2021 Water Level Reflections and 2022 Winter-Spring Uncertainties

TIA Water Levels Committee (11/22/21) - *Full Article*

*We have high levels this fall, yet 2021 will be remembered as a **'Low Water Year'**. Levels for 6 of the first 7 months were below the historical average, but by late August crossed above 'average' and will likely remain there for the rest of 2021.*

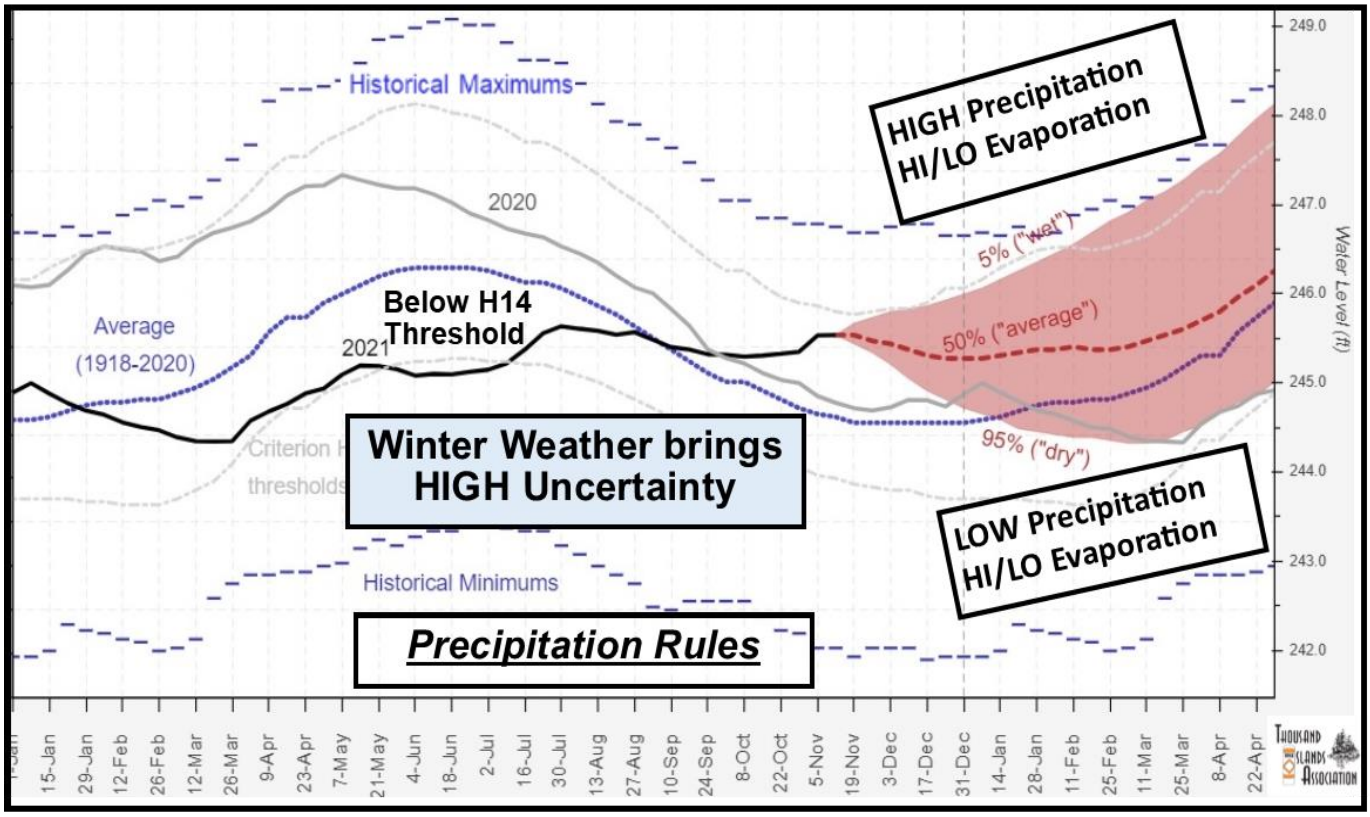
End of Year Summary:

Overall for 2021, we dodged a bullet. We were indeed fortunate that the unfamiliarly low levels didn't get any worse. The late June abrupt ending of an 18-month dry (becoming drought) cycle presented a stone wall to an otherwise progressive fall. Our wish to return to above average levels, now granted, will become part of next year's winter-spring challenge.

Hopefully, we've all learned and come to accept the fact which 2021 clearly taught us "Precipitation Rules"!! Our job is to "Go with the Flow" and do the best job we can with the Precipitation & Evaporation cards we're dealt.

Lake Ontario Water Level Forecast

19 November through 29 April 2022 — (issued on 11 Nov)



https://ijc.org/en/loslrb/watershed/forecasts

Did You Know (DYK):

- ✓ We are only 0.3 inches below the July 28th, 2021, peak with current water levels a full foot above the historical average (Nov 22nd)
- ✓ A pattern shift at the end of June turned to 'wet' and has persisted since levels jumped in July, ending an 18-month run of dry conditions for the Lake Ontario basin
- ✓ Spring level forecast shows high variability, with a range of 3 ft between 'wet' & 'dry'
- ✓ If the 2022 winter-spring has very high precipitation levels ('wet')… water levels could approach Historical Maximums! (less than 5% probability)
- ✓ Lake Ontario's outflow was temporarily decreased to allow Hydro Quebec to safely draw down their reservoirs and relocate stranded fish prior to winter

Deviation Paybacks:

Twice this year, outflows were reduced, and water held back in Lake Ontario (LO). To mitigate these, the Board will remove the excess water as per below:

- ➢ Deviation from May 29 – July 16 - when levels were very low, outflows were reduced and 1.6" of water was added to LO
- ➢ October 8 – 11 flows were reduced to raise Lake St. Lawrence for the long weekend boat hauling: 0.3" of water was added to LO (see below for DETAILS on the impacts of the Boat Haul Out for Lake Ontario)
- ➢ To mitigate these, the Board removes the "added" water: Increased outflows from mid-October through mid-December will remove the total 1.9" (4.8 cm) of water that was maintained on Lake Ontario

Boat Haul Outs:

Photo Courtesy of (The Leader/Blancher photo) PHILLIP BLANCHER – Lake St. Lawrence

Last month, we mentioned how the ILOSLR Board planned to reduce outflows for a few days to help with boat haul-outs on Lake St. Lawrence (see their announcement here). Outflows were reduced by 600 m3/s for 3 days from October 8th through October 11th. What impact did that action have?

Lake St. Lawrence:

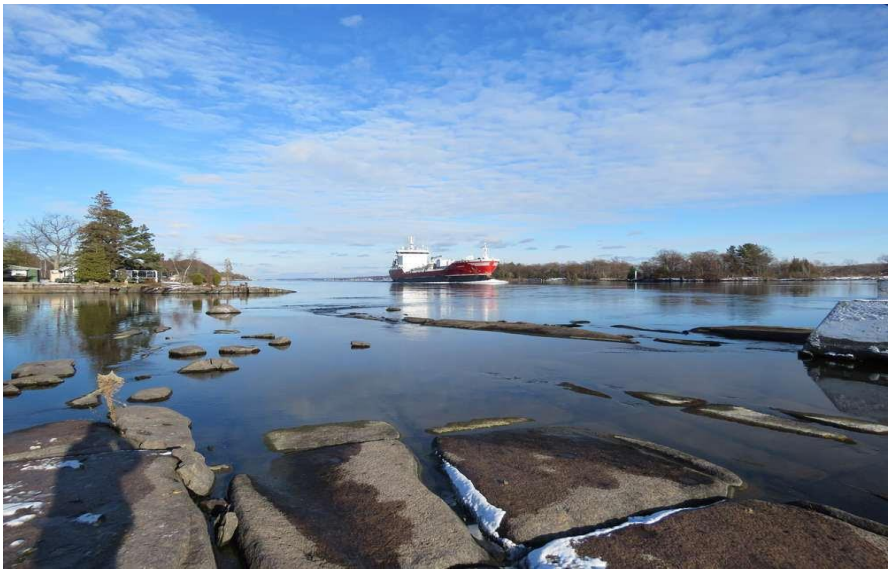
- Large (but temporary) impact
- Water levels rose from 72.88 m (239.11') on October 7th to 73.19 m (240.10') on October 10th
- Large rise of 31 cm (0.99') in just a few days - then back down to 72.97 m (239.40') by October 12th

Lake Ontario:

- The "held back" water had a very small impact - adding just 0.80 cm (0.31") to Lake Ontario's level
- Extra outflow later in the fall will offset that small amount

This action clearly demonstrates how relatively small changes in outflows for a short time can dramatically impact Lake St. Lawrence levels with a negligible impact on Lake Ontario/Upper St. Lawrence River levels.

End of the 2021 Shipping Season (and then what happens):



Algonorth upbound, near Brockville, November 29th – photo courtesy of Glenn Easton

The last day of vessel transits through the Montreal-Lake Ontario section, as well as picture taking opportunities, will be December 31st at noon.

As shipping ends, certain limits are removed from the outflow calculations used by the Board. In shipping's case, the "L-Limit" is removed (a limit to ensure safe recreational and commercial navigation on the River). Therefore, depending on water levels at December 31st, as well as the Plan prescribed rule curve in effect at this time of year (the rules that

govern dam outflows), we may find the Board allowing more water out by increasing outflows in an effort to reduce water levels.

While the Board can deviate from the prescribed Plan (with authorization from the IJC), many factors need to be considered, including other limits (I-limit to ensure stable ice formation) amongst other factors such as Inflows from the upper lakes.

We will report back in the next version of River Talk as to what activities occurred over the winter months, and where water levels stand moving into the spring months.