

## What is the Historic Water Level Range on my Lake?



This document is intended to help cottagers on the reservoir lakes who want to understand the average and extreme water level fluctuations that can be expected on their lakes.

The key source of this information is the Trent-Severn Waterway (TSW) website at [http://www.pc.gc.ca/lhn-nhs/on/trentsevern/visit/ne-wl/trent\\_e.asp](http://www.pc.gc.ca/lhn-nhs/on/trentsevern/visit/ne-wl/trent_e.asp)

However, some additional information is required in order to understand and interpret the TSW data.

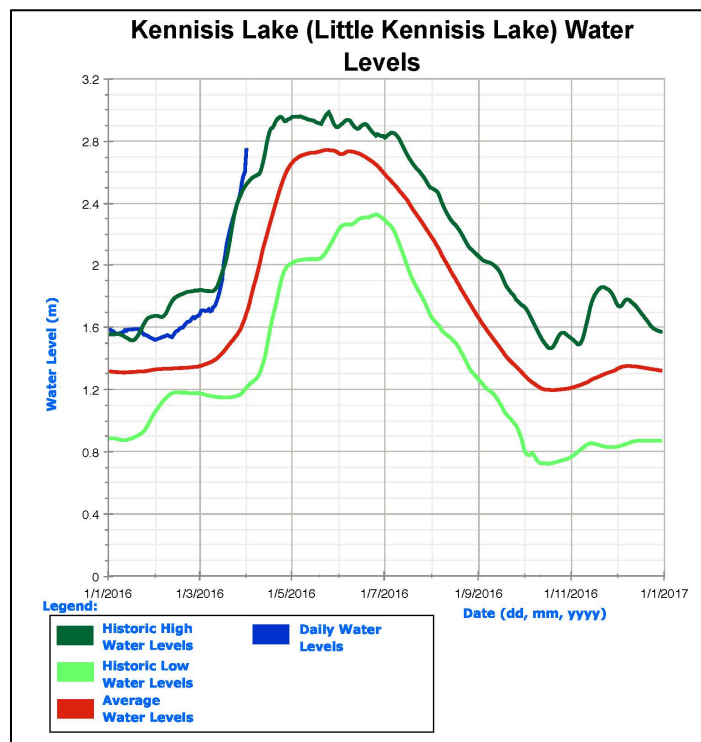
Once at the TSW website you can click on sub-watershed that contains your lake and then click on the red dot representing the dam on your reservoir lake.

For the purpose of this document, Kennisis Lake in the Gull River sub-watershed has been chosen to illustrate how to interpret the data.

A typical water level chart contains 4 lines: the blue line represents the current-year water levels and is not required for this exercise.

The remaining three lines are based on daily data from the past 25 years as follows:

Red: the 25-year average  
Light green: the historic low  
Dark green: the historic high



### Determining the 25-year average water level range:

Looking at the red line, and reading the water level values on the vertical axis, the difference between the highest value and the lowest value is  $2.7 - 1.2 = 1.5$  metres (or 5.1 feet). This is the average range based on the most recent 25 years of data.

Determining the 25-year actual extreme water level range:

The difference between the highest value on the dark green line and the lowest value on the light green line is  $3.0 - 0.7 = 2.3$  metres (or about 7.5 feet). This is the extreme range that has been experienced over the past 25 years, although the two extremes will not normally be experienced within a single year. Nonetheless such information may be helpful when designing shoreline structures such as docks.

Two cautions:

(1) Actual annual water level fluctuations can vary significantly from the average range described above. For Kennisis Lake the annual fluctuation between 1988 and 2012 varied from 2.2m (7 feet) to 0.9m (3 feet). So, at least in the case of Kennisis Lake, the 25-year extreme range, available from the TSW chart, is typically a better indicator of the maximum historical annual fluctuation than the average.

(2) All the above calculations are based on actual water level data. Some estimates of water level fluctuation are based on the physical characteristics of the individual dams, however these can be very misleading. For example the Kennisis dam is 9.5 feet high but the water levels on the lake have never fluctuated by that much in over 100 years.

In summary:

From the TSW website data for Kennisis Lake it is possible to calculate that:

- the 25-year average annual water level range is 1.5 metres (5 feet)
- the 25-year actual extreme water level range is 2.3 metres (7.5 feet)

Similar data for all other dam-controlled reservoir lakes operated by the TSW have been calculated from the data on the TSW website as of December 2015. They can be viewed in the attached table.

The TSW website is updated regularly and you are encouraged to look there for the most up to date information.

## Haliburton Sector - Reservoir Lakes

### 25-Year Average & Extreme Annual Water Level Ranges

| Dam-controlled Lake          | Average Range |        | Extreme Range |        |
|------------------------------|---------------|--------|---------------|--------|
|                              | (Metres)      | (Feet) | (Metres)      | (Feet) |
| <b>Gull River Watershed</b>  |               |        |               |        |
| Kennisis Lake                | <b>1.5</b>    | 5.1    | <b>2.3</b>    | 7.5    |
| Red Pine Lake                | <b>0.5</b>    | 1.7    | <b>1.8</b>    | 5.9    |
| Nunikani Lake                | <b>1.8</b>    | 5.9    | <b>2.8</b>    | 9.2    |
| Big Hawk Lake                | <b>2.2</b>    | 7.3    | <b>3.3</b>    | 10.8   |
| Halls Lake                   | <b>0.9</b>    | 3.0    | <b>1.6</b>    | 5.2    |
| Sherborne Lake               | <b>1.2</b>    | 3.9    | <b>1.8</b>    | 5.9    |
| Kushog Lake                  | <b>1.6</b>    | 5.3    | <b>2.3</b>    | 7.5    |
| Percy Lake                   | <b>1.7</b>    | 5.4    | <b>2.2</b>    | 7.2    |
| Oblong Lake                  | <b>1.3</b>    | 4.4    | <b>2.0</b>    | 6.6    |
| Redstone Lake                | <b>1.9</b>    | 6.3    | <b>2.7</b>    | 8.9    |
| Eagle Lake                   | <b>1.1</b>    | 3.6    | <b>1.7</b>    | 5.6    |
| Twelve Mile Lake             | <b>0.8</b>    | 2.6    | <b>2.0</b>    | 6.6    |
| Horseshoe Lake               | <b>0.8</b>    | 2.6    | <b>2.1</b>    | 6.9    |
| Big Bob Lake                 | <b>2.1</b>    | 6.8    | <b>2.5</b>    | 8.2    |
| Little Bob Lake              | <b>1.3</b>    | 4.2    | <b>1.7</b>    | 5.6    |
| Gull Lake                    | <b>0.5</b>    | 1.8    | <b>1.6</b>    | 5.2    |
| Moore Lake                   | <b>0.4</b>    | 1.1    | <b>1.6</b>    | 5.2    |
| <b>Burnt River Watershed</b> |               |        |               |        |
| Drag Lake                    | <b>1.1</b>    | 3.5    | <b>1.9</b>    | 6.2    |
| Canning Lake                 | <b>0.6</b>    | 1.9    | <b>1.1</b>    | 3.6    |
| Miskwabi Lake                | <b>1.1</b>    | 3.7    | <b>1.6</b>    | 5.2    |
| Loon Lake                    | <b>0.9</b>    | 3.0    | <b>1.6</b>    | 5.2    |
| Koshlong Lake                | <b>1.1</b>    | 3.6    | <b>1.6</b>    | 5.2    |
| Farquhar Lake                | <b>1.3</b>    | 4.2    | <b>2.3</b>    | 7.5    |
| Grace Lake                   | <b>1.2</b>    | 4.0    | <b>2.3</b>    | 7.5    |
| Esson Lake                   | <b>1.7</b>    | 5.6    | <b>1.9</b>    | 6.2    |
| Little Glamor Lake           | <b>1.7</b>    | 5.4    | <b>1.9</b>    | 6.2    |
| Big Glamor Lake              | <b>1.5</b>    | 5.0    | <b>2.0</b>    | 6.6    |
| Gooderham Lake               | <b>0.7</b>    | 2.2    | <b>1.3</b>    | 4.3    |
| Contau Lake                  | <b>0.9</b>    | 2.9    | <b>1.2</b>    | 3.9    |
| White Lake                   | <b>1.4</b>    | 4.7    | <b>1.9</b>    | 6.2    |
| <b>Southern Reservoirs</b>   |               |        |               |        |
| Crystal Lake                 | <b>1.5</b>    | 4.9    | <b>1.9</b>    | 6.2    |
| Anstruther Lake              | <b>1.2</b>    | 4.1    | <b>2.2</b>    | 7.2    |
| Mississagua Lake             | <b>1.4</b>    | 4.5    | <b>2.0</b>    | 6.6    |
| Eel's Lake                   | <b>1.9</b>    | 6.3    | <b>2.7</b>    | 8.9    |
| Jack's Lake                  | <b>0.8</b>    | 2.7    | <b>1.3</b>    | 4.3    |