



March 2026

WATER QUALITY MONITORING PROGRAMS IN CAYUGA COUNTY

By Michele Wunderlich, Principal Environmental Planner, Cayuga County Department of Planning and Economic Development

Cayuga Lake and Cayuga Lake Tributaries

Community Science Institute

Grascen Shidemantle, Ph.D. presented “Cayuga Lake Watershed Water Quality Monitoring in Cayuga County: Insights & Updates from the 2025 Monitoring Season” at the March 2026 Cayuga County WQMA Meeting. This presentation highlighted two programs supported by Cayuga County funding. The presentation can be viewed on the Cayuga County WQMA YouTube channel at <https://www.youtube.com/@CayugaCountyWQMA> and the slides are available at <https://cayugacountywater.org/wp-content/uploads/2026/03/CSI-presentation-Cayuga-County-WQMA-3.5.26.pdf>.

The first program is synoptic stream monitoring of tributaries that flow into Cayuga Lake within Cayuga County. The purpose of this program is to produce regulatory-quality stream and lake water chemistry data that can help inform water resource management decisions and keep the public informed on the condition of their local water resources.

Volunteers collect samples from Yawger Creek, Great Gully Creek, Dean’s Creek, Paines Creek, Mill Creek, Town Line Creek and Salmon Creek three times a year. The samples are analyzed at CSI, which is a state-certified water testing laboratory. The streams are monitored for nutrients (total phosphorus, soluble reactive phosphorus, nitrogen oxides), sediment, bacteria, salt, and other parameters. Data from the program can be accessed at <http://www.database.communityscience.org/>.

The second program is the Cayuga Lake Harmful Algal Bloom (HAB) Monitoring Partnership. This program is funded equally by the three counties surrounding Cayuga Lake: Cayuga, Tompkins and Seneca Counties. This program is led by CSI in collaboration with the Cayuga Lake Watershed Network and Discover Cayuga Lake.

The purpose of the program is to collect actionable data on cyanobacteria blooms, protect public health and relay bloom information and test results quickly and efficiently. During the bloom season, volunteers conduct weekly shoreline surveys. HABs samples are collected from specific locations and analyzed to identify cyanobacteria, measure chlorophyll a and measure microcystin. Bloom information is uploaded to CSI’s [Cayuga Lake HABs Database](#) and CSI reports all blooms to county health department officials and New York State Department of Environmental Conservation (NYSDEC). The NYSDEC reports HABs on their website <http://on.ny.gov/nyhabs>.



CSI also conducts water quality monitoring on Cayuga Lake during three water quality cruises as part of their Journey of Water program for students. In collaboration with Discover Cayuga Lake, water samples are collected at seven sites in Cayuga Lake outside of Cayuga County, including four sites at the southern end of the lake and three sites in the mid-south portion of the main lake.

Owasco Lake Tributaries

OWLA Owasco Lake Tributary Monitoring Program

The Owasco Watershed Lake Association (OWLA) Owasco Lake Tributary Monitoring Program is funded by Cayuga County through Finger Lakes-Lake Ontario (FOLLOWPA) grant funds and County resources. Volunteers from OWLA, with support from Owasco Lake Watershed Management Council (OLWMC) and Owasco Lake Watershed Inspection and Protection Division staff, conduct tributary sampling under an approved Quality Assurance Project Plan (QAPP). Samples are delivered to Upstate Freshwater Institute Inc., an Environmental Laboratory Assessment Program (ELAP) certified lab, for analysis.

OWLA volunteers collect water quality samples and field data from eight sites within the Owasco Lake Watershed. The streams are monitored for nutrients (total phosphorus, soluble reactive phosphorus, total dissolved phosphorus, nitrogen oxides, nitrite+nitrate, and ammonia) and total suspended solids.

The QAPP, Data Usability Report and monitoring data are available upon request from Michele Wunderlich at mwunderlich@cayugacounty.gov. The tributary data can be also found on the Owasco Lake Water Quality Portal at <https://flihws.shinyapps.io/Owasco2509/>.

USGS Gage Station

FOLLOWPA has provided funding to the Cayuga County Department of Planning and Economic Development to support the operation and maintenance of the United States Geological Survey (USGS) gaging station on the Owasco Inlet below Aurora Street in Moravia. The Owasco Inlet is the major tributary to Owasco Lake.

In 2025, the USGS modernized the gaging station, including the installation of cameras. The station was moved slightly downstream to improve site conditions. This relocation provides more stable control, which increases confidence in stage-to-discharge calculations, improves access for USGS technicians, and moves the gage away from recently eroding banks. The drainage area remains the same, so discharge measurements will be considered equivalent.

USGS installed the new gage in August 2025 while continuing to operate the existing gage concurrently. They are currently comparing stage measurements between the two sites during several larger rain events. Once sufficient data are collected, the new site will be fully operational with an updated stage-to-discharge rating model.

Real-time accurate flow data are added to the USGS network and is stored in the National Water Information System. The Legacy webpage can be found online at https://waterdata.usgs.gov/nwis/uv?site_no=04235299&legacy=1 and the new webpage can be found at https://waterdata.usgs.gov/ny/nwis/uv?site_no=04235299.



New gage station

Owasco Lake and Owasco Lake Tributaries

Finger Lakes Institute

Cayuga County utilized FLOWPA funds to have the Finger Lakes Institute update the Owasco Lake Water Quality Portal at <https://flihws.shinyapps.io/owasco/>. This web data portal presents data water quality data from sampling programs throughout the Owasco Lake Watershed in a user friendly and educational format.

The portal includes data from an autonomous, solar-powered buoy system in Owasco Lake that is funded by Cayuga County. The buoy typically records data from April through October. The buoy records meteorological data (air temperature, relative humidity, barometric pressure, solar radiation, and wind speed /direction) and water quality data (temperature, specific conductance, dissolved oxygen saturation (%) and dissolved oxygen (mg/L), turbidity, and chlorophyll-a and phycocyanin).



The portal also includes historical lake data collected from 2005 to 2022 by John Halfman of the Finger Lakes Institute at Hobart and William Smith Colleges. These data included mid-lake water samples collected from the surface and bottom at a minimum of two sites and analyzed in Halfman's research lab. Parameters include Secchi disc depth; total suspended solids (TSS); soluble reactive and total phosphorous (SRP and TP); nitrogen (nitrate + nitrite, NOx); silica (Si); and chlorophyll-a (Chla) concentrations.

Citizen Statewide Lake Assessment Program

The Citizens Statewide Lake Assessment Program (CSLAP) is a volunteer lake monitoring program operated by the NYS Department of Environmental Conservation (NYSDEC) and the New York State Federation of Lake Associations, Inc. (NYSFOLA). Volunteers collect water quality samples from Cayuga, Owasco, Skaneateles, Lake Como and Duck Lake. Reports from this program can be found at <https://nysfola.org/cslap-report-search/>

Harmful Algal Blooms (HABs) Monitoring Programs in Cayuga County

As described in the Community Science Institute (CSI) section above, the Cayuga Lake Harmful Algal Bloom (HAB) Monitoring Partnership Program monitors HABs in Cayuga Lake.

Skaneateles Lake participates in the NYSDEC HAB Shoreline Monitoring Program. Trained volunteer residents observe the lake at least weekly to identify and report HABs directly to the NYSDEC and the Skaneateles Lake Association (SLA). SLA informs the community of reports they receive through their website, email updates and social media channels.

For Owasco Lake, the Owasco Watershed Lake Association (OWLA) organizes a HAB Surveillance Program in which trained volunteers walk the shoreline during HABs season looking for HABs. If HABs are found, volunteers submit photos and other information to the NYSDEC.



Harmful Algal Bloom

The NYSDEC publishes HABs reports to their website at <http://on.ny.gov/nyhabs>.

Cayuga County WQMA

For more information about the Cayuga County Water Quality Management Agency, check out our website at www.cayugacountywater.org.

The Cayuga County WQMA is also on social media. For up-to-date information on water quality issues and events, please friend us on Facebook at: <https://facebook.com/CayugaCoWQMA>. The Cayuga County WQMA YouTube channel is <https://www.youtube.com/@CayugaCountyWQMA>.

The Cayuga County WQMA is looking for story ideas for its webpage and its newsletter. If you have something you would like to share, please email us at wqma@cayugacounty.gov.



T: 315.253.1276 | 160 Genesee St., 5th Fl. | Auburn, New York | 13021
cayugacountywater.org