LAKE ASSESSMENTS

The evaluation and management of New York State lakes is a priority to conserve these valuable natural resources. Most lake monitoring programs document physical and chemical attributes of the lake environment, but accurate assessment of water quality requires examination of chemical, physical, *and biological* components of these ecosystems.

The US EPA has stipulated that *bioassessments* are crucial components of water quality monitoring, and in response to this the NYSDEC has initiated a pilot program to incorporate biological data into lake assessments.

Unfortunately, the DEC only has the resources to evaluate 60 out of more than 7,000 lakes in NYS over the next five years. How can other water bodies receive a similar comprehensive evaluation resulting in data recognized by government and funding agencies?

Watershed Assessment Associates (WAA) is a team of experienced scientists and benthic macroinvertebrate taxonomists that produce professional water quality assessments recognized by the NYSDEC and other government agencies. Let our team help protect your valuable natural resource.

LAKE BIOLOGICAL MONITORING

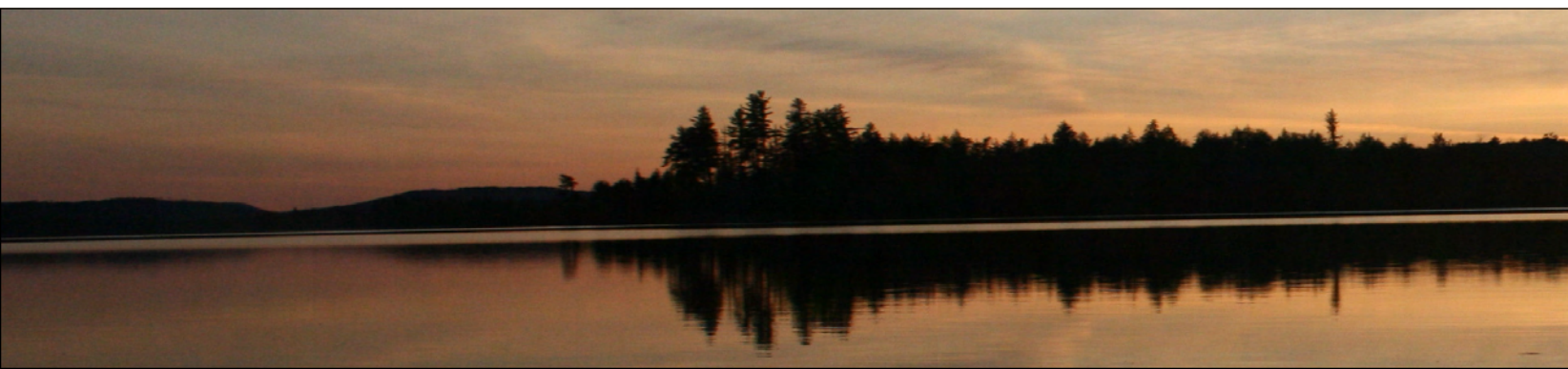


Many lake associations throughout NYS collect physical and chemical data to assess lake water quality. These are important components of water quality monitoring. Biological assessment is also essential to evaluate the ecological integrity of a lake. It provides invaluable information about the health of an ecosystem and the potential causes of water quality degradation. Biological assessment may also identify environmental concerns earlier than chemical testing, assess the collective impact of numerous stressors, and provide information that chemical measurements or toxicity tests don't always produce. Additionally, biological assessment is a cost-effective means of obtaining a wealth of information about a lake's water quality.

The NYSDEC has implemented a program to establish water quality impact criteria using biological data, but most lakes in NYS will not be included in this evaluation. Nevertheless, excluded lakes may be assessed using identical methodology through privately commissioned studies. Such biological assessments are beyond the capabilities of most volunteer monitoring programs. The NYSDEC will, however, recognize professional water quality data produced by Watershed Assessment Associates, using identical DEC methodology and identification of benthic macroinvertebrates to genus/species by our certified taxonomists.

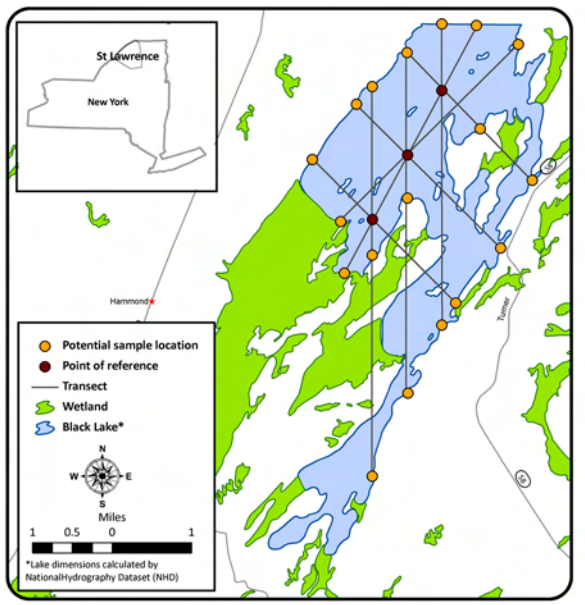
The potential benefits to lake associations investing in such an assessment are:

- Lake water quality issues may be identified early, when remedial actions are less costly
- Data produced may help secure state and federal funding for watershed projects
- Biological assessment may provide supplemental data to support management initiatives and programs, evaluate management practices, and direct conservation planning
- Evaluation may help to detect invasive species
- Study may contribute information to enhance recreational activities



PROJECT EXAMPLE: BLACK LAKE, ST. LAWRENCE COUNTY

We will select eight monitoring sites on your lake. Watershed Assessment Associates utilizes geographic information systems (GIS) to select biomonitoring sites, design watershed monitoring plans, and evaluate biological data; this produces meaningful assessments and ensures accurate interpretation and analysis. NYSDEC protocol requires that lake evaluations include data collected from 8 sites to form a ninth composite sample for macroinvertebrate identification and analysis.



SITE SELECTION METHODOLOGY

At each site we perform:

- Habitat assessment of the shoreline area
- Measurement of temperature, dissolved oxygen, percent oxygen saturation, pH, specific conductance
- Collection of a benthic macroinvertebrate sample at a set distance from shore within the dominant habitat
- Collection of periphyton (for potential future processing)

In our laboratory, our certified taxonomists:

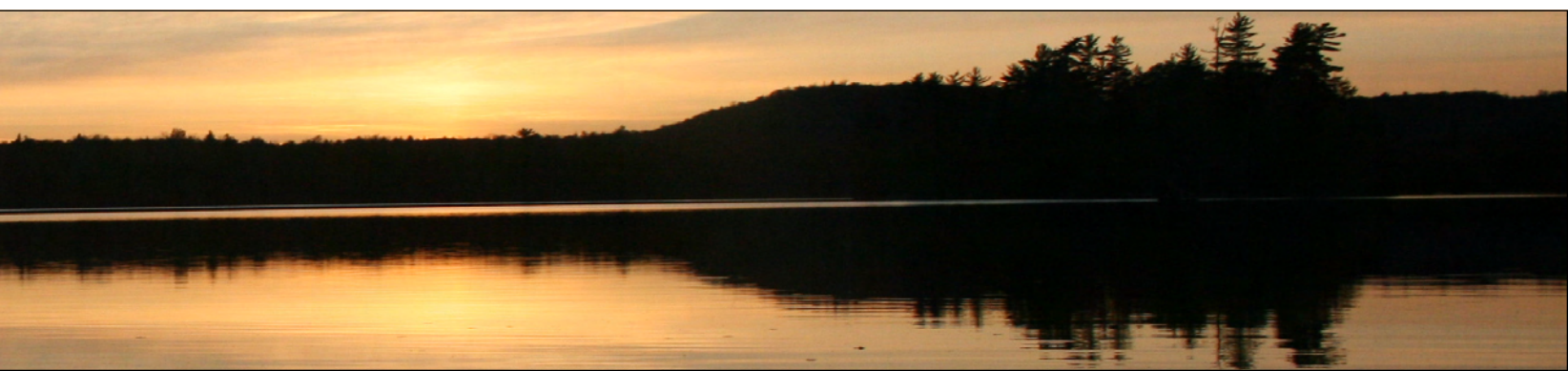
- Sort and identify a 300 organism subsample of benthic macroinvertebrates

Using defined NYS metrics and standard statistical methodology we calculate:

- Average number of individuals in a sample
- ETO (Ephemeroptera, Trichoptera, Odonata) richness
- Species dominance
- Percent Oligochaeta, non-insects, shredders, filterers, tolerant taxa
- Number of Crustacea/Mollusca taxa
- Shannon Diversity, Biotic Index, and any additional metrics determined by NYSDEC

We produce:

- A written report with findings, analysis, and GIS map
- By invitation of the client, data will be provided to the NYSDEC
- Samples from each of the 8 biomonitoring sites will be delivered to the client for storage (these samples may be further evaluated at a later date should the NYSDEC Pilot Study determine additional analysis would be beneficial)



Company Profile

Watershed Assessment Associates (WAA) is a NYS-certified Women's Business Enterprise that provides environmental consulting and educational services to federal, state and local government agencies, private corporations, educational institutions, watershed associations, and environmental organizations.

We are proficient in federal and New York State field and laboratory methodology, and our taxonomists are certified by the North American Benthological Society. We have successfully designed and implemented water quality assessments throughout New York State. Our data is accepted by the NYDEC and other government agencies.

Our team of skilled scientists is dedicated to delivering superior ecological services with integrity.

Watershed Assessment Associates

Environmental Services / Biomonitoring / Invertebrate Taxonomy / Professional Training

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