



Wendy Leger  
Canadian Co-Chair, International Great Lakes-  
St. Lawrence River Adaptive Management Task Team  
Meteorological Service of Canada  
Environment Canada  
867 Lakeshore Road  
Burlington, ON L7R 4A6

April 15, 2013

Dear Ms. Leger,

**Re: Conservation Ontario Comments on “Building Collaboration Across the Great Lakes – St. Lawrence River System, An Adaptive Management Plan for Addressing Extreme Water Levels”**

Overall, Conservation Ontario is highly supportive of the Adaptive Management (AM) Plan and the recommendations for addressing extreme water levels which are outlined in the March 15, 2013 draft report “Building Collaboration Across the Great Lakes –St. Lawrence River System.” Conservation Ontario (CO) is a long-time supporter of the adaptive management approach to water resource and watershed management issues. The use of adaptive management is needed to build resilience to address complex environmental variables and their interactions associated with Great Lakes water levels. CO supports the clear references in the document to the important role that Conservation Authorities (CAs) can and should play in informing and supporting the implementation of an effective AM Plan for addressing extreme water levels on the Great Lakes.

CO staff circulated the draft to all CAs and, based on feedback received, offer general comments on the AM Plan. Comments are also offered to detail how CAs could contribute to the Adaptive Management Committee and to the five system-wide networks under the Level Advisory Board being proposed to enable a comprehensive, collaborative approach to manage the impacts of changing water levels. Finally, specific comments are offered on suggested AM pilots and further information is provided to assist the AM Task Team in refining their funding estimates.

**General Comments:**

The AM Plan in this report is very high level. The scale and complexity of the extreme water

levels issue in the Great Lakes necessitates this high level approach. However, implementing such a high level plan across the Great Lakes will be a challenge given the various scales at which issues can be addressed. CO commends the task team on addressing this issue by identifying the need for AM pilot plans as a vehicle to test how the framework can function on a local scale (i.e. sub-watershed).

The document defines AM in the introduction and provides Figure 1 to depict the AM process. This figure refers generally to Institutional Arrangements in the outer circle as the main area for collaboration. For clarity, Figure 1 should refer to collaboration on “State of the Science” and “Social Interaction” in this outer circle as well since these appear to be the two areas for collaboration that are referenced throughout the rest of the document.

CO supports the AM team’s recommendation that the governments provide reference on adaptation to extreme water levels to the International Joint Commission (IJC) which would specifically include granting the IJC the authority to convene a collaborative forum for undertaking the AM Plan.

#### **Adaptive Management Committee:**

The AM plan outlines how the AM committee will review and evaluate the performance of outflow regulation plans. The list of tasks for the AM committee includes monitoring four key environmental performance indicators: wetland vegetation, bird communities, northern pike and muskrat. CAs can provide valuable support, insight and partner with other agencies/stakeholders in undertaking this monitoring. For instance, Central Lake Ontario Conservation Authority in partnership with Ministry of Natural Resources (MNR) recently conducted a muskrat population study in the coastal wetlands and continues to monitor it through the Durham Region Coastal Wetlands Monitoring Project (an ongoing partnership with Environment Canada – Canadian Wildlife Service).

#### **Levels Advisory Board:**

##### ***Hydroclimate Monitoring and Modeling Network***

The creation of a Hydroclimate Network with the objective of “...identifying and prioritizing required monitoring and modelling needs and where possible undertaking to fill those gaps” fits nicely with the Conservation Authority objective of ensuring that our monitoring networks are adequate. The inclusion of the Climate Change Annex subcommittee of the GLWQA as a potential agency involved in the network appropriately re-emphasizes the importance of acknowledging the link between water quantity and quality. Conservation Authorities have expertise with respect to water quantity and quality monitoring in Great Lakes tributaries in Ontario and this information along with other shoreline information could be leveraged in these models.

##### ***Performance Indicators and Risk Assessment Network***

Conservation Ontario is supportive of creation of a Performance Indicators and Risk Assessment network to improve the efficiency of monitoring and risk assessment in the Great Lakes. Conservation Authorities will be able to participate in a number of the proposed tasks for the

Performance Indicators and Risk Assessment network. As shoreline management agencies they can assist with tracking shoreline modification and damages (i.e. identifying permits, extent of hardening). Conservation Authorities can also provide valuable support, insight and partner with other agencies/stakeholders in undertaking ecosystem change monitoring, as they currently participate in a number of wetland and aquatic monitoring initiatives (see comments under *Adaptive Management Committee*). Given the role that CAs can play in this network it is recommended that CAs be included in the list of agencies for potential network involvement.

### ***Decision Tools Network***

CAs have observed that local governments are increasingly aware of risk, associated with climate change, to flood vulnerable communities. They have been working with CAs to enhance climate and streamflow gauge networks and to develop and refine near-shore hydrodynamic models to be used in updating hazard mapping. CAs can contribute their expertise in these areas via participation in the decision tools network. CAs can also use these evaluation tools and their expertise to support work at AM pilot sites.

### ***Information Management and Distribution Network***

Conservation Ontario is supportive of creation of an Information Management and Distribution Network and would be interested in participating as an active partner. The following suggestions are offered with regard to implementation of such a network. It is suggested that the AM team consider using open data initiatives. This would go a long way to reducing the number of data sharing agreements required, and allow broader access for more groups to become engaged. The coordination of an information management infrastructure at the local level would require significant funding. However, if local agencies are encouraged to use the same standards, and are provided with a clear business rationale for investing in data systems to share monitoring data it can be done affordably. Training and outreach such as that offered by the Great Lakes Observing System (GLOS) is a good framework to engage and facilitate collaboration among the stakeholders. Information managers will need to know the user needs or data required for the decision makers. This may be difficult on a large scale but the pilots should capture the user needs and some use case scenarios to support the required decisions. For the tasks that are highlighted in this draft plan as part of the information management and distribution effort (B4.1-4.3), it would be useful to include the need for an inventory of data sets as a starting point under information architecture. In addition, establishing data stewards and roles and responsibilities should be a component of the information management architecture in addition to its inclusion under information management governance.

### ***Outreach and Engagement Network***

Conservation Ontario and CAs see a need for this network and would be interested in participating in this network as the need arises.

### ***Adaptive Management Pilots***

The AM Plan acknowledges that “certain procedural details for the AM Pilots still need to be defined, including the most effective means for facilitating the efforts.” However, the plan indicates that many of these details can only be defined by working through the process of initiating an AM Pilot. While this is true, potential partner agencies such as CAs would still

benefit from receiving further details on the procedures for initiating and facilitating AM pilots. The document sets out a very general framework for AM pilots in Section 2.5.3. This is practical because the variety of potential pilots and issues is so large, however it might help potential partner agencies to include an example of what a framework for a potential pilot might look like with specific details for a hypothetical pilot.

There are a number of Conservation Authorities that have already expressed interest in being an active participant in an AM pilot project in their jurisdictions, these potential projects include, for example:

- North Shore of Western Lake Ontario Basin: Credit Valley Conservation (CVC), Toronto and Region CA (TRCA), Conservation Halton (CH) and Hamilton CA have expressed a strong interest over the course of this consultation process in participating in a pilot project along the North Shore of Western Lake Ontario. These authorities have strong relationships with all three levels of government and a growing network of non-governmental agencies. Credit Valley staff is concerned about the realities of low water conditions and their implications for shoreline communities and natural habitats. Conservation Halton staff have identified a number of potential issues related to water levels including: dynamic beach, navigation (Burlington Canal), shoreline protection works, recreational boating, industry issues, and potential water quality/quantity linkages. TRCA staff are already leading a climate change adaptation project for Port Credit which is examining flood vulnerabilities for this residential area and marina.
- The Southern Georgian Bay Initiative, involving all three levels of government, and with involvement of the Nottawasaga Valley and Grey Sauble Conservation Authorities has been engaged in addressing management of water level issues for the past few years. This work could be built upon through a pilot project.

### **Funding Adaptive Management**

This AM Plan proposes a funding option whereby the agencies are expected to come to the table with existing resources and leverage them to help address priorities of the AM Plan. The AM plan indicates that the estimates provided in this draft will be adjusted prior to the Task Team completing the final version of the report for submission to the IJC. Conservation Ontario offers the following potential cost estimates for proposed pilot areas to assist the AM team with these estimates. These can be extrapolated across the CAs for a basin-wide perspective if considered desirable.

### ***Shoreline Mapping***

For shoreline mapping of some of the example Pilot Area CAs (e.g. NVCA, CH and CVC) they are able to leverage existing investments in provincial ortho photo projects. Cost estimates have been developed for mapping the entire length of shoreline (in square km) that each of these CAs administers. It is estimated that in total these CAs could contribute 37% of costs (\$30,000) as part of existing investments (for Orthophotos) and that 63% of costs (\$45,000) would require new funding (for breaklines) to complete mapping for the entire shoreline in these areas. More details are available for further discussion and these costs could be extrapolated across all CA shorelines if desired.

*Data Accessibility and Availability*

For CAs who make monitoring data available, there are three main options currently used by CAs:

1. CUAHSI operates an internet based system for storing and sharing water data- the CUAHSI Hydrologic Information System (HIS). CUAHSI-HIS technology is an open source service oriented architecture that catalogues water related data sets for search, discovery and data access.
2. WISKI is a proprietary data management solution and provides a more centralized database approach for managing, analyzing and reporting on water and meteorological data, including forecast and warning.
3. Local solutions are locally built solutions using local or other proprietary solutions.

The costs for these options average \$15 / sq km existing investment, and an ongoing investment of \$6. This means that to make data available and accessible for the area covered (entire watershed) by the example Pilot Area CAs, the CAs would be able to use \$ 85,000 in current investments and \$35,000 is estimated to be required in ongoing investments. Again, these costs could be extrapolated across all CAs if desired.

Once again, Conservation Ontario would like to express support for the Adaptive Management plan and recommendations for addressing extreme water levels that are outlined in the March 15, 2013 draft report “Building Collaboration Across the Great Lakes –St. Lawrence River System”. Conservation Ontario looks forward to participating in its implementation. If there are any questions about these comments, or how cost estimates were derived, please contact myself at extension 223 or Samantha Dupre at ext 228.

Sincerely,



Bonnie Fox  
Manager, Policy and Planning

c.c. Dick Hibma, Chair, Conservation Ontario and Task Team Member  
Chief Administrative Officers, Ontario Conservation Authorities