



October 4, 2013

Joseph Comuzzi, Chair
International Joint Commission
Canadian Section
234 Laurier Avenue West, 22nd Floor
Ottawa, ON K1P 6K6

Lana Pollack, Chair
International Joint Commission
U.S. Section
2000 L Street, NW Suite #615
Washington, DC 20440

Re: Conservation Ontario's Comments on The International Joint Commission's Report: Lake Erie Ecosystem Priority (LEEP): Scientific Findings and Policy Recommendations to Reduce Nutrient Loadings and Harmful Algal Blooms.

Thank you for the opportunity to provide comments on the International Joint Commission (IJC)'s draft report entitled "Lake Erie Ecosystem Priority (LEEP): Scientific Findings and Policy Recommendations to Reduce Nutrient Loadings and Harmful Algal Blooms" (hereafter referred to as the LEEP report). Conservation Ontario (CO) is the network of 36 Ontario Conservation Authorities (CAs) which are science-based watershed/shoreline management agencies. CAs in the Lake Erie basin and throughout the province of Ontario are currently involved in a variety of initiatives aimed at monitoring and reducing nutrients in both rural and urban areas of their watersheds. The LEEP report recommends using a multi-pronged approach to address the issue of nutrient loading in Lake Erie. This includes increasing investment in science and monitoring and voluntary initiatives for Best Management Practice (BMP) implementation, phosphorus target setting, and the use of regulatory controls and other policy instruments. CO is strongly supportive of the use of this multi-pronged approach. CO commends the IJC on the completion of a useful report summarizing the key issues facing Lake Erie with respect to phosphorus enrichment. CO's general and specific comments are provided to support the recommendations and provide suggestions to improve the overall clarity of the LEEP report.

General Comments

The scope of the issues described in the LEEP report are broad, however in Chapters Three and Four there is a focus on Lake Erie's central and western basin and an absence of information on science and monitoring in the eastern basin. This information may be absent due to a lack of science information for the eastern basin – if so, this could be addressed by making note of these gaps. For further information of relevance to the eastern basin there are also several technical reports produced by the Grand River – Lake Erie Working Group that could be referenced including: "A Framework for Identifying Indicators of Water Resource Conditions Support of Ecological Health by Water Resources in the Grand River-Lake

P.O. Box 11, 120 Bayview Parkway Newmarket Ontario L3Y 4W3
Tel: (905) 895-0716 Fax: (905) 895-0751 Email: info@conservationontario.ca

Erie Interface” and “Characterization of Nutrient and Sediments Sources in the Grand River Watershed” which will be available on the Grand River Conservation Authority’s Website in December. Given the lack of information on the eastern basin, care should be taken with generalizations or recommendations that apply to the lake or to Lake Erie tributaries since not all are necessarily applicable to the eastern basin or tributaries to the eastern basin.

The LEEP report’s recommendation to focus future management efforts on spring loading is an effective approach. Focusing reduction efforts on sub-watersheds that are delivering the most phosphorus into the Lake is also understandable. However, sub-watersheds that do not make large contributions to the Lake’s phosphorus loading but nevertheless have impacts on local ecosystems should not be forgotten.

CO is strongly supportive of the LEEP report’s recommendation to increase the level of funding to “scale up” agricultural BMP programs that focus on reducing phosphorus enrichment. Nonetheless, it is important to recognize that increased funding support for BMPs, and for soil testing, will not reduce phosphorus levels unless clear guidelines are available for landowners and agencies. It is suggested that this recommendation include reference to the need for guidelines on the acceptable levels of phosphorus application, including the technique and timing of application for the appropriate soil group and crop type. This recommendation should also specify that there is a need to identify sub-watersheds where particular BMPs would be the most cost efficient and effective (see specific comments below). The related recommendations regarding the need for commitments to sustained funding to enhance and maintain monitoring networks to identify sources of phosphorus and the effectiveness of BMPs will also support this, as the results of this monitoring, (which CAs currently participate in) can be used to ensure efficient allocation of resources.

There is no corresponding recommendation regarding the importance of “scaling up” urban BMP programs. This may be because agriculture is seen as a significant source of nutrients. This report correctly points out urban point sources of nutrients have declined in recent years, however urbanization is increasing. This means that urban non-point sources (e.g. stormwater runoff) are increasing in importance as sources of nutrients and BMPs to address these sources (e.g. green infrastructure) will also need to be “scaled-up” in future.

The LEEP Report also recommends that existing and planned incentive-based programs should immediately shift to a preference for BMPs that are most likely to reduce Dissolved Reactive Phosphorus (DRP). This recommendation may be based in part on the assumption that there has been an increase in the proportion of DRP from agricultural sources in the last 15 years. While this may be true for some of the Lake Erie drainage areas (e.g. Ohio), it hasn’t been shown to be the case in all watersheds (e.g. watersheds in southwestern Ontario, such as the Grand River) and it would be a mistake to shift attention away from the loading contributions of particulate phosphorus which continue to be a problem. Instead it is suggested that the IJC recommend an ‘expansion’ of focus to include BMPs that are most likely to reduce DRP.

The LEEP report’s Chapter Three provides a very useful overview of the BMPs that could be used in both agricultural and urban settings to reduce phosphorus loads. The report identifies that currently BMP implementation in the basin is largely voluntary and incentive-based. In future there may be some cases where BMPs need to be enforceable through statute and/or regulation. In addition, an evaluation of the socio-economic barriers preventing BMP adoption and recommendations to reduce these barriers are needed. The report recommends that one way to reduce these barriers is linking crop insurance premiums to conservation planning and implementation of nutrient management practices. This is an

innovative approach to be considered. Another approach to consider may be nutrient trading. There are several successful examples of phosphorus trading in Ontario including a pilot project initiated by the South Nation Conservation Authority and a program developing in Ontario's Lake Simcoe Watershed.

Specific Comments

Section 2.3.2

Section 2.3.2 focuses on the annual loads of DRP. These are likely much less important to impacts than the seasonal delivery or concentrations during the growing season. It is suggested that the importance of seasonality be discussed in this section. Figure 2-4 references the Grand River. It should be made clear that this is the Grand River in Ohio, not in Ontario, to avoid reader confusion.

2.2.2 Climate Change and Hypoxia

This section could be expanded upon to include mention of changes in factors affecting nutrient transport processes that occur during the winter. Long-term temperature data from Southern Ontario indicates there is an increase in winter melt events that have the potential to transport phosphorus through surface runoff or subsurface drainage. This is particularly important because large loads of nutrients can be transported during melt events where there is bare soil or there has been late-season application of nutrients on the landscape. This serves to further support the report's recommendation regarding banning of application of manure or biosolids on frozen or snow covered ground.

2.4.3 Effects on Fish

The loss of habitat in the nearshore due to extensive growth of attached algae is also significant (e.g. for walleye in the eastern basin). Some valued fish species would typically use the bare rock substrate that is now colonized by attached algae such as *Cladophora*. In the absence of an estimate of the direct effects of harmful algal blooms, it is suggested that the value of the fisheries be reported on.

2.5 Effects on Human Health and Socio-Economic Conditions

The IJC is encouraged to further expand the discussion around the socio-economic effects of this issue.

3.2.1 BMPs in Agricultural operations

All three BMPs discussed in this section (crop rotation, cover crops, and strip cropping) are very site specific and their effectiveness will vary with site conditions. Not all three of these BMPs are appropriate to all sites. Strip cropping, for example, is highly impractical on small fields. It is suggested that a paragraph be added at the beginning of this section that explains that all BMPs are site specific and may not be appropriate everywhere in the basin.

This section also refers to the '4R' stewardship framework. CAs are involved in a variety of projects that promote this type of stewardship framework. CO agrees that these initiatives need to be built upon. This section does acknowledge that results of conservation tillage studies vary widely. However it does not mention that several studies recently have shown that no-till practices can actually increase DRP loads. This is a serious issue which merits mention in this report.

Table 3-1 highlights broadcasting as an example of a fertilizer application technique. It should be noted that this technique can lead to high environmental losses and may not be considered a BMP by all.

Section 3.3 Response Curves

There are several assumptions made in this section that should be stated explicitly. For example, the rationale for the DRP target is based on the assumption that DRP accounts for an unchanging fraction of

TP – whereas in reality, there is the probability that it may vary seasonally. There were many assumptions used to scale up the target for spring TP from the Maumee to an annual TP target for all western basin tributaries, not all of which were stated explicitly. Key factors that might have a large influence are the differences between sources (e.g. Maumee / Detroit River) in the timing and form of phosphorus delivery. In scaling up the target based on Cyanobacterial Index (CI) for the spring Maumee load response curve, all sources have been considered equal; however this may not always be the case.

This section also outlines new loading targets for the western and central basins aimed at reducing levels of harmful algal blooms and hypoxia. Given that nuisance algae is a significant issue in the eastern basin driven by phosphorus enrichment, there would be additional merit in including reference to this in section 3.3 of the report. There is currently a large amount of effort by multiple Canadian agencies focused on the identification of targets. For instance, activities are underway as part of Environment Canada’s Great Lakes Nutrient Initiative to determine appropriate tributary loads that will reduce nuisance algal blooms in the nearshore along the north shore of the eastern basin. Perhaps unlike the western and central basin, it needs to take into account the shift in nearshore-offshore dynamics of phosphorus (e.g. the “nearshore shunt”) which may de-couple inputs into the basin from nearshore concentrations. Reference to this might be useful in this report.

Once again, thank you for the opportunity to provide comments on the proposed LEEP report. CO is highly supportive of the recommendations the IJC has put forward in this report. The information in the report will be of use to many different stakeholders grappling with the issue of nutrient management in the Great Lakes basin. Conservation Authorities look forward to continuing to partner with government and other organizations at the federal, provincial and local level to implement actions consistent with these recommendations such as monitoring phosphorus sources and connections to the Great Lakes and implementing BMPs appropriate for sub-watersheds conditions.

Should you have any questions about these comments, please contact Samantha Dupre, Policy and Planning Officer at ext 228; e-mail: sdupre@conservationontario.ca or myself extension 224; e-mail: jrzadki@conservationontario.ca.

Sincerely,



Jo-Anne RZadki, MSc.
Watershed Stewardship Coordinator

c.c. Kim Gavine, General Manger Conservation Ontario,
Chief Administrative Officers, Ontario Conservation Authorities