

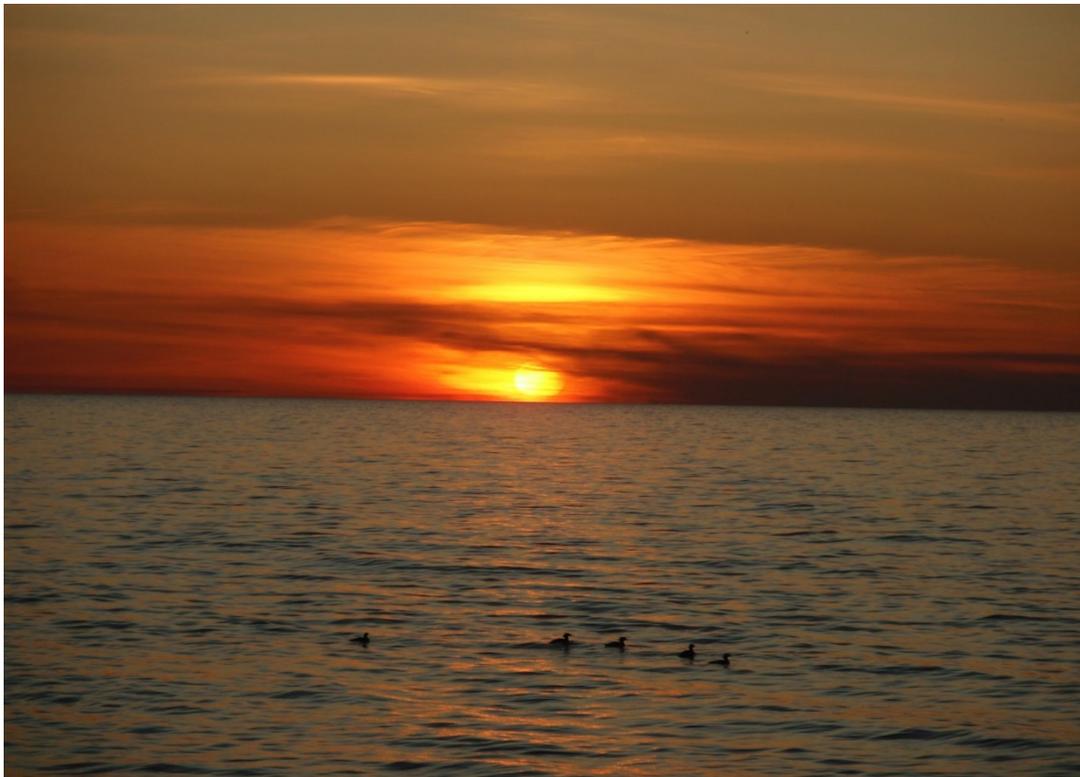
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# Great Lakes-St. Lawrence River Adaptive Management Committee (GLAM)

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Semi-Annual Progress Report to the International Joint Commission  
Covering the period September 1, 2015 to February 29, 2016

March 30, 2016



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*Cover photo: Lake Superior sunset (photo credit: Cynthia Jarema, U.S. Army Corps of Engineers – Detroit)*

## GLAM Committee Membership

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U.S.	Canada
Kyle McCune, U.S. co-chair GLAM US Army Corps of Engineers	Wendy Leger, Canadian co-chair GLAM Environment and Climate Change Canada
Arun Heer, U.S. secretary GLAM US Army Corps of Engineers	Mike Shantz, Canadian secretary GLAM Environment and Climate Change Canada
Don Zelazny New York Department of Environmental Conservation	Jonathan Staples Ontario Ministry of Natural Resources and Forestry
David Hamilton The Nature Conservancy	Patricia Clavet Ministry of Sustainable Development, Environment and Climate Change
Fred Luckey US Environmental Protection Agency	Gavin Christie Fisheries and Oceans Canada
Drew Gronewold Great Lakes Environmental Research Laboratory – National Oceanic and Atmospheric Administration	Jean Morin Environment and Climate Change Canada
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Keith Koralewski US Army Corps of Engineers	Rob Caldwell Environment and Climate Change Canada
John Allis US Army Corps of Engineers	Jacob Bruxer Environment and Climate Change Canada

## Executive Summary

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The International Joint Commission (IJC) established the Great Lakes – St. Lawrence Adaptive Management (GLAM) committee through an IJC directive on January 16, 2015, to provide monitoring and evaluation of regulation plans in support of the three Great Lakes-St. Lawrence River Boards of Control (the Boards). This report is the first semi-annual report to the IJC and the Boards, highlighting the work completed since September 2015. The main focus of the GLAM committee (committee) earlier in 2015 was to develop the first annual work plan and communication strategy for approval by the Boards and the IJC.

Progress has been made on tasks identified in the 2016 work plan, which covers the period of October 1, 2015 to September 30, 2016. Wetland monitoring and response model verification, as well as shore protection model verification has begun. Four tasks related to the improvement of net basin supply information are underway, as well as monitoring and surveillance of system changes through performance indicators, and a process for identifying regulation plan improvements. Preliminary work has also started on the GLAM committee's first triennial summary report of progress and future work plans, and the committee will continue to engage the IJC, the Boards, and stakeholders on adaptive management activities.

Efforts on the 2016 work plan tasks will continue to be carried out with the additional support received from the International Watersheds Initiative (IWI). Five projects have been approved by the IJC, with conditions, as of the end of the reporting period. The proposed projects will include improving the Great Lakes' water balance, programming support for the update of the Coordinated Great Lakes Regulation and Routing Model (CGLRRM), monitoring coastal wetland habitat and evaluating wetland types, and updating environmental models.

## **1.0 Introduction**

A directive signed January 16, 2015 by the International Joint Commission (IJC), established the Great Lakes – St. Lawrence Adaptive Management (GLAM) Committee to undertake monitoring and assessment of Lake Superior, Niagara River, and St. Lawrence River Boards' regulation plans and activities, as well as coordinate with the Water Quality and Science Advisory Board on issues of common interest. The GLAM committee (committee) is comprised of two appointed co-chairs and secretaries that represent the US and Canada, as well as other members from government agencies, the Great Lakes Boards of Control (Boards), and technical experts.

The general purpose behind adaptive management (AM) is to establish a structured, iterative process of robust evaluation in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring and feedback to the decision framework based on knowledge gained. In this context the overall objective of the GLAM committee is to provide information to the Boards and advise them and the IJC regarding the effects the control structures approved in the IJC's Orders of Approval and directives have on levels and flows in boundary waters and the benefits and impacts the regulation plans have on the affected interests. This includes the on-going review and evaluation of regulation plans related to:

- a) the effectiveness of the existing regulation plans in managing water levels and flows in the Lake Ontario-St. Lawrence River system and the outflows of Lake Superior in the past and into the future;
- b) examining how the system may be changing over time and whether any modifications to the regulation plan(s) may be warranted to address what is learned over time, including emerging issues and/or to address changing conditions; and
- c) any other questions requested by the Boards and/or IJC that may affect the Boards' water management decisions over the long-term.

This semi-annual report will cover the annual strategic work plan goals and accomplishments for the latest six-month reporting period of September 1, 2015 to February 29, 2016. Specific tasks have been identified in the evaluation framework with set milestones for the year, which will be summarized in *Section 2.0* of this report.

## **2.0 Progress on 2016 Work Plan**

The GLAM committee's 2016 work plan, covering the period from October 1, 2015 to September 30, 2016, was approved by the IJC in October 2015. The 2016 work plan has laid out 25 specific tasks to support the evaluation mission. In addition to the approved International Watershed Initiatives (IWI) scopes, the committee has prepared a number of scopes for specific work plan tasks with each task assigned a 2016 deadline. Completed task products will be distributed within the GLAM committee and related Boards.

The work plan directive identifies four key questions for consideration by the GLAM committee in defining priority work to meet the overall directive objectives. The activities in the 2016 GLAM committee work plan were identified in relation to these four directive questions:

1. How well are the impacts of levels and flows represented by current data and models used in the evaluation of the management of levels and flows?
2. Will future water supplies be different from those used to test the current management of levels and flows?
3. How are other physical, chemical, biological and/or socio-economic conditions of the system changing over time?
4. How can the management of levels and flows benefit other physical, chemical, biological and/or socio-economic conditions?

In addition to tasks related to these four questions, the 2016 work plan also identifies basic management and administrative tasks, as well as those related to outreach and engagement. The following sections briefly describe progress made by the committee in these areas during the current reporting period, with the table in *Appendix A* outlining task-specific details.

### **2.1 Verification of models used to assess water levels and flow benefits and impacts**

The GLAM committee is undertaking three projects related to model verification, which will help develop an understanding of how well the benefits and impacts of levels and flows are represented in the current evaluation models originally developed for the International Upper Lakes Study (IUGLS) and Lake Ontario St-Lawrence River (LOSLR) study. These include IWI-funded proposals to support wetland monitoring on the Canadian shoreline of Lake Ontario, as well as review of the existing wetland-response model used for Lake Ontario regulation plan evaluation. The wetland monitoring took place at eight Canadian sites in the fall of 2015 and the project team has been working to finalize the data and summary report. Those products are anticipated for the end of March 2016. Work has begun on the Lake Ontario wetland modeling project, particularly regarding the replication of the existing wetlands model in a spreadsheet format to support testing and validation. Preparation also took place for a meeting to discuss the use of existing field data to support the model validation that was scheduled for early March 2016.

The GLAM committee is also testing assumptions within the Flooding and Erosion Prediction System (FEPS) related to shore protection crest elevations for Lake Ontario. Shore protection elevation data has been recently acquired by the U.S. Army Corps of Engineers (USACE) through field surveys, and progress has been made on integrating that data into the database during the reporting period to support future testing of the model.

### **2.2 Water supply tracking**

During the reporting period, the committee made progress on four separate 2016 work plan tasks designed to help improve understanding related to water supplies in the Great Lakes basin. Work was initiated on an IWI-funded project aimed at improving historical simulations of water supply in the Great Lakes basin. Historical simulations of this manner require good historical precipitation measurements along with extensive computing resources on meteorological

supercomputers. The project team has made good progress in improving baseline datasets using methods that capture some of the precipitation features that are specific to the Great Lakes-St. Lawrence River region, in particular the effects that the lakes have on the precipitation patterns.

The Coordinating Committee on Great Lakes Basic Hydrologic and Hydraulic Data (Coordinating Committee) plays an important role in ensuring coordination with agencies related to net basin supply (NBS) information for the Great Lakes basin. The GLAM committee is relying closely on the Coordinating Committee for tracking NBS improvements. In addition, the GLAM committee and Coordinating Committee members are collaborating on a task to inventory available NBS component information in the Great Lakes basin. The Hydrology sub-committee of the Coordinating Committee held a two day meeting in January to discuss sources of precipitation data across the Great Lakes. One of the outcomes of the meeting will be a report documenting the currently-available precipitation data in the basin. As well, work is now underway to access the current sources of the other NBS components.

The GLAM committee has also started a task to update historic hydrologic and hydraulic datasets required to undertake historical and projected simulations of Lake Ontario outflows. Through this task, documentation is being improved on the developments of these datasets, many of which were fundamental to the simulations undertaken during the LOSLR study. Efforts are largely focused on the lower St. Lawrence River, where tributary flows, rating equations and ice and weed retardation factors have not been revisited for many years. The work will support updating and extending these datasets for improving water level simulations.

### **2.3 Physical, environmental and socio-economic system changes and impacts**

The GLAM committee uses the term “monitoring” to refer to a focused act of making real-world observations linked explicitly to performance indicators through the performance indicator algorithm, and “surveillance” to refer to the act of identifying and synthesizing information that could help improve regulation outcomes. Through funding provided by the Canadian Section of the IJC, three contracts were issued during the reporting period to test an initial surveillance process for the committee. The surveillance process is designed to help identify physical changes, environmental changes and socio-economic changes in the system that may impact the work of the committee. Initial kick-off conference calls were undertaken with each of the contractors in December 2015, with draft products expected to be delivered in March 2016. After review by the committee, final products are expected in April 2016. Using information and lessons learned from these initial contracts, the GLAM committee will then work over the next six months to develop a surveillance process that will be sustainable over the longer-term.

### **2.4 Regulation plan improvements**

The Lake Superior Board has identified specific operational issues regarding the implementation of Plan 2012 that are currently being investigated by the GLAM committee. The committee has started working to develop the tools necessary for evaluating the benefits and impacts of varying side-channel capacity on Plan 2012 performance. This includes working with the hydropower entities on the St. Marys River to better understand plant capacities under varying hydrologic conditions and hydropower maintenance schedules. Testing of varying side-channel capacity updates to the Coordinated Great Lakes Regulation and Routing Model (CGLRRM) has begun,

and will be further developed with input from the hydropower entities. Work was also initiated on developing and verifying partially open gated flow equations and on identifying key St. Marys Rapids stakeholders who may be able to help define potential benefits and implications from using partial gate settings that can be incorporated into future evaluation activities.

The GLAM committee has also initiated activities to develop a framework and capacity to undertake evaluations of regulation plans in the future. Existing plan-evaluation models developed and used during the LOSLR study and the IUGLS have been made available to committee members and efforts are underway to update user documentation and transfer knowledge to new users. This work is being undertaken through the St. Marys Rapids tasks discussed previously, as well as through the tasks being undertaken in *Section 2.1*. The committee has also started the process of developing a guidance document to articulate a common understanding regarding a shared vision planning/modeling process for the on-going evaluation of regulation plans. Both of these activities are ongoing and will continue through September 2016.

#### **2.4 Management and administration**

Progress was made on a number of items categorized as management and administration in the 2016 work plan. The work plan itself was presented to the IJC at the October 2015 semi-annual appearances in Ottawa and was approved at that time. Leads have been identified for all tasks in the work plan and the committee secretaries have been working with those individuals to develop scopes that outline key milestones and products to be completed by September 2016. Preliminary work has also started on establishing procedures to set annual priorities within the GLAM committee as part of the annual work plan development.

Over the next few months, further work is expected on a number of key management items including the preparation of an outline for the committee's first triennial report on progress, establishing effective strategies for engaging the Boards, and developing a mid-term (three to five year) strategic plan. These items will be used to develop the 2017 work plan.

#### **2.5 Communication, outreach and engagement**

As stated in the IJC directive, the GLAM committee was required to develop an outreach and engagement strategy for the IJC's approval to maintain transparency, awareness and engagement of relevant organizations and institutions as well as members of the public. The committee gained approval of the communication strategy on October 29, 2015 at the IJC semi-annual appearances. The four principals of the strategy include:

1. The GLAM committee's external communications will be effectively coordinated with the Lake Superior, Niagara and St. Lawrence Boards of Control and IJC Communications. GLAM committee public announcements and interactions will typically be made through the Boards or IJC and/or with full endorsement by the Boards and IJC.

2. The GLAM committee may engage in external communication directly with specific audiences to facilitate research, seek stakeholder input, provide information regarding general adaptive management principles, and identify funding opportunities.
3. The GLAM committee's internal communications will adhere to the IJC communication principles.
4. While the focus of the GLAM committee communications will be to maintain the on-going evaluation and assessment of lake level regulation plans, communications activities will also support the principle of adaptive management<sup>1</sup>. These activities will inform those who are more interested in adaptive management than lake regulation.

Consistent with the communication principles and at the request of the IJC, the GLAM committee engaged in an outreach effort with RUSL (Regroupement des usagers du Saint-Laurent) on January 12, 2016. A background presentation introducing the committee and its role was prepared with support from IJC communications staff and presented to RUSL. The presentation was well received and the group was supportive of potential future engagement on relevant issues. The committee also prepared a brief fact sheet that can be used for future stakeholder communication.

The GLAM committee also initiated activities to identify key stakeholders that may support the activities of the committee in the future. Stakeholder groups have been broadly categorized as agency senior management advisors, circles of influence groups, research networks, and activities specifically related to the Great Lakes Water Quality Agreement. Work has begun to establish an engagement plan for these groups, including identifying who needs to be engaged for specific work plan activities. Each of the three Great Lakes Boards has been approached by the committee to identify some of the key stakeholders they deal with on issues related to activities of the Board. When completed, that list will help the committee identify priority stakeholders for engagement.

The GLAM committee co-chairs have been developing connections with work related to the Great Lakes Water Quality Agreement by participating in October 2015 meetings of the IJC's Advisory Boards, including the Great Lakes Water Quality Board, the Great Lakes Science Advisory Board, the Research Coordination Committee and the Science Priority Committee. A number of members of the committee also sit on individual Annex sub-committees as part of their regular duties supporting their respective agencies.

### **3.0 Future Work**

The GLAM committee has made good progress on a number of key tasks within its 2016 work plan over the reporting period and will continue to move forward on work plan items in the coming months. The committee hosted meetings related to both the wetland modeling project and the plan evaluation tasks in early March 2016 and will again have meetings in the May and June 2016 time period and work on these tasks will be continuing in the interim.

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<sup>1</sup> Years of discussion on the IUGLS were required to affirm, then propose, adaptive management. Adaptive management is still difficult to fund. If the GLAM committee is able to demonstrate that the approach is practical and effective, the value of adaptive management would gain greater recognition.

There are a number of critical management and administration tasks that will require particular attention from the committee between March and September 2016. The committee will be undertaking planning and discussion in support of the development of a mid-term strategic plan (a three to five year plan). The strategic plan is intended to provide a general guide for the committee priorities over the next few years and will also support the development of more detailed annual work plans including the new one that will be developed for the October 2016 to September 2017 period.

The committee also expects to be working closely with IJC staff as it prepares its first triennial summary report of GLAM committee progress. As this will be the first such triennial summary report for the committee, a number of details are still to be determined regarding the scope and level of detail that will be provided. The first GLAM triennial summary report is expected to be finalized in early 2017.

Developing and improving communication and engagement with the Boards and stakeholders remains an important objective of the committee. The committee will be working with the Boards to establish a protocol for communication and engagement of the Boards on GLAM committee-related activities and products. This will help determine what items require feedback from the Boards, what requires Board approval, and when the Boards just want to be kept informed. The committee will be using discussions with the Boards at the upcoming March meetings in Detroit to further understand the needs and requirements in establishing these protocols.

Regarding broader stakeholder communication and engagement, the committee anticipates working closely with the Boards and IJC communications staff to ensure key information is relayed to the public through the proper channels. This will be a particular area where the committee requires the support of IJC staff.

### **3.1 Upcoming International Watersheds Initiative projects**

The GLAM committee's 2016 work plan represented tasks that the committee believed could be accomplished within the year given the resources available at the time the work plan was developed. A number of additional tasks were identified in the work plan as ones that would be considered should alternative funding sources become available. The committee developed proposals for a number of these items and submitted them to the IJC for consideration under the IWI funding process in December 2015. The committee was informed in January 2016 that five of these proposals were approved with conditions. The five projects and their descriptions are provided in *Table 1*. The committee has submitted responses regarding the identified conditions in February 2016 and will be working with the IJC liaisons and the IWI coordinators over the coming months to finalize the approvals and arrange appropriate funding mechanisms so that the new projects can be initiated.

**Table 1: Current GLAM Committee IWI projects**

<b>IWI Project Code</b>	<b>Project Title</b>	<b>Project Status</b>
AM-04-2015	Closing the water balance of the Great Lakes: developing a new historical record of reconciling bias and uncertainty	Approved with Conditions
AM-05-2015	Programming support for update of Coordinated Great Lakes Regulation and Routing Model	Approved with Conditions
AM-06-2015	Monitoring of Lake Ontario - St. Lawrence River coastal wetland habitat in support of adaptive management (US shoreline)	Approved with Conditions
AM-07-2015	Monitoring the extent of wetland types in the Lake Ontario - St. Lawrence River coastal system in support of adaptive management (US shoreline)	Approved with Conditions
AM-08-2015	Update the computing code of the Lower St. Lawrence Environmental Performance Indicators (IERM2D)	Approved with Conditions

#### **4.0 Funding and Resourcing**

The GLAM committee would like to thank the IJC for contributing funds to support specific GLAM activities over the reporting period. In particular, support through IWI for Lake Ontario wetlands monitoring and modeling as well as supporting historical climate analyses is greatly appreciated. Funding provided by the Canadian Section of the IJC to support the operations of the committee and the surveillance contracts is also appreciated.

All other activities undertaken by the committee within the reporting period relied on in-kind contributions from supporting agencies including those represented through members of the GLAM committee as identified on page 3 of this report. These contributions have been critical to the ability of the committee to move activities forward during the reporting period.

Going forward, the GLAM committee will continue to rely on funding and resource contributions from the IJC and supporting agencies to successfully implement adaptive management approaches in the ongoing review of existing water level regulation plans through the Great Lakes Boards of Control.

Respectfully Submitted,



Mr. Kyle McCune  
GLAM committee US co-chair



Ms. Wendy Leger  
GLAM committee Canadian co-chair

## Appendix A

<i>Task</i>	<i>Task Name</i>	<i>Status</i>
<b>Model verification on water levels and flows</b>		
1.1	Monitoring of Lake Ontario coastal wetland habitat (IWI)	IWI scope was approved by IJC and funding has been allocated. CWS staff have completed wetland surveys in fall 2015 and have provided preliminary results and summary document.
1.2	Evaluate meadow marsh algorithm (IWI)	<p>A GLAM scope has been prepared and reviewed by the project team. Contracting has been an issue. Excel versions of the wetlands algorithm within the IERM have been developed. The work identified a few items that need clarification between the documentation and model code.</p> <p>A meeting was held in Burlington March 1-2, 2016 to discuss the model updates, data processing, and next steps. A follow-up meeting is tentatively planned for June.</p>
1.3	FEPS models - update based on Shore Protection Information (PI verification)	Newest field data is being organized in database by USACE (Buffalo) for March 31, 2016. USACE is also becoming familiar with the FEPS model. EC and USACE will be undertaking a comparison of model results between new and previous data.
<b>Water supply tracking</b>		
2.1	Track advancement towards improving quality of NBS information	A task scope is currently under development.
2.2	Extended CaPA and GEM hindcasts of water supply components in the Great Lakes basin (IWI)	<p>IWI scope was approved by IJC and funding has been allocated. Dr. Vincent Fortin and associated staff are pursuing the project. A separate GLAM scope is not required as the IWI scope included timelines and deliverables.</p> <p>An update document was provided in December 2015. The project team has started the evaluation of possible configurations for producing a 30-year reforecast and is continuing this work. Overall, it seems that computational resources will be high for any identified reforecast configuration. The project team has also been evaluating sources of surface observations required for the reforecast and are working to identify the best-suited datasets. The surface-observation data will be processed based on the optimal reforecast configuration that is defined.</p>
2.3	Inventory of available NBS components for the Great Lakes	GLAM scope has been completed and work is being initiated in association with the Coordinating Committee.
2.4	Review and update of historical hydrologic and hydraulic datasets for the Lake Ontario - St. Lawrence River system through Montreal	GLAM Scope has been prepared and work has been initiated. GLAM has started a draft document that describes each of the historical hydrologic and hydraulic datasets required to simulate water levels and flows under various water-supply scenarios and regulation plans. Much of the work to this point has been focused on the lower St. Lawrence River, notably Lake St. Louis outflows, as

		this was an area we had little information on (a lot of missing data, little documentation and a lot of uncertainty). As a result of this exercise, we are also able to begin extending some of these and related datasets (like ice and weed roughness factors) through present.
<b>Physical, environmental and socio-economic system changes and impacts</b>		
3.1	Design a surveillance plan	This work will be pursued in spring 2016 once the initial surveillance contracts under 3.2 are completed.
3.2	Initial surveillance to determine what has changed and whether there are new data and models available to support AM effort.  Includes subtasks: 3.2.1: Ecosystem surveillance 3.2.2: Socio-economic surveillance 3.2.3: Surveillance of physical changes and modeling tools	GLAM scope has been prepared. The Canadian section of the IJC has initiated three individual contracts to cover the ecosystem surveillance, the socio-economic surveillance and the physical changes surveillance. Kick-off calls were held with each contractor in December with preliminary deliverables expected in March 2016 and final versions in March/April 2016.
<b>Regulation plan improvements</b>		
4.1.1	Review the benefits and impacts of reductions in maximum side-channel capacity due to hydropower outages and other limitations and develop optimal operational guidelines for addressing them	Hydropower plants have been contacted and will provide historic outage information and a written summary of how hydrologic conditions pose capacity limitations. Work has started on establishing a relationship of how side-channel capacity varies as a function of hydrologic conditions. ECCC has begun re-coding the CGLRRM to allow flexibility to vary side-channel flow.
4.1.2	Review the use of multiple partially-open gate settings at the Compensating Works and the benefits and impacts on St. Marys River stakeholders	A 2-D model of the St. Marys River has been calibrated and ready to run multiple partial-gate settings. Partial-gate discharge rating equation development work has been started.
4.2	Develop a shared vision planning/modeling process for the on-going evaluation of regulation plans	A draft GLAM scope has been prepared which is currently under review by the project leads who will then distribute it to the broader project team.
4.3	Learning phase and test run of evaluation process using any updated information/tools of various scenarios	A draft GLAM scope has been prepared and will be distributed to project team. There is considerable overlap with 1.2, 1.3, 4.1.1, and 4.1.2 as there will be model testing and use within those tasks. A meeting was held at the end of February 2016 to provide background and outline next steps.
<b>Management and administration</b>		
5.1	GLAM committee coordination, management and reporting Includes: 5.1.1: Prepare and submit annual work plan 5.1.2: Establish working groups 5.1.3: Develop semi-annual reports	The work plan was approved by the IJC at the October semi-annual appearances.  Leads have been identified for all tasks in the work plan, and the GLAM co-chairs have been working to establish key contact persons for various sections of the work plan (i.e., hydroclimate)

5.2	Develop triennial report outline	GLAM anticipates further work on this item over the coming months.
5.3	Prepare mid-term strategic plan	GLAM anticipates further work on this item over the coming months, with preliminary discussions planned for the GLAM meeting at the end of March.
5.4	Establish annual priority-setting procedures	A preliminary set of guidelines were outlined by the co-leads, represented by a series of screening guidelines related to how closely the tasks address the directive as well as the significance, sensitivity and certainty of the work as related to GLAM requirements.
5.5	Monitoring of the work plan delivery	Scopes have been developed for most tasks indicating milestones and products that can be used for tracking purposes.
5.6	Establish internal info-management system	The IJC has established a SharePoint and FTP site for committee use. GLAM anticipates further implementation planning on this item over the coming months.
<b>Communication, outreach and engagement</b>		
6.1	Develop story line of the evolution of the GLAM	A presentation was prepared for a meeting with RUSL in Montreal in January 2016. The presentation is available in English and French on the GLAM SharePoint site. In addition, a one-page fact sheet was developed in English and French and is available for further distribution.
6.2	Develop stakeholder networks (includes 6.1.1 through 6.1.4)	<p>A note was sent to the Board members in February 2016, asking for input on key individuals and groups that the Boards engage with on issues related to water-level management. GLAM will be using that list to help define potential Circles of Influence groups for future engagement.</p> <p>The GLAM Co-chairs have been invited to participate in meetings with the co-chairs of the IJC's advisory Boards including the Great Lakes Water Quality Board, the Great Lakes Science Advisory Board, including the Research Coordination Committee and Science Priority Committee as well as the Health Professionals Advisory Board. This group last met during the fall semi-annual meeting in Ottawa and discussed overlapping issues including climate change.</p> <p>The Canadian co-chair is a member of the Annex 9 – Climate Change Impacts sub-committee and assisted them with the finalization and distribution of a report produced by the Ontario Climate Consortium in support of Annex 9 titled the State of Climate Change Science in the Great Lakes Basin: A Focus on Climatological, Hydrologic and Ecological Effects. Information about accessing this report was shared with the GLAM committee as well as the Great Lakes Water Quality Board and the RCC and SPC of the Science Advisory Board. The document is posted on the GLAM SharePoint site.</p>
6.3	Develop an engagement plan for advisory networks	The GLAM committee is working with the Boards of Control to establish a protocol for communication and engagement of the Boards on GLAM-related activities and products and what items require feedback from the Board, what requires Board approval and when the Board just wants to be kept informed.