

Environment & Climate Change Canada have finally released their long-awaited study on Climate Change impacts in the Great Lakes basin, which includes probability-based projections of potential water levels variability from 2025 to 2095. Great Lakes shoreline municipalities, businesses (particularly marinas), ports, and residents should review this report before making any investments in building or rebuilding structures, proceeding with any shoreline infrastructure, or mitigation/adaptation measures to address extreme high and/or low water levels.

The risk of greater extreme highs and lows is significant, with projected water level ranges potentially increasing as follows in each lake:

| Lake: | | Superior | Mich./Huron | St Clair | Erie | Ontario |
|-------------------------------------|-----|----------|-------------|----------|---------|---------|
| Historic Range | m: | 1.19 | 1.93 | 2.16 | 1.96 | 2.17 |
| | ft: | 3.90 | 6.33 | 7.09 | 6.43 | 7.12 |
| Potential Range | m: | 2.0 | 5.1 | 4.2 | 3.8 | 4.4 |
| | ft: | 6.56 | 16.73 | 13.78 | 12.47 | 14.44 |
| Potential Increase | m: | 0.81 | 3.17 | 2.04 | 1.84 | 2.23 |
| | ft: | 2.66 | 10.40 | 6.69 | 6.04 | 7.32 |
| | %: | 168% | 264% | 194% | 194% | 203% |
| Size of basin in sq. km: | | 209,800 | 369,500 | No data | 103,700 | 82,990 |
| Surface water area in sq. km | | 82,100 | 117,400 | No data | 25,700 | 18,960 |

The reasons for the larger potential increase in range for Lake Michigan/Huron are provided in the full report, but the overriding factor is the much larger size of the M/H basin, **retention time*** and surface water area, when compared to all the other lakes, which makes it more vulnerable to climate change impacts creating greater variability for the amount of: precipitation in the basin, and evaporation from the surface water.

For more details, please see:

- Full report: [link to file called: Climate-Change-in-the-Great-Lakes-Basin_Seglenieks Nov 2022]
- Infographic: [link to file called: ECCC climate change impacts infographic Nov 2022]
- Water Levels Graphs explanation: [link to file called: Explanation of projected M-H water levels graph]
- Video: <https://www.youtube.com/watch?v=XsNQQ6o9cjU>
- GLEC website link: <https://binational.net/2022/11/07/climate-change-trends-and-impacts/>

The length of time it takes for water entering each lake to leave each lake.