

One Hundred and Thirty-Fifth Progress Report to the  
International Joint Commission by the  
International Lake Ontario-St. Lawrence River Board  
Covering the Period 1 September 2020 through 28 February 2021

24 March 2021



## **COVER PAGE**

Photo (taken 18 Feb 2021 by Carole Smith, IJC) of Moses-Saunders Dam with ice-covered forebay

## EXECUTIVE SUMMARY

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Local supply conditions in the Lake Ontario basin during the reporting period (September 2020 through February 2021) were generally drier than average, with the exception of December. However, high net total supplies continued, due to the persistently high inflows from Lake Erie observed throughout this time. In response to the high inflows, Plan 2014 continued to prescribe high outflows.

The International Lake Ontario-St. Lawrence River Board (Board)'s regulation strategy varied during the reporting period. Through the fall, the over-discharge deviations previously accumulated (beginning in summer 2019 and continuing through spring 2020) continued to be slowly restored. By mid-October, the deviations were fully restored and outflows were set in accordance with Plan 2014 for the remainder of 2020.

Lake Ontario continued its seasonal decline through the fall before stabilizing in late November. The lake then appeared to begin its seasonal rise in December.

The Board recognized the moderate risk of high Lake Ontario levels in 2021 owing to the persistently high inflows from Lake Erie. By letter dated 9 December 2020, the International Joint Commission (IJC) approved the Board's 3 December request to temporarily deviate from Plan 2014 during January and February in accordance with Condition J of the IJC's Order.

The combination of above-average Plan 2014-prescribed outflows plus deviations employed by the Board resulted in outflows that exceeded inflows in January and February. As a result, the lake declined 16 cm (6.3 in) in January through February, while on average the lake rises 9 cm (3.5 in) over those two months. In late January, Lake Ontario's water level fell below average for the first time since October 2018.

The Board met remotely five times during the reporting period, along with IJC advisors, associated subcommittees, and advisory groups, to conduct business and assess conditions. Effective 1 December, the IJC reduced the size of the Board to six members. The other six former members remain involved through an Interim Advisory Group (IAG). The Communications Committee, individual Board and IAG members, the secretaries, and the regulation representatives continued to be actively engaged in outreach, information exchange and liaison with stakeholders throughout the system.

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# 1 HYDROLOGICAL CONDITIONS

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## 1.1 LAKE ONTARIO BASIN - NET BASIN SUPPLY

Monthly net basin supplies (NBS) to Lake Ontario (see [Appendix B](#) for definition) for September 2020 through February 2021 and the average (1900-2019) for the six-month period are provided in Table 1. Net basin supplies were below average, with the exception of December.

## 1.2 SUPPLY FROM LAKE ÉRIE

Reflecting the very high water levels in the upper lakes, the inflows to Lake Ontario from Lake Erie remained very high from September through February (Table 1). The six-month average inflow to Lake Ontario from Lake Erie was the third highest since reliable records began in 1900.

## 1.3 LAKE ONTARIO – NET TOTAL SUPPLY

The monthly net total supplies (NTS) to Lake Ontario (see [Appendix B](#) for definition) are provided in Table 1 and shown graphically in Figure 1. Figure 1 shows the long-term average monthly NTS for the period 1900 to 2019 and the supplies for 2019, 2020 and 2021 (through February). The grey horizontal bars are the long-term monthly NTS maxima and minima. Net total supplies remained above average (Table 1). Overall, the six-month average net total supply is the 13<sup>th</sup> highest since reliable records began in 1900.

## 1.4 OTTAWA RIVER BASIN

Outflows from the Ottawa River basin were generally above average (1963-2019) except for a short period in December (Figure 2).

# 2 REGULATORY OPERATIONS

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## 2.1 REGULATION OVERVIEW

Figure 3 shows actual daily outflows from Lake Ontario for 2019, 2020 and 2021 (through February). Table 2a summarizes the weekly outflows and Table 2b lists all of the flow changes that were made during the reporting period.

In response to the high inflows, Plan 2014 continued to prescribe high outflows. Overall, the total average outflow released from 1 September 2020 to 28 February 2021 was 8,280 m<sup>3</sup>/s (292 cfs), the fourth highest for this six-month period since 1900.

The Board's regulation strategy varied during the reporting period. In September, the over-discharge deviations previously accumulated (beginning in summer 2019 and continuing through spring 2020) continued to be slowly restored. This is because outflows were set to the maximum L-limit values using actual end-of-week Lake Ontario levels (in lieu of the higher computed plan levels). Additionally, outflows were reduced slightly to maintain Lake St. Lawrence at or above 73 m (239.5 ft) through the Labour Day

weekend, in accordance with the Board's strategy to restore the accumulated deviations. The remaining deviations were restored when outflows were reduced significantly to facilitate boat haulout efforts on Lake St. Lawrence from 8 to 12 October. Outflows were in accordance with Plan 2014's L Limit for the remainder of 2020. This included temporary flow adjustments to maintain Lake St. Lawrence levels above the navigation season minimum of 72.6 m (238.2 ft).

By letter dated 9 December 2020, the International Joint Commission (IJC) approved the Board's 3 December request to temporarily deviate from Plan 2014 during January and February in accordance with Condition J of the IJC's Order. Outflows exceeding the Plan's Rule Curve flows were released and at times, the change in flow from week to week exceeded the maximum J limit. All other Plan 2014 limits were respected, including the I Limit requirement to maintain Lake St. Lawrence levels at or above 71.8 m (235.6 ft). Very high outflows were released until ice began to form in late January. Favourable weather and ice conditions allowed deviations to resume in February.

## **2.2 DEVIATIONS FROM REGULATION PLAN 2014**

Figure 4 shows daily outflows for 2020 (lighter blue line) and January through February 2021 (darker blue line) compared to the weekly Plan-specified outflows from Lake Ontario (black squares) as well as preproject flows (blue circles). All of the outflow changes, including operational adjustments, minor and major deviations that occurred during the reporting period, are also summarized in Tables 2a and 2b. Operational adjustments are required to account for uncertainty and variation in conditions within the week in order to maintain the intent of the Board's outflow strategy and are not required to be paid back by subsequent offsetting outflows.

At the beginning of September, a total of 3.7 cm (1.5 in) of water remained removed from Lake Ontario, relative to Plan 2014. These accumulated deviations were slowly restored by about 0.1 to 0.3 cm (0.04 to 0.1 in) per week in September. The remaining 2.4 cm (0.94 in) was fully restored by week ending 16 October when outflows were reduced significantly to facilitate boat haulout efforts on Lake St. Lawrence. The additional 0.4 cm (on top of the 2 cm that is authorized under the Board's minor discretionary deviation authority) allowed Lake Ontario outflows to be reduced for 89 hours (from 8 to 12 October).

In January through February, the Board conducted deviations in accordance with Condition J of the IJC's Order. These deviations removed a total of 9.4 cm (3.7 in) from Lake Ontario, relative to strict adherence to Plan 2014. In January, a total of 7 cm (2.8 in) was removed as outflows were maximized prior to ice formation. In February, an additional 2.4 cm (0.9 in) was removed as favourable weather and ice conditions allowed outflows to be increased above Plan 2014 Rule Curve values.

## **2.3 WATER LEVELS THROUGHOUT THE SYSTEM**

Figure 5 shows the daily levels of Lake Ontario for 2019, 2020 and 2021 (through February). Lake Ontario's water level remained above average (1918-2019) for most of the reporting period and fell below average in late January for the first time since October 2018. Water levels of all the other Great Lakes remained very high during the reporting period. Owing to the very high inflows, Lake Ontario's water level would have been significantly higher if not for the high outflows that were released.

As a means of determining the effect of regulation activities on levels and outflows, a comparison of Lake Ontario's actual monthly levels and outflows to those that would have occurred under preproject conditions (i.e. the levels and outflows that would have occurred had regulation not been undertaken) is provided in Table 3. This summary shows that Lake Ontario was approximately 80 to 94 cm (2.6 to 3.1 ft) lower than it would have been without regulation throughout the reporting period. A comparison of the daily levels to long-term average, preproject levels (blue circles), and computed Plan 2014 levels (black squares) in 2020 and 2021 (through February) is also shown in Figure 6. By the end of the reporting period, the level of Lake Ontario would have been 9.4 cm (3.7 in) higher if deviations had not been conducted in January and February.

Lake Ontario levels continued their seasonal decline through the fall and fell 22 cm (8.7 in) in September, more than the average September decline of 15 cm (5.9 in). The lake then declined by near-average amounts of 12 cm (4.7 in) in October and 4 cm (1.6 in) in November. Levels stabilized in late November into December, as is quite normal for late in the year, within 3 cm (1.2 in) of seasonal long-term average values. Lake Ontario then appeared to begin its seasonal rise in December, rising 6 cm (2.4 in) over the course of the month. In early January, Lake Ontario began to decline again. In late January, Lake Ontario's water level fell below average for the first time since October 2018. Lake Ontario declined by 16 cm (6.3 in) in January through February, while on average the lake rises by 9 cm (3.5 in) over those two months. On the last day of the reporting period, Lake Ontario was at a level of 74.50 m (244.4 ft), which was 13 cm (5.1 in) below average.

The water levels of Lake St. Lawrence at Long Sault Dam (Figure 7) were maintained at or above 73 m (239.5 ft) through the Labour Day weekend. Thereafter, outflows were adjusted in accordance with the L limit to maintain levels at or above the navigation season minimum of 72.6 m (238.2 ft). Lake St. Lawrence levels rose approximately 70 cm (27.6 in) when outflows were temporarily reduced (8-12 October) to raise Lake St. Lawrence to assist with boat haul-out efforts. During the winter, Lake St. Lawrence levels fluctuated as deviations were conducted and outflows were adjusted to facilitate safe and stable ice formation. In January, prior to ice formation, outflows were maximized and Lake St. Lawrence levels declined to near the I-Limit minimum threshold of 71.80 m (235.6 ft). A minimum daily mean level of 71.72 m (235.3 ft) was reached in mid-January. No impacts to water intakes were reported.

Daily water levels at Summerstown on Lake St. Francis were generally near average (1960-2019) from September through December. Daily mean levels remained above the Seaway low alert level throughout of the navigation season. Water levels were generally below average in January through February.

The daily water levels on Lake St. Louis at Pointe-Claire (Figure 8) generally remained above average (1960-2019) throughout the reporting period owing to the high Lake Ontario outflows combined with near- to above-average Ottawa River flows. Lake St. Louis levels fluctuated as Lake Ontario outflows were frequently adjusted in January through February.

The daily levels at the Port of Montreal (Figure 9) and at Sorel on Lake St. Peter (Figure 10) also generally remained above average throughout most of the reporting period, falling below average after mid-February.



## **2.4 IROQUOIS DAM OPERATIONS**

Several gates at Iroquois Dam, including the two used for recreational navigation, were completely closed, five at a time, during 5 October to 5 November to facilitate safe conditions for divers inspecting and measuring the service gains. These temporary gate closures had no appreciable effect on water levels and flows. By starting on the south side and working northward, workers were able to delay the closure of the recreational navigation gates until November 2 to 5.

## **2.5 LONG SAULT DAM OPERATIONS**

A varying number of gates were opened at Long Sault Dam at different times to spill the amount of total Lake Ontario outflow that exceeded the capacity of the Moses-Saunders Dam. Long Sault Dam was operated intermittently on 81 of the 181 days of the reporting period (45% of the time). The total amount of water spilled (lost to electrical power generation) reached a maximum daily mean value of 1,664 m<sup>3</sup>/s on 20 November.

## **2.6 RAISIN RIVER DIVERSION**

The Raisin River Diversion was opened during the first two days of reporting period and closed thereafter. The amount of water diverted during these two days was negligible (less than 0.1 m<sup>3</sup>/s).

## **2.7 ST. LAWRENCE SEAWAY REPORT**

The 2020 navigation season closed in the Montreal-Lake Ontario section of the Seaway after the last upbound vessel cleared Iroquois Lock at 19:06 hours on 30 December 2020.

## **2.8 HYDROPOWER PEAKING AND PONDING**

By letter dated 13 October 1983, the IJC authorized Ontario Power Generation (OPG) and New York Power Authority (NYPA) to continue to carry out peaking and ponding operations at the St. Lawrence Project. The conditions governing peaking and ponding operations are currently specified in Addendum No. 3 to the Operational Guides for Regulation Plan 1958-D. On 4 November 2016, the IJC renewed the approval for a 5-year period, dated 1 December 2016 to 30 November 2021.

No peaking nor ponding operations were conducted during the reporting period owing to high outflows and critical conditions in the system. Flows were below the 7,930 m<sup>3</sup>/s threshold on only a handful of days during the reporting period, including when they were temporarily reduced to raise water levels of Lake St. Lawrence and facilitate removal of recreational boats, and during flow reductions to facilitate ice formation in the Beauharnois Canal.

# **3 BOARD ACTIVITIES**

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The Board continued to direct the outflow from the hydropower project in the international reach of the St. Lawrence River. The Board, primarily through the offices of the regulation representatives, monitored conditions throughout the Lake Ontario-St. Lawrence River system. The Board continued to communicate

regularly with the IJC. On 23 November 2020, the Board sent a letter to the IJC containing several key suggestions regarding communications enhancements.

The regulation representatives continued to provide the Board with frequent water level and hydrologic conditions updates, and advised the Board on the impacts that potential regulation strategies would have on water levels and flows throughout the system under a range of potential water supply scenarios. The Board's Operations Advisory Group (OAG) continued to hold weekly teleconferences to review conditions and advise the regulation representatives on weekly operational requirements and constraints. The OAG also answered queries on regulation strategies from the Board.

The Board continued to work with the IJC, through the Communications Committee, to seek opportunities to improve communications, outreach, and engagement with its stakeholders and the public. The St. Lawrence Committee on River Gauging continued to monitor the power entities' program for operation and maintenance of the gauging system required for Board operations.

### **3.1 BOARD MEETINGS & CONFERENCE CALLS**

The Board met remotely via videoconference five times during the reporting period (29 September, 20 October, 2 December, 25 January and 19 February), along with IJC advisors, associated subcommittees, and advisory groups, to conduct business and assess conditions. Table 4 provides a list of Board Members and Interim Advisory Group Members in attendance at these meetings.

### **3.2 BOARD MEMBERSHIP CHANGES**

Effective 1 December, the IJC reduced the size of the Board to six members. Mr. Stephen Durrett, Dr. Geneviève Béchard, Mr. Tom Brown, Ms. Patricia Clavet, Mr. Anthony David and Ms. Joan Frain remained as Board Members. Mr. Kyle McCune continued as Alternate US Co-Chair.

The other six former members (Mr. Jean Aubry-Morin, Mr. Robert Company, Mr. Marc Hudon, Dr. Diane Kuehn, Ms. Suzie Miron, and Mr. Bill Reilich) remain involved through an Interim Advisory Group (IAG).

### **3.3 COMMUNICATIONS, OUTREACH AND ENGAGEMENT**

The Communications Committee held four videoconferences during the reporting period. The committee, individual Board and IAG members, the secretaries, and the regulation representatives remained actively engaged in outreach, information exchange and liaison with members of the public, legislators, government agencies, journalists, and other stakeholders throughout the Lake Ontario-St. Lawrence River system.

A total of four media releases were published, distributed and posted on the Board's website. Board members and staff responded to a number of telephone and email inquiries concerning water level conditions and Board regulation strategies. Board members and staff conducted numerous interviews with the media and maintained regular contact with media editorial staff. Board staff continued to send weekly updates on current conditions to over 500 email subscribers. The Board continued to operate and maintain its website (<https://www.ijc.org/en/loslrb>) and launched many new features including a [visual tour of the system](#), and a [visual history of the project](#), as well as reformatted [roles and responsibilities](#) and [membership](#) pages.

Regular updates on the Board’s Facebook pages continued to be posted in both French and English and Board staff responded to public comments and questions. The French and English pages currently have over 700 and 5,000 “likes” respectively and total post “reaches” of up to 6,200.

The Canadian regulation representative office continued to provide weekly briefings of water levels, flows, and forecasts. The briefings are distributed by email to Board members and associates, and interested stakeholders, including federal, provincial and state government agencies, several Conservation Authorities, Port Authorities, and municipalities.

Further details regarding Communication Committee activities and outreach efforts are included in Appendix A.

### **3.4 GAUGING COMMITTEE**

The St. Lawrence Committee on River Gauging (Gauging Committee) is granted authority by the Board to oversee and ensure the accuracy of flow estimates and water level measurements in the international section of the St. Lawrence River. The Gauging Committee inspects the computational methods employed at each of the eight outflow structures and monitors the operation and maintenance of the water level gauges owned and operated by the power entities (OPG and NYPA). The committee conducts an annual field inspection of 16 of the water level gauges used by the Board to monitor river conditions and performs monthly audits of the water level and outflow data collected and archived by the power entities. The findings and results of these activities are documented in an annual report to the Board.

The 82<sup>nd</sup> (2018) Gauging Committee report was approved at the 24 March 2021 Board meeting. The 83<sup>rd</sup> (2019) and 84<sup>th</sup> (2020) Gauging Committee reports are currently being prepared. The 2019 report includes the findings and results of the annual field inspection that was completed 12-15 August 2019. The Gauging Committee’s annual field inspection was not completed in 2020 due to the COVID-19 pandemic and associated travel restrictions. However, field surveys and all of the required weekly checks and quarterly maintenance activities were still completed as usual by OPG and NYPA. Committee representatives reviewed the survey and maintenance reports prepared by OPG and NYPA and no major issues were identified.

A precision survey is now planned for 2022. It was deferred owing to the COVID-19 pandemic and associated travel restrictions. NOAA’s National Geodetic Survey (NGS) office will follow the same survey route as the previous precision survey, using newer, stricter procedures related to the new horizontal and vertical datum, Geoid 2022. This datum will be the base relationship for the new International Great Lakes Datum (IGLD 2020), with emphasis on GPS observations.

## **4 GREAT LAKES–ST. LAWRENCE RIVER ADAPTIVE MANAGEMENT COMMITTEE**

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The Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee is a committee of technical experts, established by the IJC, and under the authority of the Boards, to consider adaptive management methods as part of an on-going evaluation of regulation plans. GLAM continued to work

with the Board to implement the science-based recommendations of past studies and develop new ones. The Committee ultimately seeks to evaluate regulation plan performance over time with regard to a broad range of environmental and economic indicators.

GLAM continued to focus on tasks in support of Phase 1 of the expedited review of Plan 2014. The Phase 1 effort seeks to provide information that supports the Board in its regulation decisions following recent high-water periods. This includes improved understanding of the potential economic impacts of setting outflows that exceed the L Limit and may result in temporarily halting shipping on the St. Lawrence Seaway between Lake Ontario and Montreal due to hazardous high flows. Additionally, GLAM has been undertaking a number of short-term projects to better assess risks associated with ice conditions and very high flows during winter operations including ice stability, potential impacts to water intakes on Lake St. Lawrence, and possible ecosystem impacts on Lake St. Lawrence.

The GLAM Committee has identified a series of additional Phase 1 projects through its current FY21 work plan. With the \$1.5 million U.S. and matching Canadian funding, the Committee is executing these efforts. Detailed reports of GLAM activities can be found on the [GLAM Committee's website](#).

**Table 1: Provisional Monthly Mean Supplies to Lake Ontario**

Month	Inflow from Lake Erie				Local Net Basin Supplies			Total Supplies			
	m <sup>3</sup> /s	tcfs	Exceed. Prob. <sup>(1)</sup>	% of LTA <sup>(1)</sup>	m <sup>3</sup> /s	tcfs	Exceed. Prob. <sup>(1)</sup>	m <sup>3</sup> /s	tcfs	Exceed. Prob. <sup>(1)</sup>	% of LTA <sup>(1)</sup>
Sep 20	7,390	261	1	124	-520	-18	96	6,870	243	15	113
Oct 20	7,280	257	1	124	0	0	70	7,280	257	11	118
Nov 20	7,420	262	<1	126	430	15	62	7,850	277	11	120
Dec 20	7,490	265	1	127	1,070	38	34	8,560	302	6	127
Jan 21	7,370	260	1	129	770	27	60	8,140	287	10	122
Feb 21	6,930	245	4	123	350	12	89	7,280	257	30	109
6-month Average	7,310	258	<1	125	350	12	79	7,660	271	9	118

<sup>(1)</sup> Based on period of record 1900-2019

**Table 2a: Summary of Weekly Outflows, Operational Adjustments and Deviations**

Week Ending 2020	Adj. RC Flow		Plan Flow		App. Rule/Limit	Actual Flow		Op. Adjustments &/or Plan Limitations		Deviations						Type	Details
	m <sup>3</sup> /s	tcfs	m <sup>3</sup> /s	tcfs		m <sup>3</sup> /s	tcfs	m <sup>3</sup> /s	tcfs	Weekly		Accumulated		Cumulative effect on L. Ontario			
										m <sup>3</sup> /s	tcfs	m <sup>3</sup> /s-wks	tcfs-wks	cm	in		
28-Aug	9,370	331	8,720	308	L	8,560	302	-810	-28.6	-160	-5.7	1,190	42	-3.7	-1.5	Major	Maintain Lake St. Lawrence ≥ 73.0 m (239.5 ft) in accordance with Board's 22 May 2020 Deviation Exit Strategy
04-Sep	9,790	346	8,680	307	L+	8,450	298	-1340	-47.3	-230	-8.1	960	33.9	-3.0	-1.2	Major	
11-Sep	9,700	343	8,650	305	L+	8,550	302	-1150	-40.6	-100	-3.5	860	30.4	-2.7	-1.1	Major	Maintain Lake St. Lawrence ≥ 73.0 m (239.5 ft) through 7 Sep, then max. L Limit (based on actual EOW level)
18-Sep	9,420	333	8,590	303	L+	8,560	302	-860	-30.4	-30	-1.1	830	29.3	-2.6	-1.0	Major	Max. L Limit (based on actual EOW level)
25-Sep	9,160	323	8,530	301	L+	8,500	300	-660	-23.3	-30	-1.1	800	28.3	-2.5	-1.0	Major	
02-Oct	8,760	309	8,440	298	L	8,420	297	-340	-12	-20	-0.7	780	27.5	-2.4	-0.9	Major	
09-Oct	8,840	312	8,430	298	L	8,140	287	-700	-24.7	-290	-10.2	490	17.3	-1.5	-0.6	Major & Minor	Max. L Limit (based on actual EOW level), then outflow reduced to facilitate boat haul out on Lake St. Lawrence
16-Oct	8,750	309	8,390	296	L	7,900	279	-850	-30	-490	-17.3	0	0	0.0	0.0	Minor & Major	Ramp up to max. L Limit based on actual (9 Oct) EOW level
23-Oct	8,710	308	8,360	295	L	8,360	295	-350	-12.4	--	--	--	--	--	--	--	Plan (max. L Limit)
30-Oct	8,690	307	8,260	292	L	8,260	292	-430	-15.2	--	--	--	--	--	--	--	Plan (max. L Limit), op. adj. to max. L Limit (Lake St. Lawrence ≥ 72.60 m)
06-Nov	8,580	303	8,230	291	L	8,230	291	-350	-12.4	--	--	--	--	--	--	--	Plan (max. L Limit)
13-Nov	8,430	298	8,140	287	L	8,140	287	-290	-10.2	--	--	--	--	--	--	--	
20-Nov	8,460	299	8,110	286	L	8,110	286	-350	-12.4	--	--	--	--	--	--	--	
27-Nov	8,390	296	8,040	284	L	8,040	284	-350	-12.4	--	--	--	--	--	--	--	
04-Dec	8,450	298	8,060	285	L	8,060	285	-390	-13.8	--	--	--	--	--	--	--	

Note: The “Op. Adjustments &/or Plan Limitations” column values shown in this table are computed as the Actual Flow minus Adjusted RC Flow. The “+” in the “App. Rule/Limit” column denotes the Plan 2014 “September Rule” was applied. Whenever the Lake Ontario level is above 74.8 m (245.4 ft) at the beginning of September, the September Rule strives to lower Lake Ontario to 74.8 m (245.4 ft) by 1 January. The rule curve flow is linearly increased by the amount needed to eliminate the storage on the lake above 74.8 m (245.4 ft) over the remaining time, before 1 January. The adjusted flow is constrained by the L Limit.

**Table 2a (continued): Summary of Weekly Outflows, Operational Adjustments and Deviations**

Week Ending 2020 & 2021	Adj. RC Flow		Plan Flow		App. Rule/ Limit	Actual Flow		Op. Adjustments &/or Plan Limitations		Deviations						Type	Details
										Weekly		Accumulated		Cumulative effect on L. Ontario			
	m <sup>3</sup> /s	tcfs	m <sup>3</sup> /s	tcfs		m <sup>3</sup> /s	tcfs	m <sup>3</sup> /s	tcfs	m <sup>3</sup> /s	tcfs	m <sup>3</sup> /s-wks	tcfs-wks	cm	in		
11-Dec (2020)	8,520	301	8,110	286	L	8,110	286	-410	-14.5	--	--	--	--	--	--	--	Plan (max. L Limit)
18-Dec	8,540	302	7,960	281	L	7,960	281	-580	-20.5	--	--	--	--	--	--	--	Plan (max. L Limit), op. adj. to max. L Limit (Lake St. Lawrence ≥ 72.60 m)
25-Dec	8,500	300	8,110	286	L	8,110	286	-390	-13.8	--	--	--	--	--	--	--	Plan (max. L Limit)
01-Jan (2021)	8,440	298	8,120	287	L/RC	8,210	290	-230	-8.1	90	3.2	90	3.2	-0.3	-0.1	Major	Plan (max. L Limit); Major (Condition J) deviations (Lake St. Lawrence ≥ 71.8 m)
08-Jan	8,650	305	8,650	305	RC	9,330	329	680	24	680	24	770	27.2	-2.4	-0.9	Major	Major (Condition J) deviations (Lake St. Lawrence ≥ 71.8 m)
15-Jan	8,730	308	8,730	308	RC	9,380	331	650	23	650	23	1,420	50.1	-4.4	-1.7	Major	
22-Jan	8,510	301	8,510	301	RC	9,280	328	770	27.2	770	27.2	2,190	77.3	-6.8	-2.7	Major	
29-Jan	8,510	301	7,670	271	I	7,740	273	-770	-27.2	70	2.5	2,260	79.8	-7.0	-2.8	Major	Major (Condition J) deviations (Lake St. Lawrence ≥ 71.8 m); Op. adjustments for ice management at Beauharnois Canal
05-Feb	8,400	297	7,420	262	I	7,430	262	-970	-34.3	10	0.4	2,270	80.2	-7.0	-2.8	Major	Op. adj. for ice mgmt. at Beauharnois Canal; Major (Condition J) deviations
12-Feb	8,350	295	8,140	287	I	8,410	297	60	2.1	270	9.5	2,540	89.7	-7.9	-3.1	Major	
19-Feb	8,280	292	7,110	251	I	7,110	251	-1170	-41.3	0	0	2,540	89.7	-7.9	-3.1	--	Op. adjustments for ice management at Beauharnois Canal
26-Feb	8,180	289	8,170	289	I	8,530	301	350	12.4	360	12.7	2,900	102.4	-9.0	-3.5	Major	Op. adj. for ice mgmt. at Beauharnois Canal; Major (Condition J) deviations (Lake St. Lawrence ≥ 71.8 m)
05-Mar	8,140	287	8,140	287	RC	8,270	292	130	4.6	130	4.6	3,030	107	-9.4	-3.7	Major	Major (Condition J) deviations; Return to Plan (Rule Curve) as of 1 March 2021 (in accordance with Board's 19 February 2021 decision)

Note: The "Op. Adjustments &/or Plan Limitations" column values shown in this table are computed as the Actual Flow minus Adjusted RC Flow.

**Table 2b: Summary of Flow Changes**

Week Ending 2020 & 2021	Flow Changes								Details	
	Day	Hr	(m <sup>3</sup> /s)		(tcfs)		Reason	App. Rule/ Limit		
			From	To	From	To				
28-Aug (2020)	28-Aug	0001	8,580	8,450	303	298.4	Dev	Major	Maintain Lake St. Lawrence ≥ 73.0 m (239.5 ft) in accordance with Board's 22 May 2020 Deviation Exit Strategy	
04-Sep	--	--	--	--	--	--	Dev	Major		
11-Sep	08-Sep	0001	8,450	8,620	298.4	304.4	Dev	Major	Max. L Limit (based on actual EOW level)	
18-Sep	12-Sep	0001	8,620	8,560	304.4	302.3	Dev	Major		
25-Sep	19-Sep	0001	8,560	8,500	302.3	300.2	Dev	Major		
02-Oct	26-Sep	0001	8,500	8,420	300.2	297.3	Dev	Major		
09-Oct	03-Oct	0001	8,420	8,410	297.3	297	Dev	Major		
	08-Oct	1701	8,410	7,000	297	247.2	Dev	Minor		Lake St. Lawrence boat haul out
16-Oct	12-Oct	1001	7,000	7,570	247.2	267.3	Dev	Minor	Ramp up to max. L Limit based on actual (9 Oct) EOW level	
	12-Oct	1101	7,570	8,140	267.3	287.5	Dev	Minor		
	12-Oct	1201	8,140	8,370	287.5	295.6	Dev	Major		
23-Oct	17-Oct	0001	8,370	8,360	295.6	295.2	Plan	L	Plan (max. L Limit)	
30-Oct	24-Oct	0001	8,360	8,320	295.2	293.8	Plan	L		
		29-Oct	1601	8,320	8,000	293.8	282.5	OA	L	Operational adjustment to max. L Limit (Maintain Lake St. Lawrence ≥ 72.60 m [238.2 ft])
06-Nov	31-Oct	0701	8,000	8,240	282.5	291	Plan	L	Plan (max. L Limit)	
13-Nov	07-Nov	0001	8,240	8,140	291	287.5	Plan	L		
20-Nov	14-Nov	0001	8,140	8,110	287.5	286.4	Plan	L		
27-Nov	21-Nov	0001	8,110	8,040	286.4	283.9	Plan	L		
04-Dec	28-Nov	0001	8,040	8,060	283.9	284.6	Plan	L		
11-Dec	05-Dec	0001	8,060	8,110	284.6	286.4	Plan	L		
18-Dec	16-Dec	1301	8,110	7,600	286.4	268.4	OA	L	Operational adjustment to max. L Limit (Maintain Lake St. Lawrence ≥ 72.60 m [238.2 ft])	
	18-Dec	1301	7,600	8,110	268.4	286.4	Plan	L	Plan (max. L Limit)	
25-Dec	--	--	--	--	--	--	Plan	L		
01-Jan (2021)	26-Dec	0001	8,110	8,090	286.4	285.7	Plan	L	Major (Condition J) deviations (Maintain Lake St. Lawrence ≥ 71.8 m [235.6 ft])	
	01-Jan	0801	8,090	9,400	285.7	332	Dev	Major		
08-Jan	03-Jan	1301	9,400	9,500	332	335.5	Dev	Major		
	04-Jan	1701	9,500	9,400	335.5	332	Dev	Major		
	05-Jan	1001	9,400	9,200	332	324.9	Dev	Major		
	07-Jan	1301	9,200	9,300	324.9	328.4	Dev	Major		
15-Jan	09-Jan	1501	9,300	9,400	328.4	332	Dev	Major		
	12-Jan	1201	9,400	9,500	332	335.5	Dev	Major		
	14-Jan	1201	9,500	9,200	335.5	324.9	Dev	Major		
22-Jan	16-Jan	1701	9,200	9,400	324.9	332	Dev	Major		
	19-Jan	1501	9,400	9,200	332	324.9	Dev	Major		
29-Jan	23-Jan	1701	9,200	8,400	324.9	296.6	OA	I		Operational adjustments to max. I Limit (Ice management at Beauharnois Canal)
	24-Jan	1701	8,400	7,200	296.6	254.3	OA	I		
	26-Jan	1001	7,200	7,700	254.3	271.9	OA	I		
	28-Jan	1601	7,700	7,200	271.9	254.3	OA	I		
05-Feb	31-Jan	1801	7,200	6,900	254.3	243.7	OA	I		
	01-Feb	1501	6,900	7,100	243.7	250.7	OA	I		
	03-Feb	1401	7,100	7,700	250.7	271.9	OA	I		
	04-Feb	1201	7,700	8,200	271.9	289.6	OA	I		



**Table 2b (continued): Summary of Flow Changes**

Week Ending 2021	Flow Changes								Details
	Day	Hr	(m <sup>3</sup> /s)		(tcfs)		Reason	App. Rule/ Limit	
			From	To	From	To			
05-Feb	05-Feb	1801	8,200	8,800	289.6	310.8	Dev	Major	Major (Condition J) deviations (Ice management at Beauharnois Canal)
12-Feb	09-Feb	2001	8,800	8,500	310.8	300.2	Dev	Major	
	10-Feb	1901	8,500	8,300	300.2	293.1	OA	I	
	11-Feb	1601	8,300	7,400	293.1	261.3	OA	I	
	12-Feb	1401	7,400	7,000	261.3	247.2	OA	I	
19-Feb	16-Feb	1401	7,000	6,600	247.2	233.1	OA	I	Operational adjustments to max. I Limit (Ice management at Beauharnois Canal)
	17-Feb	1101	6,600	7,000	233.1	247.2	OA	I	
	18-Feb	0701	7,000	7,400	247.2	261.3	OA	I	
	18-Feb	1801	7,400	7,600	261.3	268.4	OA	I	
	19-Feb	1201	7,600	8,000	268.4	282.5	OA	I	
26-Feb	20-Feb	1201	8,000	8,400	282.5	296.6	Dev	Major	Major (Condition J) deviations (Ice management at Beauharnois Canal)
	21-Feb	1501	8,400	8,600	296.6	303.7	Dev	Major	Major (Condition J) deviations (Maintain Lake St. Lawrence ≥ 71.8 m [235.6 ft])
05-Mar	01-Mar	0001	8,600	8,140	303.7	287.5	Plan	RC	Return to Plan (Rule Curve) as of 1 March 2021 (in accordance with Board's 19 February decision)

**Table 3: Lake Ontario Recorded and Preproject Water Levels and Outflows**

Month	Lake Ontario Monthly Mean Water Levels (IGLD 1985) - meters (feet)			Lake Ontario Monthly Mean Outflow m <sup>3</sup> /s (tcfs)		
	Recorded	Preproject	Difference	Recorded	Preproject	Difference
Sep 20	74.85 (245.57)	75.65 (248.19)	-0.80 (-2.62)	8,500 (300)	8,410 (297)	90 (3)
Oct 20	74.70 (245.08)	75.51 (247.73)	-0.81 (-2.65)	8,180 (289)	8,110 (286)	70 (3)
Nov 20	74.60 (244.75)	75.43 (247.47)	-0.83 (-2.72)	8,120 (287)	7,960 (281)	160 (6)
Dec 20	74.62 (244.81)	75.47 (247.60)	-0.85 (-2.79)	8,070 (285)	8,020 (283)	50 (2)
Jan 21	74.62 (244.81)	75.54 (247.83)	-0.92 (-3.02)	8,820 (311)	8,150 (288)	670 (23)
Feb 21	74.53 (244.52)	75.47 (247.60)	-0.94 (-3.08)	7,970 (281)	7,820 (276)	150 (5)

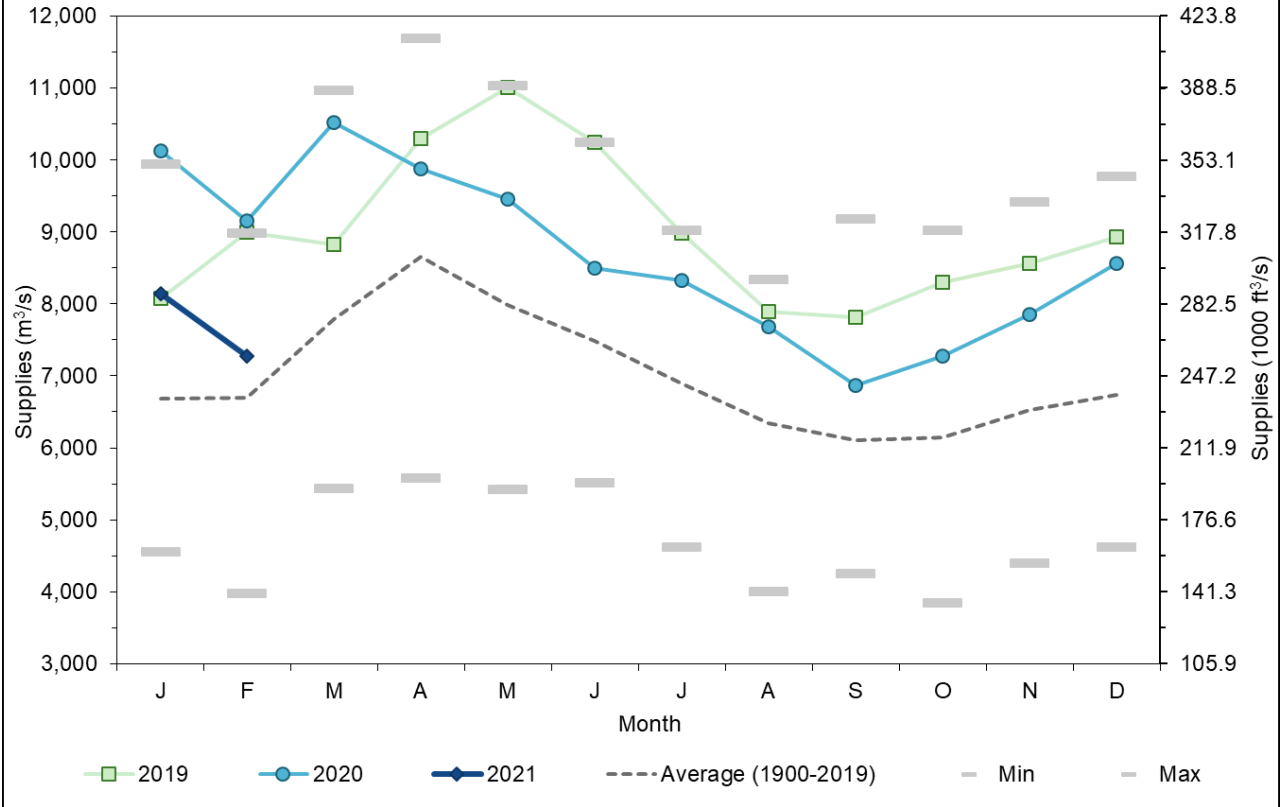
**Table 4: Attendance at Meetings**

<b>Member</b>	<b>29 Sep Call</b>	<b>20 Oct Call</b>	<b>2 Dec Call</b>	<b>25 Jan Call</b>	<b>19 Feb Call</b>
Mr. S. Durrett <sup>1</sup>	X	-	X	X	X
Mr. K. McCune <sup>2</sup>	X	X	X	-	-
Dr. G. Béchard <sup>3</sup>	X	X	X	X	X
Mr. T. Brown	X	X	X	X	X
Ms. P. Clavet	X	X	X	X	X
Mr. A. David	X	X	X	X	X
Ms. J. Frain	X	X	X	X	X
Mr. J. Aubry-Morin <sup>4</sup>	X	X	X	X	X
Mr. R. Company <sup>4</sup>	X	X	X	X	X
Mr. M. Hudon <sup>4</sup>	X	X	X	X	-
Dr. D. Kuehn <sup>4</sup>	X	X	X	X	X
Ms. S. Miron <sup>4</sup>	X	-	X	-	X
Mr. B. Reilich <sup>4</sup>	X	-	-	-	-

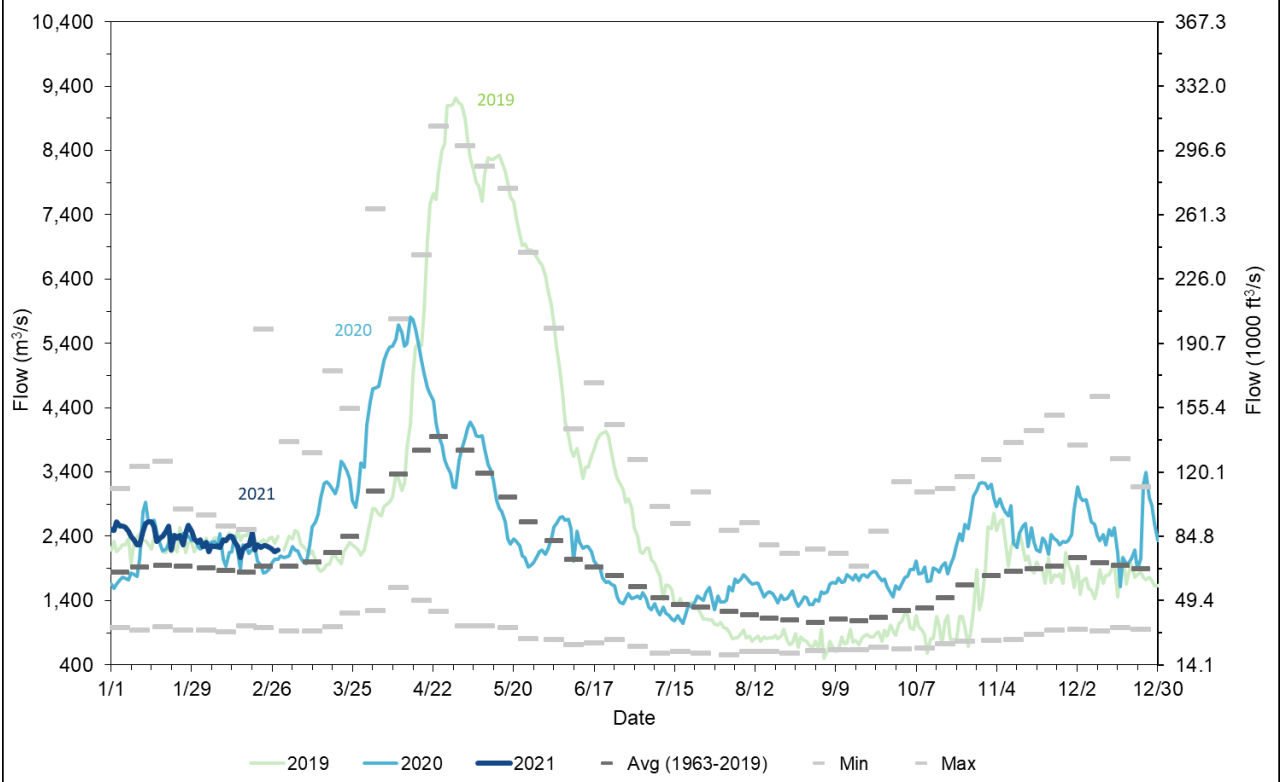
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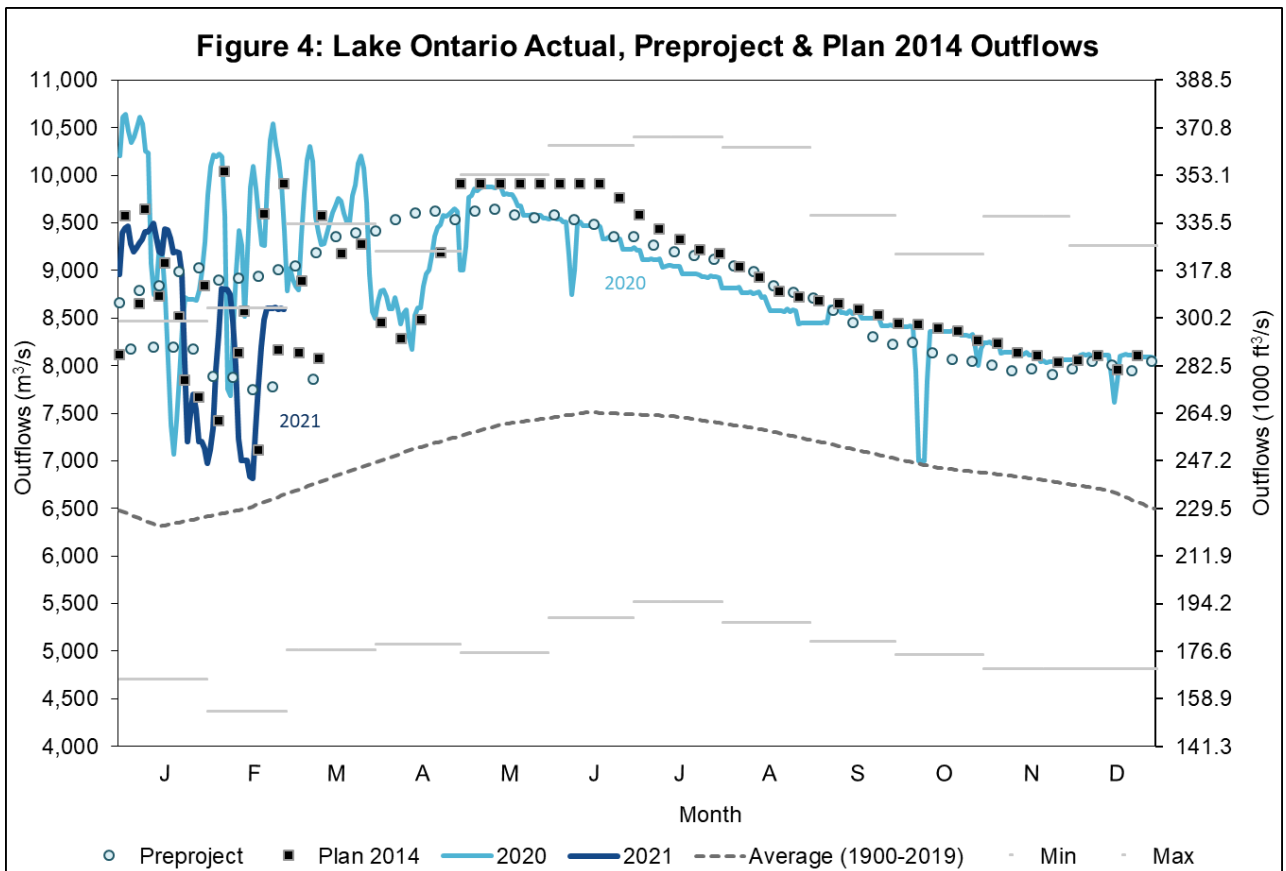
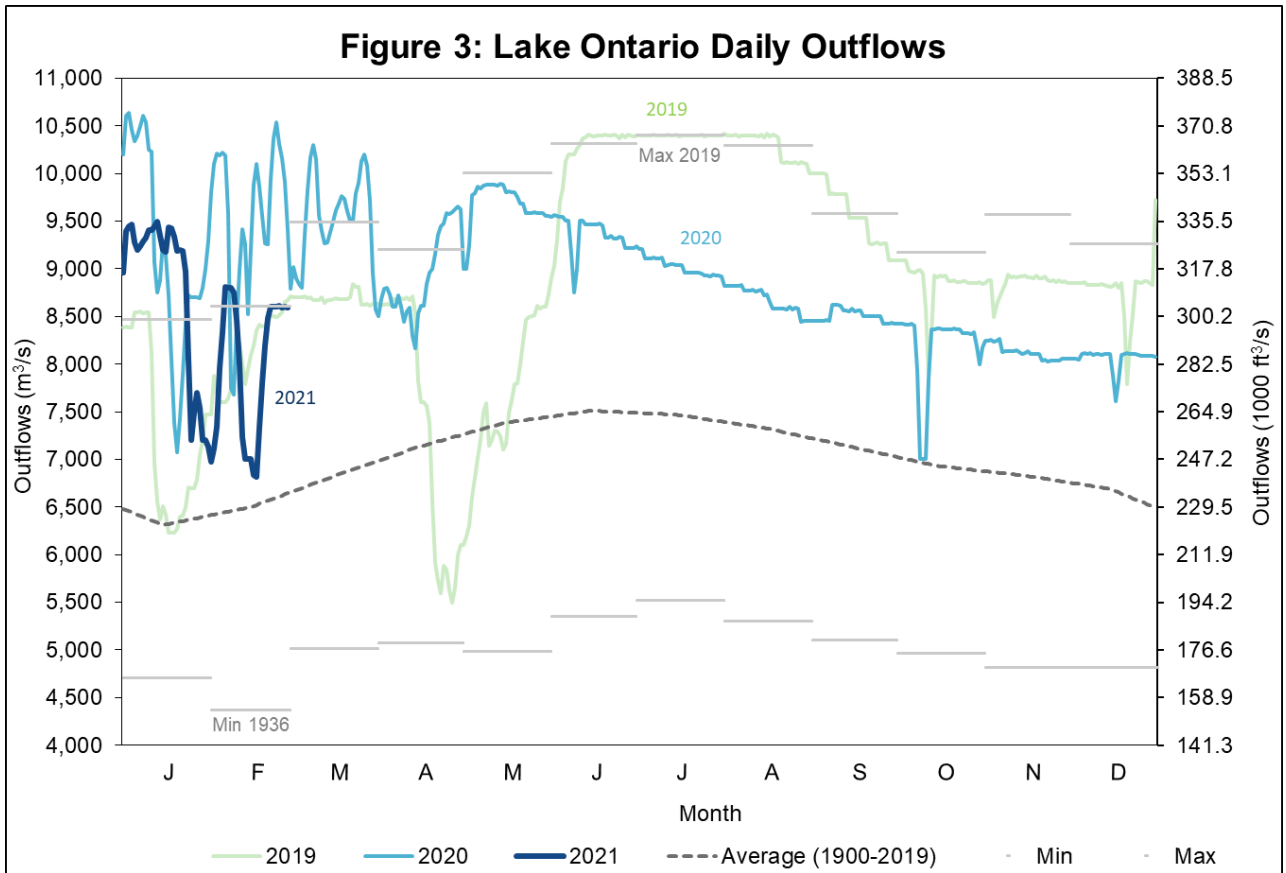
1. US Co-Chair
2. US Alternate Chair
3. Canadian Co-Chair
4. Effective 1 December 2020, Interim Advisory Group Members

**Figure 1: Monthly Net Total Supplies to Lake Ontario**

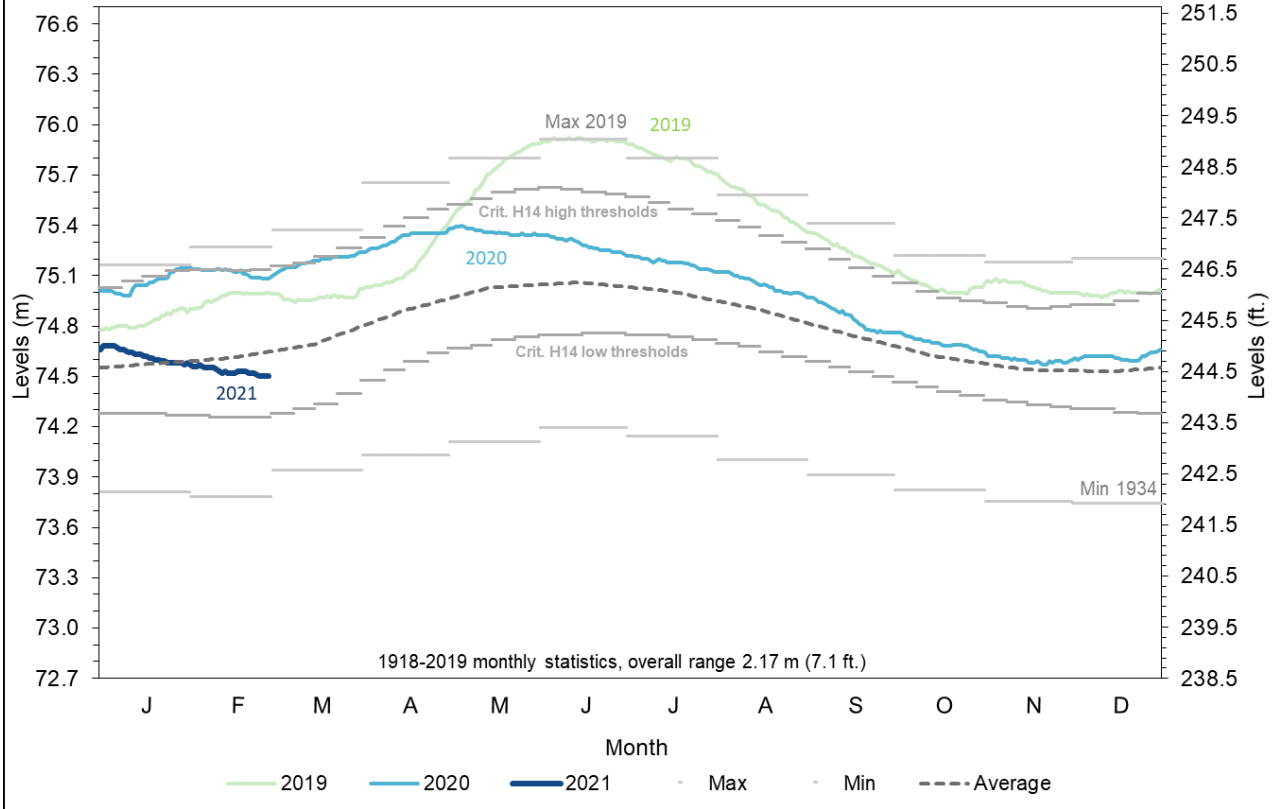


**Figure 2: Daily Ottawa River Flow at Carillon**

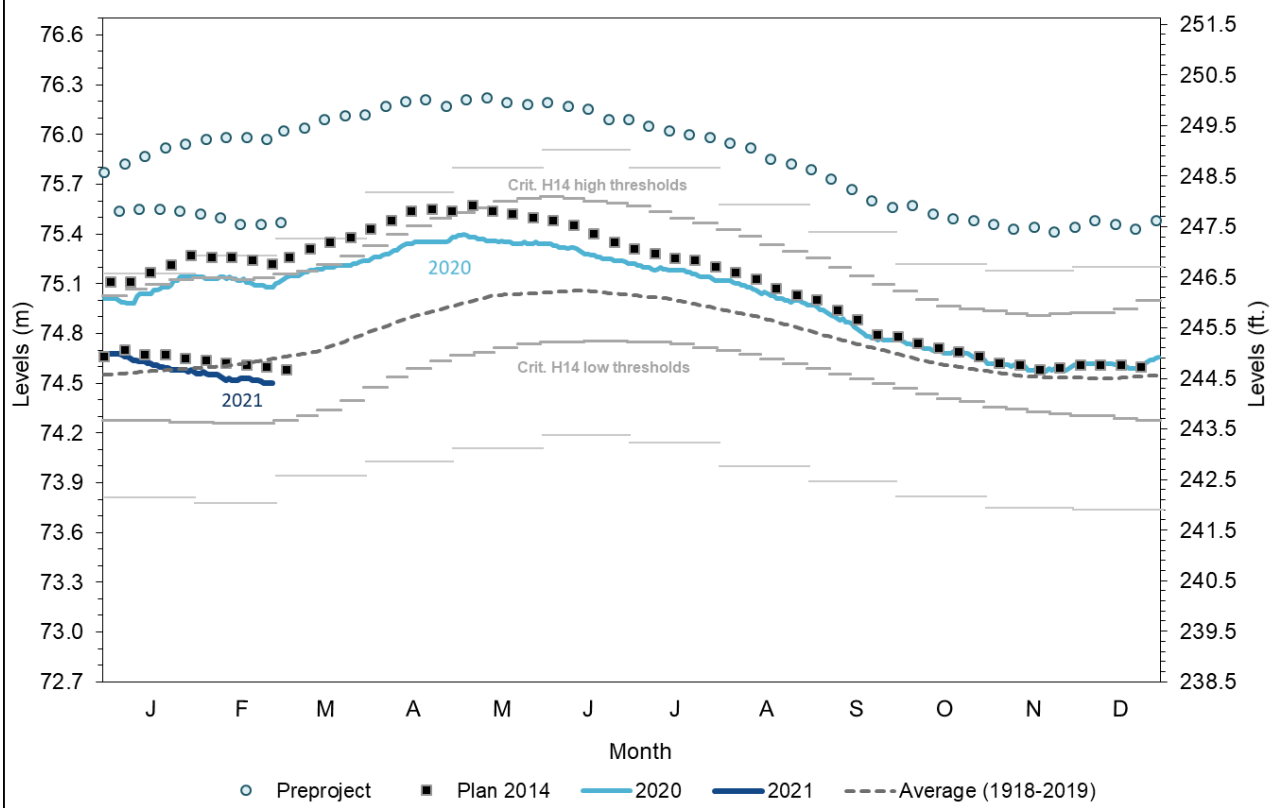




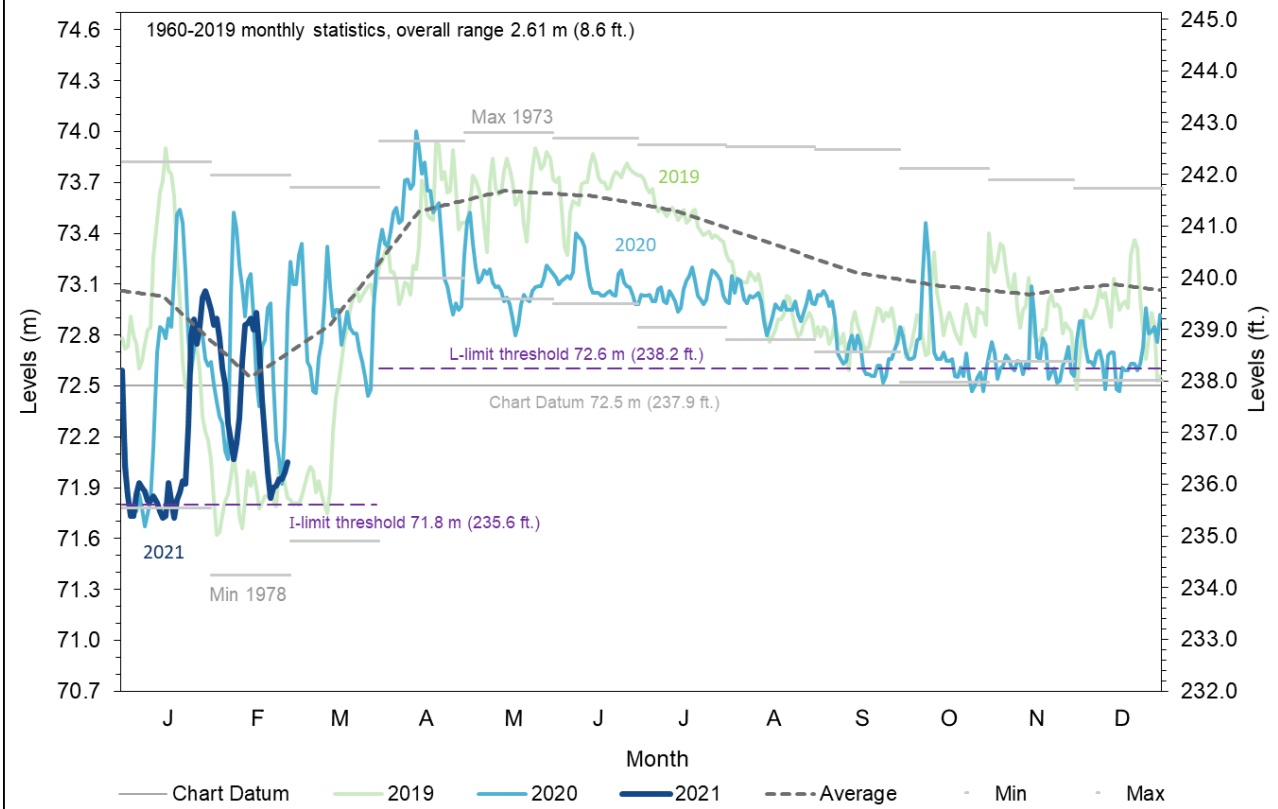
**Figure 5: Daily Lake Ontario Water Levels**



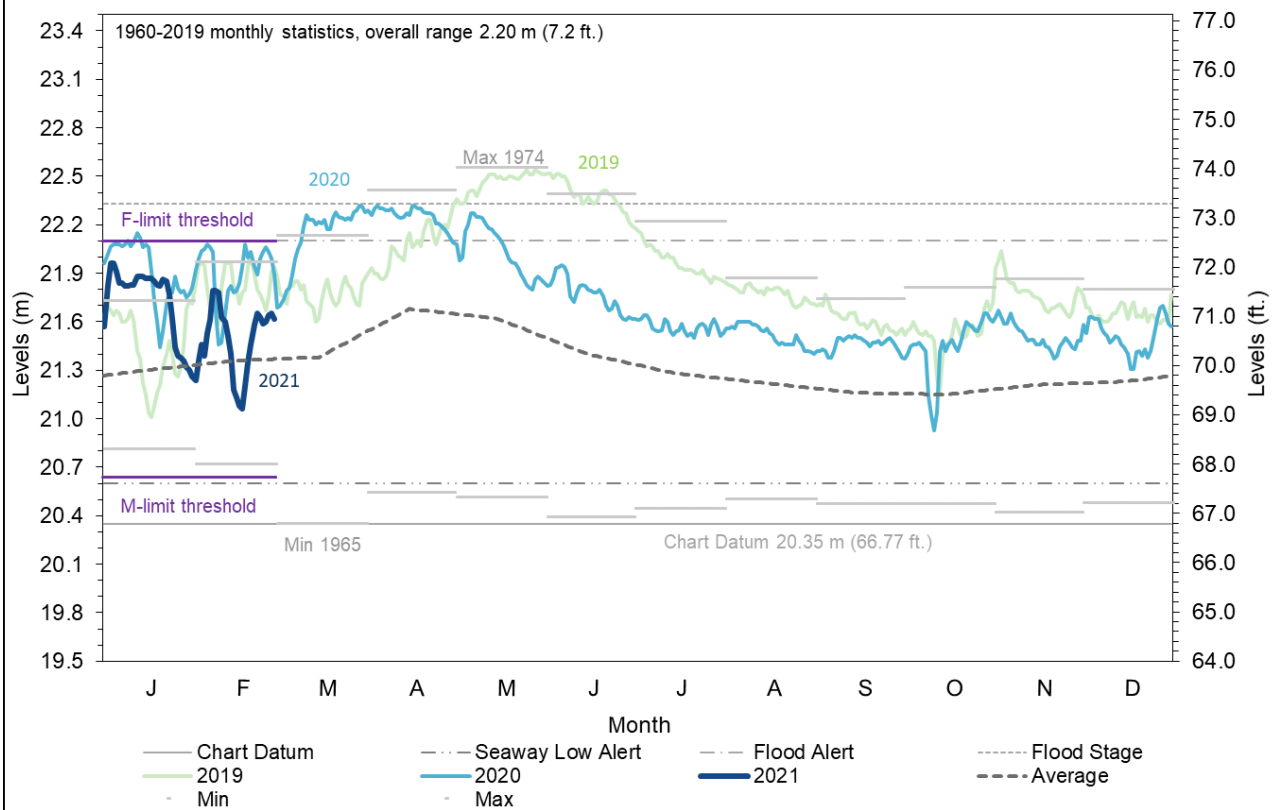
**Figure 6: Lake Ontario Actual, Preproject & Plan 2014 Levels**



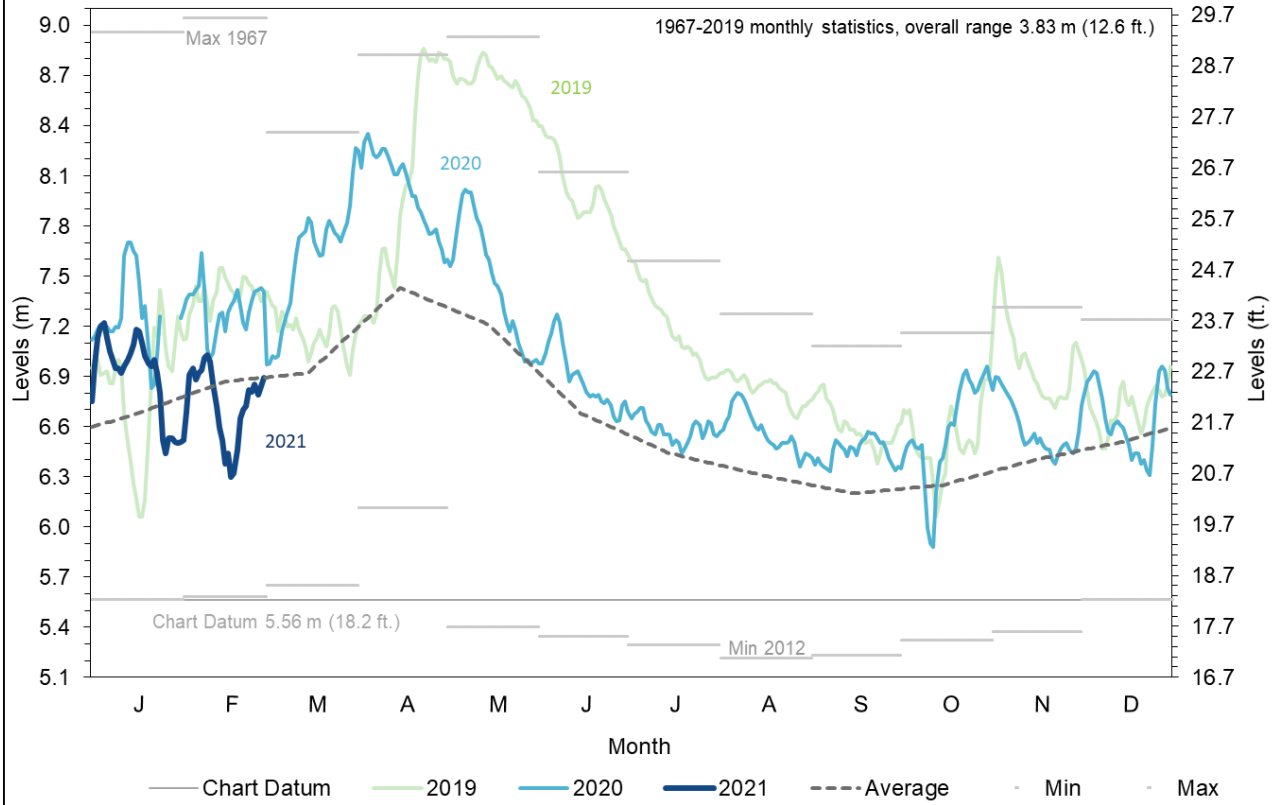
**Figure 7: Daily Lake St. Lawrence Levels at Long Sault Dam**



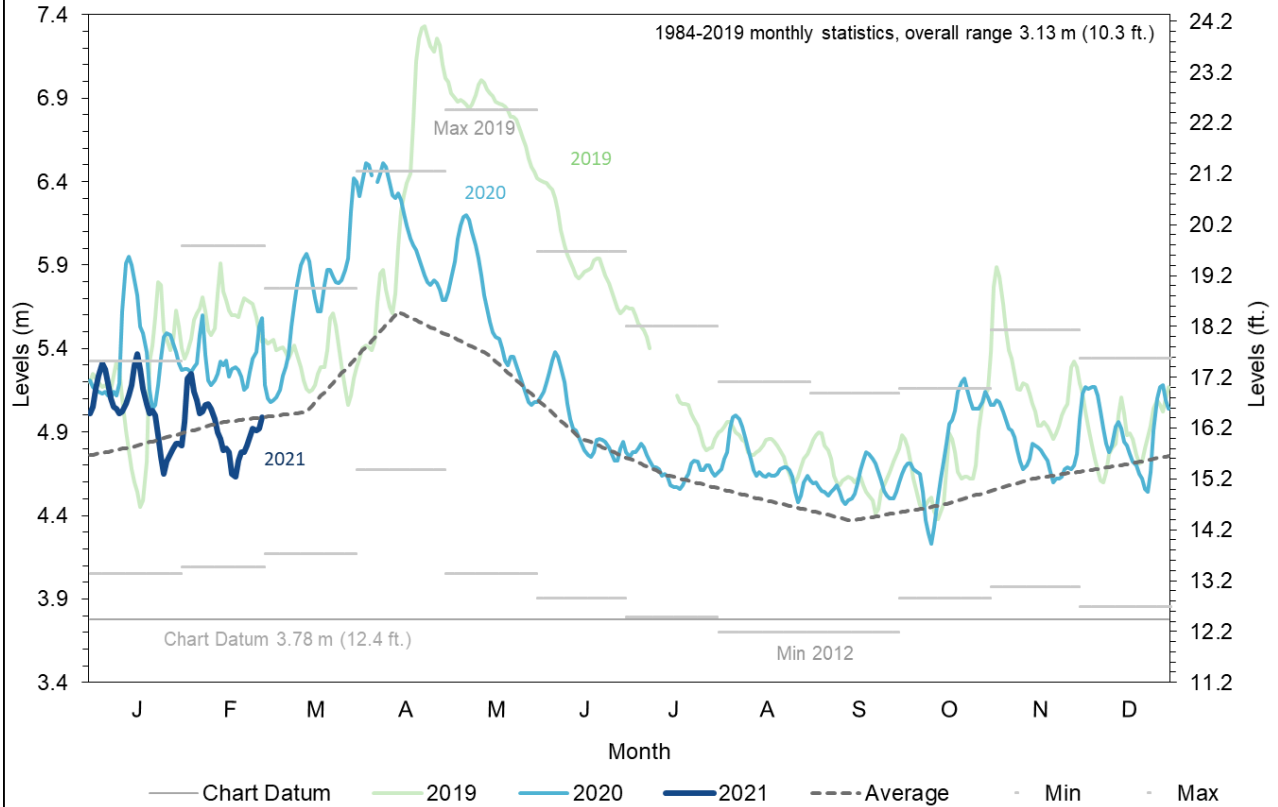
**Figure 8: Daily Lake St. Louis Levels at Pointe-Claire**



**Figure 9: Daily Port of Montreal Levels at Jetty #1**



**Figure 10: Daily Sorel Water Levels**



## APPENDIX A: ADDITIONAL OUTREACH ACTIVITIES

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The Communications Committee held four meetings via teleconference. A smaller sub-section of the committee met weekly to discuss pressing communications issues. The Committee continued to engage in initiatives and develop products to accomplish five strategic communication goals:

- increase general public awareness of the IJC and the Board;
- communicate accurately and in a timely fashion the actions of the Board and the reason for those actions;
- explain how natural factors and regulation affect water levels and flows;
- increase understanding of the necessity of and need to prepare for fluctuations in levels and flows; and
- consistently seek out, consider and respond to the views and concerns of all stakeholders.

Four media releases were published, distributed and posted on the Board's website. Regular operations briefs and weekly conditions updates in the form of infographics were provided on the Board's Facebook pages.

Board Members, Secretaries and Regulation Representatives provided a number of interviews with a wide variety of news agencies in the US and Canada throughout the reporting period. Interviews were provided to print, radio and TV agencies, and generally focused on what regulatory strategies the Board was implementing and the conditions observed throughout the system. Some of the agencies that conducted interviews with Board Associates were: Spectrum News, North County Public Radio, WHAM TV in Rochester, the Palladium Times, and the Lockport Journal, the Brockville Recorder & Times and the Cornwall Standard-Freeholder.

The IJC contracted with ECO Strategy and Oracle Poll to update the committee's five-year outreach and engagement strategy. To this end, Oracle Poll developed and implemented a telephonic questionnaire and 2000 phone surveys were conducted, followed by several dozen one-on-one intensive interviews with lead liaisons of multiple key stakeholder groups and government agencies throughout the system. The results of these efforts will help inform the updated strategy.

A professional videographer from US Army Corps of Engineers headquarters is leading the production of six short, informative videos on topics related to the Boards operations that will be featured on the Board's website in the near future.

In addition to all the media engagement, Board members and representatives were very busy with personal engagement. Dozens of email replies were sent to concerned individuals through the Board's webpage contact form. These responses were often crafted with the intent to dispel misinformation about the effects of regulation on the system and provide explanations for the various flow changes throughout the reporting period.

As part of the GLAM Committee's expedited review of Plan 2014, they contracted with a communications specialist from USACE-Buffalo District to coordinate a series of meetings with municipal officials from counties and municipalities along Lake Ontario and the upper St. Lawrence River. The goal of this initiative is two-fold: to collect as much information as these entities have available on the various impacts that their communities observed in 2019 and to communicate to these officials the causes of the high water event in 2019 and provide information on Plan 2014 and the regulation strategies the Board implemented



from summer of 2019 through the summer of 2020. Six meetings were held with representatives from all six US counties along Lake Ontario and the St. Lawrence River. These meetings were initiated in January 2020, but were put on pause last March due to the spread of COVID-19. The remaining meetings were held virtually. A similar effort to meet with municipal staff was held on the Canadian shoreline. With COVID-19 limitations, all the Canadian sessions were held virtually. A webinar and three meetings were held with municipal representatives from Quebec. In Ontario, an introductory webinar was also held with municipal representatives along with ten smaller virtual workshops grouping municipalities by their location along the shoreline. The GLAM Committee is initiating a separate effort to engage directly with First Nations and Tribal representatives.