

# An Investigation into the Water-Surface Elevation Changes of Moreau Lake, Moreau Lake State Park, Saratoga County, NY

U. S. Geological Survey, in Cooperation with New York State Office of Parks, Recreation and Historic Preservation

**Problem:** In 2015, New York State Park officials monitoring the operation and public use of Moreau Lake observed a 4-5 feet decrease in the lake level. Anecdotal observations indicate that seasonal fluctuation of lake level is normal; however, the latest decline appears to be unprecedented.



Moreau Lake, May 2016. Historic lake shoreline is indicated by tree line.

**Background:** Moreau Lake is located within Moreau Lake State Park, a 4,100 acre park divided by the Hudson River in northern Saratoga and southern Warren Counties of upstate New York. Moreau Lake has a surface area of 128 acres, a watershed of 469 acres, and 3.6 miles of shoreline. The lake has a “normal” mean depth of 32 feet and a maximum depth of 50 feet. The lake is considered a kettle lake and is surrounded by ice-contact sand and gravel deposited by meltwater as glaciers retreated from the area at the end of the last Ice Age. Moreau Lake is a recreational water body used by the public for swimming, fishing, and boating and the surrounding area is used for hiking, camping, and beach activities.

**Objective:** Document the water-surface elevation of Moreau Lake, define the local hydrogeologic framework from available data, and assess the connection between lake level and the water-table elevation.

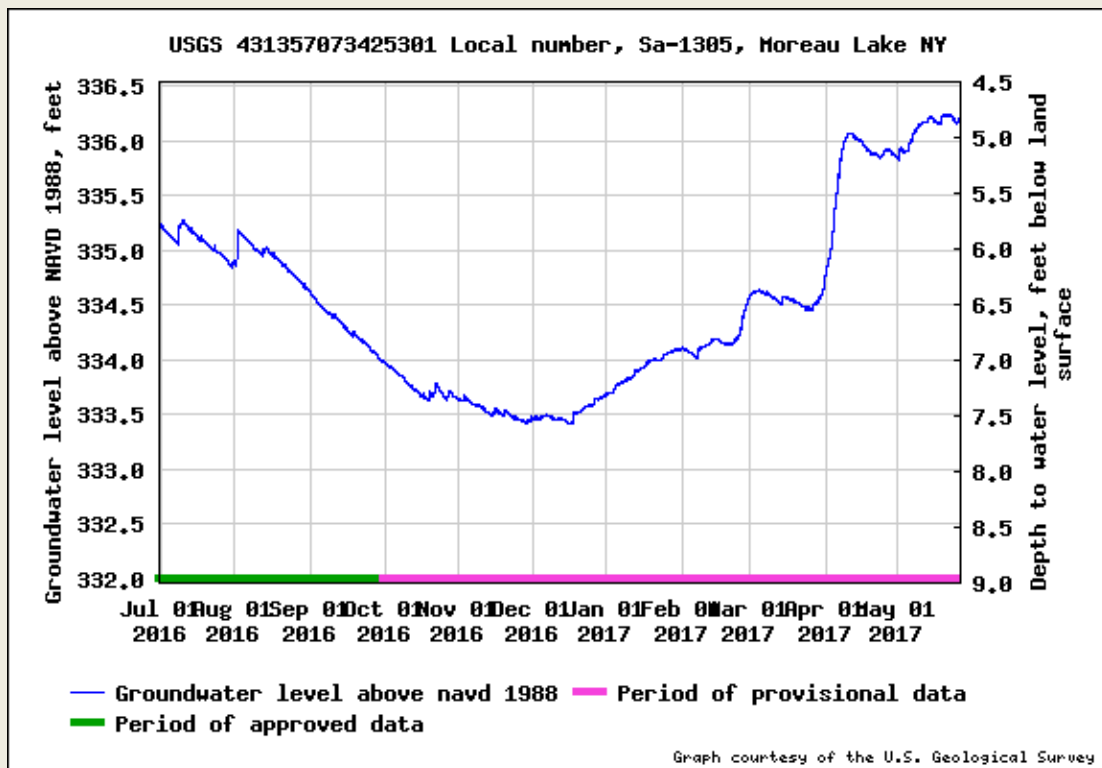


**Parks, Recreation  
and Historic Preservation**

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**Approach:** Lakes in areas of sand and gravel are generally a surface-water expression of the local water table. However, previous work at Moreau Lake has shown that there is also a confined aquifer just east of the Park that may have hydraulic connection to the lake in addition to the water-table aquifer. Thus, documenting water levels in the lake, the water-table aquifer, and the confined aquifer and characterization of the local hydrogeologic framework are needed to understand the local hydrologic situation. We propose, as a first step, to:

- Install a continuous lake-level gage at Moreau Lake. This gage will serve the dual need to monitor current conditions and to document changes in lake levels. (Installed July 2016)
- Compile, from existing data, any relevant information that helps define (1) the hydrogeologic framework surrounding the lake and (2) groundwater-level elevations in both aquifers.



Water-level data from well SA1305, a shallow well along the shoreline of Moreau Lake that approximates lake level. Current and historic water levels (plots or tables) can be accessed online by searching “SA1305, USGS”.



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