

International Lake Ontario-St. Lawrence River Board  
 Questions and Answers from the June 2021 Virtual Public Meeting

| Question Details |  |  |
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| #                | Question   | Answer   |
| 1                | Why was so much water released in Fall/Winter 2020/2021 when the chances of flooding in Spring 2021 were so low? | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |
| 2                | What can be done to raise the water level in the least amount of time possible without endangering ship traffic? | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |
| 3                | If there is an International governing committee for Lake Ontario, is there an equivalent body for Lake Erie?    | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |

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| 4 | <p>on parle toujours de mother nature. A quel point pourrions nous utiliser l'eau des quatre autres grands lacs ? pourquoi ne pas utiliser cette grande quantité d'eau ?</p> | <p>Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a>.</p> |
| 5 | <p>You say the other lakes are slower to respond but Ontario is the only one regulated? Why does Lake Ontario see these extreme highs and lows when other do not?</p>        | <p>Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a>.</p> |
| 6 | <p>How can the treaty be changed? It's old.</p>  | <p>Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a>.</p> |

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| 7 | <p>Is Moses-Saunders dam allowed to peak and pond the flow, causing Lake St. Lawrence to go up and down daily? If so, are there limits?</p>  | <p>Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a>.</p> |
| 8 | <p>Despite clear indications of mild conditions with little snow pack and ice in combination with lower than normal precipitation, the outflows continued well above the NBS from end of 2020 into April 2021. What is the rationale for this strategy? Secondly, what are the plans going forwards throughout 2021?</p> | <p>Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a>.</p> |

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| 9  | Why is Lake Ontario the only great lake below long term average?  | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |
| 10 | Is the water level on the lower St. Lawrence River the lowest it will be this summer, or will it likely get lower? Is there any way to raise the levels that have not been tried? | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |
| 11 | With dry conditions in place. You have room to reduce outflows without impacting Lake St. Louis etc. Why aren't you doing it?   | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |

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| 12 | What type of legislation, both international, national, and regional, regulates this board? Can this be changed to include businesses and recreational boaters, and land owners? | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |
| 13 | In previous years outflows in early to mid April were lowered to lowest levels for a time. Why was that not done this year?  | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |
| 14 | In 2017 shipping was halted for a period of time. Why not drop outflows to 190,000 cfs. for a period of time to restore lake levels?   | Answered during virtual meeting. Video recordings of the meetings are available at <a href="https://ijc.org/en/loslrb/videos">https://ijc.org/en/loslrb/videos</a> . |

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| 15 | <p>Why do none of your weekly water level presentation include any readings within the St. Lawrence above the Iroquois dams? The 1000 island area is never properly represented.</p> | <p>The Board monitors water levels throughout the entire Great Lakes - St. Lawrence River system. For water levels in the Thousand Islands area, the Board monitors gauges at Kingston, Alexandria Bay, Brockville, and Ogdensburg and the data are available from Canadian Hydrographic Service (<a href="https://www.waterlevels.gc.ca/eng/find/zone/45">https://www.waterlevels.gc.ca/eng/find/zone/45</a>) and National Oceanic and Atmospheric Administration (<a href="https://tidesandcurrents.noaa.gov/stations.html?type=Water+Levels#Great%20Lakes%20-%20St.%20Lawrence%20River">https://tidesandcurrents.noaa.gov/stations.html?type=Water+Levels#Great%20Lakes%20-%20St.%20Lawrence%20River</a>).</p> |
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| 16 | <p>Why did you let this low water level happen? Where you trying to out guess mother nature? This is the lowest water level ever. I do not anticipate the water level will ever reach average water levels this season. Am I correct? Are you planning on letting water out this Fall like you usually have in the past. If so this will make the River even lower than ever.</p> | <p>The low levels throughout the Lake Ontario – St. Lawrence River system this year were caused by the abnormally dry conditions.</p> <p>We don't know yet if water levels will reach long-term seasonal average values this season, because the weather hasn't happened yet! We will have to wait and see whether the rest of the year is wet or dry. The latest projections indicate that it is possible that water levels of Lake Ontario and the Thousand Islands Region may reach long-term average values this fall:<br/><a href="https://ijc.org/en/loslrb/watershed/forecasts">https://ijc.org/en/loslrb/watershed/forecasts</a></p> <p>The Board expects to set Lake Ontario outflows in accordance with those prescribed by Plan 2014 this fall. Outflows are generally expected to decrease as the level of Lake Ontario beings the seasonal decline.</p> |
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| 17 | <p>How much weight is added to when the water drops too low in Montreal? Will more outflow be made out of the Moses Saunders dam to prevent the water from getting too low at the port?</p>   | <p>During low water conditions on Lake Ontario, the Board is directed to "provide all possible relief to municipal water intakes, navigation and power purposes, upstream and downstream." During low water conditions, the Board discusses the reported impacts and uses the information available to reach the best decision available. There isn't a specific weight given to any particular location.</p> <p>If the water drops to critically low levels in Montreal, there is a limit in Plan 2014 called the "M Limit" that would be followed to balance low water levels upstream (Lake Ontario) and downstream (lower St. Lawrence River). While the level of Lake Ontario is above 74.20 m (IGLD 1985), the Board would adjust the outflow to maintain the level of Lake St. Louis at Pointe Claire at or above 20.64 m (IGLD 1985) (<a href="https://ijc.org/sites/default/files/IJC_LOSR_EN_Web.pdf">https://ijc.org/sites/default/files/IJC_LOSR_EN_Web.pdf</a>).</p> <p>The Board may also choose to provide assistance to commercial vessels arriving to the Port of Montreal due to unanticipated low water levels by authorizing a temporary minor flow increase (<a href="https://ijc.org/en/loslrb/who/directives/deviations">https://ijc.org/en/loslrb/who/directives/deviations</a>).</p> |
| 18 | <p>Why are you using the Lake St. Lawrence like a toilet bowl as we are either dry or flooded weekly. 2 years in a row you drained the Lake section of the river dry killing everything that lived there as they were left in the mud or water puddles to freeze. The water level was so low this</p> | <p>As we noted in the presentation, water levels are significantly affected in Lake St. Lawrence by outflow changes at Moses-Saunders Dam (<a href="https://ijc.org/en/loslrb/lake-st-lawrence">https://ijc.org/en/loslrb/lake-st-lawrence</a>). When Lake Ontario water levels are high, outflows are generally high, and this corresponds to low levels on Lake St. Lawrence. This has been true since the Dam and the Seaway were constructed. Significant water level fluctuations in Lake St. Lawrence have always occurred and will continue to occur. These fluctuations will occur under the extreme naturally wet and dry periods we've recently seen regardless of the regulation plan in place. Analysis done after the 2017 high water event indicated that water levels would have been within a few centimeters of observed levels under the old regulation plan. A report on this can be found here: <a href="https://www.ijc.org/en/loslrb/observed-conditions-regulated-outflows-2017">https://www.ijc.org/en/loslrb/observed-conditions-regulated-outflows-2017</a></p>   |

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|    | <p>spring most fish could not even access their spawning areas. Always the same response as Rain, Snow, Wind or Climate Change and yet it worked fine for over 57 years until Plan 2014 was implemented.</p> |   |
| 19 | <p>Based on this years drought conditions, what is the potential impact to the shipping channels and any ship restrictions?</p>  | <p>Shipping restrictions in the Seaway are set by the Great Lakes St. Lawrence Seaway Development Corporation (<a href="https://www.seaway.dot.gov">https://www.seaway.dot.gov</a>) and the St. Lawrence Seaway Management Corporation (<a href="https://greatlakes-seaway.com">https://greatlakes-seaway.com</a>), not by the Board or IJC. In general, most vessels are able to adapt and are still able to transit the system by loading less cargo when water levels are expected to be low. Speed restrictions may also be imposed to ensure safe operations at known "low spots" in the shipping channels. These factors have the potential to make shipping operations less efficient.</p> |
| 20 | <p>Is it correct to assume the water level above the dam, cannot be raised because that requires slowing the</p>   | <p>Yes, essentially this is true. The Board reduced outflows by 200 m<sup>3</sup>/s in June and July of 2021 and this had the effect of raising water levels upstream of the Moses-Saunders Dam (on Lake St. Lawrence) by approximately 15 cm (6 in). Water levels downstream of the Moses-Saunders Dam (on Lake St. Louis in the Montreal area) were lowered by approximately 10 cm (4 in). Additional outflow reductions would have further raised water levels upstream and at the same time would have further lowered water levels downstream, which may have been detrimental to commercial shipping operations.</p>  |

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|           | <p>outflow dramatically. If that were done, there would not be enough water for shipping after the dam. Is this correct, albeit a simple explanation?</p>   |  |
| <p>21</p> | <p>Is the Board satisfied that there are still an adequate number of climate stations with accurate (no missing data) precipitation records to allow departure from Climate Normal monthly amounts to be determined for the Canadian Lake Ontario watersheds ? - and if not is any representation being made to</p> | <p>As well as using climate stations, the precipitation around the Lake Ontario watersheds is also estimated using weather models where no stations exist. These models are constantly being validated and the Board is confident that the amount of precipitation in the basin is being properly estimated.</p> |

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|    | restore an adequate climate station network ?  |  |
| 22 | The plan is a mistake. The summer of 2016 before the plan had similar drought conditions and was over 2ft higher   | Although the summer of 2016 was dry over the southern portions of the Great Lakes basin, the drought only lasted for a few months and was not as severe as the most recent situation in 2021. Dry weather conditions were experienced from June of 2020 until May of 2021 in the most recent drought throughout the entire basin.  |
| 23 | Does the outflow at the Moses-Saunders Dam affect the velocity of flow in the Niagara River?   | Niagara Falls is so great that the water flowing over the falls and down into Lake Ontario is not affected by water levels on Lake Ontario or the operation of the Moses-Saunders Dam. The amount of water leaving Lake Erie into the Niagara River is based on the natural level of Lake Erie, and the local wind conditions that may blow additional water down the Niagara River. The higher Lake Erie is, the higher the flow down river. Lake Erie is much higher in elevation than Lake Ontario and water must flow over Niagara Falls to drop 50 m (150 ft) into Lake Ontario. This is a massive drop, and it is therefore not physically possible for Lake Ontario to affect water levels anywhere above Niagara Falls at all. |
| 24 | Why is the Lake St. Lawrence water levels experiencing so much fluctuation in water levels when Lake St. Francis levels very rarely fluctuate more than a few inches and yet | <p>Lake St. Lawrence, as the forebay to the Moses-Saunders facility, is very sensitive to changes in outflows (<a href="https://ijc.org/en/loslrb/lake-st-lawrence">https://ijc.org/en/loslrb/lake-st-lawrence</a>).</p> <p>Lake St. Francis water levels fluctuate within a much narrower range of roughly 30 cm (12 in) because the water that enters Lake St. Francis from the Moses-Saunders Dam is essentially released by the Hydro-Quebec facilities (Beauharnois and Coteau-Les Cedres) as soon as it arrives. The Hydro-Quebec facilities are operated as "run-of-river" facilities and there is very little storage capacity.</p>  |

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|    | the have to deal with all the water released from the Moses-Saunders Dam at Cornwall   |  |
| 25 | <p>Why do we continue to draw down the water levels so quickly at the end of August? Why can't this draw down be done later in the autumn to extend boating season?</p>  | <p>Water levels on Lake Ontario decrease naturally during July and August because there is usually less precipitation in the late summer months, and with warmer summer water temperatures, evaporation increases. Both of these natural forces combine to reduce the lake level through the summer and into the fall. For more information:<br/> <a href="https://www.lre.usace.army.mil/Portals/69/docs/GreatLakesInfo/docs/UpdateArticles/update200.pdf">https://www.lre.usace.army.mil/Portals/69/docs/GreatLakesInfo/docs/UpdateArticles/update200.pdf</a></p>  |
| 26 | <p>Canadian Coast Guard reports water levels at or below Chart Data for Montreal and further east. At what point does this affect shipping? I recall earlier this year that Lake Ontario outflows were increased</p> | <p>The point when shipping becomes impacted depends on a variety of factors including location, vessel type, and draft. In general, most vessels are able to adapt and are still able to transit the system by loading less cargo when water levels are expected to be low. Canadian Coast Guard provides water level forecasts for Montreal and further east to assist the commercial shipping industry in planning of operations (<a href="https://www.marinfo.gc.ca/en/Niveaux/Bulletin.php">https://www.marinfo.gc.ca/en/Niveaux/Bulletin.php</a>). As mentioned, the Board occasionally also provides assistance to commercial vessels due to unanticipated low levels by authorizing a temporary minor flow deviation (<a href="https://ijc.org/en/loslrb/who/directives/deviations">https://ijc.org/en/loslrb/who/directives/deviations</a>). There is also a rule built into Regulation Plan 2014 called the "M Limit" which is designed to balance low levels upstream (Lake Ontario) and downstream (lower St. Lawrence River). While the level of Lake Ontario is above 74.20 m (IGLD 1985), the Board would adjust the outflow to maintain the level of Lake St. Louis at Pointe Claire at or above approximately 20.64 m (IGLD 1985) (<a href="https://ijc.org/sites/default/files/IJC_LOSR_EN_Web.pdf">https://ijc.org/sites/default/files/IJC_LOSR_EN_Web.pdf</a>).</p> |

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|    | <p>slightly to allow an incoming ship sufficient lower river water levels to reach Montreal, but lower river levels now are even lower now than then. At what point does shipping get impacted, and at what point will flows have to increase again to maintain lower St. Lawrence river levels?</p> |  |
| 27 | <p>Lake Ontario receives approximately 80% of all inflows from upper great lakes. If the upper Great Lakes remain above normal, despite precipitation,</p>   | <p>All the lakes have declined much more than their historical average over the last year as a result of the dry conditions, however the upper lakes started last year at much higher (and even historical high) levels. The recent dry conditions have been more severe in the lower part of the Great Lakes basin, thus affecting Lake Ontario more. Inland lakes are also at low levels compared to their averages. There is no way to transfer water from the upper lakes to Lake Ontario apart from what already flows naturally through the Niagara River and the Welland Canal.</p> |

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|    | <p>why is Lake Ontario still going down while the upper Lakes remain high? All inland lakes north of Lake Ontario are as normal. I am a farmer near the north shore of Lake Ontario and I know we are dry. But the upper Great Lakes have sufficient reserves to support Lake Ontario.</p> |   |
| 28 | <p>The water levels shown on IJC graphs have maximum, minimum, average, and current water levels. For Lake Ontario, for example, is there an 'optimum' water level?</p>  | <p>There is no "optimum" water level for Lake Ontario. "Optimum" is values-driven, and each person and stakeholder group will have different water level preferences. We show maximum, minimum, average and current water levels because those are measurable and quantifiable (<a href="https://ijc.org/en/loslr/watershed/water-levels">https://ijc.org/en/loslr/watershed/water-levels</a>).</p> |

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| 29 | <p>Will low water levels on Lake St. Lawrence impact municipal water intakes?</p>   | <p>Municipal water intakes are not expected to be impacted by low water levels in 2021. Water levels on Lake St. Lawrence are monitored closely and there are specific rules in Plan 2014 designed to prevent impacts to municipal water intakes. For example, in the winter, the I Limit prevents the Lake St. Lawrence water level (at Long Sault Dam) from falling lower than 71.8 m (235.6 ft).</p>   |
| 30 | <p>When are you going to finally admit that Plan 2014 does not work and look at changing to a Plan that does work and keeps a fairly continuous level on the St. Lawrence River</p>                                   | <p>Water levels on the St. Lawrence River will never be able to be stabilized under any regulation plan and will always be affected by outflow adjustments. Potential improvements to the regulation plan are always under consideration and are currently being explored by the Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee as part of the expedited review of Plan 2014 (<a href="https://www.ijc.org/en/glam/expedited-review">https://www.ijc.org/en/glam/expedited-review</a>).</p>  |
| 31 | <p>Please show a comparison in the Lake level for April 2020 vs April 2021. This should show a significant difference and would indicate drought conditions well ahead of the timeline shown in the presentation.</p> | <p>The level of Lake Ontario ranged from 75.24 m to 75.36 m (IGLD 1985) in April 2020 and the monthly mean level was 75.32 m. The level ranged from 74.56 m to 74.68 m in April 2021 and the monthly mean level was 74.62 m. Daily mean levels for the past three years can also be viewed on the interactive plot here: <a href="https://ijc.org/en/loslrb/watershed/water-levels">https://ijc.org/en/loslrb/watershed/water-levels</a></p> <p>Local supply conditions to Lake Ontario were below average through much of the summer and fall of 2020 and lake levels generally declined after reaching a peak in early May 2020. The Board's presentation highlighted the recent persistent and widespread drought conditions as of March 2021, but historical snapshots of the North American drought monitor back to 2002 can be viewed here: <a href="https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/maps">https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/maps</a></p> |

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Thank you for taking the time to address our concerns. Given the extreme high water levels that occurred in 2017 and 2019, how common (historically) is it for basin precipitation to shift from extreme high to extreme low in such a short period of time? Is there concern that this volatility could be a result of climate change? Is the current regulation plan the best fit for the future should these trends become a new normal?

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It is very rare for there to be such extremes in such a short period of time. However, when we look at the results of climate change studies looking at future climates, these shifts are projected to happen more often. This would result in both higher high water levels and lower low water levels than we have seen in the past. Although we cannot definitively say that these recent extremes are a result of climate change, they certainly fit the projections of the future climate. As far as the regulation plan, one of the goals of the Phase 2 expedited review is to look at how Plan 2014 would handle the projected future climate conditions (<https://www.ijc.org/en/glam/expedited-review>).

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| 33 | Is my above question true? I heard it is all about what Montreal wants.   | The Board considers the impacts upstream and downstream when making regulatory decisions. As noted in the presentation water levels upstream and downstream are very low and the balance between these regions is carefully considered when setting regulation strategies.   |
| 34 | Please re-state the target lake levels of the Plan 2014 (in feet / in.)   | There are no specific lake levels targeted under Plan 2014. There are specific high and low water level thresholds that allow the Board to deviate from plan-prescribed flows. These thresholds change seasonally. For more information: <a href="https://ijc.org/en/loslrb/who/directives/deviations">https://ijc.org/en/loslrb/who/directives/deviations</a>                               |
| 35 | Essentially, what we are being told is we all suffer because of Montreal? How is that fair to New York State? If the IJC has no control why do we have a Board? | The interests of Montreal are not given greater weight than other geographic interests. Careful consideration of the benefits and negative impacts to all interests at upstream and downstream locations are done for all regulatory decisions.  |
| 36 | how come prior to plan 2014 we had dry spells, lack of rain, hot summers and we never had this problem before. Lake St. Lawrence always had                     | Lake St. Lawrence has been very close to the summer 2021 levels plenty of times in the past due to the factors you mention here. Similarly-low Lake St. Lawrence levels were observed in 2020, 2018, 1998 and 1997. For more information on recent Lake St. Lawrence levels: <a href="https://ijc.org/en/loslrb/watershed/water-levels">https://ijc.org/en/loslrb/watershed/water-levels</a> |

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|    | plenty of water? is it time to say plan 2014 is no good?   |   |
| 37 | <p>Municipalities regulate shoreline development based on historic flood plains and high water levels. Since plan 2014 was implemented, we have seen a wider range than before. How do we manage and set policy when the deviations are wider under plan 2014 than we experienced in the 70 years under plan 1958?</p> | <p>Water level fluctuations have indeed been extreme since 2017 when Plan 2014 was implemented. This is a result of the exceptional natural conditions observed across the Great Lakes-St. Lawrence River Basin in recent years and not a result of outflow regulation or Plan 2014. Municipalities should be prepared for larger fluctuations in the future as it would seem that the extremes are likely to occur more frequently and with more intensity than observed in the historical record.</p> |
| 38 | Why is more water not being let down into Lake Ontario   | <p>There is no regulatory mechanism to increase or decrease flows from the upper Great Lakes into Lake Ontario. Flows are naturally controlled in the Niagara River over the falls and by a natural rock ledge within the river.</p>  |

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|    | from the upper lakes?  |  |
| 39 | Does climate change modelling project extreme low water levels to be the norm into the future, or the higher water levels experienced in 2017 and 2019?  | The projections of lake level that come from the future climate simulations suggest that there will be periods of both higher and lower level extremes than we have seen in the past. Although we cannot definitively say that these recent extremes are a result of climate change, they certainly fit the projections of the future climate.   |
| 40 | You say you are benefiting ecosystems and this is not what is happening as you are killing off a whole aquatic ecosystem on the Lake St. Lawrence when you empty it overnight in the middle of January leaving everything left in mud and water puddles. Why are you | Lake St. Lawrence, as the forebay to the Moses-Saunders facility, is very sensitive to changes in outflows ( <a href="https://ijc.org/en/loslrb/lake-st-lawrence">https://ijc.org/en/loslrb/lake-st-lawrence</a> ). Water levels can fluctuate quite rapidly, but especially during the winter months when outflows need to be changed quite quickly in response to ice formation. Such winter operations are critical to maintain a stable ice cover and reduce the risk for an ice jam which could potentially lead to significant adverse impacts. However, these rapid winter fluctuations can also expose riverbed on Lake St. Lawrence and leave isolated pools with potential negative impacts to aquatic species. The Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee has recently worked with researchers at the River Institute in Cornwall, Ontario to better understand these potential aquatic ecosystem impacts. The work was preliminary but identified opportunities for additional work that can be undertaken to further understand how the rate and magnitude of winter water level fluctuations on Lake St. Lawrence might impact the aquatic ecosystem. The GLAM Committee hopes to pursue some of this work in its ongoing review of Plan 2014 and will inform the Board as new information becomes available. Here is a link to the report prepared by the River Institute in 2018: <a href="https://ijc.org/en/loslrb/assessment-and-public-outreach-low-water-level-impacts-fish-community-and-aquatic-habitat">https://ijc.org/en/loslrb/assessment-and-public-outreach-low-water-level-impacts-fish-community-and-aquatic-habitat</a> |

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|    | allowed to do this?  |  |
| 41 | In hindsight, would storing water on the Ottawa during freshet have helped Montreal Harbor now? I am aware that even if we could, this isn't a straightforward question to answer. | Hypothetically, yes, the Board could have reduced outflows to store water on Lake Ontario during the spring 2021 Ottawa River freshet while water levels downstream were near or above average. This could have resulted in slightly higher Lake Ontario levels, and therefore slightly higher Lake Ontario outflows, which may have meant slightly higher summer 2021 levels in the lower St. Lawrence River. The Board could have chosen to use that stored water to release additional outflow (above that prescribed by Plan 2014) later in the summer to mitigate the low levels downstream in the lower St. Lawrence in the Montreal area. |
| 42 | the treaty and rules indicate consideration of upstream and downstream impacts. I do not see that it says the weight given to those areas. Lake Ontario is being                   | The Board is required to consider the impacts of regulatory strategies on all interests throughout the system both upstream and downstream of the Dam on the St. Lawrence River. In early June there were reported impacts to downstream navigation interests, and there were no reports of impacts to commercial navigation interests on Lake Ontario or the upper St. Lawrence River. The Treaty and orders specify taking action to provide all possible relief to navigation interests, municipal and industrial water supplies, and hydropower.   |

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|    | <p>impacted tremendously, yet the emphasis seems to be on the downstream interests. You did not even mention the impact on the marinas and businesses here.</p> |  |
| 43 | <p>Wasn't increasing outflows on a 28% chance a bit premature? given the fact it was in JAN and FEB</p>   | <p>Given the fact we had observed historically record setting extreme precipitation in the springs of two of the last four years, a greater than 1 in 4 chance of flooding was enough cause to warrant action. Also, please keep in mind that the deviations only removed an extra 9.4 cm or 3.7 inches of water and this water was restored by May 1st.</p> |
| 44 | <p>Why are the actions taken based only on water level? Would it not be possible to build an analytical model by where all environmental factors are</p>        | <p>Plan 2014 takes into account a short term forecast that uses the current watershed conditions. The problem is that there are no reliable forecasts that go our further than 10 days.</p>  |

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being entered on a daily basis... rainfall, snowfall, temperatures, wind, hours of sunlight, etc. A mathematical model where real time data is being entered each day could predict proactive adjustments. Currently it seems all actions are reactive only. Please comment

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| 45 | <p>Are the power companies allowed to peak and pond at the Cornwall dam on a daily basis? If so, what are the limits?</p>                                       | <p>Yes, the hydropower companies have some flexibility to adjust flows to better match hydropower production with electricity demand. The hydropower companies can "peak" or flow more water during the higher electricity demand hours during the day and flow less water during lower demand periods at night. Likewise, they are also permitted to "pond" by passing less water on weekends and holidays when demand is lower, and more water on weekdays when demand is higher. Since these operations affect water levels upstream and downstream of the Moses-Saunders Dam, there are limits to when and how much the power companies can peak and pond and the Board oversees the operations ensure compliance with these limits. For example, during the navigation season, peaking operations may be conducted within a range of 850 m<sup>3</sup>/s above to 850 m<sup>3</sup>/s below the daily mean flow. Hour-to-hour variations in flow are limited to 570 m<sup>3</sup>/s. The maximum daily impact on water levels is approximately 28 cm (11 in) immediately upstream of the dam and 50 cm (20 in) immediately downstream of the dam. Further away from the dam, the impacts lessen.</p> |
| 46 | <p>From what I have heard, regulation is done at the Moses-Saunders Dam. What purpose do the gates at Iroquois serve to regulate upper St. Lawrence levels?</p> | <p>The gates at Iroquois Dam are typically kept open and raised above the water line. This is the case currently (summer 2021) while Lake St. Lawrence water levels are low. When Lake St. Lawrence water levels are high, the gates at Iroquois Dam can be partially lowered into the water, which helps to reduce water levels between Iroquois and Cornwall. If you'd like to learn more about Iroquois Dam, we invite you to watch a short video on the Board's website (Module 4): <a href="https://ijc.org/en/loslrb/library/modules">https://ijc.org/en/loslrb/library/modules</a></p>   |

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| 47  | <p>Why not just let Mother Nature take its course and stop trying to control it.</p>   | <p>The Dam and Seaway were constructed as an investment in the economies of both countries to provide the benefits of hydropower production, commercial navigation and more dependable supplies of municipal and industrial water users. The IJC's Order and Directives require the dam be operated to provide these benefits within the natural constraints provided by Mother Nature. When weather and water supply conditions are favorable, water levels will generally be in a desirable range but when conditions are extreme, desirable water levels are often not attainable. In short, despite regulatory operations, Mother Nature really is in control.</p>   |
| 48  | <p>Why does Lake St Louie control the amount of water released or held back as I run a Macro on your weekly level reports and it seems if Lake St Louie is low you raise the outflows and yet if there levels get high you cut outflows at Cornwall and on the Ottawa River and that has caused flooding in past yrs</p> | <p>During high water conditions downstream it is true that the Board often reduces outflows to help prevent significant flooding impacts. This is especially common in the spring when high outflows from the Ottawa River are contributing to high water conditions downstream. Part of the agreement between governments for approving construction of Moses-Saunders Dam and the Seaway was that operations of the Dam could at no times make flooding worse downstream than would occur under natural conditions without the dam in place. At times, flows are reduced to prevent this from happening. However, some regulatory decisions have the opposite effect, where benefits are seen for Lake Ontario and Lake St. Lawrence while increasing adverse effects for interests downstream. The summer 2021 low flow deviation strategy is a good example of this. The flow reductions have the effect of raising water levels upstream on Lake St. Lawrence and Lake Ontario while causing water level reductions on Lake St. Louis during a time when water levels are already very low.</p> |
| 48a | <p><i>To clearly answer the question submitted, it</i></p>   | <p>The gates of Iroquois Dam are almost always kept open and raised above the water line. It can be hard to tell unless you are right up next to the gates, but we can assure you that all of the gates are open and have been since November 2020. Late last fall, several gates were temporarily closed to allow divers to inspect the structure. Remember that there are two gates raised higher than the</p>   |

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|    | <p><i>was important to separate the question into two parts:</i><br/>         As you were claiming the Iroquois Dam was fully open and I was sitting in the boat there and the gates were closed.</p> | <p>others to allow additional space underneath the gates to allow recreational boats to pass underneath. You can read more about all of the operations at Iroquois Dam in the Board’s semi-annual reports: <a href="https://ijc.org/en/loslrb/library/publications">https://ijc.org/en/loslrb/library/publications</a>.</p> <p>We also have a short video here (Module 4): <a href="https://ijc.org/en/loslrb/library/modules">https://ijc.org/en/loslrb/library/modules</a></p>  |
| 49 | <p>Follow up... The current trigger points to take action are too late and are proving to not be effective, what is being considered to move to a more proactive plan.</p>                            | <p>The current trigger points are being examined under the second phase of the expedited review being done by the Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee (<a href="https://www.ijc.org/en/glam/expedited-review">https://www.ijc.org/en/glam/expedited-review</a>).</p>  |
| 50 | <p>Plan 2014 seems to only be concerned with Montreal, Lake St. Lawrence, And Lake Louis. You then treat Lake Ontario like no one is impacted</p>   | <p>Plan 2014 looks at impacts throughout the system and sets flows in accordance with causing minimal adverse effects throughout the system. A good example of how the Board sometimes takes specific action to benefit Lake Ontario and the upper St. Lawrence River are the summer 2021 low water deviations. The flow reductions have the effect of raising levels on Lake Ontario and Lake St. Lawrence while causing water level reductions downstream on Lake St. Louis during drought conditions that have caused low water levels. Regulatory decisions are made with the big picture in mind of how they will affect different interests throughout the entire geographic area. It is important to remember that outflow changes also have a much greater impact on water levels within the St. Lawrence River than they do on water levels on Lake Ontario. In order to affect meaningful water level changes on Lake Ontario the corresponding impacts to Lake St. Lawrence and Lake St. Louis</p> |

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|           | <p>by your decisions, and it is an endless supply. Why do Lake Ontario residents seem to have no voice in these matters? You have data from at least 60 years, and more technology than any time in history why are you doing such a bad job?</p> | <p>would be of much greater magnitude and much more immediate. When considering the balancing of impacts throughout the system this fact must be taken into account.</p>  |
| <p>51</p> | <p>Are you serious when you say evaporation is a big impact on water levels as it sure did not do that when you had everyone flooded for 4 years</p>  | <p>Evaporation does, at times, have a significant impact on water levels and it varies depending on temperature difference between the air and water, relative humidity, and other factors. In the very wet years of 2017 and 2019, it did not play as significant a role compared to the record setting precipitation we observed over the system. For more information on the influence of evaporation: <a href="https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Information-2/Basin-Conditions/">https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Information-2/Basin-Conditions/</a></p> |
| <p>52</p> | <p>Peut-on alors s'inquiéter de sécheresse éventuelle au</p>  | <p>Les conditions de sécheresse qui ont touché le bassin versant des Grands Lacs et du fleuve Saint-Laurent ce printemps persistent et se poursuivront durant l'été. Les cartes de surveillance de la sécheresse pour l'Amérique du Nord font état de conditions allant « d'anormalement sèches » à « sécheresse modérée » pour la majeure partie du bassin, en amont (autour du lac Érié et du lac</p>   |

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|    | <p>niveau du bassin versant du lac Érié ?</p> <p>Can we then worry about possible drought in the Lake Erie watershed?</p>  | <p>Ontario) comme en aval (le long du fleuve Saint-Laurent) <a href="https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/maps">https://www.ncdc.noaa.gov/temp-and-precip/drought/nadm/maps</a>. Cela étant, le niveau d'eau du lac Érié devrait se maintenir au-dessus de sa moyenne.</p>  |
| 53 | <p>Given the lack of success of Plan 2014, when will we repeal it and revert back to previous plan?</p>  | <p>It is important to note that water levels would be very close to what they have been over the last several years under the old regulation plan or any other plan. Regulation of outflows does not have the ability to counter the overwhelming influence of the natural extremes we have witnessed in the last few years. The Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee is currently investigating potential improvements to Plan 2014 under the expedited review process (<a href="https://www.ijc.org/en/glam/expedited-review">https://www.ijc.org/en/glam/expedited-review</a>), but any potential changes could not have prevent the flooding in 2017 or 2019 or the very low waters in 2018 and this year (2021).</p>  |
| 54 | <p>if 4in of water were not let out during the winter we would be 8in higher so yes it would made a difference. Jan and Feb are much to early to predict the chance of flooding.</p> | <p>The Board deviated and released additional outflow in January and February which resulted in the removal of 9.4 cm (3.7 in) of water from Lake Ontario (relative to what the level would have been if Regulation Plan 2014 was strictly followed). In March and April, this water was restored to the lake, as outflows were lower than those prescribed by Plan 2014. As of May 1st, the level of Lake Ontario was at the exact same level it would have been if the Board had not deviated over the winter. The Board estimates the chance of high or low water levels by projecting what water levels may occur if future water supplies are similar to what has been experienced in the past. The Board also takes short-term weather predictions into account. In January 2021, based on over 100 years of historical water supply scenarios, it was estimated that there was a 28% chance of extremely-high water levels, 52% of above-average water levels, 20% chance of below-average water levels and 0% chance of extremely-low water levels on Lake Ontario in 2021.</p> |

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| 55 | <p>You reported that the water levels in Lake Ontario were normal in April and May. However, I observed that the water levels were at least 20 inches below normal during that time. How do you explain this?</p> | <p>Our apologies if there was some confusion with how the water levels were reported in April and May. Lake Ontario water levels ranged from 21 to 37 cm (8 to 15 in) below long-term (1918-2020) seasonal averages in April and May 2021. Daily mean levels can also be viewed on the interactive plot here: <a href="https://ijc.org/en/loslrb/watershed/water-levels">https://ijc.org/en/loslrb/watershed/water-levels</a></p>  |
| 56 | <p>so the question with this is how is that relative weight determined and why don't the lake Ontario interests get equal or even greater weight given the relative number of people and businesses impacted?</p> | <p>The Board considers the benefits and impacts to all interests upstream and downstream as mandated in the IJC's Order (<a href="https://ijc.org/en/loslrb/who/orders">https://ijc.org/en/loslrb/who/orders</a>) and Directives (<a href="https://ijc.org/en/loslrb/who/directives/board">https://ijc.org/en/loslrb/who/directives/board</a> &amp; <a href="https://ijc.org/en/loslrb/who/directives/deviations">https://ijc.org/en/loslrb/who/directives/deviations</a>). Undue weight is not applied for any specific interest group or geographic location. It is important to remember that outflow changes also have a much greater impact on water levels within the St. Lawrence River than they do on water levels on Lake Ontario. In order to affect meaningful water level changes on Lake Ontario the corresponding impacts to Lake St. Lawrence and Lake St. Louis would be of much greater magnitude and much more immediate. When considering the balancing of impacts throughout the system this fact must be taken into account.</p> |

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| 57 | <p>you must address how the board will address the opposite of what we are experiencing now</p>  | <p>When you say the opposite of what we are experiencing now, we must assume you mean high water conditions that can cause flooding. In regards to high water years, the Board is also constrained in its ability to meaningfully affect water levels. There are multiple impacts of increasing and decreasing flows to provide relief to specific interests in different parts of the system. Under high water conditions the Board must regulate flows in a manner that will not make the flooding worse for any specific location of the system. For more information on the recent (2017 and 2019) high water events: <a href="https://ijc.org/en/loslrb/watershed/2017-and-2019-high-water-events">https://ijc.org/en/loslrb/watershed/2017-and-2019-high-water-events</a></p> |
| 58 | <p>How much of all of this is guided by the need to keep Montreal from flooding in its residential areas as water levels rise?</p>   | <p>Currently (in the summer 2021), we are not worried about flooding in any part of the system. But if we were under high water conditions, the Board evaluates severity of flooding impacts upstream and downstream and makes appropriate decisions to minimize the impacts upstream and downstream to the extent possible given Mother Nature's outsized influence on water levels.</p>   |
| 59 | <p>Is there not some point, where the water levels will curtail shipping on the St. Lawrence River and surely that is intolerable as an economic engine for this region?</p> | <p>Low water levels can most certainly impact the ability of commercial vessels to transit the system. The water that the Board stored on Lake Ontario in the summer of 2021 could be used to allow for potential relief to low water situations impacting commercial navigation later this summer or fall.</p>   |

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| 60 | Can the H14 be changed to allow better regulation of water levels? In other words it does not react in time for the extremes.  | The current Criterion H14 trigger points are being examined under the second phase of the expedited review being done by the Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee ( <a href="https://www.ijc.org/en/glam/expedited-review">https://www.ijc.org/en/glam/expedited-review</a> ). However, given the uncertainty of forecasts, it is not clear that alteration of the H14 thresholds would have the benefit that you are implying. Just because action could be taken sooner under altered H14 thresholds does not necessarily translate to benefits from earlier action. Actions taken this winter provide a good example. The outflow increases removed an extra 9.4 cm or 3.7 inches of water with respect to plan flows. Since drought conditions then set in, it proved that this action was unnecessary and therefore the Board ended this strategy in March and then reduced flows in April to restore the water.   |
| 61 | Did you learn anything from the high water years and high outflows with regards to shipping? If so what did you learn?   | There are always lessons to be learned when extreme conditions present themselves and records are set. One thing that was established is that with some extra safety measures in place for commercial navigation some of the flow limits within Plan 2014 can be pushed to some extent under certain conditions and at certain times of year. However, pushing those navigation limits within the plan also increases the potential risk of negative outcomes (e.g. groundings). Deviations from Plan limits must be carefully coordinated with the Navigation authorities to ensure that conditions within the system do not exceed safety limitations of the pilots ability to handle higher water velocities. The Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee is investigating if there can be any recommendations made for plan improvements given what was learned in 2017 and 2019 but it may be that some of the deviations applied in 2017 and 2019 may not be possible in future high water situations. |
| 62 | Please define “deep draft” needed for large cargo ships. Are we talking 20-30ft more than a smaller freighter? Is there a choice to anchor these cargo ships in deeper water | Ships wishing to transit the Seaway are limited to the published Seaway maximum draft or the maximum draft at the destination port, whichever is less. Provided water levels are adequate, the maximum permissible draft for vessels transiting the Seaway is 8.08m (26'6"). For commercial vessels equipped with a draft information system technology that maximum draft increases to 8.15 m (26'9").  |

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|    | to off load if the dams are closed to higher the 1000 Island water level?   |  |
| 63 | 28% chance of flooding is not very high. Why release more so soon?  | As we noted the risk of flooding was 28% but the risk of extreme low water was near 0%. Given that the years 2017 and 2019 had unprecedented spring precipitation the Board decided the risk was enough to warrant action. Again only 9.4 cm or 3.7 inches of extra water was removed from Lake Ontario during January and February and by May 1st water levels were back to where they would have been without taking these actions.  |
| 64 | If the water level is determined by nature, what roles do the human-made dams play in the process? How are decisions on how to regulate with them made? | Plan 2014 and the Board set outflows from the Moses-Saunders Dam with consideration of the current conditions upstream and downstream. Regulation of outflows has the effect of slightly changing water levels on Lake Ontario by a few centimeters or inches but it cannot affect significant water level changes on Lake Ontario to the magnitude of Mother Nature. As we have seen this year, the relatively quick change from a wet cycle to a very dry cycle caused Lake Ontario to go from well above average to very low levels. These natural factors (very wet conditions, then abnormally dry conditions) have a much larger effect than the very modest changes in water levels that outflow regulation could accomplish. Decisions on where to set outflows are made by accounting for the current levels upstream and downstream and evaluating the benefits and adverse effects of any particular regulation strategy to all interests upstream and downstream of the dam. For more information: <a href="https://ijc.org/en/loslrb/who/regulation">https://ijc.org/en/loslrb/who/regulation</a> |
| 65 | With better technology in place than 1909, why aren't the flows controlled by using historical data and keeping things at or within a threshold of 3    | Regulation of the outflow from Lake Ontario cannot keep lake levels within three inches of the long term average. The influence of mother nature far outweighs the ability to regulate water levels to such a narrow range of levels.  |

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|    | inches above average or 3 inches below average on Lake Ontario?   |   |
| 66 | Even though recreational boating is not included, clearly, from your report tonight, major shipping is impacted. What is being done to help this?   | Commercial navigation interests are of primary concern to the Board under low water conditions. As noted, the summer 2021 deviations to reduce outflows have the effect of storing extra water on Lake Ontario. This extra water can be held and then released if conditions downstream remain persistently dry and potentially cause issues for vessels entering the Seaway later in the summer or fall.   |
| 67 | Can you engage other national organizations such as the Nature Conservancy, to help determine the true impact of these high and low water levels? Is the DEC involved as well. It seems like Brockport, though a fine university, is very very limited. | There are other organizations and academic institutions involved in these efforts. Coordination with these initiatives is done through Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee. The Nature Conservancy has a voice on the Public Advisory Group that advises the GLAM Committee and their recommendations are taken into consideration when discussing ecosystem impacts ( <a href="https://www.ijc.org/en/ijc-appoints-public-advisory-group-assist-review-water-regulation-plan">https://www.ijc.org/en/ijc-appoints-public-advisory-group-assist-review-water-regulation-plan</a> ). |

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| 68 | <p>If, as 2014 Plan states, that wetlands are so important, why is there no formal plan to provide broad data starting in 2019 to track this? No reports have been provided.</p> | <p>There have been ongoing efforts from the Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee and partnerships with federal agencies and academic institutions to monitor and measure the health and expanse of wetlands on the shores of Lake Ontario and the St. Lawrence River. Over the past decade, targeted sampling has occurred in most years at a number of wetlands sites. Earlier this year, some of the long-term data was used to develop an article in the Journal of Great Lakes Research (<a href="https://doi.org/10.1016/j.jglr.2020.10.013">https://doi.org/10.1016/j.jglr.2020.10.013</a>). It takes a long time for ecosystems to respond to changing conditions which is why it is important to undertake monitoring over long periods and with a wide range of water levels. Given the lower water levels in 2021 relative to recent years, the GLAM Committee will be supporting further monitoring later in the summer as part of its long-term monitoring effort. The GLAM Committee will be working with the long-term data in the coming years and reporting as part of the Phase 2 component of the expedited review (<a href="https://www.ijc.org/en/glam/expedited-review">https://www.ijc.org/en/glam/expedited-review</a>).</p>                                     |
| 69 | <p>please explain how the upper Great Lakes can be above average and Lake Ontario and downstream can be below average</p>  | <p>Water levels throughout the entire Great Lakes - St. Lawrence River system have declined owing to the recent abnormally dry conditions. All of the lakes declined by greater than average amounts in the fall of 2020 and rose by less than average amounts in the spring of 2021. We have to look back at the past couple years to understand why the upper Great Lakes remain above average while the levels of Lake Ontario and the St. Lawrence River have declined below average. The upper Great Lakes started 2021 at a much higher point than Lake Ontario. Record high levels were set throughout the upper Great Lakes in 2019 and 2020, while Lake Ontario did not set any record high levels in 2020. The main reason for this difference in 2020 is because of the channel enlargements and dredging that was completed during the construction of the St. Lawrence Seaway and hydropower project. These modifications allow a greater amount of flow to be released from Lake Ontario than what was physically possible before the project. This does not prevent Lake Ontario flooding, but it does reduce the extremely high levels that would have occurred naturally, and it hastens recovery time following extreme events, such as in 2020, which followed the extremely high levels in 2019.</p> |
| 70 | <p>if these trends continue, can we predict more people leaving this region because of this? If so,</p>  | <p>Upstate New York’s shoreline and inland communities have had a declining population for several decades. This we know from the US Census data. This trend began before Lake Ontario’s high waters in 2017. We have not studied the movement of people into and out from the region, but neither have we seen any studies that suggest more people are leaving upstate New York’s shoreline communities more rapidly than the inland communities since 2017.</p>   |

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|    | how will this affect the international businesses for which Plan 2014 is focused on?   |   |
| 71 | <p>why wasn't the outflow decreased earlier while we were experiencing such low precipitation. why wait till May?</p>  | <p>Lake Ontario outflows decreased throughout March and active restoration of the water removed in the winter began in April after the Board was sure that the peak Ottawa River seasonal spring flows (known as freshet) had occurred. By May 1<sup>st</sup>, the level of Lake Ontario was at the same level it would have been if the Board had not deviated over the winter. The Board chose not to restore the water earlier because until the end of March, there was still a higher probability of high water levels than low water levels. No forecasts predicted the persistent abnormally dry conditions.</p> <p>The Board was able to take action and implement major deviations to reduce outflows at the end of May, once Lake Ontario water levels fell below the Criterion H14 low threshold.</p>  |
| 72 | <p>In seems as though the formulas used to determine the likelihood of high water levels is flawed. How else could one explain the continued excess release of water in January and February 2021 when the levels on Lake Ontario were falling</p> | <p>The risk of high water conditions occurring this spring was based on historical water supply sequences. There is no perfect method to establish future precipitation conditions. Long range forecasts are unreliable and not suitable to base regulatory decisions on.</p> <p>The Board generally provides long-term average water level comparisons using the entire available "period of record", which extends back to 1918 for the Great Lakes. Including different ranges of years are helpful for different purposes. For example, there was a significant drought period that occurred in the 1930s, prior to the construction of the St. Lawrence Seaway. We invite you to compute long-term average water levels using a shorter period of record of your choosing using the water level data available online: <a href="https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Information-2/Water-Level-Data/">https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Information-2/Water-Level-Data/</a></p> |

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|    | <p>when on average they are rising during that time of year. Also, why do you continue to include the years prior to the St. Lawrence seaway in determining long term averages?</p>   |  |
| 73 | <p>It seems that the criteria of Plan 2014 keeps you from acting effectively with regards to water levels. It took until the end of April before you could react to the low water levels when Lake Ontario reached its prescribed acceptable low water point.</p> | <p>Over-reacting to conditions too early is also a risk that must be taken into account. The Board was uncertain about the timing and magnitude of the Ottawa River spring flow (freshet) peak in the spring of 2021. The Board is directed to generally follow Plan 2014 until the trigger levels are reached, in order for the expected benefits of the plan to be realized. Also, plan -prescribed outflows are adjusted by the plan depending on conditions, i.e. the water level of Lake Ontario factors into plan prescribed flow increases and decreases when Ontario levels go up or down. Therefore, the Plan is actually “acting” on changing conditions accordingly even before the Board is granted authority to deviate when levels reach extreme water thresholds.</p> |

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|    | When you wait that long to react, it's too late. It's the same when we flooded in 2017 & 2019. When we are heading into a wet spring, you need to adjust the outflow accordingly, not wait until you hit a prescribed Plan 2014 threshold. |   |
| 74 | I did not understand your answer about the flows answer. Could you re-explain?   | Our apologies for the confusion. If you have additional questions or clarifications, please reach out to us: <a href="https://ijc.org/en/contact/contact_the_international_lake_o">https://ijc.org/en/contact/contact_the_international_lake_o</a>  |
| 75 | What governing bodies regulate the power authorities?  | The power authorities must adhere to the total flows prescribed by the Board. Whether those flows are put through the Moses-Saunders Dam for hydropower production or released through Long Sault Dam is at the discretion of the power authorities but the total flows established by Plan 2014 and the Board must be met. |

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| 76 | <p>Can you provide the peaking reports? Thank you.</p>  | <p>Since peaking and ponding operations affect water levels upstream and downstream of the Moses-Saunders Dam, there are limits to when and how much the hydropower companies can peak and pond and the Board oversees the operations ensure compliance with these limits. The Board reports on the peaking and ponding operations in semi-annual reports (<a href="https://ijc.org/en/loslrb/library/publications">https://ijc.org/en/loslrb/library/publications</a>). In general, the maximum daily impact on water levels is approximately 28 cm (11 in) immediately upstream of the dam and 50 cm (20 in) immediately downstream of the dam. Further away from the dam, the impacts lessen.</p>  |
| 77 | <p>The GLAM has been charged with an "expedited" review of Plan 2014, including the H14 thresholds. This two phase analysis is projected to last 5 to 7 years. That does not fit the definition of "expedited" very well. What can be done to get this GLAM review done sooner?</p> | <p>When Plan 2014 was implemented, the updated Orders of Approval required a review of the plan within 15 years. The Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee was established to support that long-term effort. Given the high water conditions in both 2017 and 2019, the IJC asked the GLAM Committee to undertake the review in a much shorter period of time (<a href="https://www.ijc.org/en/glam/expedited-review">https://www.ijc.org/en/glam/expedited-review</a>). The Committee is aiming to have its Phase 1 report to the IJC in October 2021 and the broader plan review of Phase 2 within three years of that, pending available funding (October 2024). While such a timeline might not seem very “expedited”, it is required to ensure that new data and information can be effectively acquired and a thorough analysis can take place.</p> |

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| 78 | Who sets the NBS algorithm?   | <p>Net Basin Supply (NBS) represents the total contribution of water to Lake Ontario, excluding the inflow from Lake Erie. In other words, NBS represents the net influence of precipitation over the lake, runoff from the surrounding watershed, and evaporation from the lake's surface. NBS can be estimated using a "residual" method or a "component" method. The "component" method uses measurements and modelled estimates of lake-wide precipitation, runoff and evaporation. Since these components are challenging to accurately predict on a lake-wide basis, the Board uses a "residual" method which relies on measurements from a network of water level gauges around the shoreline of Lake Ontario as well as measurements of inflows from Lake Erie and outflows into the St. Lawrence River.</p>  |
| 79 | Will the drought will last for years?   | <p>There are no reliable estimates of precipitation that go out further than 10-14 days, the persistence of drought will depend on global water patterns that cannot be predicted months or years in advance.</p>   |
| 80 | Who set the regulation that the only three considerations are municipal water intake, navigation and power purposes. If you are constrained by these three things, which ignore other critical issues it would seem that pressure needs to be placed in the entity or | <p>This guidance is linked back to the over-arching principles of the Boundary Water Treaty of 1909. Both Governments signed the Treaty. When the current regulation plan, Plan 2014, was approved in 2016 this language was written into the Plan to adhere to the Articles in the Treaty. Given this, the Board does consider the impacts to all interests within the system and attempts to balance the potential impacts of its' decisions. In fact, there are criteria within Plan 2014 aimed at accounting for the impacts of regulation on other interests. Criterion H12 stipulates, "Consistent with other requirements, the outflow from Lake Ontario shall be regulated to help restore ecosystem health by providing for more natural variations of water levels on Lake Ontario and on the St. Lawrence River". Criterion H13 reads, "Consistent with other requirements, the outflow from Lake Ontario shall be regulated so as to benefit recreational boating on Lake Ontario and on the St. Lawrence River."</p> <p>When Plan 2014 was approved it was again agreed to by both governments. In order to change the language in the Treaty and Plan 2014, both governments must agree to the changes. If you wish to advocate for such changes as re-prioritizing considerations for specific interests you should lobby your elected federal representatives to push for such changes.</p> |

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|    | entities that imposed this narrow focus.   |   |
| 81 | It's clear that current regulations and understanding are insufficient to prevent the current low level of Lake Ontario and, in hindsight, it would have been better not to drain the lake earlier in the year. What steps does the board propose to improve water level management? | As we noted in the presentation, the lake was not "drained" in January and February, rather only 9.4 cm or 3.7 inches of additional water was removed. This water was restored to the lake in April through flow reductions, and by the beginning of May the water levels were the same as they would have been if winter deviations had not been implemented. The Board must rely on historical water level data and an imperfect short term forecast. The uncertainty surrounding the amount of precipitation the system will receive in the future makes water management an imperfect endeavor by nature. Improvements to regulation are constantly under consideration through the adaptive management process and the Great Lakes – St. Lawrence River Adaptive Management (GLAM) Committee is currently engaged in an expedited review of the regulation plan ( <a href="https://www.ijc.org/en/glam/expedited-review">https://www.ijc.org/en/glam/expedited-review</a> ). |

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| 82 | <p>When recovering the 3.7 inches of water that was released during January and February the level was already almost a foot under long term average. Why was the action not taken earlier?</p> | <p>Lake Ontario outflows decreased throughout March and active restoration of the water removed in the winter began in April after the Board was sure that the peak Ottawa River seasonal spring flows (known as freshet) had occurred. By May 1<sup>st</sup>, the level of Lake Ontario was at the same level it would have been if the Board had not deviated over the winter. The Board chose not to restore the water earlier because until the end of March, there was still a higher probability of high water levels than low water levels. No forecasts predicted the persistent abnormally dry conditions.</p> <p>The Board was able to take action and implement major deviations to reduce outflows at the end of May, once Lake Ontario water levels fell below the Criterion H14 low threshold.</p>   |
| 83 | <p>Why did the Commission agree to a deviation in winter 2021 when the lake levels were nowhere near the H14 trigger and the chances of high water in spring</p>                                | <p>In December, the risk of high water on Lake Ontario in 2021 was moderate due to persistent high-water levels on Lake Erie and the upper Great Lakes. The persistent high-water levels in the upper lakes caused inflows to Lake Ontario to remain above average during the winter months. The main driver of a high-water event in the Lake Ontario basin depend on seasonal factors such as precipitation and snowpack runoff which cannot be accurately predicted months in advance. The Board estimates the chance of high or low water levels by projecting what water levels may occur if future water supplies are similar to what has been experienced in the past. The Board also takes short-term weather predictions into account. In January 2021, based on over 100 years of historical water supply scenarios, it was estimated that there was a 28% chance of extremely-high water levels, 52% of above-average water levels, 20% chance of below-average water levels and 0% chance of extremely-low water levels on Lake Ontario in 2021. Based on this risk analysis, the Board deviated and released additional outflow in January and February which resulted in the removal of 9.4 cm (3.7 in) of water from Lake Ontario (relative to what the level would have been if Regulation Plan 2014</p> |

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2021 were low? Why didn't the Board follow Plan 2014?

was strictly followed). In March and April, this water was restored to the lake, as outflows were lower than those prescribed by Plan 2014. As of May 1st, the level of Lake Ontario was at the exact same level it would have been if the Board had not deviated over the winter.