



*A lake  
is the landscape's  
most beautiful and  
expressive feature.*

*It is earth's eye;  
looking into which  
the beholder  
measures the depth  
of his own nature.*

*—Henry David Thoreau*

# Introduction

**THANK YOU** for joining the **Citizen Lake Monitoring Network (CLMN or Network)**. You are one of over a thousand citizen volunteers currently monitoring Wisconsin's lakes. Over one million acres of Wisconsin is covered by water. Wisconsin's 15,000 lakes contribute significantly to the economy of individual communities and the state. In addition, these lakes offer diverse recreational opportunities and provide important habitat for fish, waterfowl, and other wildlife. The volunteer monitoring network provides an opportunity for citizens to take an active role in monitoring and maintaining water quality. Through this volunteer network, you can learn about your lake and help the Wisconsin Lakes Partnership gain a better understanding of our state's lakes. More importantly, you can share your knowledge and the information you gather with your **lake association** and other lake residents.

The partnering of concerned citizens and the Wisconsin Department of Natural Resources (Wisconsin DNR) was initiated in 1986. In the Network's first year, volunteers throughout the state monitored 129 lakes. Since then, the Network has grown to include over 1,200 volunteers monitoring more than 900 lakes statewide! Some volunteers monitor more than one lake and some larger lakes are monitored at more than one location. Many volunteers share monitoring responsibilities with a friend or a group of friends.

Since 1986, the partnership has grown to include volunteers, the Wisconsin DNR, University of Wisconsin – Extension (UWEX), and Wisconsin Lakes. CLMN offers volunteers the opportunity to collect many types of data. The types of data you collect will depend on your concerns and interests, as well as the amount of time you wish to spend monitoring. **Secchi disk** monitoring is the backbone of CLMN and is the most common type of monitoring. Secchi volunteers collect water clarity information on their lakes throughout the open water season. After collecting Secchi data for one or more years, some volunteers choose to get involved in other types of monitoring. Secchi volunteers may be asked by their Lakes Coordinator to collect chemistry data on their lake. Chemistry volunteers



**A full glossary of highlighted terms is provided on page 43 of this manual.**

**LAKE ASSOCIATION** • A voluntary organization with a membership generally comprised of those who own land on or near a lake. The goals of lake associations usually include maintaining, protecting, and improving the quality of a lake, its fisheries, and its watershed.

**SECCHI DISK** • A 20-cm (8-inch) diameter disk painted white and black in alternating quadrants. It is used to measure light transparency in lakes.

**PHOSPHORUS** • The major nutrient influencing plant and algal growth in more than 80% of Wisconsin lakes. Soluble reactive phosphorus refers to the amount of phosphorus in solution that is available to plants and algae. Total phosphorus refers to the amount of phosphorus in solution (reactive) and in particulate forms (non-reactive).

**CHLOROPHYLL** • Green pigment present in all plant life and necessary for photosynthesis. The amount of chlorophyll present in lake water depends on the amount of algae and is used as a common indicator of water quality.





**DISSOLVED OXYGEN** • A measure of the amount of oxygen gas dissolved in water and available for use by microorganisms and fish. Dissolved oxygen is produced by aquatic plants and algae as part of photosynthesis.

**LAKE CLASSIFICATION** • A way of placing lakes into categories with management strategies best suited to the types of lakes found in each category. For example, lakes can be classified to apply varying shoreland development standards. They can be grouped based on hydrology, average depth, surface area, shoreline configuration, as well as, sensitivity to pollutants and recreational use.



*Children of a culture born  
in a water-rich  
environment, we have  
never really learned how  
important water is to us.*

*We understand it,  
but we do not respect it.*

*—William Ashworth*



collect **phosphorus** and **chlorophyll** samples four times a year *in addition to* collecting Secchi data. This more extensive volunteer monitoring allows Wisconsin DNR lake managers to assess the nutrient enrichment state for their lakes. In addition, some volunteers also collect temperature and **dissolved oxygen** (DO) data for their lakes. Other types of monitoring activities include aquatic invasive species monitoring and native aquatic plant monitoring. Ideally, all volunteers will be able to find a level of involvement that suits their interests and abilities.

The partnership between the volunteer monitors and the Wisconsin DNR has resulted in an extensive volunteer monitoring database. Data collected by volunteers has been published in numerous reports and is frequently used by limnologists (scientists who study lakes) and water resource planners for a variety of purposes. In addition, volunteer data is reported to the U.S. Environmental Protection Agency (EPA) on a regular basis.

## What is Expected of Me?

What we need most from you is your time and your keen powers of observation! As a Secchi volunteer, you will determine how the water clarity of your lake compares to similar lakes statewide and watch for long-term changes. The Network will provide all of the equipment that you will need to collect your data. You may be asked to participate in refresher sessions. These sessions provide an opportunity to meet other volunteers and to ask Wisconsin DNR staff questions about monitoring and lake issues as well as ensuring that all volunteers are following CLMN monitoring protocols.

There are three things that may influence your enjoyment when participating as a citizen volunteer: your overall health, the type of boat you use, and whether or not you have a sampling partner. While the sampling duties are not too physically demanding, you should be in good overall health. A fishing-type boat or pontoon boat is ideal for sampling work and will be safer and more comfortable than a canoe. A sampling partner will make your job safer, easier, and faster as one person can record data while the other collects samples.



## HOW IS CLMN DATA USED?

All citizen volunteers receive an annual data summary report, electronically or by mail, for their lake as well as periodic statewide reports. Most volunteers share this information with other lake residents who are interested in learning more about lake water quality. Lake groups, DNR, and county land conservation offices use CLMN data to support water quality projects such as shoreland restoration, **lake classification**, shoreland zoning, and nutrient diversion projects as well as to study lakes and aquatic invasive species. All lake data is available to the public on the Wisconsin DNR web site [www.dnr.wi.gov/lakes/CLMN](http://www.dnr.wi.gov/lakes/CLMN).

Local and state offices use CLMN data to answer questions they receive regarding macrophyte and water levels, property purchases, and algal blooms. Professionals and lay people use CLMN data in newsletter articles and in presentations to lake associations.

We estimate that citizen collected data has a value of \$4.08 million since 1986!

### **Fish biologists and lake managers use volunteer data to**

- support general lake management decisions,
- support lake planning and protection grants,
- craft aquatic invasive species management decisions,
- determine lake health,
- look at winterkill or summer anoxic conditions,
- supplement statewide long-term trend data to analyze trends and issues and climate change, and
- establish "baseline" data to look at water quality changes and trends through time.

**CLMN data** is used to research water quality trends, to assist with remote sensing research, to investigate climate change and to further wildlife research.

**Volunteer data is provided to other organizations, the state legislature, and federal, tribal, and local agencies** that in turn may use this data to help determine funding for invasive species grants and programs. Citizen generated data is used every two years to report trends in Wisconsin lakes and to identify needs to the Federal government.

**Volunteer data is also used by World Monitoring Day™**, an international education and outreach program that builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local water bodies.

**Volunteer data is incorporated into the Secchi Dip-In.** The Secchi Dip-In is a demonstration of the potential of volunteer monitors to gather environmentally important information on our lakes, rivers, and estuaries. The Dip-In can be done any day in July, in concurrence with Lakes Appreciation Day. Contact [secchidipin@nalms.org](mailto:secchidipin@nalms.org).