

Lake Management

EnviroScience's lake management services range from full-scale watershed and lake diagnostic studies to invasive aquatic species control and fisheries evaluations.

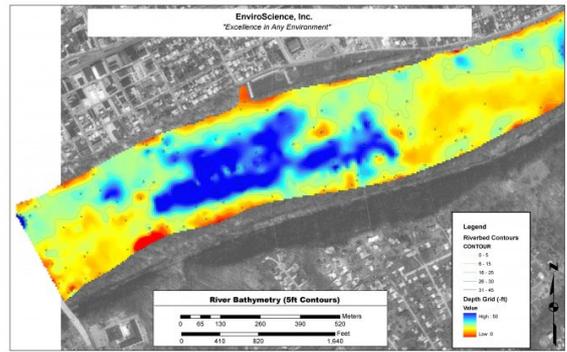
Our services include, but are not limited to:

- Watershed Assessment
- [Water Quality Testing](#)
- Fishery Management
- Aquatic Plant Surveys
- Lake Depth Mapping
- Lakescaping

As with many of our ecological projects, EnviroScience draws on a strong network of university faculty and research staff to support many of our lake projects as consulting scientists. Our partnership with some of the country's top experts in lake management and rehabilitation allows us to bring their expertise to bear on a wide range of problems in our clients' lakes and reservoirs.

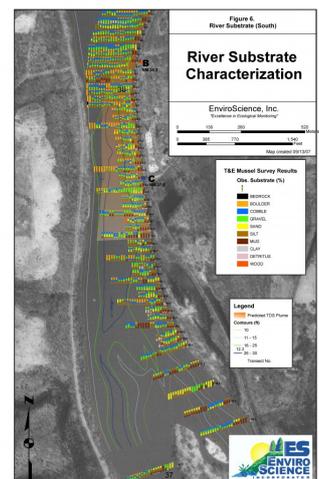
Lake Mapping & Bathymetric Survey

EnviroScience provides cost-effective depth and habitat surveys of lakes, reservoirs, and coastal areas using the latest technology. We maintain an in-house inventory of SyQwest



Lake Mapping / Bathymetric Survey

survey-grade depth sounders (± 1 inch at 1000 feet of water depth) combined with our Trimble sub-meter GPS units. We have the capabilities to perform a wide variety of specialized marine surveys including sub-bottom profiling and substrate mapping, where underwater substrate roughness is mapped automatically using high-powered sonar. We also perform side-scan sonar surveys for identifying underwater objects such as wrecks, containers, and other obstructions. Combined with our advanced GIS services, these survey tools can provide critical mapping of your project area.

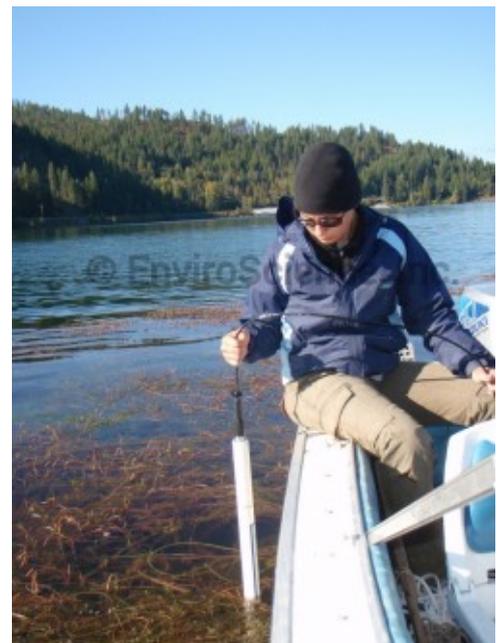


Substrate Characterization

Our key services include:

- Survey-grade depth surveys (SyQwest sounders in-house)
- Sub-bottom profiling
- Diver-performed habitat mapping and characterization
- Substrate mapping
- Side-scan sonar (Starfish Side-scan in-house)
- Aquatic vegetation mapping and identification
- Fishery habitat mapping
- Large-scale thermal profiling (22 thermal arrays in-house)
- Acoustic Doppler Current Profiling (1 unit in-house)
- Remotely Operated Vehicles (ROV)
- Underwater Video Documentation / Inspections

Lake Fisheries & Lake Habitat



Lake Management

Habitat in reference to aquatic ecosystems generally refers to overhanging vegetation, aquatic plants, woody debris, rock, substrate and water depth. The quality and distribution of these structures directly influence the living organisms and the entire lake ecosystem.

Conducting a habitat inventory with a fishery analysis can

effectively guide management decisions concerning recreational fishing, boating, fish stocking and water quality.

Our biologists can assess lake and aquatic ecosystems habitat by several innovative methods including;

- [GPS/GIS mapping](#)
- Aquatic and shoreline vegetative surveys
- SCUBA surveys
- Bottom contour mapping
- Bottom typing using hydroacoustics
- Underwater video

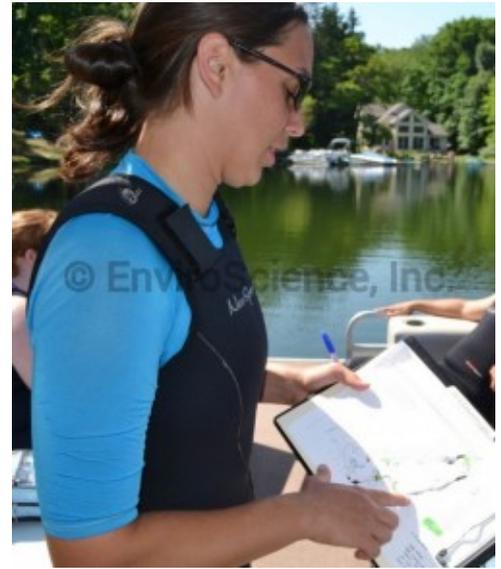
A common recommendation given to many lake managers is the enhancement of structures by both artificial and natural means. EnviroScience can aid in the assessment and application of habitat restoration and enhancement programs.

Habitat can be artificially enhanced by man-made structures which are cost effective and easy to construct. EnviroScience can assist in design and installation of these structures as well as facilitate any associated permitting requirements. Examples of these structures include vertical and horizontal log structures and brush piles.

Lakescaping

A common natural restoration activity requires land owners to cease mowing activities near shorelines and allow the growth of a natural buffer. The reseeding of natural vegetation is one simple way to decrease shoreline erosion and provide shade and cover for juvenile fish. EnviroScience can design an aesthetic natural buffer zone using native plants in a process called Lakescaping. Lakescaping is a viable solution for restoring the natural habitat to help many native species of birds, mammals, and fish thrive.

Watershed Analysis & Assessments



Lake Management

Lake health affects property owners in numerous ways. Poor lake health affects recreation activities, property values, personal health and aesthetic beauty. Often times lake quality is a direct result of land use and drainage patterns within the watershed. A thorough understanding of the type of activities which affect your lake is a powerful weapon against degradation.

Watershed analysis is the systematic and scientific approach to characterizing and evaluating variables that may directly or indirectly influence lake quality. EnviroScience biologists assess watersheds using GPS and GIS mapping technology, water quality studies, field surveys, land use assessments and historical research.

Our watershed analysis reports highlight problem areas and summarize current lake status largely by the use of ArcView® GIS mapping software. The resulting information and maps are very beneficial for making accurate management decisions concerning lake quality issues and our reports provide background information for comparison in the future.

Fishery Management

Fishery Evaluations: A Valuable Management Tool

EnviroScience biologists have extensive experience conducting full-scale fishery evaluations from small private ponds to Lake Erie. EnviroScience has sampled over 4,000 locations throughout the United States, generating an exceptional knowledge base of the biology and ecology of fish communities. Three factors are needed to sustain a viable fishery in any system:

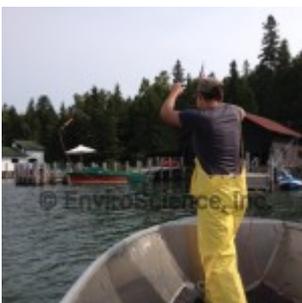
- Habitat- water quality, cover, plants, depth, substrate
- Food- invertebrates, bait fish, plankton
- Reproduction- adult survival, spawning habita

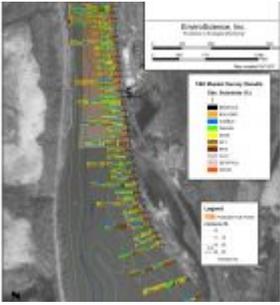
Fishery evaluation – fish survey followed by a detailed report containing comprehensive data analysis, imagery generation, and management recommendations where applicable. An analysis of these factors in combination with abundance and diversity data is an excellent method of assessing the fishery and lake health. Fisheries are sampled using a variety of techniques including electrofishing, hoop netting, seining, gill netting, Global Positioning System technology, and Geographic Information System software. Often times, several methods are used simultaneously to ensure adequate sampling in all habitats. For example, hoop nets target bottom dwelling species sometimes missed by electrofishing.

EnviroScience personnel analyze the data to assess fish population dynamics and health, which are used to develop best management plans for stabilizing or improving the fishery. Recommendations may include stocking and habitat improvement. Our pro-active approach encourages close work and communication with the client, lake association, and other principal stakeholders. Each project is tailored to the specific needs and goals of the lake.

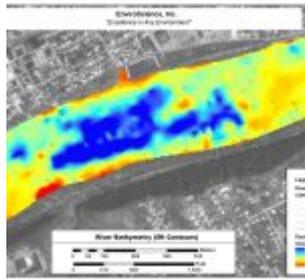
- Nuisance species management – removal of unwanted fish species such as carp, large gizzard shad, etc.
- **Fish surveys** includes the collection of fish for various purposes such as tissue analysis or consumption advisories.
- Bathymetric surveys using the latest in Global Positioning Systems
- Habitat evaluation and improvement recommendations and design
- Comprehensive water quality sampling and lake diagnostics
- Qualitative and quantitative analysis of zooplankton, phytoplankton, and ichthyoplankton

In Action





Substrate
Characteriza
tion



Lake Mapping
/
Bathymetric
Survey

Need help with your project?

Our experts are here to discuss your needs and how we can help you move your project forward. Fill out the form below for more information on our services or to request a quote and we'll get back to you within 24 hours. If you need a response within an hour or less, please call us at 800-940-4025.

Your Name (required)

Your Email (required)

Subject

Your Message

Send