# Connecticut Federation of Lakes Volunteer Water Clarity Monitoring

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"The voice of Connecticut lakes"

## Abstract

The Connecticut Federation of Lakes (CFL) recognizes the importance of scientific data collection in the long-term management of Connecticut's inland waterbodies. Since 2003, the CFL has sponsored a volunteer Secchi disk monitoring program. The program initially trained and equipped 51 residents to monitor water clarity throughout the season. Of these volunteers, approximately 34 lakes have since reported data to the CFL. Over the years, program participation has been variable.

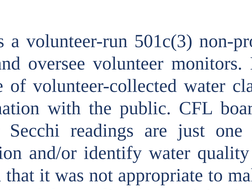
CFL is a volunteer-run 501c(3) non-profit entity with limited capacity to train and oversee volunteer monitors. By 2013, the CFL had amassed a decade of volunteer-collected water clarity data and wished to share this information with the public. CFL board members recognized that water clarity Secchi readings are just one parameter needed to assess lake condition and/or identify water quality changes over time, and the board agreed that it was not appropriate to make assumptions about increasing or decreasing lake quality for participating lakes with intermittent volunteer data. The role of the CFL is to be an educational entity that encourages volunteers to take an active part in monitoring their lakes, while providing a framework to help start and train volunteers in lake clarity monitoring. The CFL will continue its role in housing and organizing volunteer Secchi monitoring data to share with professional lake managers, limnological researchers, and government agencies. These data partnerships will promote enhanced protection and management of Connecticut's water resources.

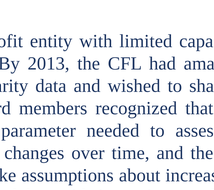
### Program Objectives:

1. Educate and engage lake resident communities.
2. Provide a continuous long term water clarity data set for as many CT lakes as possible.
3. Establish baseline conditions and provide data that can be used by lake management professionals and government agencies to identify potential trends (seasonal vs. long term patterns) in CT lake quality.
4. Supplement additional professionally collected data to enhance lake management programs.
5. Provide a way for lake groups to see how their lake compares to other waterbodies of Connecticut.

## What is a Secchi Disk? & How Does One Monitor Lake Water Clarity?

A Secchi disk is a simple and very low cost tool to monitor water clarity. A Secchi disk used for monitoring lake water clarity is a black and white circular plate attached to a calibrated rope or a measuring tape.



It is used to measure water clarity in open water, in the deepest area of a lake. To make a Secchi disk reading, you must lower the disk down into the water off the side of the boat and observe how far it remains visible. A proper Secchi disk transparency reading is made by taking the average of the depth at which the disk disappears and depth at which the disk becomes visible again.

Secchi measurements are dependent on sunlight penetration and are affected by phytoplankton and suspended particles in the water column. Clearer waterbodies have greater Secchi readings.

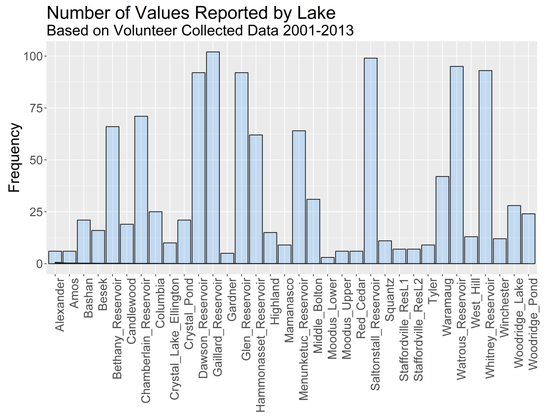
## Ask How to Get Involved!

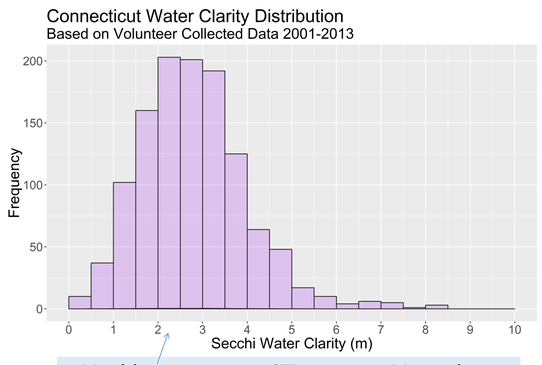
The CFL hopes to expand and improve upon the volunteer monitoring program in future years so all lake residents are encouraged to participate!

If you would like to participate in the volunteer Secchi disk monitoring program please contact: info@ctlakes.org

## Ranges of Secchi Values in Connecticut

| Parameters & Defining Ranges for Trophic State of Lakes in Connecticut (Defined by CT DEEP) | | |
|---|---|---|
| **Trophic State** | **Parameters** | **Defining Range** |
| **Oligotrophic** (Clear water) | Secchi disk transparency | 6+ meters mid-summer |
| | Total Phosphorus | 0-10µg/L spring and summer |
| | Total Nitrogen | 0-200µg/L spring and summer |
| | Chlorophyll-a | 0-2µg/L mid-summer |
| **Mesotrophic** (Somewhat clear water) | Secchi disk transparency | 2-6 meters mid-summer |
| | Total Phosphorus | 10-30µg/L spring and summer |
| | Total Nitrogen | 200-600µg/L spring and summer |
| | Chlorophyll-a | 2-15µg/L mid-summer |
| **Eutrophic** (Algae dominated turbid waters) | Secchi disk transparency | 1-2 meters mid-summer |
| | Total Phosphorus | 30-50µg/L spring and summer |
| | Total Nitrogen | 600-1000µg/L spring and summer |
| | Chlorophyll-a | 15-30µg/L mid-summer |
| **Highly Eutrophic** (Very turbid waters, excessive phytoplanktonic algae) | Secchi disk transparency | 0-1 meter mid-summer |
| | Total Phosphorus | 50+ µg/L spring and summer |
| | Total Nitrogen | 1000+ µg/L spring and summer |
| | Chlorophyll-a | 30+ µg/L mid-summer |

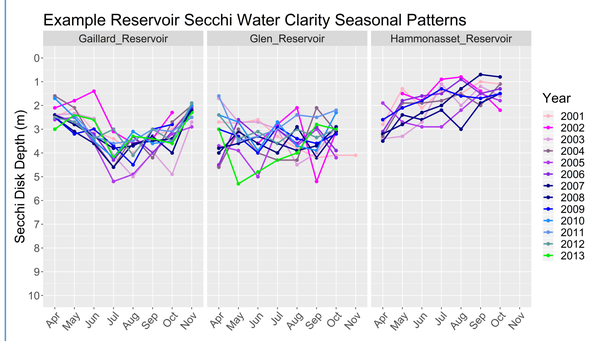


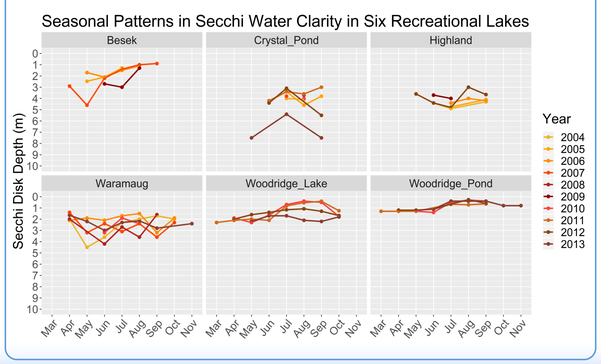




Most lakes participating in CFL program are Mesotrophic to Eutrophic (very few clear-water Oligotrophic lakes)

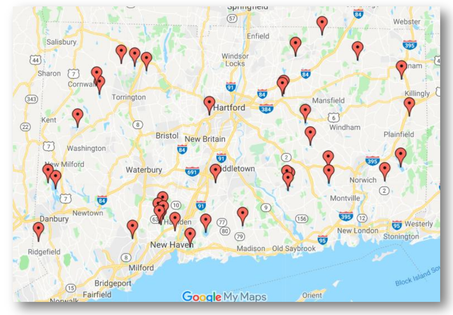
## Establishing Long-Term Datasets

The following figures represent ways in which researchers and professional lake managers may use volunteer-collected water clarity data to visualize potential trends over time. Acknowledging inherent limitations of volunteer Secchi data, managers and regulatory agencies can use this information to aid in future natural resource management.

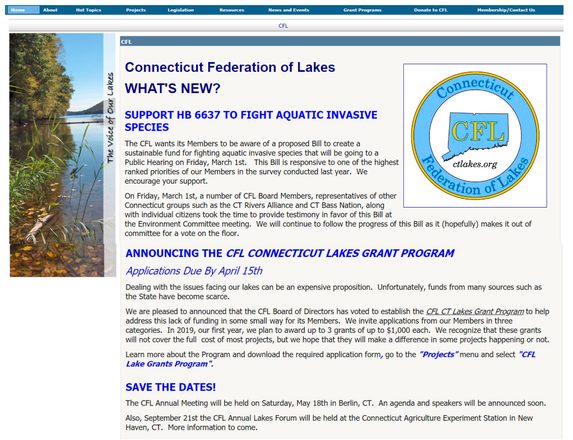

## Map of Participating Lakes




## Please Visit CFL Website

http://www.ctlakes.org/

Please visit the CFL website to find out more about current initiates or to sign up for our newsletters and email reminders. Become a member and get exclusive access to educational materials, small lake grant programs, and lake management conferences.



Connecticut Federation of Lakes

**WHAT'S NEW?**

**SUPPORT HB 6637 TO FIGHT AQUATIC INVASIVE SPECIES**

The CFL wants its Members to be aware of a proposed Bill to create a sustainable fund for fighting aquatic invasive species that will be going to a Public Hearing on Friday, March 1st. This Bill is responsive to one of the highest ranked priorities of our Members in the survey conducted last year. We encourage your support.

On Friday, March 1st, a number of CFL Board Members, representatives of other Connecticut groups such as the CT Rivers Alliance and CT Bass Nation, along with individual citizens took the time to provide testimony in favor of this Bill at the Environment Committee meeting. We will continue to follow the progress of this Bill as it (hopefully) makes it out of committee for a vote on the floor.

**ANNOUNCING THE *CFL CONNECTICUT LAKES GRANT PROGRAM***

*Applications Due By April 15th*

Dealing with the issues facing our lakes can be an expensive proposition. Unfortunately, funds from many sources such as the State have become scarce.

We are pleased to announced that the CFL Board of Directors has voted to establish the *CFL CT Lakes Grant Program* to help address this lack of funding in some small way for its Members. We invite applications from our Members in three categories. In 2019, our first year, we plan to award up to 3 grants of up to $1,000 each. We recognize that these grants will not cover the full cost of most projects, but we hope that they will make a difference in some projects happening or not.

Learn more about the Program and download the required application form, go to the ***"Projects"*** menu and select ***"CFL Lake Grants Program"***.

**SAVE THE DATES!**

The CFL Annual Meeting will be held on Saturday, May 18th in Berlin, CT. An agenda and speakers will be announced soon.

Also, September 21st the CFL Annual Lakes Forum will be held at the Connecticut Agriculture Experiment Station in New Haven, CT. More information to come.

## Acknowledgements

**CFL Board 2017-2019**

Officers:

Connie Trolle, President
Randy Miller, Vice-President
Anne Lizarralde, Secretary
Rebekah White, Treasurer

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Connect to CFL on Facebook too!

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