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*International Lake Champlain-  
Richelieu River Study Board*

*Semi-Annual Report  
August 2019*

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**INTERNATIONAL LAKE CHAMPLAIN – RICHELIEU RIVER STUDY BOARD**

Commissioners:

The International Lake Champlain-Richelieu River Study Board submits herein its Semi-annual Progress Report, covering activities from November 2018 to August 2019.

## 1 SUMMARY

November 2018 to August 2019 has been another period of progress by the study. The study groups are overall progressing as planned, however the Study has experienced delays due to personnel turnover, late and unpredictable appropriations in funding US study activities, and the U.S. government shutdown in early 2019. During the U.S. government shutdown from December 22, 2018 to January 25, 2019, numerous actions could not be undertaken, creating delays that, months later, are still being dealt with. As examples, a study board meeting and two inter-technical working group integration workshops were cancelled, delaying strategic decisions to future meetings; working meetings with stakeholders were postponed (indigenous people, local groups, expert climate risk workshop). Those meetings were planned months in advance to ensure availability of critical attendees. It is estimated that in total the US government shutdown has resulted in study delays of up to 9 months. A request was made by the LCRR Study Board and the IJC granted a one-year extension of the Study, with March 31, 2022 as the new date for submitting its recommendations. This decision is contingent on governments' approval.

A series of public meetings were held from November 7<sup>th</sup> through November 9<sup>th</sup>, 2018, taking place in St. Jean-sur-Richelieu, Whallonburgh, NY and Burlington, VT. A Public Advisory Group meeting was held in May. A Climate Change Workshop was held on March 19-20 in Montreal. Two workshops (teleconferences) were held January 10-11 between SPE-RR-FMMM and HHM-FMMM; US participation was affected due to the US government shutdown. A meeting was held in Burlington in December 2018 with Chief Stevens of the Abenaki council. In March of 2018, a meeting was held with representatives of the Waban-Aki and the Mohawks First Nations in Odanak, QC resulting in the signing of a MOU on June 4. A Study Board/TWGs co-leads face-to-face meeting was held April 15-17 in Grand Isle, VT. A combined SB/TWG meeting was held June 18-20, 2019 in Venise-en-Quebec. These last two meetings were dedicated to evaluating study progress and the mid-study revision of the LCRR work plan. The Study Board held calls during this last reporting period; these calls between meetings provided an opportunity to inform members of the progress of the study.

In parallel, there were efforts to solicit interest groups and the public on both sides of the border by Outreach Coordinators, PAG co-chairs and LCRR study management members. As such, there have been meetings with Canadian regional agencies and groups (3 meetings in January) and US federal partners. The US Outreach coordination team started work in April 2019 and has developed an ambitious event schedule for this summer.

The Communications Group kept the public informed of the main events of the study through the LCRR study website and via a monthly electronic newsletter. In addition, the Communications group developed promotional tools (leaflets, factsheets, posters, video) that were used during the public meetings held in November 7-9, 2018. Two 'Just the Facts' fact sheets were produced to provide contact information during the flood season and to provide facts on US Dams and reservoirs. The Outreach coordinator also worked on a pilot project with three communities in Quebec to provide flow delineation map layers before spring 2019 high flows.

In the spring of 2019 flood inundation maps for the entire US Lake Champlain shoreline (<https://pubs.er.usgs.gov/publication/sir20185169>) were completed from work realized in 2016. These maps show areas of land inundation along the Lake shoreline in New York and Vermont at 11 different lake levels. These inundation maps are currently being prepared for display on national USGS flood inundation map server.

The study budgets were adjusted as part of the mid-study revised work plan exercise and are in line with the work plan forecasts. The US Senate approved US FY19 funding at \$1 million which is similar to FY18 levels and is adequate for maintaining necessary progress on the study. In terms of expenditures, the ratio of amounts spent to total study budget is estimated at around 26% for the CA Section and 60% for the US Section as of the end of our respective fiscal year 2019 (CA: March 31; US: September 30).



## **2 BOARD and WORKING GROUP ACTIVITIES**

### ***2.1 Hydrology, Hydraulics and Mapping Technical Working Group (HHM TWG)***

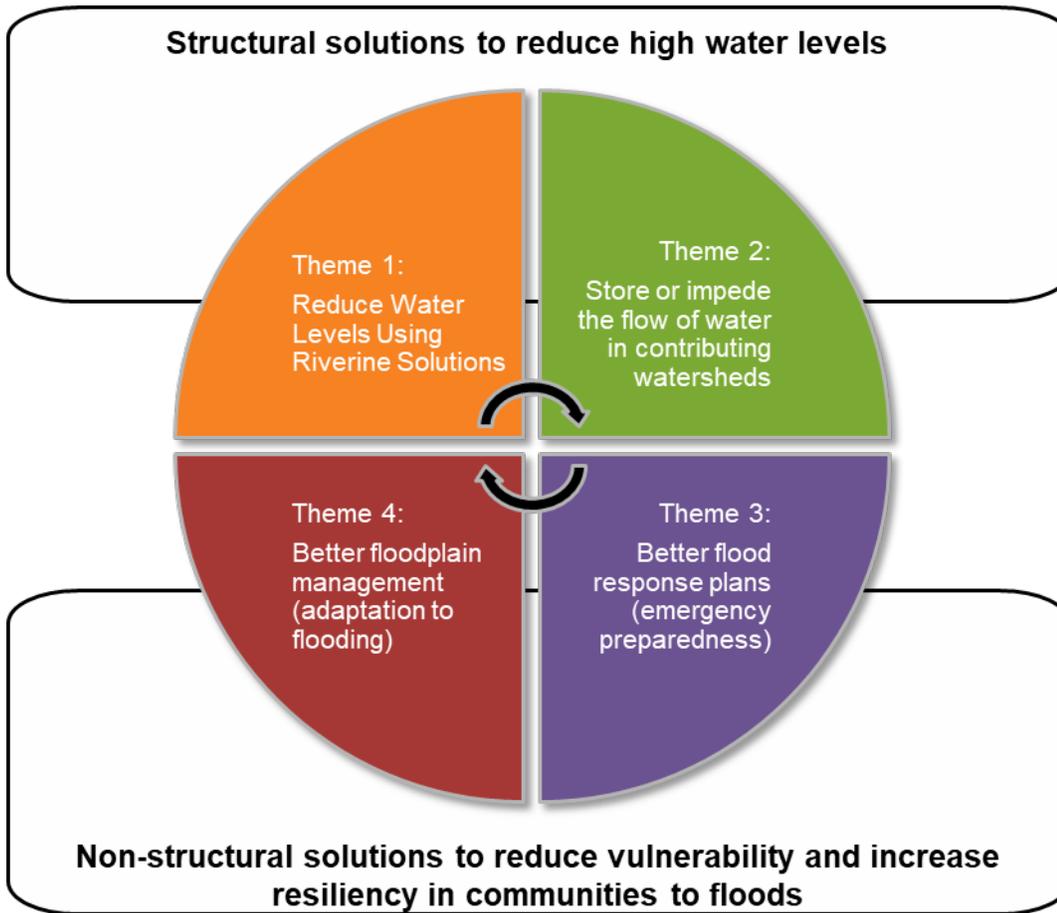
#### ***2.1.1 Summary of Activities:***

- NOAA's Great Lakes Environmental Research Laboratory (GLERL) and its partner, the Cooperative Institute for Great Lakes Research (CIGLR) have made substantial progress in developing a sophisticated 3-D hydrodynamic model (Finite Volume Community Ocean Model - FVCOM) of the lake that includes the ability to forecast water levels inclusive of seiche, driven by high resolution weather modelling. Further calibration and testing continues. In tandem, GLERL and CIGLR developed a small scale (1:100K) and large scale (1:24K) computing grid for the Weather Research and Forecasting Model Hydrologic model (WRF-Hydro), and conducted calibration tests of the WRF-Hydro model of the LCRR basin by simulating multiple versions of the 2011 season. These models are required for prediction of both static lake level and wind-induced effects which are essential for accurate flood forecasting and mapping. In addition, a transition plan has been written for the high-resolution WRF-Hydro watershed model for transition to National Weather Service operations.
- USGS NY has compiled data on historical flooding events for the causes and impacts report.
- A large amount of LiDAR and bathymetric data from both the US and Canada were assembled by ECCC to create a seamless Digital Elevation Model (DEM). New bathymetric surveys from lower Richelieu River and from the lake were processed for datum, accuracy and density. This new DEM will be used for an Integrative tool for the assessment of impacts on resources (ISEE) and for hydrodynamic modelling.
- Development and application of a 2D model on the Saint-Jean-sur-Richelieu Shoal by ECCC: several mitigation measures (including 9 different shoal modifications) were simulated for the full spectrum of possible discharge/water level conditions. The resulting stage – discharge rating curves were then incorporated in the Water Balance Model (WBM) to simulate lake and river water-surface elevations associated with each mitigation measure, over long period (1924-2017) accounting for the historical Net Basin Supply (NBS) and the WBM.

### ***2.2 Flood Management and Mitigation Measures Technical Working Group (FMMM TWG)***

#### ***2.2.1 Summary of Activities***

- FMMM has made much progress in its task work and has been involved with numerous teleconferences, workshops and meetings with the other TWGs and Study Management.
- FMMM continued to refine the Study's Flood Mitigation Framework and helped in the preparation of a fact sheet and poster on flood mitigation for the November 2018 public meetings.



**Figure 1. Four themes of integrated flood management as applied in LCRR**

- FMMM contributed to the writing of Chapter 4 and parts of Chapter 7 in the “Causes and Impacts” report. It also contributed to preparation of presentations for the public and the IJC, as well as the semi-annual study progress report.
- FMMM lead the realization of Gantt Chart (Critical Path Method – SPM) with associated financial allocation.

### **2.3 Resource Response Technical Working Group (RR TWG)**

#### **2.3.1 Summary of Activities**

- Over the last few months, both RR Co-leads have accepted new positions and the positions have been filled by RR members.
- Iterative review of performance indicators (PIs):
  - Presentation to and approval by the Study Board (March 8th, 2019) of a list of key environmental PIs (built environment, agricultural, and water use).
  - Facilitation of the development of economic and social performance indicators with SPE AG and collaborating on the integration economic analysis in the overall workflow.
- Continued development of PIs:

- Environmental, built environment, agricultural, water uses, socio-economic literature review and data collection were carried out.
- Stage-damage curves are being developed in Canada (CCG, deliverables due Oct 2019); US contracted with the University of Vermont Spatial Lab to generate stage-damage curves for Lake Champlain flooding; deliverables due Dec. 1, 2019.
- Wetland and Wild Rice surveys: Canada contracted with BC2 (deliverables due October 15th 2019); US contracted with Vermont Agency of Natural Resources (deliverables due Dec 1, 2019).
- A review of the impacts of past floods on resources was completed and the TWG coordinated the completion of the Causes and Impacts Report. The report has been reviewed by the Independent Review Group (IRG) and the Study Board.
- Continued development of an integrated modeling platform (ISEE); the main elements are: creation of an ISEE grid, continued Lidar and bathymetric data processing and database integration for Upper Richelieu River (agricultural land use, house centroids, etc.) and interpolation algorithms.
- Programming is ongoing for stage-damage curves for built environment, agricultural yield loss and vulnerability assessment in Canada.

## ***2.4 Social, Political and Economic Analysis Group (SPE AG)***

### ***2.4.1 Summary of Activities***

There have been important changes to the Canadian membership of the SPE AG with the departure of François Anctil (co-lead) and Dominique Morin, respectively in October 2018 and January 2019, and the withdrawal / realignment of the tasks they were leading. The arrival in June, of a seasoned team of researchers from École nationale d'administration publique (ÉNAP) has brought cohesion and a new impetus to the team. Dre. Marie-Christine Therrien (new co-lead) and Dr Pier-André Bouchard-St-Amant will lead the Governance analysis (SPE-8), the Political acceptability Analysis (SPE-9) and a contribute to the economics analysis (SPE-10), beside coordinating CA-SPE activities and ensure the integration of results with US-SPE in order to feed the Study Board recommendations.

## ***2.5 Public Advisory Group (PAG)***

### ***2.5.1 Summary of Activities***

- PAG members participated in the LCRR November 2018 public meetings in Saint-Jean-sur-Richelieu, Quebec, Whallonsburg New York and Burlington Vermont. PAG co-chairs hosted the meetings in their respective countries. The US PAG members also played an active part in the meeting dynamics during the two US meetings (see [the Current](#) for further details).
- PAG work was slowed down in January and February due to the US government shutdown.
- The PAG co-chairs held a post-mortem call with part of the 2018 planning committee for public meetings in February 2019 to discuss key findings as they relate to the next round of public meeting. A memo summarizing the public meetings and the main findings was sent to the LCRR Study Board in February 2019.
- With respect to Indigenous people, in December 2018, IJC, Study and PAG members met with Chief Stevens of the Abenaki council in Burlington. Later in March 2019, in Canada, IJC and PAG co-chair met with the Waban-Aki First Nations and a Mohawk representative in Odanak, Quebec to further conversations on potential collaboration and the opportunity to develop a MOU (which was signed on June 4 2019).

Within the Study, a sub group on Indigenous People's engagement in the Lake Champlain – Richelieu River Flood Study was established this winter and developed a work plan that was submitted to the Study Board on April 17, 2019 and approved. The most recent sub-group call was on July 8<sup>th</sup>, during which the hiring of an indigenous student and providing background information for the Causes and Impacts report were discussed.

- With respect to Outreach, both the Canadian and US PAG co-chairs attended several meetings to remain informed of the various views and opinions of basin stakeholders. The new US coordinators presented their draft US Outreach Plan to PAG members at the May 10<sup>th</sup> PAG meeting and received good feedback. US PAG members volunteered to help at various events this summer.
  - Flood Study presentation at Annual Meeting of Marina Owners and Operators on March 29, 2019: 36 meeting attendees representing at least 6 marinas from Vermont, US Coast Guard, Vermont Fish and Wildlife, Senator Leahy's Office, Rozalia Project, Vermont Boat and Marine Association, Lake Champlain Basin Program, Lake Champlain Sea Grant, and others
- With respect to Communications, the US PAG Co-chair appeared on a segment of *Across the Fence* (video is on the LCRR main page). Co-chairs also helped to shape the 3 issues of [The Current](#) (December 2018, March 2019, June 2019) and PAG reviewed two priority factsheets : [Just the facts](#): Spring Flooding in the basin and Dams and Reservoirs in the basin. The photos for [PAG member page](#) are online as well as PAG meeting minutes.
- The Spring PAG meeting was held in Swanton, Vermont at the Missisquoi National Wildlife Refuge on May 10<sup>th</sup> 2019 (agenda, minutes and meeting documents are available on the LCRR SharePoint). This was the fourth face-to-face meeting of the Public Advisory Group. It was preceded by a presentation by Ken Sturm on understanding impacts of flooding on refuge and its wildlife. Curt Gervich (SPE) was also present to discuss the risk perception survey.
- PAG Co-chairs attended the important April and June Study Board meetings dealing with State of the Study and LCRR work plan review. Several PAG members attended the Technical Working Group Workshop June 19<sup>th</sup> afternoon session which followed the Study Board meeting.

## **2.6 Communications Working Group (CWG)**

### **2.6.1 Summary of Activities**

- The binational CWG assists the LCRR study board in planning and implementing its public outreach activities. The Canadian division IJC Communications Advisor currently serves as Chair of the CWG, with the US Public Affairs Officer as alternate chair. The full membership includes PAG co-leads; SPE co-leads; IM/IT co-leads; Outreach Coordinators and both study managers.
- In early July, 2019, Randi Morry (LCRR Communications Advisor) left the study. Michelle d'Amour will be taking over her role as Canadian LCRR Study Communications Lead in early August.
- Application of a sequencing approach for outreach to stakeholders, the public and study groups to gather input on the proposed mitigation framework which was previously presented to the Study Board.
- Contributed to updates to a calendar of communications and outreach activities on SharePoint that tracks external and intra-study meetings.
- CWG will merge with the Special Planning Committee when appropriate to coordinate tasks for the Spring 2020 public meetings.
- Implementation of the plan for communications products and activities in 2019-2020.

- Ongoing monitoring of issues in the media and opportunities to coordinate messaging with water quality study.
- Provides regular communications updates to the Study Board, and contributes to briefings at executive meetings.

### Public engagement

- Published study-related articles in *Water Matters*, IJC's quarterly newsletter.
- Issued 5 emails to 172 subscribers to announce new information posted to the web page.
- Created and distributed the bimonthly LCRR study newsletter, *The Current*, in English and French.

### Web postings

- Material from the 2018 public meetings: overview presentation deck, factsheets, video, FMMM poster.
- Two new *Just the facts* factsheets on Spring flooding and US Dams and reservoirs.
- Update of new membership pages (Study Board, PAG, US Outreach coordinators).
- October 2018 Semi-annual report to the IJC.
- Across the Fence video.

## **2.7 LCRR Study Products**

The LCRR study will be producing a large amount of data, interim studies, and final reports that present study work and results. An inventory of all study products is maintained by the study managers to ensure study commitments and tasks are being met, and to ensure that the work of the study is inventoried and maintained for future needs.

Study products that are especially critical for presenting important results, major interim results, documenting significant study tools, and final reports – are considered major products. Many, if not most, of the major products will also require technical and other expert review by the study's Independent Review Group (IRG). The Study has identified six major study products needing review by the IRG or other appropriate technical/subject matter expert.

**Table 1. Major Products to be submitted to IRG**

Product name	Current Status	Date for IRG Review	Projected Completion Date	Report Lead
Causes and Impacts of past floods in LCRR	In review	Jul-19	Oct-19	US/CA RR TWG
White paper on the flood prediction/forecasting system	Being Prepared	Nov-19	Jan-20	US/CA HHM TWG and Study Board
LCRR Climate Change Strategy	to be initiated Fall 2020	Nov-20	Mar-21	US/CA FMMM and HHM TWGs
Potential Structural Flood Mitigation Measures for the LCRR Basin	Being Prepared	Dec-20	Jul-21	US/CA FMMM TWG
Social and Political Acceptability of proposed mitigation measures	to be initiated Winter 2021	May-21	Apr-20	US/CA SPE
Final LCRR Study report to the IJC	to be initiated Spring 2021	Sep-21	Mar-22	Study Board

**Table 2. Major Study Products to be submitted for technical review**

Product name	Current Status	Date for IRG Review	Projected Completion Date	Report Lead
Hydroclimatology of the LCRR system	peer reviewed (journal)	Sep-19	Dec 2019	CA HHM
Hydrodynamics of the LCRR system	to be finalized	Feb-20	April 2020	US/CA HHM
Watershed Storage Report	to be initiated Spring 2020	Mar-20	May 2020	US/CA FMMM
Water Balance Model	to be initiated Fall 2019	Mar-20	June 2020	CA HHM
Collaborative Decision Support Tool Manual	to be initiated Winter 2020	Jun-20	Dec 2020	US/CA FMMM
Social Network Analysis and Governance	to be initiated Fall 2019	Sep-20	Dec 2020	US/CA SPE
Report on Lake Champlain hydrodynamic model configuration and skill	To be written	Jan-20	March 2021	US/CA HHM
Final report on PIs for baseline and mitigation scenarios	to be initiated Fall 2019	Dec-20	March 2021	US/CA RR TWG
Final report on PIs and hydrologic scenarios (stochastic, future climate, watershed storage)	to be initiated Fall 2019	Mar-21	June 2021	US/CA HHM and RR TWG
Report on Lake Champlain wave model (addendum to LC model report)	To be written	Jun-21	Sep-21	US HHM
WRF-Hydro & GEM -Hydro/Watroute hydrological modelling	to be written	Sep-21	Dec-21	US/CA HHM

- In addition, in 2019 flood inundation maps for the complete US Lake Champlain shoreline (<https://pubs.er.usgs.gov/publication/sir20185169>) were completed and update work completed in 2017. These maps show areas of land inundation along the Lake shoreline in New York and Vermont at 11 different lake levels. These inundation maps are currently being prepared for display on national USGS flood inundation map server.

## 2.8 Outreach Working Group

### 2.8.1 Summary of Activities

#### Canada

- Contacts were made in November 2018 to 14 municipalities in the Richelieu River Valley to warn them and make them aware of the visit of a team of surveyors to many residents (501 properties) in order to accurately measure building variables (first floor elevation, basement presence or absence) in the flood plain. These contacts enabled the targeted municipalities to inform their fellow citizens of the importance and relevance of these measures (and the presence of official vehicles in front of their property).
- In January 2019, three information meetings were organized with nature conservation organizations, business owners, representatives of the Municipality of Saint-Jean-sur-Richelieu to inform them of the activities of the study and to initiate a dialogue that will continue in 2019 and 2020 with a more formal consultation process.
- An update and production of a new series of high-definition maps were conducted by the HHM Group (Canada) in March 2019 in anticipation of a possible flood in the spring of the same year (which fortunately did not occur). Targeted municipalities were approached to ensure that they could access and use these maps correctly. Two information meetings in early April 2019 were organized by the CA-Outreach coordinator (Canada) with the following municipalities: Saint-Jean-sur-Richelieu, Venise-en-Québec, Saint-Paul-de-l'Île-aux-Noix and representatives from the Haut-Richelieu MRC. A follow-up will be done with these organizations in the fall of 2019 to evaluate the relevance of these maps for these groups.
- Finally, a first exploratory contact was made with the Parks Canada Agency (managing agency of the Chambly Canal) in July 2019 and a more formal meeting should be held in the fall of 2019.

## US

- A US outreach coordinator was hired in April 2019: Behan Communications. Bill Richmond and John Brodt began working and with André Champoux, the CA Outreach Coordinator.
- Study information will be provided to the population at Farmers' market events in VT and NY in August 2019.

## **2.9 Information Management Function (IM/IT)**

### **2.9.1 Summary of Activities**

- Most of the work consisted primarily in giving access and educating new study members on the general use of the Office365 tools and providing solutions to the different groups depending on their particular needs.
- Some study members are not comfortable with the use of the SharePoint site and others seem to have difficulty respecting the strict metadata policy that IM/IT has enforced or finding documents. At a Study Board meeting, it was suggested that a sub-group be formed to look into the problems and solutions.
- It is expected that at some point during the study the IM/IT needs will peak for the CDST, it is impossible to know when and how much resources will be needed at this time as yet to be fully defined and resourced.

## **2.10 Study Board**

### **2.10.1 Summary of Activities**

- Pete Laflamme (Director of the Watershed Management Division of the Vermont Department of Environmental Conservation) joined the LCRR Study Board.

- The study board convened meetings (April and June) and monthly conference calls during the current reporting period.
- Since October of 2019, the Study Board meetings have had a quorum of members. This has been a challenge in the past. The current challenge is that Study board feels they are not provided with timely and concise documents in advance of meetings and this has impacted their ability to review and make decisions. Study management is aware and will work to provide more timely and concise documents for future meetings. In addition, a process is needed for having Study board decisions implemented and strictly followed. It has also been noted that there are a high number of SB guests attending the meetings resulting in a high number of opinions expressed on issues and this has affected the SB's ability to make decisions.
- The items that came back periodically to the meetings are: approval of the minutes of the last meeting, a summary of the activities of the various study groups, a summary of the significant events (workshops, meetings) of the last month or those to come, the governance of the study, the review of the main timelines, as well as any notable item representing an issue for the study. Since April 2019, the Study Board has been working on the Status of the Study, the revised work plan requested by the IJC, the list of documents for IRG review and this semi-annual report for the IJC (October 2018 to July 2019).
- Below is a summary of the topics and decisions that were taken during these meetings:

### **Major Study Board decisions**

- Postpone public meetings planned in November 2019 to March/April 2020: following the new Quebec flood plain management regulations to be discussed in Dec/Jan, the public tone may be more conducive to discussion. While so doing, the Study will advance the definition of its mitigation scenarios.
- Plan a meeting in July/Aug 2019 with federal agencies and with Quebec government representatives to update them on the Study's progress and get their feedback. This has been delayed and it is now planned for the fall of 2019
- Evaluate a range of potential binational governance mechanisms to coordinate efforts and to be tasked by governments to track the implementation of the study's recommendations
- Plan a webinar, to discuss political acceptability on Theme 1 and 4 mitigation measures.
- Draft a document on the set of criteria and values to rank mitigation measures.
- Request that management send a formal request for submission to the IJC legal counsels on the issue of the Chambly Canal and the tenure on the river bed by the Nature Conservancy. (done and reply received).
- Approved moving forward in the planning with the Climate Change workshop (workshop was in March 2019).
- Continue quantitative and qualitative work on climate change to implement the IJC framework on Climate Change approved by the Study Board. Funding for this task approved.
- Watershed Storage Study (funding approved) work approved for LCRR basin.
- Approved work plan on Indigenous Engagement in the study (April 2019)
- Approved funding for 2 workshops (Themes 3 and 4) this Fall.

## ***2.11 Study Management***

### ***2.11.1 Summary of Activities***

- One of the main tasks of the management team was to gather the necessary information and set up contracts for the implementation of the various activities/tasks planned for the 19/20 fiscal year.

- The management team with the 2 IJC Liaisons, 2 co-managers, 1 communication advisor, met weekly to ensure the proper conduct of the study and discuss the main issues. These meetings were used to guide and advise the SB on the main events and timelines of the study.
- The study managers:
  - Responsible for the overall coordination of the study in partnership with the IJC liaisons and the study co-chairs.
  - Responsible for monitoring contracts and budgets.
  - Participated in the logistics of meetings or workshops.
  - Drafted the agenda and participated in the study board meetings and calls. Whenever possible they attended TWG workshops, PAG meetings as well as the Special planning committee calls and CWG calls and Indigenous People’s engagement sub-group conference calls .
  - They contributed to the presentations used at the public meetings in November 2018 and for the one presented at the IJC semi-annual appearance in October 2018.
  - Drafted, prepared or assembled the documents that make up this report.

**Table 3. Meetings Attended by Study Members (date in bracket)**

	Nov '18	Dec '18	Jan '19	Feb. '19	Mar. '19	Apr. '19	May'19	Jun'19	July'19
Study Board	Public meetings in QC, VT and NY (7-9)	Call (7)	Call SPE-RR-FMMM HHM—FMMM (10-11)	Call (21)	Call (11)	Face-to-face Meeting / Practice Decision Grand Isle (15-17)		Face-to-Face Meetings n Venise-en-Quebec, QC (18-20)	Call (23)
Special Committee (SPC)		US-PAG/IJC/ Abenaki Meeting in Burlington (1)		Call - Special Planning Committee for Public meetings (4)					
TWGs				HHM-FMMM TWG Meeting, Quebec QC (27-28)	Climate Change workshop with external experts in Montreal (19-20)	Face-to-Face TWGs/AG Meetings, Grand Isle, VT. (15-17)		Face-to-Face TWG Workshop in Venise-en-Quebec, QC, (19-20)	
PAG				Call Sub-group on Indigenous engagement (28)	Call Sub-group on Indigenous engagement (11)  Meeting with Waban-Aki and Mohawks In Odanak, QC (27)	Call Sub-group on Indigenous engagement (4)	PAG meeting in Swanton, VT (10)  Technical meeting RR with Waban-Aki (24)		Call Sub-group on Indigenous engagement (8)
Communications WG	With SPC	Call (10)	Cancelled	Call (4)	Call (4)	Call (1)	Call (6)	Call (3)	Call (2)
Outreach Coordinator			Three meetings in Saint-Jean-sur-Richelieu (14-15)	SPE-Outreach meeting in Montreal (15)					

### 3 BUDGET / EXPENDITURES

Tables below are the budgets submitted in the revised work plan (Aug 2019). Funding allocations are provided for each study group for the duration of the Study, including the granted extension (2021-2022).

**Table 4. US Funding (in US\$1000)**

Initial planning as per Work Plan V1 (updated)	US Summary Funding (x 1000\$)						Total	
	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021		2021-2022
FMMM			272 \$	76 \$	183 \$	163 \$	114 \$	808 \$
HHM		340 \$	511 \$	245 \$	270 \$	85 \$	0 \$	1 451 \$
IM/IT								0 \$
IRG				5 \$	8 \$	10 \$	8 \$	31 \$
PAG		37 \$	38 \$	41 \$	41 \$	41 \$	20 \$	219 \$
Outreach			47 \$	0 \$	0 \$	55 \$	0 \$	102 \$
RR			90 \$	132 \$	178 \$	89 \$	25 \$	513 \$
Study Board					13 \$	13 \$	8 \$	33 \$
Secretariat		104 \$	100 \$	0 \$	50 \$	50 \$	25 \$	329 \$
SPE			143 \$	184 \$	175 \$	120 \$	30 \$	653 \$
Study Management	500 \$	19 \$	344 \$	296 \$	177 \$	184 \$	91 \$	1 611 \$
<b>Grand Total</b>	<b>500 \$</b>	<b>500 \$</b>	<b>1 545 \$</b>	<b>979 \$</b>	<b>1 095 \$</b>	<b>809 \$</b>	<b>321 \$</b>	<b>5 750 \$</b>

**Table 5. Canadian Funding (in CA\$1000)**

Initial planning as per Work Plan V1 (updated)	CA Summary Funding (x 1000\$)					Total	
	2016-2017	2017-18	2018-19	2019-20	2020-21		2021-22
FMMM	0 \$	60 \$	125 \$	145 \$	157 \$	46 \$	534 \$
HHM	0 \$	290 \$	375 \$	527 \$	420 \$	159 \$	1 771 \$
IM/IT	0 \$	54 \$	32 \$	0 \$	0 \$	0 \$	87 \$
IRG	0 \$	10 \$	0 \$	20 \$	20 \$	20 \$	70 \$
Outreach / PAG	16 \$	77 \$	130 \$	116 \$	116 \$	116 \$	571 \$
RR	0 \$	0 \$	29 \$	685 \$	464 \$	181 \$	1 359 \$
Study Board	0 \$	16 \$	27 \$	20 \$	50 \$	147 \$	260 \$
Secretariat	0 \$	7 \$	20 \$	30 \$	30 \$	30 \$	116 \$
SPE	20 \$	25 \$	119 \$	492 \$	302 \$	52 \$	1 009 \$
Study Management	37 \$	180 \$	182 \$	189 \$	139 \$	164 \$	890 \$
<b>Total Initial planning (updated)</b>	<b>73 \$</b>	<b>719 \$</b>	<b>1 039 \$</b>	<b>2 224 \$</b>	<b>1 698 \$</b>	<b>915 \$</b>	<b>6 668 \$</b>
<b>Tasks added for Work Plan 2</b>							
Assess potential of upland storage	0 \$	0 \$	0 \$	150 \$	0 \$	0 \$	150 \$
Conduct decision scaling to produce Probable Maximum Flood, Net Basin Supplies and other data sets	0 \$	0 \$	0 \$	60 \$	0 \$	0 \$	60 \$
Prepare for and conduct Theme 3 workshop	0 \$	0 \$	0 \$	25 \$	0 \$	0 \$	25 \$
Prepare for and conduct Theme 4 workshop	0 \$	0 \$	0 \$	20 \$	0 \$	0 \$	20 \$
Aboriginal consultation	0 \$	0 \$	0 \$	78 \$	72 \$	0 \$	150 \$
<b>Total added Tasks</b>	<b>0 \$</b>	<b>0 \$</b>	<b>0 \$</b>	<b>333 \$</b>	<b>72 \$</b>	<b>0 \$</b>	<b>405 \$</b>
<b>Grand Total</b>	<b>73 \$</b>	<b>719 \$</b>	<b>1 039 \$</b>	<b>2 557 \$</b>	<b>1 770 \$</b>	<b>915 \$</b>	<b>7 073 \$</b>