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

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8<sup>th</sup> Semi-Annual Progress Report to the Great Lakes Boards and the  
International Joint Commission  
Covering the period September 1, 2019 to February 29, 2020

March 25, 2020



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*Cover photo: Clockwise, starting bottom right. Commercial navigation workshop, November 2019 (Stalikas). Monroe County meeting with municipal staff, February 2020 (Hinterberger). GLAM/Board workshop, September 2019 (Seglenieks). GLAM Adaptive Management Framework.*

## GLAM Committee Membership

Blue text identifies other International Joint Commission Board and Committee affiliations

United States	Canada
John Allis, Co-Chair US Army Corps of Engineers – Detroit District <a href="#">International Lake Superior Board of Control</a> <a href="#">Alternate Regulation Representative</a>	Wendy Leger, Co-Chair Environment and Climate Change Canada
Vacant  Great Lakes State	Jonathan Staples Ontario Ministry of Natural Resources and Forestry <a href="#">International Niagara Working Committee Member</a>
Vacant  Great Lakes State	Patricia Clavet Ministère de l’Environnement et de la Lute contre les changements climatiques (Quebec) <a href="#">International Lake Ontario - St. Lawrence River Board Member</a>
Kevin O’Donnell US Environmental Protection Agency (Appointed December 3, 2018)	Susan Doka Fisheries and Oceans Canada
Deborah Lee Great Lakes Environmental Research Laboratory - NOAA	Frank Seglenieks Environment and Climate Change Canada
Bill Werick	Jean Morin Environment and Climate Change Canada
Keith Koralewski US Army Corps of Engineers – Buffalo District <a href="#">International Lake Ontario - St. Lawrence River Board</a> <a href="#">Alternate Regulation Representative</a>	Rob Caldwell Environment and Climate Change Canada <a href="#">Secretary - International Lake Ontario - St. Lawrence River Board and International Lake Superior Board of Control</a>
Vacant  US Army Corps of Engineers	Jacob Bruxer Environment and Climate Change Canada <a href="#">Regulation Representative - International Lake Superior Board of Control and International Lake Superior Board of Control</a>
<i>Melissa Kropfreiter, Co-Secretary</i> US Army Corps of Engineers – Detroit District	<i>Mike Shantz, Co-Secretary</i> Environment and Climate Change Canada

**NOTE:** The Great Lakes-St. Lawrence River Adaptive Management (GLAM) Committee was established by the International Joint Commission (IJC) as a sub-committee of the Boards and is comprised of an equal number of members from the United States and Canada. Members of the Committee serve at the pleasure of the IJC and are expected to be full participants in all activities of the Committee. As with all IJC Boards and Committees, the GLAM Committee members serve in their personal and professional capacity, not as a representative of their agencies or employers.

## 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 as a sub-committee in support of the three Great Lakes-St. Lawrence River Water Management Boards (Boards). This report is the eighth semi-annual report to the IJC and the Boards, covering the period of September 1, 2019 through to February 29, 2020.

Record, or near record-high water level conditions have been observed throughout the Great Lakes system during the reporting period. For the Lake Ontario – St. Lawrence River system in particular, this has placed considerable attention on the management of outflows from Lake Ontario through the St. Lawrence River. As a result, much of the focus of the GLAM Committee during the reporting period has been on finalizing and implementing a framework for an expedited review of Plan 2014, the regulation plan for managing the outflow from Lake Ontario.

From a work planning perspective, the GLAM Committee made considerable progress developing its expedited review priorities and finalizing its longer-term strategy document. The GLAM Committee hosted a joint workshop with members of the Great Lakes Boards on September 24, 2019 to review the draft strategy document. That strategy document was further refined and ultimately approved by the Boards near the end of the reporting period. The longer-term strategy document was then sent to the IJC for approval. In the interim, and to address immediate implementation of the expedited review of Plan 2014, the Boards and the IJC approved the GLAM Committee's 2020 work plan and the IJC provided notification on February 3, 2020 of \$1.5 million U.S and matching Canadian funds to initiate the first phase of the effort as outlined in the 2020 work plan. The work plan provides the detailed descriptions of the immediate priority tasks for the committee.

During the reporting period, the GLAM Committee was able to make considerable progress wrapping up tasks from its 2019 work plan (ending September 30, 2019) and initiating tasks covered in its 2020 work plan (covering October 1, 2019 through September 30, 2020). For both the 2019 and 2020 work plan items, a particular focus has been on providing information to support the International Lake Ontario – St. Lawrence River Board (ILOSLRB) in its efforts to maximize Lake Ontario outflows to respond to ongoing high inflows from Lake Erie and help attenuate high water conditions on Lake Ontario. These tasks also support the broader request by the IJC to initiate an expedited review for Plan 2014. For example, specific projects were implemented to provide information to the ILOSLRB on the potential economic impacts of a temporary halting of navigation on the St. Lawrence Seaway between Lake Ontario and Montreal due to hazardous high flow. In addition, work has been ongoing to gather information related to impacts along the Lake Ontario and St. Lawrence River shorelines. Interim results on these efforts were provided to the ILOSLRB in February with further refined information expected in the next reporting period. The GLAM Committee has also been overseeing the implementation of projects designed to gather information related to very high Lake Ontario

outflows during the winter months. Under these circumstances, very high outflows can lead to low water levels on Lake St. Lawrence with potential implications for ice management, water intakes, and the dewatering of some shoreline areas with ecological consequences. A series of short term efforts (e.g. a few months) have been initiated to gather immediate knowledge and information related to these aspects.

In addition to the tasks focused on supporting the immediate expedited review effort, the GLAM Committee also made progress on items supporting the longer-term plan review process for both Lake Ontario and Lake Superior outflows. These included data collection at a series of Lake Ontario coastal wetlands, as well as further data collection in the St. Marys River to support future validation and improvements to ecological response models. Improved binational datasets of overlake precipitation were also completed through a project led by the Midwestern Regional Climate Centre. Finally, ongoing development of a new Great Lakes Coordinated Regulation and Routing Model has been progressing in collaboration with the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data.

Despite the considerable progress on a number of priority work plan activities, the committee did have to defer certain tasks in light of requirements related to the expedited review. Primarily, these tasks related to aspects of the longer-term plan review (e.g. performance indicator review) or tasks superseded by operational requirements of staff supporting both the GLAM Committee and the ILOSLRB.

The GLAM Committee is extremely appreciative of the various agencies it has relied upon through their fixed in-kind contributions for its day-to-day operations and implementation of many of the work plan tasks during the reporting period. Support from the IJC's International Watersheds Initiative (IWI) was also critical for a number of tasks including the initiation of some items related to the expedited review. The GLAM Committee is appreciative of the February 3, 2020 funding confirmation to further support Phase 1 of the expedited review. The committee has already initiated efforts to apply those funds to critical expedited review tasks identified within the 2020 work plan. Expectations are high for delivery of the first phase of the expedited review and the GLAM Committee plans to work closely with the IJC and its Boards to execute the critical items as quickly as possible.

## 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, as a sub-committee to the Boards, to undertake monitoring and assessment of Lake Superior, and Lake Ontario-St. Lawrence River Boards' regulation plans and Niagara River Board activities, as well as coordinate with the Water Quality and Science Advisory Boards on issues of common interest. The GLAM Committee (committee) is comprised of a Canadian and US co-chair, as well as members from government agencies, the Great Lakes Water Management Boards (Boards), and technical experts. The committee is supported on an on-going basis by an appointed Canadian and US secretary.

As defined in its directive from the IJC, the overall objective of the GLAM Committee is to provide information to the Boards and the IJC while advising them on the effects that the control structures approved in the IJC's Orders of Approval and directives have on levels and flows in boundary waters. GLAM also captures the benefits and impacts that the regulation plans have on the affected interests and communicates this to the Boards and the IJC. This includes the on-going review and evaluation of regulation plans related to:

- a) the effectiveness of the existing regulation plans;
- b) examining how the system may be changing over time and whether any modifications to the regulation plan(s) may be warranted; and
- c) any other questions requested by the Boards and/or IJC that may affect the Boards' water management decisions over the long-term.

The GLAM Committee was initiated to establish a structured, iterative process of robust evaluation in the face of uncertainty, with an aim to reduce uncertainty over time via system monitoring and feedback to the decision-making framework based on knowledge gained.

This eighth semi-annual report will highlight GLAM Committee progress and accomplishments for the reporting period of September 1, 2019 to February 29, 2020.

## 2.0 Work Plan Progress and Emerging Priorities

The GLAM Committee's annual work plans cover the October 1 to September 30 time period, consistent with the US fiscal year. This semi-annual report discusses efforts to deliver on items in the GLAM Committee's Fiscal Year [\(FY\) 2019 work plan](#) by September 30, 2020 as well as projects initiated as part of the [2020 work plan](#). Both the FY19 and FY20 work plans are divided into sections. Section A is the Plan Review and Evaluation section where the core technical work is identified while Section B covers overarching oversight and administration functions (Figure 1). Within Section A of the FY19 work plan, tasks related to the ongoing regulation plan monitoring, modelling, and assessment are separated based on three tiers. Tier 1 covers ongoing foundational analyses, primarily focused on the preparation of annual conditions, impacts, and operations. Tier 2 covers a broader suite of targeted studies to support longer-

term data acquisition and plan review requirements and Tier 3 are Strategic Improvement Studies

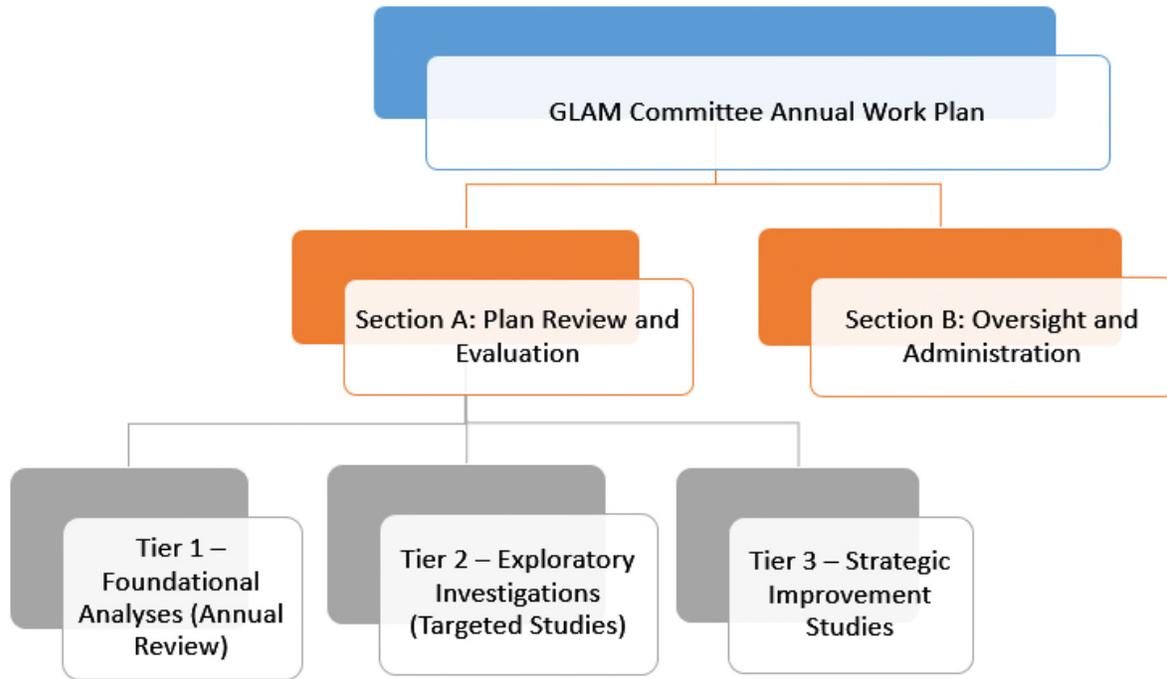


Figure 1: GLAM FY19 Work Plan structure (NOTE: The expedited review was initiated in FY20 so is not represented in the FY19 work plan structure)

The GLAM Committee’s work plans are developed annually, and identify key priorities for the upcoming year as envisioned by the committee at that time (typically late summer or early fall of each year). In consultation with the Great Lakes Boards, the GLAM Committee has to consistently work very hard to try to match available resources to expected needs in the coming year and to anticipate priorities. Meanwhile, conditions in the Great Lakes basin can change dramatically after the work plans are prepared and that can impact heavily on GLAM Committee activities and priorities. The current reporting period was no exception with record-high or near record-high water levels observed on each Great Lake in recent months. For the GLAM Committee, conditions in the Lake Ontario – St. Lawrence River basin had a critical impact on the ability to deliver on FY19 work plan priorities identified back in the fall of 2018 as well as the identification of new items in the FY20 work plan.

With the continued high water levels in the Lake Ontario – St. Lawrence River system, there has been particular attention paid to the operation of Plan 2014. In consultation with the International Lake Ontario – St. Lawrence River Board (ILOSLRB) and the IJC, the GLAM Committee has been tasked to frame and implement the initial components of an **expedited review for Plan 2014**. This expedited review comprises many complex elements and has taken precedence over some of the FY19 and FY20 work plan activities. When the GLAM Committee

initially developed its FY20 work plan in September 2019, funding for a number of the expedited review tasks was still uncertain. Near the end of the reporting period, funding to support Phase 1 of the expedited review was confirmed by the IJC, enabling the GLAM Committee to move forward on the implementation of those tasks. Adequate and timely funding support is a constant concern to allow proper planning, meet calendar, confirm support from various agencies and deliver results. Funding for Phase 2 of the expedited review has not yet been confirmed.

Progress made on work plan tasks, and recent expedited review priorities, are discussed in 2.1 and 2.2 below. The expedited review tasks are a targeted and time bound implementation of specific GLAM Committee Plan Review and Evaluation along with Oversight and Administration requirements outlined in our annual Work Plan. Specific work plan tasks associated with the expedited review of Plan 2014 are highlighted in the summary and noted as **(Phase 1)** in the Appendices.

## **2.1 Section A: Plan review and evaluation**

Section A tasks are led by the ad-hoc hydroclimate, impact assessment, and plan review working groups made up from members of the GLAM Committee and technical associates. These tasks are primarily undertaken using in-kind agency contributions as resources permit, as well as project specific support through the International Watersheds Initiative (IWI) and now through special Phase 1 expedited review funding. During the reporting period, a primary focus was the implementation of the critical resourced activities in the FY19 and FY20 work plans. As well, new activities emerged in response to high water level conditions and the expedited review request from the IJC and were incorporated into the FY20 work plan. Highlights of progress on both the originally resourced FY19 and FY20 work plan tasks and the emerging newly funded items are discussed below and task-specific details of FY19 and FY20 work plan items (where initiated) are provided in *Appendix A and B*. Work plan tasks associated with the expedited review of Plan 2014 are noted as **(Phase 1)** in the Appendices. Please note that the GLAM Committee's FY20 work plan, which was approved by the IJC early in 2020, included a series of additional Phase 1 expedited review tasks. Those additional tasks were included, pending the availability of further funding. With the recent confirmation of additional funding from the IJC (February 3, 2020), the GLAM Committee is now moving forward on implementing those additional projects but very little progress was made up to the end of February.

### ***2.1.1 Tier 1 activities – foundational analyses (annual review)***

The GLAM Committee put a low priority on these Tier 1 tasks during the current reporting period in light of other priorities supporting the expedited review requirements. The current plan is to consider including this reporting as part of the next triennial report, currently due in later 2020. Discussions are still ongoing with the IJC as to the timing and structure of that report. While the continued high water levels across the Great Lakes may raise the interest in

broader public reporting of impacts across the Great Lakes, with the focus on the expedited review of Plan 2014, the GLAM Committee does not currently have resources allocated to summarizing conditions across the entire basin.

### ***2.1.2 Tier 2 activities - exploratory investigations (targeted studies)***

#### ***2.1.2.1 Hydroclimate***

There were two priority Tier 2 hydroclimate activities within the GLAM Committee's FY19 work plan and additional items in the FY20 work plan. The one FY19 project was an IWI supported project to develop a precipitation anomaly dataset for the Great Lakes basin. The project was carried over into the FY20 work plan. The project merges Canadian Precipitation Analysis (CaPA) and US National Weather Service Multi Precipitation Estimates (MPE) products to produce a blended Great Lakes basin precipitation anomaly product that includes overlake precipitation (i.e. not just absolute precipitation amounts but anomalies from a long-term condition). The work was being done through an agreement with the University of Illinois Midwestern Regional Climate Center and completed during the reporting period. The data is now available as "departure" data on the binational precipitation grids website along with documentation (<https://mrcc.illinois.edu/gismaps/naprecip.htm>).

The other major Tier 2 hydroclimate work plan task was for the development of an overall hydroclimate strategy to support the long-term plan review and evaluation efforts of the GLAM Committee. That work was broadly wrapped into the development of the longer-term strategy document discussed below in Section 2.2.

In the FY20 work plan, two new items were added including the initiation of a project on the application of Machine Learning and Artificial Intelligence to Lake Ontario regulation decisions and identification of longer-term hydroclimate and plan review requirements. The first item was only just initiated during the reporting period and further progress is expected in the coming months. The second item will be initiated in the upcoming reporting period.

GLAM Committee members of the hydroclimate group are also connected with or tracking a number of related hydroclimate activities that will support longer-term efforts that are not directly led by the committee or identified on the FY19 or FY20 work plans. For one specific example, staff from Environment and Climate Change Canada (ECCC) are working on climate change simulations of Great Lakes water levels to support a wetland vulnerability study and those water level simulations will be of value to the GLAM Committee. GLAM Committee members are also active participants in the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data and work to identify areas of common interest regarding basic Great Lakes data. The GLAM Committee benefits considerably from binational and interagency work done through the coordinating committee which also contributes to the GLAM Committee priorities including the application of the statistical water balance model developed as part of earlier GLAM Committee work plans.

### ***2.1.2.2 Impact assessment***

The impact assessment activities within the GLAM Committee work plans focus on ensuring that the outcomes of water level and flow scenarios affecting the various interests are measurable and assessable. More specifically, they support the GLAM Committee in understanding how accurately the impacts on these interests are represented by current data and models used in evaluating the management of levels and flows and whether conditions of the system are changing over time. In the FY19 and FY20 work plans, Tier 2 impact assessment tasks have been separated into Lake Ontario – St. Lawrence River ecosystem, Lake Ontario – St. Lawrence River socio-economic, and upper Great Lakes activities. There is also an Impact Assessment Working Group – Basin-wide section in the FY20 work plan. Tasks specifically initiated in support of the expedited review of Plan 2014 are identified as such.

#### **Impact Assessment Working Group – Basin-wide:**

The FY20 work plan includes a general task to review existing performance indicators and prioritize them for future review. While the GLAM Committee considers this to be an important overall task to support the longer-term plan review effort, this was not considered an immediate priority during the reporting period. With attention now being placed on the expedited review, it is unclear how much progress will be made on this item in the coming months.

#### **Lake Ontario – St. Lawrence River Ecosystem Activities:**

The GLAM Committee continues to plan and engage in ecosystem activities for the Lake Ontario – St. Lawrence River system, with particular attention on the wetlands performance indicator for Lake Ontario. During the reporting period, the final deliverables for an IWI supported wetland monitoring project were received by the GLAM Committee. The monitoring was done in September 2019 with the data processing through the late fall and early winter. Similar monitoring has been ongoing for Lake Ontario coastal wetlands for the past few years at different frequencies and scales. Data from earlier years has already been used by the committee in initial attempts to compare model results to field observations. In addition to the ongoing monitoring, there is continued interest in comparing monitoring results to the existing wetlands models. This was not a priority during the reporting period as the committee waited for the monitoring data from 2019 but there may be some progress in the coming months, depending on efforts directed to the expedited review.

As with the hydroclimate working group, the ecosystem activities benefit from related work undertaken by other agencies. While the work is not directed or supported by the GLAM Committee, outcomes from the projects will be of value to GLAM Committee efforts going forward. For example, staff from Environment and Climate Change Canada continue to work on improved hydrodynamic and ecohydraulic response models for coastal wetlands of Lake Ontario. Through the work, it is expected that improved models will be developed at select

sites for comparison to the previous wetland response model developed during the 2000-2005 International Lake Ontario – St. Lawrence River Study.

#### Lake Ontario – St. Lawrence River Socio-Economic Activities:

**Expedited review priorities** guided the efforts of the Lake Ontario – St. Lawrence River socio-economic activities during the recent reporting period. This included the initiation of a series of priority impact assessment tasks within the FY20 work plan. Through the US Section of the IJC, the Institute for Water Resources (IWR) at the U.S. Army Corps of Engineers was engaged to undertake three critical projects:

1. A review of the potential economic impacts of a temporary halting of the St. Lawrence Seaway shipping between Lake Ontario and Montreal due to hazardous flow.
2. Planning and implementation of meetings with municipal staff along the U.S shoreline of Lake Ontario to discuss high water impact information.
3. A review of managing ice conditions near the Moses-Saunders dam.

On the project for economic impacts of temporary halting of St. Lawrence Seaway shipping, a workshop was held November 5, 2019 in Montreal, Quebec with GLAM Committee, ILOSLRB, IJC, a wide array of navigation industry representatives and experts to discuss critical considerations with regards to the economic analysis. IWR staff prepared at workshop report that will be posted to the GLAM Committee website shortly. Since that workshop, IWR staff have undertaken their initial economic analysis with a particular emphasis on outflow strategies that would lead to a delayed opening of the seaway season. Preliminary findings were provided to the ILOSLRB in February with a draft reported expected in March, 2020.

For the U.S. municipal meeting project, IWR is working with coordinators from the U.S. Army Corps of Engineers office in Buffalo who have been planning and executing the meetings. A considerable amount of preparation occurred during the reporting period and the first meeting was held in Monroe County on February 11, 2020. The remaining meetings are being scheduled for March and April 2020. There was less progress on the ice management project, with IWR focusing on contracting arrangements with the technical experts undertaking task. Most of the work will proceed in the coming months.

In addition to the U.S. municipal meetings, the GLAM Committee is working on the Canadian side to arrange similar meetings within Ontario and Quebec. The GLAM Committee has been preparing necessary statements of work for that effort and expects to initiate contracting soon.

Two other priority **expedited review** tasks were initiated during the reporting period. These include a project to look at the vulnerability of water intakes on Lake St. Lawrence, just upstream of the Moses-Saunders Dam during winter months when ice conditions and high outflows can lead to significant drawdown in the area. A second, somewhat related project, is looking at general ecosystem implications of high winter drawdown of Lake St. Lawrence. Both projects are expected to have preliminary results by the end of March, 2020.

In addition to the priority expedited review projects identified through the FY20 work plan, there are a couple projects from the FY19 work plan that were wrapped up during the reporting period. The IJC provided approval of two contract reports by LURA Consulting related to high water impacts for marinas and yacht clubs on Lake Ontario and the St. Lawrence River in 2017 as well as municipal and industrial water users. These reports provide considerable information on the type and extent of impacts observed by these activity sectors during 2017 and will be available on the GLAM Committee website. In addition, an online 2019 questionnaire was made available through the GLAM Committee website. The questionnaire allows shoreline property owners throughout the Great Lakes to report on the high water impacts they have experienced. The questionnaire was available online throughout the reporting period, with roughly 1680 responses for the Lake Ontario – St. Lawrence River shoreline as of January 31, 2020. In addition, there have been about 750 responses for the upper Great Lakes. The numbers are expected to be refined somewhat as further quality review takes place. The GLAM Committee has initiated efforts to summarize key findings from the questionnaire and provided some preliminary information to the ILOSLRB in February. Further analysis is expected in the coming months as the questionnaire will remain active throughout the current high water period. The GLAM Committee continued tracking and archiving of media coverage, responding to requests from the Board for available economic information related to impacts (this included a number of presentations to the Board), and follow-up presentations with Conservation Authorities and discussions on impacts.

Two FY19 work plan tasks that could not be completed include an overall assessment of the existing performance indicators and further data collection related to shoreline protection on the U.S. shoreline of Lake Ontario. The latter project was challenged by site access issues and while the project was carried over to the FY20 work plan and previous semi-annual updates indicated some progress, recent discussions suggest the project may need to be revised before moving forward. The GLAM Committee will be reviewing that task in light of the recent confirmation of funding Phase 1 of the expedited review and other identified priorities for the expedited review. The performance indicator review supports the longer-term plan review efforts but the immediate priority will be to focus on indicators necessary for Phase 1 of the expedited review.

The GLAM Committee's FY20 work plan, which was approved by the IJC early in 2020, included a series of additional Phase 1 expedited review tasks. Those additional tasks were included, pending the availability of further funding. With the recent confirmation of additional funding from the IJC (February 3, 2020), the GLAM Committee is now moving forward on implementing those additional projects but very little progress was made up to the end of February.

#### Upper Great Lakes Ecosystem and Socio-Economic Activities:

The GLAM Committee's effort related to upper Great Lakes ecosystem and socio-economic indicators continues to focus on the development of an ecohydraulic model for the St. Marys

rapids and vicinity. The primary activity during the reporting period was the continuation of data collection and processing for the St. Marys River. This was an IWI supported project in collaboration with staff of the US Army Corps of Engineers Detroit District office. Field visits were undertaken in June 2019 and October 2019 to collect side scan sonar imagery for a portion of the St. Marys River including the area just downstream of the St. Marys Rapids and areas around Sugar Island. The project agreement goes to April 2020 with further data gathering and processing anticipated over the coming month. The information will be used to improve the ecohydraulic model that was previously initiated by a collaborative effort between US Army Corps of Engineers Detroit District office and Environment and Climate Change staff in Quebec City.

The GLAM Committee had FY 19 work plan items for a task for the development of a flooding indicator for the St. Marys River including Whitefish Island and a task for further assessment of existing socio-economic and ecosystem performance indicators. Progress was limited on both these items during the reporting period. For the FY20 work plan, the GLAM Committee continues to hold a task for the St. Marys River flooding indicator and would like to prepare a plan and schedule for development of a flow change smoothness indicator for the St. Marys Rapids. Through work of the USGS, some initial data was collected just prior to the establishment of winter gate settings of the control works to look a fish stranding and habitat dewatering. This information should support the indicator development moving forward. Related to ongoing GLAM Committee activities, but not specifically mentioned in the annual work plans, are continuing efforts of the U.S. Army Corps of Engineers (Detroit District) to undertake bathymetric surveys in the St. Clair River and assess the data for possible conveyance changes as a result of the current high outflows from Lake Huron. A report is expected later this year on the 2019 bathymetric data.

With considerable GLAM Committee resources tied up with operational requirements supporting the ILOSLRB, little progress was made on the indicator review for the upper Great Lakes. While the committee recognizes the long-term importance of the indicator review, the initiation of the expedited review for the Lake Ontario – St. Lawrence River system may limit progress on the upper Great Lakes indicator review in the near future, especially on the Canadian side.

### ***2.1.2.3 Plan review***

The GLAM Committee's FY19 work plan had three main Plan Review tasks including a review of Plan 2012 and Plan 2014 operations in 2018, a plan review gap analysis, and progress related updates for the Great Lakes routing model. A number of these items carried forward or were integrated into tasks on the FY20 work plan and will be further developed as part of Phase 1 of the expedited review of Plan 2014. The main tasks are generally categorized into two main themes. The first is the ongoing maintenance and improvement of existing and new water level and flow simulation tools, including the input datasets needed to run the models to support long-term plan simulations. This includes the development of the new Great Lakes coordinated

routing model and the integration of regulation plan rules into those models. The second is the review and documentation of recent Board operations for both Lake Superior and Lake Ontario outflows. Some progress was made on both these themes, and development of the new routing model continued and baseline datasets were cleaned for operational use. As well, the regulation representatives for both the International Lake Ontario – St. Lawrence River Board and the International Lake Superior Board of Control spent considerable effort documenting outflow activities and deviations during the reporting period. This work was further supported by the GLAM Committee through a draft review of weekly deviation differences between Plan 1958DD and Plan 2014 over the last 18 months. While the bulk of the information is available, further effort is needed to summarize the findings to support the ongoing plan review effort including updated modelling assumptions related to deviation decisions. Some of that work is expected to occur in the coming months.

## **2.2 Section B: Oversight and administration**

Activities within the Oversight and Administration category include the overarching functions required to keep the committee on track. This includes ongoing chair and secretariat functions along with project management, reporting, communications and engagement, peer review, and information management.

The GLAM Committee continued to hold regular monthly conference calls to update members and discuss relevant items. The committee also held a very productive face-to-face workshop on September 24, 2019 in Burlington, Ontario with members of the Great Lakes Boards to discuss the committee's long-term strategy. The Board requested that these workshop continue on an annual basis to bridge Board Members and GLAM's understandings of tasks evolution. Typically, the GLAM Committee has held a face-to-face technical meeting in February but this year, the meeting has been scheduled to align with the upcoming Board meetings in March. The GLAM Committee co-chairs presented at the IJC fall semi-annual meetings in 2019 in Ottawa, and finalized their semi-annual update report.

The highest priority oversight and administration work plan task in the reporting period was the finalization of the long-term year strategy document. A draft was prepared and discussed at a workshop with the Great Lakes boards in September 2019. The document was further refined throughout the fall in consultation with IJC staff and the Boards. A final version was approved by the Boards in February 2020 and sent to the IJC for approval. The strategy integrates the long-term requirements of the GLAM Committee in meeting the requirements for 15 year reviews of the regulation strategies for Lake Superior and Lake Ontario outflows with immediate requirements of an expedited review of Plan 2014. The two phases of the expedited review are outlined in the context of the broader adaptive management effort.

It is important to note that the long-term strategy is a general framework for the GLAM Committee effort in the coming years. It is considered an evergreen document, to be updated as more is learned and as new priorities emerge. In the short-term, immediate priorities

including those related to the expedited review of Plan 2014 are captured in the FY20 work plan. It is important to note that funding is not confirmed beyond Phase 1 of the expedited review.

Outreach and engagement efforts of the GLAM Committee have generally been focused on the implementation of specific work plan tasks. For example, the project looking at impacts associated with the commercial navigation sector included a workshop with key representatives from the navigation sector early on in the process to gather input and develop relationships to support the effort as well as ongoing discussions with industry representatives. As well, the GLAM Committee developed an online questionnaire to allow shoreline property owners to directly report their high water impacts in 2019. The GLAM Committee has also initiated meetings with municipal staff for communities in New York State and will be moving forward with meeting in Ontario and Quebec. The GLAM Committee works to coordinate any outreach or communication efforts with the ILOSLRB Communications Committee and a number of GLAM Committee members continue to participate in regular activities of that group to support coordination of broader communication and engagement efforts.

With the recent confirmation of funding for Phase 1 of the expedited review, the GLAM Committee is working with the IJC on the development of a public advisory group to support the expedited review effort. At the request of the IJC, the committee drafted an initial terms of reference as well as an extensive list of possible nominees for the IJC to consider when establishing the group. The GLAM Committee looks forward to working with the IJC and its appointees to the public advisory group in support of Phase 1 of the expedited review.

### **3.0 International Watersheds Initiative Projects**

The GLAM Committee's FY19 and FY20 work plans were developed based on available agency and essential in-kind staff contributions and potential support through the IWI. In both cases, progress for each task is dependent on actual available resources when the project is initiated. The committee continues to receive IWI support for a number of projects, although the timing of actual project implementation can be delayed depending on how long it takes to move from conditional approval to final contracting arrangements. In the FY19 and FY20 work plans, there are 13 individual IWI projects that are either funded (full or partial) or conditionally approved for IWI funding. These projects are identified and detailed in Appendix A and specific progress was discussed previously in Section 2.0.

### **4.0 Funding and Resourcing**

The GLAM Committee greatly appreciates the recent announcement of \$1.5 million United States and matching Canadian funds to support Phase 1 of the expedited review. These funds will be used in the context of the tasks identified in the FY20 work plan. Given timing considerations, the GLAM Committee is already moving forward on options for delivering on

individual tasks. The committee recognizing the considerable interest in the expedited review, and is striving to ensure timely and efficient use of the identified resources.

The GLAM Committee continues to make use of the funding contributions of the IJC through the IWI program to support specific work plan tasks. These resources leverage considerable in-kind contributions from supporting agencies, including those represented through members of the GLAM Committee as identified on page 3 of this report, and allow the committee to pursue a wide range of initiatives to help deliver on its overall directive. The in-kind contributions from partner agencies have been critical to the progress that the GLAM Committee has made so far.

There are a number of vacancies on the GLAM Committee, particularly on the U.S. side. Efforts have been underway over the reporting period to fill these critical gaps. As of the end of February, 2020, there are three vacant U.S. membership spots. IJC staff and the GLAM Committee co-chairs are working closely to identify possible candidates for consideration by the IJC.

With the ongoing high water conditions throughout the Great Lakes, many GLAM Committee members are very busy providing operational support to the Great Lakes Boards. The GLAM Committee has worked hard to adjust priorities to ensure the limited available resources are applied to the most critical tasks. The recent confirmation of additional funding to support Phase 1 of the expedited review is welcome but also raises expectations for the committee. Every effort will be made to apply the available resources effectively to support the immediate needs of the Plan 2014 review effort. The GLAM Committee will do its best to work with the IJC to navigate the challenges of contracting procedures and other funding processes and strive to get the funds properly allocated to allow for the completion of work in a timely manner.

Respectfully Submitted,

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Mr. John Allis  
GLAM Committee US co-chair

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Ms. Wendy Leger  
GLAM Committee Canadian co-chair

**Appendix A: Summary of FY19 Work Plan Progress (as of February 29, 2020)**

**\*Tasks noted as (Phase 1) are associated with the Expedited Review of Plan 2014**

<b>SECTION A: Plan Review and Evaluation</b>			
<b>Tier 1: Foundational Analyses (Annual review of conditions)</b>			
Hydroclimate Working Group			
<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY19-1.1	Prepare routine annual report material required for hydroclimate assessments	Following the completion of the 2017 summary in the previous reporting period, the Hydroclimate Working Group has initiated the development of the 2018 summary. However, progress was slowed as resources were redirected in response to record high water levels observed throughout the Great Lakes basin in the summer of 2019. Further updates for 2018 are expected as part of future GLAM Committee reporting.	No
Impact Assessment Working Group			
FY19-1.2	Prepare routine annual report material required for understanding baseline conditions and benefits of observed water levels and flows	Following the completion of the 2017 summary in the previous reporting period, the Impact Assessment Working Group initiated a brief summary of 2018 impacts, primarily related to Coastal Property Owners but with some consideration of impacts to other interests. However, progress was slowed as resources were redirected in response to record high water levels observed throughout the Great Lakes basin in the summer of 2019. Further updates for 2018 are expected as part of future GLAM Committee reporting.	No
Plan Review and Evaluation Working Group			
FY19-1.3	Prepare routine annual report material required for ongoing evaluations of existing regulation plan performance	Following the completion of the 2017 summary in the previous reporting period the Plan Review Working Group initiated a review of 2018 regulation plan operations for both Lake Superior and Lake Ontario outflows. However, progress was slowed as resources were redirected in response to record high water levels observed throughout the Great Lakes basin in the summer of 2019. Further updates for 2018 are expected as part of future GLAM Committee reporting.	No

<b>SECTION A: Plan Review and Evaluation</b>			
<b>Tier 2: Exploratory Investigations (Priority Projects)</b>			
Hydroclimate Working Group			
<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY19-2.1	Development of overall hydroclimate strategy to support long-term plan review and evaluation	The Hydroclimate Working Group contributed to the development of draft materials related to the 12-year strategy development.	No
FY19-2.2	Completion of NWS Multi-Precipitation Estimates (MPE)/CaPA merged baseline climatology development	This task was completed during the reporting period and the information is provided as “departures” on the binational precipitation website ( <a href="https://mrcc.illinois.edu/gismaps/naprecip.htm">https://mrcc.illinois.edu/gismaps/naprecip.htm</a> )	Yes
Impact Assessment Working Group – Lake Ontario and St. Lawrence River (ecosystem)			
FY19-2.3	Performance Indicator review and prioritization for Lake Ontario – St. Lawrence River Integrated Ecological Response Model (IERM)	The GLAM Committee was conditionally approved for an IWI project to support this effort but the effort has been deferred to later in 2020.	Yes (part)
FY19-2.4	Continued Evaluation of Meadow Marsh Algorithm	Following the integration of 2018 monitoring data during the previous reporting period, little work was done over the reporting period while new 2019 sampling data was being prepared (see FY19-2.5 below)	No
FY19-2.5	Monitoring of Lake Ontario Coastal Wetlands on the Canadian Shoreline	The final data from the September 2019 field monitoring of 16 Canadian sites on the Lake Ontario shoreline was delivered by the Canadian Wildlife Service in February, 2020.	Yes
FY19-2.6	Follow up to State of Science Assessment of Remote Sensing for Great Lakes Coastal Wetlands - possible collaboration from Mar 2018 workshop	There was little progress on this item during the reporting period.	No

<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY19-2.7	Wetland monitoring and ecosystem indicator development (muskrat and Northern Pike)	<p><i>** this project is being undertaken through partner agencies but directly contributes to long-term GLAM Committee objectives</i></p> <p><i>This is a NYDEC project that also contributes to GLAM priorities. The muskrat and Northern Pike monitoring and data processing for this multi-year project continue with final reporting not expected until the end of the project.</i></p>	No
FY19-2.8	Wetland imagery interpretation	<p><i>** this project is being undertaken through partner agencies but directly contributes to long-term GLAM Committee objectives</i></p> <p><i>This is an OMNRF project that also contributes to GLAM priorities. High resolution air photos are being used to delineate wetland vegetation areas.</i></p>	No
<b>Impact Assessment Working Group – Lake Ontario and St. Lawrence River (socio-economic)</b>			
FY19-2.9	Socio-economic Performance Indicator review and prioritization for Lake Ontario – St. Lawrence River Shared Vision Model	Overall progress has been limited, with particular focus on Lake Ontario – St. Lawrence River coastal and commercial navigation indicators.	No
FY19-2.10	Revisit shore protection that was surveyed by either NYDEC (2011) or USACE (2015) to assess response to high water conditions	The IWI project was conditionally approved as of January 11 <sup>th</sup> , 2018 and funding arrangements were made through the IJC Section of the IJC in September 2018 with the US Army Corps of Engineers in Buffalo. Progress has been slow, due to site access issues and the GLAM will be re-assessing this tasks in the context of the expedited review.	Yes
FY19-2.11	Implementation of Shoreline Damage Survey for the Canadian Shoreline of Lake Ontario and the Upper St. Lawrence River	The GLAM Committee posted a questionnaire (similar to 2017 version) that allows responses from all the Great Lakes. As of January 31, 2020, there were 1680 responses for the Lake Ontario – St. Lawrence River system and a further 750 responses for the rest of the Great Lakes. Preliminary information was provided to the ILOSLRB in February and further analysis is expected in the coming months.	No
FY19-2.12	Survey and review of operational impacts on marinas due to 2017 water levels	LURA Consulting completed this project, under contract with the Canadian Section of the IJC, during the previous reporting period. In the current reporting period, the reports were approved for posting by the IJC and the executive summaries translated.	Yes

<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY19-2.13	Survey and review of operational impacts on Municipal and Industrial infrastructure due to 2017 water levels	This project was undertaken jointly with FY19-2.12 discussed previously as part of a single contract with LURA Consulting. The timelines, approaches, and progress are similar.	Yes
FY19-2.14	<i>Erosion and inundation vulnerability assessment along the lower St. Lawrence River</i>	<i>** this project is being undertaken through partner agencies but directly contributes to long-term GLAM Committee objectives</i>  <i>This is a multi-year, Province of Quebec project that also contributes to GLAM priorities. When completed, the information from the project will be of benefit to the GLAM Committee in terms of improving understanding of vulnerabilities associated with river flooding and high water.</i>	No
<b>Impact Assessment Working Group – Upper Great Lakes</b>			
FY19-2.15	Upper Great Lakes Integrated Ecological Response Model (IERM) and Shared Vision Model Performance Indicator status review and prioritization	Overall progress has been limited, with as the committee has focused on Lake Ontario – St. Lawrence River coastal and commercial navigation indicators.	No
FY19-2.16	St. Mary's River IERM Rapids Data	Data was collected in June and October of 2019. Additional rapids bottom/bed data to be collected this spring as conditions allow.	Yes
FY19-2.17	St. Mary's River IERM Expansion	This task will not move forward until after the additional St. Mary's River data collection (FY19-2.16) has taken place and been processed.	No
FY19-2.18	Assimilate St. Mary's River IERM into SVM	This task will not move forward until after the additional St. Mary's River data collection (FY19-2.16) has taken place and been processed.	No
FY19-2.19	Development of initial flooding performance indicator for the St. Mary's River	The GLAM Committee did not have the resources to pursue this project in FY19. It has been carried over into the FY20 work plan.	No
<b>Plan Review Working Group</b>			
FY19-2.20	Review of Plan 2014 operations in 2018 (including high outflow/low Lake St. Lawrence conditions)	GLAM Committee members, along with support staff for the ILOSLRB, reviewed plan operations through 2018 and 2019. Some information is available on the ILOSLRB website and the GLAM Committee will likely highlight further details in future reporting related to the expedited review.	No

FY19-2.21	Plan Review gap analysis	This progress was integrated together with item FY19-2.20 above.	No
FY19-2.22	Routing model update	This work is now being led by the Coordinating Committee of Great Lakes Hydraulic and Hydrologic Data, with close collaboration with a number of GLAM Committee members. Progress continues to be made on both the upper Great Lakes and Lake Ontario-St. Lawrence River components of the model. Note that a portion this effort was initially supported by the IWI support. That funding support is complete and work is not being led by the Coordinating Committee.	Yes

<b>SECTION B: GLAM Oversight and Administration</b>			
<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY19-3.1	GLAM Committee Coordination, Management, and Reporting	The fall semi-annual update was provided to the IJC and approved.	No
FY19-3.2	Monitoring of Work Plan Delivery	Monitoring of work plan delivery was undertaken to support annual report development and semi-annual reporting.	No
FY19-3.3	GLAM Information Management Needs including file sharing and data/model management strategies.	Little progress was made on this item during the reporting period. The GLAM Committee expects to move this item forward in the context of the expedited review during the next reporting period, with the support of the IJC.	No
FY19-3.4	Maintain engagement with GLWQA activities	The Canadian and US co-chairs continue informal interactions with the IJCs Water Quality Board and Science Advisory Board and periodically update them on GLAM work plans and any areas of common interest.	No
FY19-3.5	Develop and initiate an engagement plan for advisory networks	The GLAM co-chairs and secretaries continued to participate on the Communications Committee of the International Lake Ontario – St. Lawrence River Board. Committee members continue to maintain various levels of informal discussions with key stakeholders on relevant FY19 and FY20 work plan items. With the initiation of the expedited review, the GLAM Committee has developed a draft Terms of Reference and list of possible nominees for a special advisory group. These draft materials has been provided to the IJC for review and action in March 2020.	No
FY19-3.6	Development of 12-year strategy	A workshop was held in September 2019 with the IJC's Great Lakes Boards to discuss the draft strategy. Following further refinement, the strategy was approved by the Boards in February, 2020 and sent to the IJC for approval	No

**Appendix B: Summary of FY20 Work Plan Progress (as of February 29, 2020)**

<b>SECTION A: Plan Review and Evaluation</b>			
<b>Tier 1: Foundational Analyses (Annual review of conditions)</b>			
Hydroclimate Working Group			
<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY20-1.1	Prepare routine report material required for hydroclimate assessments	See previous Appendix A update on related FY19-1.1 item in FY19 work plan.	No
Impact Assessment Working Group			
FY20-1.2	Prepare routine report material required for understanding baseline conditions and benefits of observed water levels and flows	See previous Appendix A update on related FY19-1.2 item in FY19 work plan.	No
Plan Review and Evaluation Working Group			
FY20-1.3	Prepare routine report material required for ongoing evaluations of existing regulation plan performance	See previous Appendix A update on related FY19-1.3 item in FY19 work plan.	No

<b>SECTION A: Plan Review and Evaluation</b>			
<b>Tier 2: Exploratory Investigations (Priority Projects)</b>			
Hydroclimate Working Group			
<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY20-2.1	Completion of NWS Multi-Precipitation Estimates (MPE)/CaPA merged baseline climatology development	See previous Appendix A update on related FY19-2.2 item in FY19 work plan.	Yes
FY20-2.2	Application of Machine Learning (ML) and Artificial Intelligence (AI) to Lake Ontario Regulation Decisions	This project was only initiated in the reporting period (e.g. funding arrangements with the key investigator). Further progress is expected in the coming months.	No

<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY20-2.3	Identification of research priorities linking hydroclimate and plan review requirements	Will be initiated later in the fiscal year.	No
FY20-2.4	<i>Updating Future Lake Level Projections</i>	<i>Progress has been made developing climate change water level projections for the upper Great Lakes, using similar methods from work undertaken during the IJC's International Upper Great Lakes Study a few years ago but with updated CMIP5 scenarios. The results are being refined, and ongoing discussion is occurring to effectively develop the Lake Ontario water level results.</i>	No
<b>Impact Assessment Working Group – Basin-wide</b>			
FY20-2.5	Performance Indicator review and prioritization assessment	See previous Appendix A update on related FY19-2.3 and FY19-2.9 items in FY19 work plan.	Yes (part)
<b>Impact Assessment Working Group – Lake Ontario and St. Lawrence River (ecosystem)</b>			
FY20-2.6	Continued Evaluation of Meadow Marsh Algorithm	See previous Appendix A update on related FY19-2.4 item in FY19 work plan.	No
FY20-2.7	Monitoring of Lake Ontario Coastal Wetlands on the Canadian Shoreline	See previous Appendix A update on related FY19-2.5 item in FY19 work plan.	Yes
FY20-2.8	<i>Wetland monitoring and ecosystem indicator development (muskrat and Northern Pike)</i>	<i>See previous Appendix A update on related FY19-2.7 item in FY19 work plan.</i>	No
FY20-2.9	<i>Wetland imagery interpretation</i>	<i>See previous Appendix A update on related FY19-2.8 item in FY19 work plan.</i>	No
FY20-2.10	<i>Wetlands modelling to assess wetlands vulnerability to climate change</i>	<i>ECCE staff are involved with a departmental project to assess wetland vulnerability to climate change. This includes the development of ecohydraulic models at 25 wetland sites across the Great Lakes, including 5 sites on the Canadian shore of Lake Ontario.</i>	No
<b>Impact Assessment Working Group – Lake Ontario and St. Lawrence River (socio-economic)</b>			
FY20-2.11	Revisit shore protection that was surveyed by either NYDEC (2011) or USACE (2015) to assess response to high water conditions	See previous Appendix A update on related FY19-2.10 item in FY19 work plan.	No
FY20-2.12 (Phase 1)	Implementation of self-reporting damage questionnaire for Great Lakes-	See previous Appendix A update on related FY19-2.11 item in FY19 work plan.	No

Task	Task Title	Status	IWI
	St. Lawrence River shoreline (2019)		
FY20-2.13 (Phase 1)	Seaway Navigation Economic Analysis	The U.S. Army Corps of Engineers is leading this task, through the Institute for Water Resources (IWR). A workshop was held November 5, 2019 in Montreal, Quebec participants from GLAM, the IJC, ILOSLRB, IWR, and industry representatives and experts to discuss the economic analysis. The workshop report will be posted on the GLAM Committee website. Preliminary results from the economic analysis were developed during the winter and presented to the ILOSLRB in February 2020. Further analysis is expected in the coming months.	Yes
FY20-2.14 (Phase 1)	Municipal meetings within NY State, Ontario, and Quebec	The U.S. meetings are being organized by staff at the U.S. Army Corps of Engineers – Buffalo. The project planning was initiated during the reporting period and the first meeting was held in Monroe County on February 11, 2020. Further U.S. meetings will be held in the coming months. On the Canadian side, scopes of work and contract documents were prepared for Ontario and Quebec meetings. The contracting process will be started in the next month or two.	Yes
FY20-2.15 (Phase 1)	Review of Lake St. Lawrence I Limit	The Canadian Section of the IJC has contracted this work. The contractor has made contact with all the critical sites and has been gathering information to look at intake vulnerability under low winter water level conditions on Lake St. Lawrence. Preliminary draft information was provided to GLAM Committee representatives in February 2020 and the contract should be wrapped up by the end of March, 2020.	Yes
FY20-2.16 (Phase 1)	Review of Lake St. Lawrence Ice Integrity	The U.S. Army Corps of Engineers is leading this task, through the Institute for Water Resources (IWR). They are working with an ice expert from Clarkson University on the technical analysis. Preliminary data analysis took place and there have been two update calls with members of the GLAM Committee. A full draft report is expected at the end of March 2020	Yes
**FY20-2.17 <sup>1</sup>	<i>Erosion and inundation vulnerability assessment along the lower St. Lawrence River</i>	<i>See previous Appendix A update on related FY19-2.14 item in FY19 work plan.</i>	No
<b>Impact Assessment Working Group – Upper Great Lakes</b>			
FY20-2.18	St. Mary's River IERM Rapids Data	See previous Appendix A update on related FY19-2.16 item in FY19 work plan.	Yes
FY20-2.19	Development of initial flooding performance indicator for the St. Mary's River	See previous Appendix A update on related FY19-2.19 item in FY19 work plan.	No

<sup>1</sup> The project is being undertaken and directed through partner agencies but outcomes will contribute to long-term GLAM Committee objectives

FY20-2.20	Development of flow change smoothness performance indicator for St. Marys Rapids	Due to extremely high water level conditions on the upper Great Lakes, staff resources were not available to pursue this item during the reporting period. It is likely that this effort will need to be carried over to future GLAM Committee work plans.	No
<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
Plan Review Working Group			
FY20-2.21 <b>(Phase 1)</b>	Review and documentation of Lake Ontario and Lake Superior outflow operations in 2018 and 2019	The regulation representatives for both the International Lake Ontario – St. Lawrence River Board and the International Lake Superior Board of Control spent considerable effort documenting outflow activities and deviations during the reporting period. While the bulk of the information is available, further effort is needed to summarize the findings to support the ongoing plan review effort. Some of that is expected to occur in the coming months. The GLAM Committee has supported the ILOSLRB with further review of possible Board deviation decisions under Plan 1958DD that allows a comparison to simulation approaches and actual operations.	No
FY20-2.22	Development of regulation plan simulations into new regulation and routing model	See previous Appendix A update on related FY19-2.22 item in FY19 work plan.	No
FY20-2.23	Maintenance and application of existing water level and flow quarter-monthly simulation tools	Tools continue to be used as a guide to update the routing model in item FY20-2.22. Tools remain accessible and usable on an as-needed basis.	No
FY20-2.24	Updated input datasets for simulation models	Considerable work has been completed in this area, for both 2018 and 2019, that allows forecast simulations of the International Lake Ontario – St. Lawrence River Board. These same datasets are required to run the longer-term simulation models for plan review. Most of the input datasets required to run the simulation models are prepared and being finalized.	No
FY20-2.25	Plan Review gap analysis	This item supports long-term plan review, but this is an ongoing task and new information is learned. The ILOSLRB and the GLAM Committee are continually documenting plan operations and board deviation decisions as part of their operational activities. The GLAM Committee intends to make use of this material to highlight key issues as part of the gap analysis, which will be pursued going forward.	No

#### **SECTION B: GLAM Oversight and Administration**

<b>Task</b>	<b>Task Title</b>	<b>Status</b>	<b>IWI</b>
FY20-3.1	GLAM Committee Coordination, Management, and Reporting	See previous Appendix A update on related FY19-3.1 item in FY19 work plan.	No
FY20-3.2	Monitoring of Work Plan Delivery	See previous Appendix A update on related FY19-3.2 item in FY19 work plan.	No

FY20-3.3	GLAM Information Management Needs including file sharing and data/model management strategies.	See previous Appendix A update on related FY19-3.3 item in FY19 work plan.	No
FY20-3.4	Maintain engagement with GLWQA activities	See previous Appendix A update on related FY19-3.4 item in FY19 work plan.	No
FY20-3.5	Develop and initiate an engagement plan for advisory networks	See previous Appendix A update on related FY19-3.5 item in FY19 work plan.	No
FY20-3.6	Update GLAM communications/engagement strategy	With the initiation of the special advisory group, the GLAM Committee will be revisiting the existing communications/engagement strategy and updating as appropriate	No
FY20-3.7	Finalize 12-year strategy	See previous Appendix A update on related FY19-3.6 item in FY19 work plan.	No
FY20-3.8	Triennial report	The GLAM Committee had previously asked the IJC to defer this item to later in 2020. With the emergence of the expedited review, the GLAM Committee will be discussing further options with the IJC to ensure effective and efficient reporting. This may mean completing the triennial report once phase 1 of the expedited review is complete.	No