

International Joint Commission  
Canada and United States



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Canada et États-Unis

May 2, 2017

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**Re.: Advice and Recommendations on the Lake Superior LAMP**

Dear Ms. Hyde and Mr. Goffin,

On December 13, 2016 the U.S. Environmental Protection Agency and Environment and Climate Change Canada provided the International Joint Commission (IJC) with the Lake Superior Lakewide Action and Management Plan (LAMP). We are pleased to transmit our attached advice and recommendations to the Parties, in accordance with our role described in Annex 2 of the Great Lakes Water Quality Agreement.

The Commission commends the Parties on the production of the first LAMP under the 2012 Agreement. The IJC finds that the LAMP adopts an ecosystem approach and presents a comprehensive and current science synthesis in the sections on lake status, and the stressors and threats affecting the lake. We also find that the management actions included in the report are relevant and appropriate. In our attached advice and recommendations, we have identified areas where additional emphasis may benefit the 2020 version of the Lake Superior LAMP, and forthcoming LAMPs under development for the other lakes:

- The link between chemical contaminants and how domestic and binational strategies related to research, monitoring, surveillance and pollution prevention and control are expected to lead to improved ecosystem and human health requires greater emphasis.
- The fate of the successful Lake Superior Binational Program remains uncertain, and it would be helpful if the Parties reported on the progress made towards each of its individual Policy and Action commitments, and develop a strategy to accomplish any unfulfilled commitments.
- Although the final Lake Superior LAMP includes additional details about planned management actions than were included in the draft version, more information such as specific project activities, costs, timelines, and outputs/outcomes would help ensure 'action' on the lake, and ensure accountability. The IJC believes activities to meaningful engage the public and other stakeholders should be accelerated in order to fulfill the Agreement's commitment to the principles of public participation and accountability.

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We trust that our advice and input will be helpful to the Parties and others working to restore and maintain the chemical, physical and biological integrity of Lake Superior, and for the LAMPs that will be developed for the other lakes.

Consistent with our standard practice, the IJC will make these comments available to the public.

Sincerely,



Lana Pollack  
Co-Chair  
U.S. Section



Gordon W. Walker, Q.C.  
Co-Chair  
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Enclosure: Advise and Recommendations on the Lake Superior Lakewide and Management Plan (2015-2016)

- cc. Christopher Wilkie, Foreign Affairs Canada  
Chris Sandrolini, U.S. Department of State  
Susan Humphrey, Environment and Climate Change Canada and Co-Chair, Lake Superior Partnership Management Committee  
John Marsden, Environment and Climate Change Canada and Co-Chair, GLEC Lakewide Management Annex  
Michael Gluck, Ontario Ministry of Environment and Climate Change  
Ken Lacroix, Ontario Ministry of Natural Resources and Forestry  
Rick Hobrla, Michigan Department of Environmental Quality  
Steve Galarneau, Wisconsin Department of Natural Resources  
Suzanne Hanson, Minnesota Pollution Control Agency

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## **ADVICE AND RECOMMENDATIONS ON THE LAKE SUPERIOR LAKEWIDE ACTION AND MANAGEMENT PLAN (2015-2019)**

**May 2, 2017**

Annex 2 (Lakewide Management) of the Great Lakes Water Quality Protocol of 2012 (the Agreement) requires that the Parties develop Lakewide Action and Management Plans (LAMP) and “(w)hen the LAMP is issued, the Parties shall provide a copy to the IJC for advice and recommendations”. The Parties provided the Lake Superior LAMP to the International Joint Commission (IJC) on December 13, 2016.

On November 13, 2015 the Parties sent a draft Lake Superior LAMP to the IJC and others, inviting input. The IJC provided its written input on the draft Lake Superior LAMP to the Lake Superior Management Committee co-chairs in December, 2015. The IJC notes that many of our earlier suggestions have been incorporated into the final version of the LAMP. The IJC commends the Parties on providing the IJC, stakeholders and the public with an opportunity to comment on the draft version of the LAMP.

The IJC notes that the Lake Superior LAMP is the first LAMP to be developed under the 2012 Agreement. In their observer role, IJC staff experienced first-hand the level of effort, collaboration, and detail that went into preparing the report. The IJC commends the Parties and other Binational Lake Partnership members for their accomplishment, and hopes that our advice and recommendations are useful to all Binational Lake Partnerships as they prepare LAMPs for their respective lake.

The IJC’s advice and recommendations include input from the IJC’s Great Lakes Advisory Boards. Our observations, advice and recommendations are summarized in several underlined topical sections below.

### Ecosystem Approach

The scope of the LAMP report addresses chemical, physical and biological factors and the interactions between them, and thus adopts an ecosystem approach.

The LAMP includes a description of traditional ecological knowledge (TEK) (pp. 12-13) and commits to incorporating TEK into select projects (p. 8) and science-based management (p. 92). The IJC commends the Parties on re-initiating their Annex 10 TEK Task Team through a

conference call in December, 2016. To further advance incorporation of TEK into lake management, **the IJC recommends that all LAMPs fully describe how TEK will be incorporated into decision-making, and the role of Tribal/Metis/First Nations communities in that process.**

### Lake Status

The LAMP provides a description of the status of Lake Superior, relying primarily on the State of the Great Lakes 2011 report (published in 2014). The IJC notes that updated State of the Great Lakes information was presented at the Great Lakes Public Forum in October, 2016, and Lake Superior was the only lake to receive an overall status of 'good'. The IJC commends the Parties and other Binational Lake Partnership members for their historical and current science, management and outreach efforts which have contributed to the status and trends observed in Lake Superior.

In the IJC's opinion the LAMP provides a current and comprehensive summary of the state of Lake Superior. The relevance of this section of the LAMP is strengthened by describing lake status for each of the Agreement's General Objectives.

We note that Table 3 includes the status of each lakewide objective. **The IJC recommends that all LAMPs identify trends in ecological status, if data are available.** For Lake Superior, this would provide additional, useful information and would be consistent with State of the Great Lakes reporting and the 2008 Lake Superior LaMP.

The section on contaminants (pp. 21-26) provides a useful summary for several contaminants in whole fish, fish-eating birds, offshore waters, air and sediments. All LAMP readers will be encouraged to see the long term and significant declines in the concentrations of several persistent, bioaccumulative toxic chemicals in Lake Superior water and biota. Notwithstanding those improvements, Environment and Climate Change Canada's (ECCC) data show perfluorooctane sulfonate (PFOS) has tripled in whole lake trout between 2006-2013 and now exceeds the guideline. Further, data from ECCC and the United States Environmental Protection Agency (EPA) show that mercury concentrations have increased slightly in fish in the last two decades after a period of declining concentrations. **The IJC recommends that future LAMPs for all lakes include additional details on contaminants that are increasing in fish and other environmental media. The details should identify the problem contaminants in each media, and for those showing increasing trends, include reasons or hypotheses for observed increases.**

Section 8.0 of the LAMP describes science and monitoring priorities in three theme areas: chemicals and nutrients, aquatic communities, and habitat and wildlife. IJC observes that those priorities are relevant and appropriate, although they are described in fairly general terms. It would be helpful if greater specificity could be assigned to the science and monitoring priorities, as well as to how those priorities will be used to inform and shape the next LAMP report.

The IJC commends the Parties for the LAMP's commitment to Cooperative Science and Monitoring Initiative (CSMI) reporting, as described in Section 8 of the LAMP. The IJC is of the view that since CSMI was initiated a little over ten years ago, it has significantly improved science and monitoring coordination amongst federal science agencies and some progress has been made with state/provincial agencies as well. In order to further enhance the effectiveness of CSMI, **the IJC recommends that consolidation of preliminary CSMI findings be completed for all lakes as quickly as possible following sample processing and data analysis to inform management actions which must be made following the CSMI cycle for a particular lake.** The management synthesis report should also incorporate the peer-reviewed findings of previous CSMI cycles to identify trends and highlight long term accomplishments.

### Environmental Stressors

The IJC notes that Section 4.2 of the LAMP presents a comprehensive description of lakewide threats. The IJC commends the Parties and all members of the LAMP writing team for assembling such an accessible synthesis of threats and stressors affecting the lake. To further enhance the report, **the IJC recommends that any spatial variability of a particular threat within the basin be described to help direct management actions to parts of the lake, shoreline or contributing watershed where the threat is most severe.**

The LAMP notes that microplastics, among other commercial and consumer-use chemicals, need further study related to the potential adverse effects associated with acute and chronic exposure. However, the precautionary approach compels actions to reduce potential harm. Therefore the IJC is supportive of recent efforts to remove microbeads from personal care products in several Great Lakes jurisdictions and encourages further research. **The IJC recommends that the Parties develop a binational plan to prevent microplastics from entering the Great Lakes using a combination of approaches and tools including science and research, policy, market-based instruments and education and outreach.** More specific recommendations are provided in our February 2017 report *Microplastics in the Great Lakes* which can be accessed at [http://ijc.org/files/tiny/mce/uploaded/Publications/IJC\\_Microplastics\\_GL.pdf](http://ijc.org/files/tiny/mce/uploaded/Publications/IJC_Microplastics_GL.pdf)).

The LAMP includes several references to chemicals of mutual concern (CMC). In some instances, CMCs are described as having been recommended for designation under the Agreement (e.g., p. 43, 62), when in fact those CMCs were designated by the Parties in May, 2016, several months before the LAMP was released. Several of the CMCs designated by the Parties are prevalent in Lake Superior environmental media e.g., mercury, PFOSs and PCBs. **The IJC recommends that LAMPs for all lakes fully describe the link between chemicals (or classes of chemicals) found in a particular lake, and how binational strategies related to research, monitoring, surveillance and pollution prevention and control are expected to lead to improved ecosystem and human health.**

## Lake Ecosystem Objectives

The LAMP acknowledges that lake ecosystem objectives (LEOs) will be developed for Lake Superior by the end of 2017, and those LEOs will be used in the next version of the Lake Superior LAMP (expected in 2020) as the benchmark with which to assess ecosystem status and trends. For the 2015-19 LAMP, existing lake objectives are used primarily from the *Biodiversity Conservation Strategy for Lake Superior* (consisting of the seven habitat types included in the Strategy), and two chemical objectives. The IJC concurs with this strategy for the first LAMP.

The IJC commends the Parties for their commitment to develop LEOs in the Agreement, and believes that appropriate and relevant objectives will be useful for guiding management actions, as well as for accountability and communication purposes. Although the development of LEOs is not a timebound commitment in the Agreement, **the IJC recommends that the Parties publically describe the process and timeline that will be used to develop the LEOs for all lakes including the role of the Lake Partnerships, and invite public and stakeholder input during the development process. Further, the IJC recommends that when LEOs are developed for Lake Superior (and the other lakes) that they are measurable and address each of the Agreement's General and Specific Objectives.** Measurable objectives permit an objective assessment of progress over time, and respond to the Agreement language to serve “as a benchmark against which to assess standards and trends in water quality and ecosystem health”. We note that a great deal of work has been done by the Parties and the IJC to refine indicators and metrics, and the IJC expects that those efforts will inform the development of LEOs for each lake.

## Integrated Nearshore Framework

The LAMP notes that once an Integrated Nearshore Framework (INF) is complete it will be reported in the next LAMP (expected in 2020) (p. 59). The INF was released by the Parties in September, 2016 and in the IJC's opinion the guiding principles included in the report are appropriate and comprehensive. The IJC looks forward to the INF being incorporated into forthcoming LAMPs for the other lakes.

## Substance Objectives

In response to a recommendation contained in the IJC's Fifth Biennial Report on Great Lakes Water Quality, the Parties established the Lake Superior Binational Program (LSBP) in 1991. The primary focus of the program was to expand, coordinate and accelerate U.S. and Canadian environmental protection programs through two major areas of activity – pursue the goal of zero discharge of certain designated persistent bioaccumulative toxic substances, and undertake a broader program of identifying impairments and restoring and protecting the Lake Superior basin ecosystem.

In the IJC's opinion, the LSBP was a highly successful collaborative approach that effectively developed and implemented management actions to address identified chemical stressors and

threats. The LSBP's own reporting documents the significant decline in emissions of designated toxics, and an associated decline of those toxics in several environmental media. Further, actions taken in the Lake Superior basin have also benefitted all downstream lakes.

As noted in the IJC's December 2015 correspondence to the Parties regarding the Parties proposed discontinuation of the LSBP, **the IJC recommends that the Parties report on the progress made towards each of the individual Policy and Action commitments contained in the LSBP. If any remain unfulfilled, the IJC further recommends that the Parties develop a strategy to accomplish unfulfilled commitments.** Such a strategy would inform management actions included in the 2020 Lake Superior LAMP.

In 2016 the first eight chemicals of mutual concern (CMCs) were designated under Annex 3, with more expected in the future. The IJC believes all LAMP reports would benefit from a detailed description of how activities progressing under Annex 3 will affect the lake being examined. Thus, **the IJC recommends that forthcoming LAMPs for all lakes integrate progress being made through Annex 3 and other relevant domestic initiatives e.g., the Government of Canada's Chemical Management Plan and U.S. EPA's authority under the *Toxic Substances Control Act*.**

The LSBP's most important contribution was arguably the Zero Discharge Demonstration Project (ZDDP). The ZDDP has made important progress towards zero release of the nine designated persistent, bioaccumulative toxic substances in Lake Superior. To date, two of the nine ZDDP critical pollutants have been designated by the Parties as Chemicals of Mutual Concern. **The IJC recommends that the Parties clarify how the remaining seven ZDDP critical pollutants will be addressed through the Annex 3 process or through processes unique to Lake Superior.**

#### Management Actions/Program Implementation

The IJC commends the Parties for advancing the considerable potential of lakewide management planning in the 2012 Agreement by (i) including an explicit emphasis on action, as illustrated by the rebranding of lakewide management plans (LaMP) to lakewide action and management plans (LAMP), and (ii) including lakewide management as a stand-alone Annex in the Agreement.

The LAMP presents a very comprehensive listing of 74 management actions, 29 of which are identified as 'top projects'. The IJC's input on the draft LAMP emphasized the need for additional details associated with those management actions, and we note that a lists of 'agencies involved' have been added to the tables of Lake Superior Partnership Projects included in section 9.1 of the LAMP. This additional information is helpful and improves the specificity of the listed projects. However, the IJC is still of the view that the projects are usually described in general terms. As an admittedly extreme example, project #2 in Table 12 (p. 84) is to "support efforts to increase the sustainable use of Lake Superior basin resources, with specific emphasis on projects on green stormwater infrastructure, incorporating

traditional ecological knowledge into projects, and/or recognizing the monetary value of ecosystem services”. Fourteen agencies/organizations are listed as ‘involved’. For this and many other actions, it is difficult for the reader to meaningfully understand what will be done and by whom. **The IJC recommends that forthcoming LAMPs for all lakes should include more specific details on planned projects and responsible agencies.** For each project, what specific activities will each participating agency complete? At what cost, using which anticipated sources of funds (subject to funding availability)? On what timeline? What are the project outputs and outcomes, and what performance metrics will be used to measure them? Describing actions at this level of detail, which is often required for individual agency work planning purposes, would improve transparency and accountability by providing a clearer understanding of forthcoming activities. Additionally, an increased level of detail and clarity is critical in collaborative partnerships such as the Lake Superior Partnership where responsibility for action tends to be widely shared, knowledge, funds and resources are being pooled, and groups and organizations are working together in a non-hierarchical way.

The IJC has learned that since the release of the LAMP in 2016, the Binational Lake Partnership is developing an approach to tracking progress towards implementation of projects included in the LAMP. The IJC is encouraged by this, and believes it has the potential to improve project outcomes and accountability.

The LAMP notes that the top 29 projects are not ranked in priority order (p. 9). **The IJC recommends that management actions in LAMPs receive a relative ranking so that limited resources can be allocated accordingly.** It is reasonable to expect that the cumulative impact of investing in the highest priority projects will be greater than diverting some investments to lower priority projects.

The LAMP report includes several references to Areas of Concern (AOC), including a brief, useful status summary of the lake’s seven AOCs (p. 91). As noted in the ‘Contaminants in Sediment’ section of the LAMP, several AOCs are significant sources of contaminants to the lake. Examples include mercury from the northern end of the harbor in the Thunder Bay AOC, and copper from the Torch Lake AOC stamp sands. In addition to the LAMP’s general acknowledgement of the relationship of AOCs to lakewide management, **the IJC recommends that LAMP reports assess the relative importance of AOCs as drivers of lake conditions, and conversely, the influence of lake conditions on AOC beneficial use impairments, where available data support causal linkages.** For example, to what degree are individual AOCs sources of contaminants to both the coastal and open waters of the lake? Are decreasing contaminant concentrations in lake water and sediment influencing fish consumption advisories in and around AOCs?

The IJC notes that sections on “Activities That Everyone Can Take” have been added to the subsections in Section 9.1 of the LAMP. These subsections provide helpful guidance to the public and other stakeholders. For most of the identified activities Lake Superior Partnership member agencies and organizations have well developed resources available via their websites, **and the IJC recommends that for forthcoming LAMPs for all lakes hyperlinks to relevant**

**internet resources would further improve the usefulness of the LAMP to the public and stakeholders.**

The IJC notes that an action included in the draft LAMP was removed in the final version – namely to “develop and implement a policy that results in zero loss of wetland areas and function within the basin”. The IJC views this action as a suitable, if aspirational, goal to include in the Lake Superior LAMP. On a related note, in our comments on the draft LAMP, the IJC suggested that a central tenet of environmental management – to protect existing high resource values before restoring degraded values – be reflected in the final LAMP. The IJC commends the Parties for referencing this tenet on page 1 of the LAMP, and notes that incorporating this tenet in the section of the LAMP discussing high value habitats (p. 85+) would be appropriate. Protection of existing high value habitats in Lake Superior should be pursued with a sense of urgency, given the uniqueness and low level of perturbations in that lake when compared with the other Great Lakes.

### Outreach and Engagement

Section 5.3 ‘Outreach and Engagement’ presents some good examples of previous and ongoing outreach activities. Section 5.3 also clarifies that in the future those and other activities will be continued by the nascent Lake Superior Partnership Outreach and Engagement Committee.

The IJC observes that it has been more than four years since the 2012 Agreement came into force, and currently the Outreach and Engagement Committee is not at a point where it and its member agencies are effectively engaging with the public and other stakeholders. **The IJC recommends that the Parties accelerate their activities related to public outreach and engagement in order to fulfil the Agreement’s commitment to the principles of public participation and accountability. The IJC also recommends that mechanisms for meaningful participation<sup>1</sup> be incorporated into the Parties outreach and engagement activities to, in the LAMP’s own words, “...help people take ownership of issues within their watershed” (p. 54).**

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<sup>1</sup> For example, the following articles discuss mechanisms for meaningful participation:

Arnstein, S. 1969. A Ladder of Citizen Participation. *Journal of the American Institute of Planners* 35: 216-224.

Sheedy, A., MacKinnon, M.P., Pitre, S. and J. Watling, 2008. Handbook on citizen engagement: Beyond consultation. Canadian Policy Research Networks, 7.

Timney, M. 2011. Models of Citizen Participation: Measuring Engagement and Collaboration, in *Government is US 2.0*, ed. C. Simrell King. Armonk, NY: M.E. Sharp.

## Governance and Accountability

The IJC appreciates the Parties willingness to allow IJC staff to participate in select Annex processes as observers, including some related to Annex 2. The Great Lakes Executive Committee meetings also provide an excellent opportunity for Commissioners to stay informed about a range of issues related to LAMPs. Through these and opportunities, the IJC has gained a good appreciation of LAMP governance, including how Binational Lake Partnerships are formed and how they operate, and the process used to develop LAMPs.

Notwithstanding IJC's experience, understanding LAMP governance based on the relevant section of the Lake Superior LAMP (p. 11) might be difficult for stakeholders and public who have not had the level of engagement that IJC has benefitted from. To improve transparency and accountability, **the IJC recommends that a detailed description of how the lake partnership operates is included in each LAMP, or on binational.net.** Details should include how the collaborative body makes decisions, how membership is determined, how roles for members are determined, how decisions are made, how it is funded, and what mechanisms or procedures are used to hold members accountable for their commitments.

The LAMP includes brief attention to the issue of accountability (p. 92), noting that "(i)nternal agency work planning and reporting will help track commitment progress and provide an accountability mechanism for the results of each individual organization" (p. 92). It is unclear how internal agency activities will provide transparency and accountability. **The IJC recommends that LAMPs for all lakes provide a meaningful description of transparency and accountability mechanisms that exist for communities to ensure their governments are fulfilling the commitments outlined in Annex 2 of the Agreement.** For example, annual agency work plans could be made available to interested public and stakeholders.