Ecosystem Consulting Service, Inc.

Cooperative Client Based Water Quality Monitoring Program

Designed to Maximize Information and Minimize Costs by Utilizing Client Based Data Collection

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Ecosystem Consulting Service, INC - Client Based Water Quality Monitoring Program

Frequently Asked Questions:

What is a Client Based Sampling Program?

The Ecosystem Consulting Client Monitoring Program is a low cost cooperative study program where clients participate to gather data and water samples as part of a diagnostic study on their water body.

What are the Benefits?

Client based monitoring programs can be an extremely useful tool for companies and communities to observe, understand, and protect surface water health and quality. Client monitoring requires minimal time and expense, yet provides essential information to complete a lake study and make well guided management decisions. The program also makes development of a comprehensive database much more affordable for lakeside communities. Another benefit is that the clients are provided with knowledge and training in the science of Limnology by actually participating in the data acquisition. By being active participants, clients become familiar with the various methods used to diagnose lake conditions and develop an understanding for the results.

Who Can Participate?

Any member of a Client Group (Lake Association, Homeowners, Water Company, Municipal Agency, etc.) with the time and interest to help can participate.

How does it work?

This program is designed to maximize collection of essential information on a water body at lower cost by providing the client with the tools necessary to collect data and samples themselves. Water quality observations can include secchi disk readings, water sample collection of surface water and watershed streams for analysis in a lab, temperature & dissolved oxygen readings using a profiling instrument, zooplankton sample collection, and algae sample collection.

After identifying the important issues in each project, Ecosystem Consulting Service, Inc. sets up a sampling protocol for the client. This protocol identifies the location of sampling station(s) in the lake or reservoir, and in the watershed if necessary. Each station is given a sampling frequency schedule complete with the number and kinds of samples to be collected. We identify the dates on which samples can be collected by the residents and which ones will require ECS, Inc. staff. Most often, samples collected by the client are shipped overnight directly to the analytical lab and field sheets are faxed or emailed to ECS, Inc. for review.

It takes a small group of people (2-3) from a Client Group who are willing to devote some time to the project to collect the samples and data. ECS, Inc. staff provides all the necessary training in the use of the sampling equipment, and works closely with the participants in the program to providing technical assistance whenever needed.

Data Collection Methods and Uses

Secchi Disk

Secchi disk readings provide information on water clarity in a water body. A Secchi disk is a circular weighted plate, 20cm in diameter, with an alternating pattern of black and white quadrants attached to a calibrated line. The disk is lowered into the water column until just out of sight, and the depth read at the water's surface on the calibrated line is the transparency reading. Water transparency is a quick and easy measurement that provides good information on a lake's water quality. First, it indicates the amount of light penetration into a lake. Second, Secchi transparency provides an indirect measure of the amount of suspended material in the water, which in many cases is an indication of the amount of algae in the water. Long-term transparency monitoring by volunteers provides a valuable basis for detecting trends in water quality. Generally, the sooner water-quality problems are detected, the easier and less expensive it is to restore the lake to its previous state.

Sample Collection

Water, algae, and zooplankton samples would require analysis by a lab, but would provide more very valuable information. Water samples from watershed streams and surface water can provide essential information on the amount of turbidity, metals, and nutrients running into a lake and their potential sources. The levels of turbidity, nutrients, and metals in a lake effect many things including the aquatic plant (weeds), algae, and zooplankton communities. It is important to monitor the changes in each of these components to develop a good understanding of how each of them affects the overall water quality of the lake. This information can also be used to help develop management programs to improve and correct any issues that may develop.

Temperature & Dissolved Oxygen Profiles

Temperature and dissolved oxygen readings by depth are a great monitoring tool to help understand how conditions in a lake change throughout the year, and what the biological activity within the lake is like. This information tells how much of the water column is oxygenated, and how strongly the water is stratified (layered) because of temperature differences in the water column. These data can be analyzed and used to make decisions and develop management strategies to improve water quality.

Overall, client monitoring provides valuable information at low cost to help monitor, understand, and protect lake water quality. Information collected can be used to make management decisions and help educate the community on best practices to preserve the value and beauty of their lake.

Client Water Quality Monitoring Kits Offered by Ecosystem Consulting Service, Inc.

The program is customized for each client to suit their individual water body. These kits are examples and can be further customized to fit the customers' needs.

Basic Sampling Equipment Kit

For basic monitoring and sampling. Includes:

1. Secchi disk with calibrated line
2. Temperature & dissolved oxygen probe
3. Water sampler
4. Water sample bottles
5. Cooler for samples with ice packs
6. Sampling Equipment Storage Bin
7. Data entry sheets (Field Data sheet and Reporting Worksheet Excel File)

Intermediate Sampling Equipment Kit

For basic sampling with algae included. In addition to Basic Kit Includes:

1. Depth integrated algae "straw" sampler
2. Sample bottles for algae samples
3. Lugol's Solution for algae sample preservation

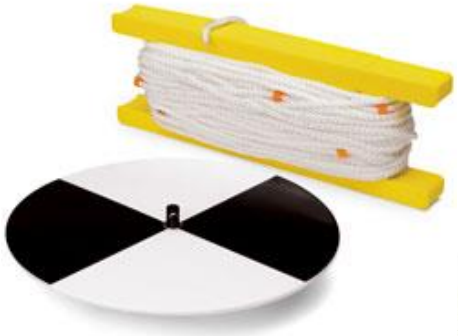
Advanced Sampling Equipment Kit

For complete sampling. In addition to Basic Kit Includes:

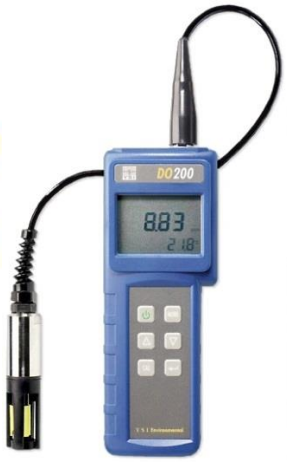
1. Depth integrated algae straw sampler
2. Zooplankton net sampler
3. Sample bottles for algae and zooplankton samples
4. Lugol's Solution for zooplankton and algae sample preservation

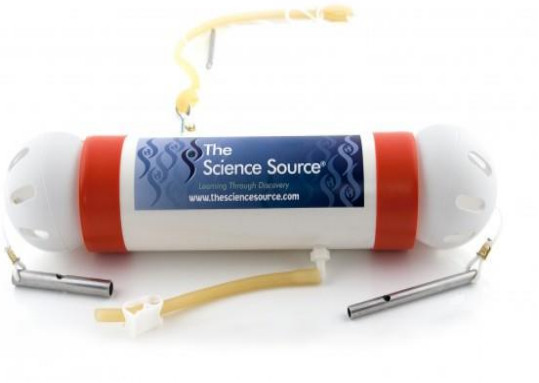
Client Water Quality Monitoring Kit Equipment

YSI DO200 Temperature and Dissolved Oxygen Probe



Secchi Disk



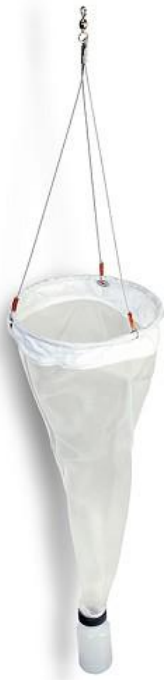


Water Sampler

Lugol's Preservative for Algae/Zooplankton Samples

Depth Integrated Algae Sampling "Straw"

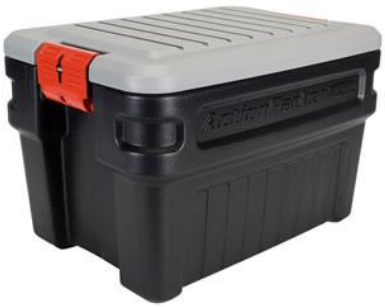
16oz Water Sample Bottle



4oz Zooplankton/Algae Sample Bottle

Zooplankton Sampling Net

Cooler for Water Samples



Sampling Equipment Storage Bin