



Aquatic Taxonomy Services

Capabilities

Collection, Identification, and Enumeration

- periphyton and phytoplankton
 - diatom and soft algal analysis
- zooplankton
- macroinvertebrates
- fish (all stages)

Scaled Digital Imaging of Specimens

Multiple count protocols (e.g. NAWQA, NRSA)

Permanent mounts of diatoms, chironomids, and oligochaetes

Rapid evaluations of occurrence/abundance of hazardous algal species

Sediment Core Diatom Analysis

EPT Analysis of Macroinvertebrate Data

Metrics Development using Multivariate Approaches

Ecological Community Evaluations using Index of Biotic Integrity Analysis

Selected Clients

U.S. Environmental Protection Agency

U.S. Department of Defense

Michigan Department of Environment,
Great Lakes, and Energy

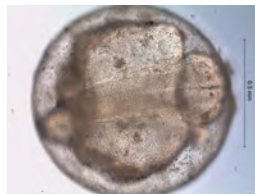
State of Delaware

Grand Traverse Band of Ottawa and
Chippewa Indians

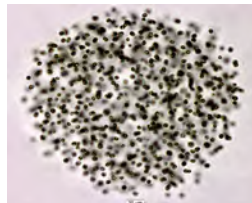
Aquatic organisms are used as indicators in biomonitoring and ecological assessment studies. GLEC has the professional staff and laboratory resources to sample, enumerate and identify, and photograph periphyton, phytoplankton, zooplankton, macroinvertebrates, and fish. GLEC staff have been collecting and identifying aquatic organisms for over 25 years. GLEC taxonomists have processed over 6,000 benthic macroinvertebrate samples and are certified by the Society for Freshwater Sciences. GLEC fish taxonomists are specialists in identifying North American freshwater fish species. GLEC's principal algal taxonomist holds a doctorate in algal ecology and has over 20 years of algal identification experience. Our Traverse City, MI laboratory has a full complement of precision analysis equipment supported by a comprehensive taxonomic library and reference specimens and images.

Laboratory

- Leica DM research-quality microscopes with differential interference contrast
- Zeiss 47 inverted microscope
- Wild M8 and Bausch & Lomb dissecting microscopes
- Leica digital camera and software for scaled high resolution images
- Utermoehl sedimentation chambers
- Large library of taxonomic keys and descriptions, literature, and proceedings
- Extensive reference specimen collection
- Database with thousands of algal and zooplankton digital images
- Field sample collection equipment: D-nets, Hess samplers, Hester-Dendy samplers, dredge samplers



Alewife egg



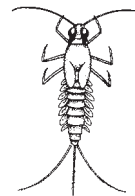
Microcystis aeruginosa



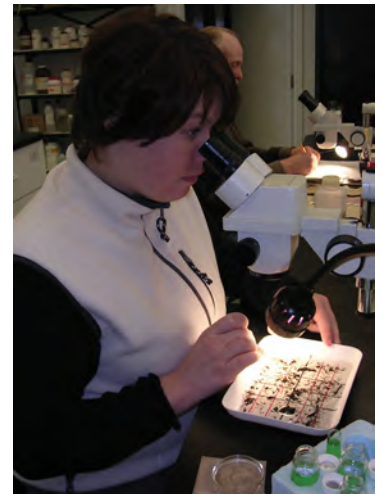
Cymbella aspera



STONE FLY (Nymph)



MAYFLY (Nymph)



Salmo trutta



Percina pantherina

Contact: Dr. Julianne Heinlein
jheinlein@glec.com
231-525-0526

glec.com