

2015-3

**We are new on the lake in Verona Beach area. By mid-April of last year the water and waves were very "active". The lake was wonderful! It is now almost the middle of April and the lake appears almost empty of water. There are sand banks piled high and in front of our home, there is only inches of water. Would you know the reason why the water is so low and will it ever increase back to what it was last year? Has something gone wrong with the lake?**

The member has just witnessed, in two years, the natural variability in Oneida Lake's hydrology. The winter of 2014-5 was one of the coldest in decades, although about normal for snowfall. The first cold snap came hard, and formed 5 inches of 'black ice' overnight. Over the winter the lake made about 24 inches of ice, a thickness reminiscent as common in the 1950's-70's. Water levels beneath the ice are influenced by a two basic factors: inflow and outflow.

The OLA website has several related pieces of information. Look to the link on Position Papers for the Water Levels, link to the NYS Canal Corporation's water level gage at Cleveland <http://www.canals.ny.gov/waterlevels/netdata/oneida-levels.pdf>, read the State of the Lake and Watershed Report Final Report and review other facts of the watershed at <http://www.cnyrpdb.org/oneidalake/facts.asp>.

Most of the water in the lake comes from Fish Creek, Oneida Creek, and Chittenango Creek. Their respective contribution depends on where and when the rain falls, and snowpack melt. All the water runs out of the lake at Brewerton. Water stays in the lake about 235 days. The inflow to the lake has been below average for this winter, as suggested by the Canal Corporation graph of water levels show below the 'rule curve' for January-April. Canals opens the taintor gates in late November, and lake levels are then controlled by the natural bottom elevation of the lake outlet at Caughdenoy until gates are closed in late April. The ice stabilized this winter over a water level at about 368 feet above sea level. So a lot of shallow and beach areas were exposed if there was no ice and snow. The ice was resting on the bottom in areas that during summer are under 4 feet deep.

There is nothing 'wrong' with the lake. You are witnessing its nature responding to climate. Before the canal was built, the lake would fluctuate 12 feet or more. Modern fluctuations are limited to about half that even in the worst of seasonal storm hydrologic periods. The ice floats and moves on the lake, and as you witnessed it pushes beach sand around. Think about the power of a glacier. On a smaller scale, the moving ice rearranges the shallow lake bed as it drags on the bottom. OLA's Position Paper on Water Levels considers benthic and shallow water habitat changes that ice movement can cause, as well as potential damages to shoreline properties if ice out occurs at high water levels.

This April ice is lifting about 1 inch a day. As it rises, winds will cause the icepack to repeatedly slosh back and forth, crunching ashore as the winds alternate east and west. If the ice does not 'rot' in place, and wind prevails from the northwest, the ice could build dramatically at Verona Beach. Dunes and bottom shoals will be rearranged until waves resculpt them this summer.