



# DIP INTO

## Volunteer Monitoring

with the Great North American Secchi Dip-In

### What Is a Secchi Disk?

Father Pietro Angelo Secchi, scientific advisor to the Pope, was asked by Commander Cialdi, head of the Papal Navy, to develop and test a new water transparency instrument in the Mediterranean Sea. This instrument, now named the “Secchi” disk, was first lowered from the papal steam yacht *l’Immacolata Concezione* (The Immaculate Conception) in the Mediterranean Sea on April 20, 1865.

The typical Secchi disk used in lakes is an 8-inch disk with alternating black and white quadrants (like a checkerboard). It’s lowered into the water until the observer can no longer see it. The depth of disappearance, called the Secchi depth, is a measure of the transparency of the water.

Transparency decreases as the amount of particulate materials—such as algae and suspended sediment—increases. The amount of algae that grows is affected by the amount of nutrients coming from sewage treatment plants, septic tanks, and lawn and agricultural fertilizer, as well as suspended sediments washed from construction sites, agricultural fields, urban storm runoff, or churned upward from bottom deposits.

The Great North American Secchi Dip-In is celebrated each year in the first 2 weeks of July. Volunteer monitors across North America take to their local lakes and reservoirs (and also estuaries, rivers, and streams) to measure water transparency. Sponsored by the North American Lake Management Society (NALMS) and the U.S. Environmental Protection Agency (EPA) and directed by Kent State University, the Dip-In accepts data from Secchi disks and other instruments, as well as temperature and pH data. The data collected are used to assess the transparency of volunteer-monitored waterbodies in the United States and Canada. The Dip-In collects valuable data on lake usage and user perceptions of water quality.

One of the goals of the Dip-In is to increase the number of volunteer monitors and to spark public interest in environmental monitoring. The volunteer monitoring programs’ efforts are a much appreciated and highly valuable part of many states’ monitoring efforts. Quality assurance is enhanced if the volunteer participates in both the national effort and local activities.

The Dip-In also provides a national perspective on water quality. Since 1994, more than 6,000 trained volunteers have generated 27,000 data entries. The data give a comprehensive glimpse of lake water transparency at volunteer-monitored sites across North America and the rest of the world. Scientists and volunteers observe how transparency varies according to water type, regional geology, and land use.

Kent State University provides public access to the Dip-In monitoring data through a Web site. The site also includes information on a number of common monitoring variables.

**Transparency is a good indicator of the impacts from human activity on the land surrounding the water body. If transparency is measured through the season and from year to year, trends in transparency can be observed. Transparency can serve as an early warning that activities on the land are affecting water quality.**

**Dip-In Web site**

**<http://dipin.kent.edu>**



## The History of the Dip-In

The first Great American Dip-In in 1994 drew an impressive 40 percent response rate from those contacted. Dip-In '94 involved more than 800 volunteers from six Midwest states— Indiana, Illinois, Michigan, Minnesota, Ohio, and Wisconsin. In 1995 the Dip-In was expanded to include volunteers from across the United States. Some 2,000 volunteers from 37 states and 2 provinces of Canada signed up, and organizers added estuary and river programs to the sites sampled. By 1998 the Dip-In had spread even further, as Canada became an official Dip-In member.

## Get Involved!

If you or your volunteer monitoring group has not yet joined in the fun, here are some reasons to Dip-In this summer:

1. Educate the public about water quality issues by alerting the media to your Dip-In activities.
2. Local Dip-In activities can boost your membership.
3. Get a sense of involvement in an international monitoring effort.
4. Provide a sense of accomplishment by distributing Dip-In results to your participants.

To enroll, visit <http://dipin.kent.edu>.

## Clean Lakes and You

Each year, along with the Dip-In, EPA and NALMS ([www.nalms.org](http://www.nalms.org)) celebrate the entire month of July as “Lakes Awareness Month.” The surface area and number of lakes in North America far exceed those of any other continent, yet lakes are our most underappreciated natural resource. We use lakes for many purposes such as water supply for municipal, industrial, and agricultural use; recreation, including boating, swimming, and fishing; flood control; and aesthetic enjoyment. Celebrate your lake and get involved with local efforts to keep it clean!



### Here are five things you can do to protect your lake's water quality:

- **Organize a lakeshore clean up to collect trash and litter washed up on shore.**
- **Recycle used motor oil.**
- **Clean off recreational equipment after use to stop aquatic hitchhikers.**
- **Use pump-out stations for boat waste.**
- **Let natural vegetation grow by the lake—mow and fertilize less!**

For more information, visit [www.epa.gov/owow/lakes](http://www.epa.gov/owow/lakes), [www.epa.gov/owow/monitoring/volunteer](http://www.epa.gov/owow/monitoring/volunteer) or [www.nalms.org](http://www.nalms.org).

# RESOURCES

## Volunteer Monitor

[www.epa.gov/owow/monitoring/volunteer/vm\\_index.html](http://www.epa.gov/owow/monitoring/volunteer/vm_index.html)

*The Volunteer Monitor* newsletter facilitates the exchange of ideas, monitoring methods, and practical advice among volunteer environmental monitoring groups across the nation.

## National Directory of Volunteer Monitoring Programs

<http://yosemite.epa.gov/water/volmon.nsf>

This directory lists volunteer organizations around the country engaged in monitoring rivers, lakes, estuaries, beaches, wetlands, and ground water, as well as surrounding lands. It's intended to serve as a living document that will grow and change with the continued flourishing of the volunteer monitoring movement nationwide.

## Managing Lakes and Reservoirs

[www.nalms.org/bkstore](http://www.nalms.org/bkstore)

This manual, published by NALMS and the Terrene Institute in 2001, deals with the very broad subject of protecting and managing lakes and reservoirs. It's written not only for scientists and engineers but also for informed citizens who are interested in protecting and managing lakes.

## Catalog of Federal Funding Sources for Watershed Protection

[www.epa.gov/watershedfunding](http://www.epa.gov/watershedfunding)

EPA has developed a searchable, interactive Web site to support watershed stakeholders' efforts to secure funding to implement watershed protection projects such as volunteer monitoring projects. The Web site offers users access to a database of approximately 100 programs offering financial assistance (grants, loans, cost-sharing) specially geared towards watershed-related projects.

### For More Information on Dip-In:

Dr. Bob Carlson  
Great North American Secchi Dip-In  
Department of Biological Sciences  
Kent State University  
Kent, Ohio 44242

Phone: 330-672-3992  
E-mail: [DipIn@kent.edu](mailto:DipIn@kent.edu)

June 2003