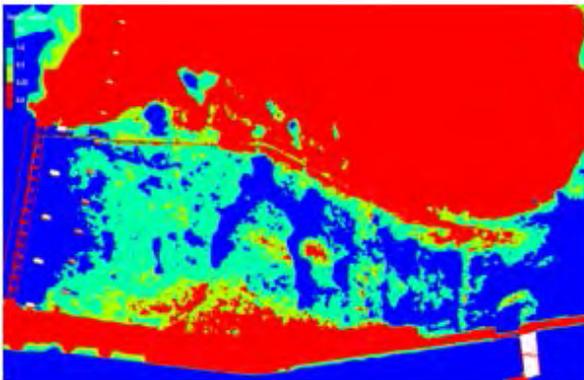

Great Lakes-St. Lawrence River Adaptive Management Committee (GLAM)

5th Semi-Annual Progress Report to the Great Lakes Boards and the
International Joint Commission
Covering the period March 1, 2018 to August 31, 2018

October 9, 2018



Contents

Contents	2
GLAM Committee Membership	3
Executive Summary	4
1.0 Introduction	5
2.0 Work Plan Progress.....	5
2.1 Section A: Plan review and evaluation.....	6
2.2 Section B: Oversight and administration	10
3.0 International Watersheds Initiative Projects.....	10
4.0 Funding and Resourcing.....	10
Appendix A: Summary of FY18 Work Plan Progress.....	12

DRAFT

Cover photo: Top Left – Model output of St. Marys River rapids showing suitable depths for fish habitat under specific flow condition (image: US Army Corps of Engineers – Detroit District). Top Right - Installation of the Lake Erie – Niagara River Ice Boom (photo: New York Power Association). Bottom – Braddock Bay, NY, Lake Ontario wetland on June 3, 2017 (left) (photo: US Army Corps of Engineers) and September 16, 2017 (right) (photo: Google Earth)

GLAM Committee Membership

Blue text identifies other International Joint Commission Board and Committee affiliations

United States	Canada
Arun Heer, Co-Chair US Army Corps of Engineers – Great Lakes and Ohio River Division US Secretary, International Lake Ontario – St. Lawrence River Board, International Lake Superior Board of Control	Wendy Leger, Co-Chair Environment and Climate Change Canada
Don Zelazny New York Department of Environmental Conservation	Jonathan Staples Ontario Ministry of Natural Resources and Forestry International Niagara Working Committee Member
David Hamilton The Nature Conservancy - Michigan	Patricia Clavet Quebec Ministry of Sustainable Development, Environment and Climate Change International Lake Ontario - St. Lawrence River Board Member
Fred Luckey *** Vacant as of Aug. 31, 2018 due to retirement US Environmental Protection Agency	Susan Doka Fisheries and Oceans Canada
Drew Gronewold Great Lakes Environmental Research Laboratory - NOAA	Frank Seglenieks Environment and Climate Change Canada International Niagara Working Committee Co-Chair
Bill Werick	Jean Morin Environment and Climate Change Canada
Keith Koralewski US Army Corps of Engineers – Buffalo District International Lake Ontario - St. Lawrence River Board Alternate Regulation Representative	Rob Caldwell Environment and Climate Change Canada International Lake Ontario - St. Lawrence River Board Regulation Representative
John Allis US Army Corps of Engineers – Detroit District International Lake Superior Board of Control Alternate Regulation Representative	Jacob Bruxer Environment and Climate Change Canada International Lake Superior Board of Control Regulation Representative
<i>Bryce Carmichael, Co-Secretary</i> US Army Corps of Engineers – Great Lakes and Ohio River Division US Secretary, International Niagara Board of Control	<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) 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

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 Water Management Boards (Boards). This report is the fifth semi-annual report to the IJC and the Boards.

The committee's annual work plans cover the period of October 1 through to September 31st of each year. As a result, the March 1, 2018 through August 31, 2018 reporting period for this semi-annual focuses on activities initiated to support the 2018 work plan.

Over the reporting period, the GLAM Committee has put the majority of its effort into completing a full draft of its report covering 2017. The report captures critical information from 2017 as it relates to hydroclimate conditions and water level impacts as well as a further assessment of the existing regulation plans that will guide long-term review efforts of the GLAM Committee. Conditions in 2017 were unique, particularly within the Lake Ontario – St. Lawrence River Basin. As a result, the effort required to prepare the report have exceeded expectations and consumed available resources. While the GLAM Committee intends to use the outline from the 2017 report to guide future reporting to the boards, that process will be revisited in the coming year to ensure the most efficient use of available resources. The GLAM Committee has also been working on other tasks within the FY18 work plan. While good progress has been made on a number of the items, particularly ones that contribute directly to the development of the report covering 2017, a few of the outstanding tasks will be carried over into the FY19 work plan which will start in October 2018.

The GLAM Committee continues to rely heavily on in-kind agency contributions to support its ongoing activities and has also benefited greatly from direct support through the International Watersheds Initiative (IWI) for a number of targeted, binational projects identified in its current work plan. Despite these resources, the committee has been challenged over the reporting period to adequately meet all its objectives. Many committee members and technical support staff also play operational roles with the various Great Lakes boards and with above average water levels throughout the system, their attention has necessarily been on operational requirements. Every effort is being made to meet all commitments given existing resource limitations.

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, 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 fifth semi-annual report will highlight GLAM Committee progress and accomplishments for the reporting period of March 1, 2018 to August 31, 2018.

2.0 Work Plan Progress

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 2018 (FY18) work plan covering the period from October 1, 2017 to September 30, 2018. The work plan is 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, tasks are separated based on three tiers. Tier 1 covers ongoing foundational analyses, primarily the preparation of the annual report on observed conditions. Tier 2 covers a broader suite of targeted studies related to hydroclimate, impact assessment, and plan review. There are no tier 3 (Strategic Improvement Study) tasks in the FY18 work plan.

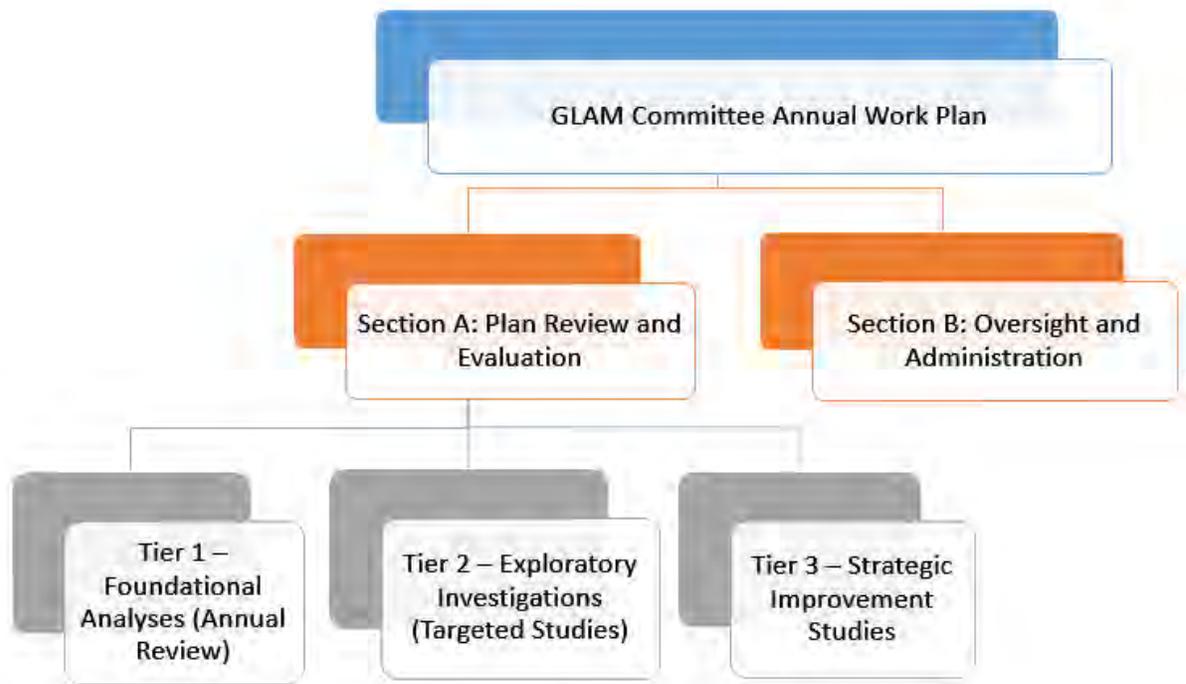


Figure 1: GLAM Work Plan structure

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. Efforts are supported in large part by in-kind agency contributions as well as project specific support through the International Watersheds Initiative (IWI). Through these resources, considerable progress was made during the reporting period towards completing tasks from the FY18 work plan. Highlights of progress are discussed below and task-specific details of FY18 work plan items are provided in *Appendix A*.

2.1.1 Tier 1 activities – foundational analyses (annual review)

The primary tier 1 objective is to perform a review of 2017 conditions related to regulation plan operations and performance for reporting to the Boards and the IJC. The 2017 review represents the first such effort by the GLAM Committee and given the extreme conditions observed in 2017 in the Lake Ontario – St. Lawrence River system, the effort has been considerable and involved GLAM Committee members and associates. As outlined in the FY18 work plan, the hydroclimate, impact assessment, and plan review work groups are all contributing components to the overall report. A complete draft of the report for 2017, covering both the upper Great Lakes and Lake Ontario – St. Lawrence River system, was delivered to the three Great Lakes Boards on August 16, 2018. The draft also included an annex

with further impact assessment and plan review details specifically for the Lake Ontario – St. Lawrence River system. Given resources limitations, the GLAM Committee and its working groups have made excellent progress in developing the report, although a number of outstanding items remain. In particular, the GLAM Committee has been expecting to integrate data and information collected by external agencies and groups. However, there are a number of cases where the agencies or groups responsible for the information have not yet released summaries for public use leaving some gaps in the material being prepared by the committee. The GLAM Committee will continue to pursue this information in the future to support longer-term model validation and plan review efforts.

All Board members will have a chance to comment on the draft and the GLAM Committee will continue to update the document with the objective of submitting a complete version to the IJC ahead of their semi-annual meetings in October. Already, some of what was learned based on 2017 conditions has raised questions for the GLAM Committee that are being integrated into the draft FY19 work plan.

2.1.2 Tier 2 activities - exploratory investigations (targeted studies)

2.1.2.1 Hydroclimate

The hydroclimate working group has completed the FY18 work plan task for the evaluation of an initial 5-year hindcast of water balance components in the Great Lakes and submitted the documentation. The work was led by researchers at Environment and Climate Change Canada with financial support through the IWI. They are now moving on to the final stages of the multi-year effort to complete the full 30 year hindcast. The work supports the GLAM Committee because it will allow for an improved understanding of the net basin supplies for the Great Lakes which will improve the GLAM Committee's ability to test regulation plan robustness.

A related, but distinct, component of the net basin supply hindcast project is further development of precipitation anomaly datasets for the Great Lakes basin based on Canadian Precipitation Analysis (CaPA) and US National Weather Service Multi Precipitation Estimates (MPE) products which include overlake precipitation. The GLAM Committee has continued to work with IJC staff to ensure proper contracting arrangements are in place to complete the required work.

The second Tier 2 hydroclimate work plan item was the finalization of a project led by Dr. Gronewold from the Great Lakes Environmental Research Laboratory of the National Oceanic and Atmospheric Administration to develop a statistical water balance model for the Great Lakes basin to allow a better understanding of uncertainty in various water balance components. The bulk of the work was completed in the previous reporting period. During the last six months, they have been working to finalize the documentation which will be completed in later September or early October.

2.1.2.2 Impact assessment

The impact assessment activities 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 FY18 work plan, tier 2 impact assessment tasks were separated into Lake Ontario – St. Lawrence River ecosystem, Lake Ontario – St. Lawrence River socio-economic, and upper Great Lakes activities.

Lake Ontario – St. Lawrence River Ecosystem Activities:

The Lake Ontario – St. Lawrence River ecosystem activities in the FY18 work plan focus on various efforts to monitor wetland conditions on Lake Ontario and the upper St. Lawrence River and identify ways to validate existing models. During the reporting period, final project reports were received on wetland monitoring from 2017 undertaken by both the Canadian Wildlife Service and the New York Natural Heritage Program (all IWI supported) designed to track changes in wetland vegetation based on elevation. Key highlights from those reports have been integrated into the draft of the annual report for 2017 which was submitted to the boards for review in August 2018.

In addition to the field monitoring efforts, progress was made on three projects related to imagery analysis for wetland vegetation delineation. Again, these projects support the GLAM Committee's ability to track wetland vegetation change over time and validate existing plan review models. An IWI supported project by the New York Natural Heritage Program was completed with wetland vegetation mapped for a variety of US wetland sites based on aerial photos acquired in 2017. In addition, the Ontario Ministry of Natural Resources completed their aerial photo interpretation efforts (12 vegetation classes) for a number of Canadian wetland sites using high resolution (8 cm) imagery acquired in 2016. The projects help provide useful datasets to track changes in vegetation distribution at the sites in the future. In collaboration with staff from Environment and Climate Change Canada's Geomatics Research Section and an external contractor, a report was completed on the opportunities for applying remote sensing approaches to track wetland vegetation changes over time and the findings were discussed at a small workshop at the end of March 2018. The GLAM Committee intends to use the information to further refine its long-term wetland monitoring strategy, balancing on-the-ground field sampling with alternative remote sensing technologies.

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

Tier 2 socio-economic impact assessment tasks for the Lake Ontario – St. Lawrence River System within the FY18 work plan are intended to provide information to support the review and validation of existing performance indicators. Considerable in-kind support was provided by ECCC, USACE and the IJC to two particular projects during the reporting period including:

1. further processing and analysis of results from the shoreline riparian questionnaire published through Conservation Ontario in the fall of 2017; and
2. the processing of oblique and ortho-photography from the shoreline of Lake Ontario and the St. Lawrence River based on imagery acquired during flood conditions in 2017.

The two efforts provide useful, and independent, information on the common types of shoreline impacts experienced by shoreline property owners during the high water period. Highlights from these analyses have been integrated into the draft report for 2017.

There were three other tier 2 Lake Ontario – St. Lawrence River socio-economic projects in the FY18 work plan. All three projects relate to the acquisition of information on impacts associated with high water levels in 2017 to support future model verification and validation efforts. One effort is directed at shore protection structure impacts, one is for recreational boating impacts, and the last one is for impacts to municipal and industrial water users. Proposals for the three projects had been submitted through the IWI process in fall 2017 and all were conditionally approved in January 2018. During the most recent reporting period, the GLAM Committee has pursued necessary funding and contracting requirements through the Canadian and US sections of the IJC. The three projects are expected to get underway in the early fall 2018 and carry-over into the FY19 work plan.

Upper Great Lakes Ecosystem and Socio-Economic Activities:

For Lake Superior and the upper Great Lakes, the FY18 work plan includes four tier 2 impact assessment tasks. Three of the tasks support further improvements to the Integrated Ecological Response Model (IERM) that was recently developed by the GLAM Committee for the St. Marys rapids. Conditional approval was received in January 2018 for IWI support of the project in collaboration with contributions from USACE Detroit. However, the IJC followed up during the reporting period to ask that the IWI support be deferred until US FY19. As such, there has been no significant progress on these items in the past few months. The fourth project was to support the development of a flooding performance indicator for the St. Marys River. The effort has been pushed back into FY19.

2.1.2.3 Plan review

The FY18 work plan included two specific tier 2 plan review tasks related to the management of Lake Superior outflows including a look at gate settings and reductions in maximum side channel capacity. As reported in the spring 2018 semi-annual update, progress on these tasks has been limited to the simulations done to support the development of the report for 2017. Further work is not expected until improvements can be made to the performance indicators for the St. Marys River, particularly further refinement of the IERM model for that area. Beyond these activities, the primary work of the plan review team has been to undertake regulation simulations in support of the development of the report for 2017.

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 secretariat functions and reporting, communications and engagement, 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 face-to-face work planning meeting on June 27 and 28, 2018 in Detroit, Michigan.

The GLAM Committee continued efforts to develop a practical and effective engagement strategy given its needs and resource limitations. There was considerable discussion during the reporting period on the development of a 'circles of influence' approach, similar to what was employed during the International Lake Ontario-St. Lawrence River Study and the International Upper Great Lakes Study. However, the committee is not yet in agreement on the details of implementing such a strategy. In the meantime, committee co-chairs and secretaries continue to participate in the communications committee of the International Lake Ontario – St. Lawrence River Board and committee members undertake informal outreach and engagement discussions with key contacts in support of GLAM activities. In addition, a few presentations were made during the reporting period including a presentation to Réunion de Stratégies Saint-Laurent (March 2018), Regroupement des usagers du Saint-Laurent (RUSL) (April 2018), and the Conservation Authority Coastal Working Group (June 2018). The GLAM Committee co-chairs also continue their ongoing efforts of staying connected with both the Water Quality Board and the Science Advisory Board through IJC sponsored co-chair meetings and membership on the GLWQA Annex 9 Climate Change Impacts Sub-Committee.

3.0 International Watersheds Initiative Projects

The GLAM Committee's FY18 work plan was developed based on available agency 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 be successful at receiving IWI support for a number of projects, although the timing of actual project implementation can be delayed depending on the time it takes to move from conditional approval to final contracting arrangements. In the FY18 work plan, there are 11 individual IWI projects that are either funded (full or partial) or conditionally approved for IWI funding. These projects are identified in Appendix A and specific progress was discussed previously in Section 2.0 as well as in Appendix A.

4.0 Funding and Resourcing

The GLAM Committee continues to appreciate 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.

The GLAM Committee would like to acknowledge the contributions of Fred Luckey to the work of the committee since 2015. Fred recently retired from his position with the US EPA and subsequently his membership position with the GLAM Committee. His tireless work ethic and valuable contributions to the Committee will be sorely missed. The Committee has left his name on this report in recognition of the work he contributed during this semi-annual reporting period, but at the time of publication this member position is currently vacant. The IJC will be selecting a new member to fill the vacant position.

Over the reporting period, the GLAM Committee has prioritized, and put considerable effort into, developing a full draft of its report for 2017. In addition, there are ongoing efforts to continue to implement all the tier 2 tasks within the FY18 work plan, although resource limitations and the exceptional requirements for development of the report have meant progress was slower than expected for a number of tasks. In developing its annual work plan, the GLAM Committee makes every effort to align work plan expectations with anticipated resources. However, as noted in previous updates, many committee members and technical support staff play important operational roles with the various Great Lakes boards and are sometimes required to defer expected contributions to specific GLAM Committee work plan tasks.

At its June 2018 work planning meeting, the committee discussed the importance of articulating a longer-term strategy and list of priorities to get a better handle on expected resource requirements over the next number of years and beyond just the annual work plan. The committee feels it is important to further identify these requirements and potential gaps so that discussions can take place with the boards and IJC on addressing critical resource shortcomings. Further development of a longer-term strategy will also allow for improved communication with the boards and broader stakeholders on priorities and next steps. The committee will be working on developing the longer-term strategy in the fall of 2018 and into early 2019.

Respectfully Submitted,

Mr. Arun Heer
GLAM Committee US co-chair

Ms. Wendy Leger
GLAM Committee Canadian co-chair

Appendix A: Summary of FY18 Work Plan Progress

SECTION A: Plan Review and Evaluation			
Tier 1: Foundational Analyses (Annual Review)			
Hydroclimate Working Group			
Task	Task Title	Status	IWI
FY18-1.1	Test established processes for performing annual, routine foundational analyses required for hydroclimate assessments	The Hydroclimate Working Group has developed material for the annual report for 2017 as part of a full draft that went to the boards August 16, 2018.	No
Impact Assessment Working Group			
FY18-1.2	Test established processes for performing routine assessments required for understanding baseline conditions and benefits of observed water levels and flows	The Impact Assessment Working Group has developed material for the annual report for 2017 as it relates to Hydropower, Municipal and Industrial Water Uses, Commercial Navigation, Coastal Property Owner, Recreational Boating and Tourism, and Ecosystem. A full draft was provided to the boards on August 16, 2018.	No
Plan Review and Evaluation Working Group			
FY18-1.3	Test established processes for performing annual, routine foundational analyses required for ongoing evaluations of existing regulation plan performance	The Plan Review Working Group has developed water level and flow simulations for the annual report for 2017 related to Lake Ontario – St. Lawrence River and Lake Superior outflows. A full draft was provided to the boards on August 16, 2018.	No

SECTION A: Plan Review and Evaluation			
Tier 2: Exploratory Investigations (Targeted Studies)			
Hydroclimate Working Group			
Task	Task Title	Status	IWI
FY18-2.1	Extended hindcast of Water Supply Components over Canada/US Transboundary Watersheds based on the CaPA, CaLDAS and GEM systems and coordination with NWS Multi-Precipitation Estimates (MPE)	A draft of the science paper, which will serve as this IWI supported project's final report, has been prepared (executive summary+draft paper IWI CaPA-CaLDAS reanalysis 2018-03.pdf) along with associated sample datasets (http://collaboration.cmc.ec.gc.ca/science/outgoing/capa.grib/hindcast/capa_hindcast_rdrs_v1/). GLAM continues to work with IJC staff to contract the precipitation anomaly portion of the IWI proposal.	Yes
FY18-2.2	Development of a statistical model to close the water balance of the Great Lakes	This IWI supported project was completed in the previous reporting period. The final report will be available on the GLAM Committee sharepoint site when finalized.	Yes
Impact Assessment Working Group – Lake Ontario and St. Lawrence River (ecosystem)			
FY18-2.3	Evaluate Meadow Marsh Algorithm	The project team will be moving forward with integrated the 2017 monitoring data once the annual report for 2017 is complete.	No
FY18-2.4	Monitoring of Lake Ontario – St. Lawrence River coastal wetland habitat in New York State – site surveys	A final report and dataset for this IWI funded project were delivered during the reporting period and are available on the GLAM sharepoint site (NYNHP IJC LOSLR FinalReport fieldSampling.pdf)	Yes
FY18-2.5	Monitoring of Lake Ontario – St. Lawrence River coastal wetland habitat in New York State – Imagery	A final report and dataset for this IWI funded project were delivered during the reporting period and are available on the GLAM sharepoint site (NYNHP IJC LOSLR FinalReport vegMapping.pdf)	Yes
FY18-2.6	Monitoring of Lake Ontario Coastal Wetlands on the Canadian Shoreline (IWI)	Staff from the Canadian Wildlife Service undertook sampling at 16 sites in September of 2017 with data and reports provided in March 2018. CWS staff will be undertaking further sampling in September 2018 through partial funding provided by the IWI.	Yes
FY18-2.7	State of Science Assessment of Remote Sensing for Great Lakes Coastal Wetlands	Through IWI funding, an external contractor in collaboration with staff of Environment and Climate Change Canada's Geomatics Research Section completed a review and prepared a summary document in March 2018. The findings were presented at a workshop at the end of March 2018. The contractor report is available on the GLAM Committee sharepoint site (link).	Yes

Task	Task Title	Status	IWI
FY18-2.8	Wetland monitoring and ecosystem indicator development (muskrat and Northern Pike)	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.	No
FY18-2.9	Wetland imagery interpretation	8cm resolution orthophotos collected by the Ontario Ministry of Natural Resources and Forestry (OMNRF) in 2016 from 16 wetland locations have been analyzed for vegetation coverage and visualized. The products will be posted on a publically accessible website. OMNRF staff are reviewing next steps for the project.	No
Impact Assessment Working Group – Lake Ontario and St. Lawrence River (socio-economic)			
FY18-2.10	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 th , 2018. A detailed scope of work was developed during the reporting period and the GLAM Committee is working with IJC staff to allocate funding within the current US fiscal year.	Yes
FY18-2.11	Implementation of Shoreline Damage Survey for the Canadian Shoreline of Lake Ontario and the Upper St. Lawrence River	Conservation Ontario worked with GLAM Committee members to develop the questionnaire and then posted it online and undertook promotional efforts. The Conservation Ontario deliverables were provided in the spring of 2018. During the reporting period, the GLAM Committee has continued to review and process the data for inclusion in the annual report for 2018.	No
FY18-2.12	Oblique Imagery of Lake Ontario and St. Lawrence River Shoreline	Staff from Environment and Climate Change Canada and the U.S .Army Corps of Engineers (Buffalo) have completed a review of oblique and ortho imagery for the shoreline of Lake Ontario based on imagery collected in 2017. Results from the qualitative assessment have been integrated into the draft annual report for 2017 that was delivered to the boards in August 2018.	No
FY18-2.13	Survey and review of operational impacts on marinas due to 2017 water levels	The IWI project was conditionally approved as of January 11 th , 2018. GLAM Committee members have developed a combined scope of work for FY18-2.13 and FY18-2.14 and a request for proposals (RFP) was initiated in June 2018 through the Canadian section of the IJC. The RFP was re-issued in August 2018 with proposals due August 29.	Yes
FY18-2.14	Survey and review of operational impacts on M&I infrastructure due to 2017 water levels	The IWI project was conditionally approved as of January 11 th , 2018. GLAM Committee members have developed a combined scope of work for FY18-2.13 and FY18-2.14 and a request for proposals (RFP) was initiated in June 2018 through the Canadian section of the IJC. The RFP was re-issued in August 2018 with proposals due August 29.	Yes
Impact Assessment Working Group – Upper Great Lakes			
FY18-2.15	St. Marys River IERM Rapids Data	The IWI project was conditionally approved as of January 11 th , 2018. At the request of the IJC due to funding availability, this project has been deferred with data collection expected in the summer of 2019 (combined with FY18-2.16)	Yes

Task	Task Title	Status	IWI
FY18-2.16	St. Marys River IERM Calibration	The IWI project was conditionally approved as of January 11 th , 2018. At the request of the IJC due to funding availability, this project has been deferred with data collection expected in the summer of 2019 (combined with FY18-2.15)	Yes
FY18-2.17	Assimilate St. Marys River IERM into SVM	This effort is being deferred until after the finalization of the annual report for 2017.	No
FY18-2.18	Development of initial flooding performance indicator for the St. Marys River	This effort is being deferred until after the finalization of the annual report for 2017.	No
Plan Review Working Group			
FY18-2.19	Routing model update	NOAA GLERL staff completed the development of the draft model handler and have provided the material to the Coordinating Committee Routing Model Update Subcommittee along with draft documentation in the form of a programmers guide. Final documentation for the GLAM Committee is expected in the fall of 2018.	Yes
FY18-2.20	St. Marys River – Review impacts of reductions in maximum side channel capacity	Simulations have been undertaken to support development of the annual report for 2017 and are included in the draft submitted to the boards in August 2018.	No
FY18-2.21	St. Marys River – Review multiple partially open gate settings at the Compensating Works	Simulations have been undertaken to support development of the annual report for 2017 and are included in the draft submitted to the boards in August 2018.	No

SECTION B: GLAM Oversight and Administration

Task	Task Title	Status	IWI
FY18-3.1	GLAM Committee Coordination, Management, and Reporting	The spring semi-annual update was approved by the IJC in May, 2018 following submission to the Boards.	No
FY18-3.2	Monitoring of Work Plan Delivery	Monitoring of work plan delivery was undertaken to support annual report development and semi-annual reporting.	No
FY18-3.3	GLAM Information Management Needs including file sharing and data/model management strategies.	At the GLAM Committee's June 2018 work planning meeting, it was agreed that further support from the IJC was required with regards to information management infrastructure. The GLAM Committee will be submitting a formal request to the IJC and will look to collaborate on any upcoming discussions.	No

FY17-3.4	Maintain engagement with GLWQA activities	The Canadian and US co-chairs remain connected with the IJCs Water Quality Board and Science Advisory Board and update them on GLAM work plans and any areas of common interest.	No
FY17-3.5	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. Further discussion on the implementation of a circles of influence process occurred but the committee has not yet reached consensus on a path forward. In the meantime, and with the agreement of the committee, GLAM Committee members have initiated some informal discussions with relevant stakeholders on items related to the development of the annual report for 2017.	No

DRAFT