate niches in the years 2050 and 2070 under three IPCC climate change scenarios. The U.S. Fish and Wildlife

Service is proposing to proactively ban several species from import into the United States based on risk of invasion established by this tool.

### **Annex 7: Habitat and Species**

Annex Co-Leads Susan Humphrey (Environment and Climate Change Canada) and Lynn Lewis (US Fish and Wildlife Service) provided an update on work being undertaken to meet the commitment in the Annex to “Conduct a baseline survey of the existing habitat against which to establish a Great Lakes Basin Ecosystem target of net habitat gain and measure future progress.” A draft report, “Conducting a Baseline Survey of Great Lakes Habitat”, has been developed which outlines an assessment methodology, a process for measuring future progress and establishing targets for net habitat gain, and next steps. The habitat baseline survey is linked to the assessment approach proposed for the implementation of Nearshore Framework (a key commitment in the Lakewide Management Annex). A three-phased approach is recommended to undertake the habitat survey: (1) delineating and classifying the Great Lakes into aquatic ecological units through a pattern analysis of physical processes; (2) assessing the condition of the aquatic ecological units using dynamic parameters; and, (3) using species to confirm the condition of the habitat and validate the assessment. A review of this work by a wider group including the other Annexes, Lakewide Partnership Management Committees, and GLEC is targeted for early 2016 and over the next six months this approach will be refined and a pilot scoped out to test the methodology.

- **ACTION:** The Habitat and Species Annex Co-Leads to expand the technical team to refine the proposed methodology; share the draft “Conducting a Baseline Survey of Great Lakes Habitat” report with the GLEC for review; and, scope out implementation of a pilot.

### **Annex 8: Groundwater**

Annex Co-Leads Dale Van Stempvoort (Environment and Climate Change Canada) and Norman Grannemann (U.S. Geological Survey) presented an update on the draft “Groundwater science relevant to the Great Lakes Water Quality Agreement: A status report”, which was posted to binational.net in December of 2015 for public comment until the end of January, 2016. A final report will be made available after taking into consideration comments received. The Annex Co-Leads also provided an overview of the key conclusions from the report and future plans to present contents of the report at appropriate public meetings.

Future work was also highlighted including: discussion of strategies of how best to survey current activities by GLEC members and others who may be undertaking surveillance of groundwater quality; and discussion of how to address groundwater management.

- **ACTION:** The Groundwater Annex Co-Leads to finalize the Groundwater Science report, following public review.

### **Annex 9: Climate Change Impacts**

Annex Co-Lead Patrick Quealey (Environment and Climate Change Canada) provided an update on Annex activities, including:

The production of the summer 2015 and fall 2015 Quarterly Climate Impacts and Outlook for the Great Lakes Region; and, discussions to expand the Climate Quarterly report for the Alaska region to the territories of Northern Canada given its success.

The finalization of the “State of Climate Change Science in the Great Lakes Basin” report, which reviews the current climate change science in the Great Lakes region. The report assesses how the science is being applied, the body of evidence and level of agreement on the science, and identifies science gaps. The Executive Summary, Final Report and a companion database of all the literature reviewed in the report will be posted to the Ontario Climate Consortium website. Next steps for the report include targeted webinars with individual annexes to discuss the report’s findings, undertaking of a gap analysis, and using the report’s findings to help guide future workplans and the next round of binational priorities for science and action.

- **ACTION:** The Climate Change Annex Co-Leads to determine next steps for the Climate Change Science report and making the report summary available.

#### **Annex 10: Science**

Annex Co-Leads Ram Yerubandi (Environment and Climate Change Canada) and Paul Horvatin (U.S. Environmental Protection Agency) presented the following updates related to the Annex:

Cross-annex coordination efforts between the Science Annex and the Lakewide Management Annex on Cooperative Science and Monitoring Initiative (CSMI) activities; and between the Science Annex and the Nutrients Annex on developing Research and Monitoring priorities in Lake Erie, as well as coordination on Cladophora monitoring and related research workshop scheduled for January, 2016.

Work being undertaken through the Cooperative Science and Monitoring Initiative cycle including the completion of the intensive field year for Lake Michigan in 2015; the completion of the planning for the field year for Lake Superior in 2016; the identification of needs for the Lake Huron field year in 2017; the data reporting and analysis for Lake Ontario from the 2013 field year; and the initial data reporting for Lake Erie from the 2014 field year.

The development of the draft indicator reports that assess the status of the Great Lakes ecosystem are underway. Webinars will be scheduled in February to March 2016 to undertake a peer review and scientific confirmation of each Indicator Assessment and Overall Assessments. The Final Indicator Reports and Overall Assessments are targeted to be completed in mid-2016 and information from these products will be presented at the Great Lakes Public Forum in October, 2016. The release of the State of the Great Lakes Reports will occur in early to mid-2017.

The following initial activities were proposed to support overall GLWQA data management and sharing: development of a Great Lakes Water Quality Data Management Guidance ‘living’ document; evaluating the usefulness of distributed data access systems/tools for GLWQA

processes; developing guidelines for consistent quality and security of GLWQA data; developing or identifying a directory of metadata repositories that meet GLWQA needs; providing high-level guidance for consistency in interpretation and calibration; and undertaking regular engagement with the Great Lakes data management community to coordinate efforts.

- **ACTION:** The Science Annex Co-Leads to investigate data management and sharing tools and determine how these can be best applied into GLWQA implementation.

## **ADDITIONAL PRESENTATIONS AND DISCUSSIONS**

### **International Pipelines in the Great Lakes**

The following additional presentations highlighted Canadian and U.S. agency roles and responsibilities related to international pipelines in the Great Lakes:

Joanne Munroe from Canada's National Energy Board (NEB) spoke to: the NEB's role in overseeing international and inter-provincial aspects of the oil, gas and electric utility industries and pipeline regulation; NEB's role as a lifecycle regulator from application through construction, operation and eventual abandonment; the responsibility of the owner of the pipeline to ensure proper management, including incident management systems and emergency management programs to anticipate, prevent, mitigate, and manage any pipeline incident; and NEB's role during emergencies and response, as well as company oversight and enforcement.

Harold Winnie from the US Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) spoke to the role of PHMSA to protect people and the environment from the risks inherent in transportation of hazardous materials (and specifically, the Hazardous Liquid, Gas Transmission, Gas Gathering, and Gas Distribution pipelines and the Liquefied Natural Gas plants and tanks that PHMSA regulates through the Code of Federal Regulations (CFR), Title 49 Parts 190 to 199). The work of PHMSA related to pipeline systems includes identifying and evaluating risks; inspection and enforcement; responding and investigating accidents or incidents; education; research; and, grants to states in support of their pipeline safety programs.

Ralph Dollhopf (US Environmental Protection Agency) provided an overview of: the National Response System (NRS) for responding to a wide range of oil and hazardous substance releases; and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which provides the framework for the NRS and establishes how it works including discussing the specific components of the NRS, the teams and coordinators involved, funding mechanisms, preparedness, and contingency plans.

### **Data Sharing**

Several presentations were provided on various data sharing initiatives and tools that can support GLWQA implementation:

Kelli Page (Great Lakes Observing System, GLOS) provided an overview of the GLOS system and its capabilities, along with examples of GLOS tools and services, as well as opportunities for GLOS to support GLWQA efforts.

Sean Backus (Environment and Climate Change Canada) provided an overview of: Canada's Commitment to Open Science/Data and maximizing accessibility and access to federally-funded science and technology activities; Canada's Action Plan for Open Government including a wide-ranging set of initiatives on open information, open dialogue and open data; and Environment and Climate Change Canada's approach and examples of open data and open science, data management.

Paul Horvatin (U.S. Environmental Protection Agency) and John Walker (US Geological Survey) provided an overview of the Lake Superior Environmental Monitoring Collaborative, which helps improve the discovery and access to multi-disciplinary monitoring data. A demonstration of Science in the Great Lakes (SiGL) was provided. SiGL is a metadata catalog and mapper that provides information about the data set or multiple data sets and links to GreatLakesMonitoring.org where the data can be analyzed, visualized and obtained.

### **Progress Report of the Parties, Great Lakes Public Forum (2012 GLWQA Article 5)**

James Schardt (US Environmental Protection Agency) provided an update on the development of Progress Report of the Parties, including: a working timeline for production of report (with a draft presented at the June, 2016 GLEC meeting); a structure for the Report including length and scope; a high-level table of contents; and, work being undertaken to develop a draft Nutrients Annex chapter to be shared with Annex Co-Leads to provide an example to guide the development of their annex chapters.

Jennifer McKay (Environment and Climate Change Canada) presented the plans for the Great Lakes Public Forum in October, 2016. The Forum will span over three days, from October 4<sup>th</sup> to 6<sup>th</sup>. The first two days will include information on the State of the Great Lakes (including lake by lake presentations), Annex-specific presentations on progress made to implement the GLWQA and the proposed binational priorities for science and action, and opportunities for public comment. During the evening portion of Day 2, the International Joint Commission will hear from the public on the Progress Report of the Parties. Day 3 will be an opportunity for all to "celebrate our Great Lakes" and build momentum for further action to restore and protect the Lakes.

- **ACTION:** The GLEC Secretariat, and GLEC members, to share information on plans for the 2016 Great Lakes Public Forum to promote participation.

### **NEWS FROM MEMBERS**

The following GLEC members provided news or updates:

- Andrew McAllister (Canadian Nuclear Safety Commission) highlighted that the environmental assessment of the Deep Geologic Repository Project for Low- and Intermediate-level nuclear waste concluded that the project will not likely result in any significant environmental effects and that

Canada's Minister of the Environment and Climate Change will provide her decision statement on the Deep Geologic Repository March 1, 2016.

- David Nanang (Natural Resources Canada) provided an update on the Port Hope Area Initiative for clean-up and management of the historic low-level radioactive waste in Port Hope and the transfer of responsibilities for the Initiative from Natural Resources Canada to the Atomic Energy of Canada Limited. In addition, David Nanang spoke about Natural Resource Canada's new project related to synthesizing groundwater data.
- Darlene Upton (Parks Canada) highlighted efforts toward the establishment, by order of Canada's Governor in Council, of the Lake Superior National Marine Conservation Area (one of the world's largest freshwater marine protected area comprising of more than 10,000 square kilometres of the lake, and includes lakebed, islands and shore lands).
- Robert Fleming (Ontario Ministry of the Environment and Climate Change) provided an update on two recent Acts passed in Ontario: *The Ending Coal for Cleaner Air Act* to permanently ban coal-fired electricity generation in the province; and *The Great Lakes Protection Act*, which will give the government of Ontario flexible new tools to protect and restore the Great Lakes.
- Joan Matthews (US Environmental Protection Agency Region 2) provided an update on the following activities from EPA Region 2: the monitoring and modelling efforts work to support the Nutrients Annex target development; the successful efforts resulting in the recovery of the endangered piping plover shorebird; progress towards the recovery of the Buffalo River and Rochester AOCs and the targeted completion of actions in 2016; and successes resulting in the decline of bioaccumulative fish contaminants in Lake Ontario. Joan Matthews also expressed support for Plan 2014 for Lake Level regulation in Lake Ontario.
- David Ullrich (Great Lakes St. Lawrence Cities Initiative) highlighted: the Initiative's efforts in support of the Ohio, Michigan and Ontario collaborative agreement to work toward a 40% reduction in phosphorus loads to Lake Erie by 2025, with an interim goal of 20% by 2020; the Initiatives' support for full physical separation of the Great Lakes and Mississippi River basins in order to prevent the introduction of Asian carp to the Great Lakes; support for the phase-out of microbeads, including the *Microbead-Free Waters Act*, which bans the sale and distribution of microbeads throughout the United States; and, efforts to support municipalities in managing and mitigating climate change impacts.
- John O'Brian (Department of State) discussed the North American Great Lakes to African Great Lakes Initiative and some of the issues the African Great Lakes are facing (such as AIS), as well as the potential for lessons learned and the exchange of information.
- Deborah Lee (National Oceanic and Atmospheric Administration) provided a highlight of NOAA's work on the planning, response and state of the science related to hypoxia and harmful algal blooms, as well as upcoming webinars on the state of the science, where input will be sought.
- Jessica L. Jock (Saint Regis Mohawk Tribe) emphasized fish contaminant concerns given the importance of fish as a nutritional source in tribal diets. Jessica Jock also provided an update on work to include cultural recommendations in habitat restoration in the St. Lawrence River region, as

well as on-going work with the New York State Department of Environmental Conservation and the U.S. Environmental Protection Agency on the restoration of Lake Sturgeon populations.

## **COMMENTS FROM COMMISSION REPRESENTATIVES**

Comments were provided from the following Commission representatives:

- Gordon Walker (International Joint Commission) highlighted:
  - The Commission's Triennial Assessment of Progress Report. The Report, anticipated to be released in early 2017, will review the Progress Report of the Parties and will include a summary of public input, as well as an assessment of whether government programs and other measures are meeting the objectives of the GLWQA.
  - Current Great Lakes Advisory Board priorities which include legacy issues (e.g., flame retardants, harmful algal blooms, Lake Erie watershed management plans); emerging issues (e.g., climate change); indicators; and public engagement.
  - The Great Lakes-St. Lawrence Adaptive Management Committee (GLAM), launched in 2015, that will help improve the regulation of Great Lakes and St. Lawrence River levels and flows in coming years and provide opportunities for better coordination of efforts on water levels and flow regulation with water quality considerations.
- Bob Lambe (Great Lakes Fishery Commission) highlighted:
  - The assessment of adult sea lamprey control efforts, which have shown that efforts to control sea lamprey over recent years have paid off (30-year lows were hit in Lake Huron; 20-year lows were hit in Lake Michigan; the targets were hit in Lake Ontario; and while Lake Superior and Lake Erie were above their targets they do show a 5-year decline).
  - Opportunities for harmonizing fisheries management with GLWQA activities such as, incorporating environmental principles in fish community objectives, and greater engagement by fishery managers in implementation of the GLWQA, especially through the Lakewide Management and the Habitats and Species annexes (e.g., linking habitat management and habitat evaluation to critical needs of fisheries); the Aquatic Invasive Species Annex; and the Science Annex (e.g., aligning the Lake Committee Fishery Reports to better utilize the information from the Cooperative Science and Monitoring Initiative (CSMI) process).
  - The Great Lakes Fishery Commission co-chairs the Monitoring Response Working Group, under the Asian carp Regional Coordination Committee, which has successfully removed millions of pounds of Asian carp in Chicago, keeping the pressure off the electric barrier and stalling movement. The working group's plan for 2016 will include continuing aggressive removal on adult populations and special emergency measures for keeping Asian carp out of Great Lakes.
- Victoria Pebbles (Great Lakes Commission) highlighted:
  - Work of the Lake Erie Nutrients Target (LENT) Working Group. The LENT interim report was released in June 2015 (shared at Governors and Premiers Summit in Quebec), and the final report was released September, 2015. The report includes goals for Lake Erie; targets, which parallel the targets agreed to by Ontario, Michigan and Ohio through their collaborative agreement (20% by 2020; 25% by 2015); and 10 actions for nutrient reduction, which could be the starting point for the domestic action plans being developed under the GLWQA.

## **OBSERVER COMMENTS**

Comments were provided from the following observers:

- Lyman Welch (Alliance for the Great Lakes) provided comments on:
  - The importance of outreach and engagement; the need to engage the public to keep them excited about the lakes and allow them to be a part of Great Lakes restoration and protection efforts, as well as for garnering public support to get the funding and political will to advance this work.
  - The need of the Progress Report of the Parties to succinctly respond to “How well we are doing against meeting the 9 General Objectives of the GLWQA” (short answers in single page); and to identify “what are we doing to move forward”.
- Dale Phenicie (Council of Great Lakes Industries) provided comments on:
  - Further enhancing GLEC meetings by including more details about timelines of the work being discussed or future products being released by the Annex Co-Leads.
  - The critical need to integrate and make available the information and data being produced by all the research and monitoring around the Great Lakes and consideration for expanding the Science Annex Data Management and Sharing Task Team to allow for experts who have been working in this area over numerous years.
  - The need for enhanced collaborative activities to keep the attention on all the work to protect the Great Lakes (the state of the Great Lakes indicators work, and collaboration and engagement of diverse stakeholders, were given as examples).

## **SUMMARY OF ACTION ITEMS**

- The GLEC Secretariat to post the meeting presentations/materials on the US Environmental Protection Agency SharePoint and share the link with meeting participants.
- June 2015 GLEC meeting minutes to be posted on binational.net.
- The AOC Annex Co-Leads to post the “Situation Analysis” and “Areas of Concern in Recovery Guidance” reports on binational.net for broad review.
- The Lakewide Management Annex Co-Leads to post draft Nearshore Framework on binational.net for comment in February, 2016; finalize the Lake Superior LAMP following public input (extended to January 29, 2016); and, initiate the work of the Lake Partnership outreach and engagement sub-committees.
- The Chemicals of Mutual Concern Annex Co-Leads to post a list of existing environmental quality criteria, standards and guidelines for the proposed CMCs; complete and make publicly available draft Binational Strategies for two CMCs (pilot); and, launch the next round of candidate CMC identification and evaluation.
- The Habitat and Species Annex Co-Leads to expand the technical team to refine the proposed methodology; share the draft “Conducting a Baseline Survey of Great Lakes Habitat” report with the GLEC for review; and, scope out implementation of a pilot.
- The Groundwater Annex Co-Leads to finalize the Groundwater Science report, following public review.

- The Climate Change Annex Co-Leads to determine next steps for the Climate Change Science report and making the report summary available.
- The Science Annex Co-Leads to investigate data management and sharing tools and determine how these can be best applied into GLWQA implementation.
- The GLEC Secretariat, and GLEC members, to share information on plans for the 2016 Great Lakes Public Forum to promote participation.

#### **NEXT MEETING & ADJOURNMENT**

The next Great Lakes Executive Committee meeting, to be held in Chicago, was proposed for June 1-2, 2016.

Clayton Shirt provided a First Nations closing to adjourn the meeting.

**December 8 to 9, 2015 GLEC MEETING PARTICIPANTS**

1. Rebecca Aicher, Northeast-Midwest Institute – *remotely*
2. Paul Allen, International Joint Commission
3. John Allen, Office of the Great Lakes
4. Captain Paul Arnett, US Coast Guard
5. Antonette Arvai, International Joint Commission – *remotely*
6. Seth Ausubel, US Environmental Protection Agency – *remotely*
7. Meredith Austin, National Energy Board
8. Sean Backus, Environment and Climate Change Canada
9. Lesley Baker, Public Services and Procurement Canada
10. Edlynzia Barnes, US Environmental Protection Agency – *remotely*
11. Raj Bejankiwar, International Joint Commission
12. Glenn Benoy, International Joint Commission – *remotely*
13. Sophie Bernier, Environment and Climate Change Canada – *remotely*
14. Sandy Bihn – *remotely*
15. Jennifer Boehme, International Joint Commission
16. Jen Bruce, US Geological Service – *remotely*
17. Tim Bruno, Pennsylvania Department of Environmental Protection
18. David Burden, Fisheries and Oceans Canada
19. Mark Burrows, International Joint Commission
20. Ashley Campbell, Environment and Climate Change Canada
21. Wendy Carney, US Environmental Protection Agency
22. Danielle Chesky, Embassy of Canada in Washington, D.C. – *remotely*
23. Matthew Child, International Joint Commission
24. Gavin Christie, Fisheries and Oceans Canada – *remotely*
25. Steve Cole, Great Lakes Commission – *remotely*
26. Carol Comer, Indiana Department of Environmental Management
27. Tracey Cooke, Invasive Species Centre
28. Nicola Crawhall, Great Lakes and St. Lawrence Cities Initiative
29. Cameron Davis, US Environmental Protection Agency
30. Diane de Beaumont, Environment and Climate Change Canada – *remotely*
31. Fe de Leon, Canadian Environmental Law Association
32. Ralph Dollhopf, US Environmental Protection Agency Region 5 – *remotely*
33. Bob Duncanson, Georgian Bay Association
34. John Dungavell, Ministry of Natural Resources and Forestry
35. Stephen G. Durrett, US Army Corps of Engineers
36. Tim Eder, Great Lakes Commission
37. Natalija Fisher, Environmental Defence
38. Marc Fisher, Council of the Great Lakes Region
39. Robert Fleming, Ministry of Environment and Climate Change
40. Dan Flower, Environment and Climate Change Canada – *remotely*
41. Bonnie Fox, Conservation Ontario
42. Stephen Galarneau, Wisconsin Department of Natural Resources – *remotely*
43. Vincenza Galatone, Environment and Climate Change Canada – *remotely*
44. Carl Gebhardt, Ohio Environmental Protection Agency

45. Jon Gee, Environment and Climate Change Canada
46. Raj Gill, Freshwater Alliance
47. Dereth Glance, International Joint Commission
48. Michael Goffin, Environment and Climate Change Canada
49. Nancy Goucher, Freshwater Future
50. Brad Grams, US Environmental Protection Agency – *remotely*
51. Norman Granneman, US Geological Service
52. Michael Hoff, US Fish and Wildlife Service
53. Paul Horvatin, US Environmental Protection Agency
54. Susan Hedman, US Environmental Protection Agency
55. Nick Heisler, International Joint Commission – *remotely*
56. Susan Humphrey, Environment and Climate Change Canada
57. Tinka Hyde, US Environmental Protection Agency
58. John Jackson, Great Lakes Binational Citizen Activist
59. Courtney Jackson, Aamjiwnaang First Nation
60. Jessica L. Jock, Saint Regis Mohawk Tribe, Environment Division
61. Carolyn Johns, Great Lakes Policy Research Network – *remotely*
62. Daugherty Johnson, Little Traverse Bay Bands of Odawa Indians
63. Sharilyn Johnston, Aamjiwnaang First Nation – *remotely*
64. Pamela Joesse, Agriculture and Agri-Food Canada
65. Amy Klei, Ohio EPA – *remotely*
66. Roger Knight, Great Lakes Fishery Commission
67. Gail Krantzberg, McMaster University – *remotely*
68. Ash Kumar, Environment and Climate Change Canada
69. Bob Lambe, Great Lakes Fisheries Commission
70. Hugh Langley, Environment and Climate Change Canada
71. Liz Laplante, US Environmental Protection Agency – *remotely*
72. Joan Leary Matthews, US Environmental Protection Agency Region 2
73. Debra Lee, National Oceanic and Atmospheric Administration
74. Wendy Leger, Environment and Climate Change Canada – *remotely*
75. Lynn Lewis, US Fish and Wildlife Service
76. Frederick Luckey, US Environmental Protection Agency Region 2 – *remotely*
77. Camille Mageau, International Joint Commission
78. Luigi Marini, University of Illinois – *remotely*
79. Ling Mark, Ministry of Environment and Climate Change
80. John Marsden, Environment and Climate Change Canada
81. Catherine Masson, Consultant
82. Andrew McAllister, Canadian Nuclear Safety Commission
83. Andrew McCammon, Ontario Headwaters Institute
84. George McCaw, Ministry of Agriculture, Food and Rural Affairs
85. Jennifer McKay, Environment and Climate Change Canada
86. Jody McKenna, Environment and Climate Change Canada – *remotely*
87. Jan Miller, US Army Corps of Engineers
88. Felicia Minotti, Global Affairs Canada
89. Trish Morris, International Joint Commission
90. Joanne Munroe, National Energy Board
91. Beth Murphy, US Environmental Protection Agency – *remotely*
92. Michael Murray, National Wildlife Federation – *remotely*

93. David Nanang, Natural Resources Canada
94. Dawn Nelson, University of Michigan – *remotely*
95. Lindy Nelson, US Department of the Interior – *remotely*
96. Todd Nettesheim, US Environmental Protection Agency – *remotely*
97. John O'Brien, US Department of State
98. Carolyn O'Neill, Ministry of Environment and Climate Change
99. Kelli Paige, Great Lakes Observing System
100. Victoria Pebbles, Great Lakes Commission
101. Dale Phenicie, Council of Great Lakes Industries
102. Kelly Phillips, Environment and Climate Change Canada – *remotely*
103. Lana Pollack, International Joint Commission
104. Anjala Puvananathan, Canada Environmental Assessment Agency
105. Patrick Quealey, Environment and Climate Change Canada
106. Vi Richardson, Environment and Climate Change Canada – *remotely*
107. Linda Robertson, Environment and Climate Change Canada
108. Mary-Ann Robinson, Environment and Climate Change Canada – *remotely*
109. Christine Rogers, Aamjiwnaang First Nation
110. Jamie Schardt, US Environmental Protection Agency
111. Victor Serveiss, International Joint Commission – *remotely*
112. Aisha Sexton-Sims, US Environmental Protection Agency – *remotely*
113. Pauline Shirt, First Nations Elder
114. Clayton Shirt, First Nations
115. Julie Simard, Ministry of Natural Resources and Forestry
116. Peter Singer, Georgian Bay Forever
117. Ana Sirviente, Council of Great Lakes Industries – *remotely*
118. Rachel So, Department of State
119. Marta Soucek, Ministry of Environment and Climate Change
120. Nancy Stadler-Salt, Environment and Climate Change Canada – *remotely*
121. John L. Stine, Minnesota Pollution Control Agency
122. Dawn Sucee, Ontario Federation of Anglers and Hunters – *remotely*
123. Stephanie Swart, State of Michigan – *remotely*
124. David Sweetnam, Georgian Bay Forever
125. Kristin TePas, US Environmental Protection Agency – *remotely*
126. Lorne Thomas, US Coast Guard Ninth District
127. Carla Torchia, Environment and Climate Change Canada
128. Jason Travers, Ministry of Natural Resources and Forestry
129. Markus Tuohimaa, Métis Nation of Ontario – *remotely*
130. David A. Ullrich, Great Lakes and St. Lawrence Cities Initiative
131. Darlene Upton, Parks Canada Agency
132. Dale Van Stempvoort, Environment and Climate Change Canada
133. Jennifer Vanator, Great Lakes Indian Fish and Wildlife Commission – *remotely*
134. Gordon Walker, International Joint Commission
135. Li Wang, International Joint Commission – *remotely*
136. Cindy Warwick, International Joint Commission – *remotely*
137. Lyman Welch, Alliance for the Great Lakes
138. April Weppler, Freshwater Future – *remotely*
139. Rod Whitlow, Chiefs of Ontario
140. Chris Wiley, Transport Canada

141. Danalynn Williams, Aamjiwnaang First Nation
142. John Wilson, International Joint Commission – *remotely*
143. Harold Winnie, US Department of Transportation / Pipeline and Hazardous Materials Safety Administration
144. Louise Wise, US Environmental Protection Agency – *remotely*
145. Carissa Wong, Bionomos
146. Laurie Wood, Environment and Climate Change Canada – *remotely*
147. Nigel Wood, Ministry of Agriculture, Food and Rural Affairs
148. Charlie Wooley, US Fish and Wildlife Service
149. Ram Yerubandi, Environment and Climate Change Canada
150. Don Zelazny, New York State Department of Environmental Conservation
151. Jim Zorn, Great Lakes Indian Fish and Wildlife Commission – *remotely*