



The Monitor

The newsletter of Wisconsin's Citizen Lake Monitoring Network

Volume 4, Issue 3
Fall 2018

What is a Marl Lake?

Only four lakes in Wisconsin carry an official name of "Marl Lake", but we actually have thousands of marl lakes across our state. A marl lake is one where the sediments are composed in large part of marl, a mineral-based material that accumulates in hard-water lakes, streams, and wetlands.

In areas of the state with "hard" water (containing a high dissolved mineral content), the groundwater delivers a huge amount of minerals to lakes through springs, stream inflows, etc. The lake's water becomes saturated with dissolved minerals. These dissolved minerals are held in the water solution as long as the pH of the water remains constant or increases (keep this in mind as you read on). Meanwhile, aquatic plants and algae are absorbing carbon dioxide and sunlight as they make food through photosynthesis. As carbon dioxide is removed from the water, it causes the pH to increase slightly, and this allows even more minerals to be dissolved in the water. So where is the marl coming from? Well, the magic happens at night. The same plants and algae that were removing carbon dioxide from the water during the day are now adding carbon dioxide to the water through respiration, and the pH slowly drops. This forces some of the dissolved minerals to solidify and drop out of the water solution, accumulating most noticeably on aquatic plant leaves (where the respiration is happening).

Marl sediments tend to be gray and gooeey, often with bits of snail shells mixed in. The high mineral content of marl resulted in this material being dredged out of many Wisconsin lakes in the mid 1900s and incorporated into agricultural fields to raise the soil pH. The air photo shown at the top of this article shows a Portage County lake with marl-mining scars where a type of dredging equipment called a drag line scooped marl out. Many lakes still bear these scars decades after they were dug.

An important characteristic of marl is its ability to bind dissolved phosphorus in the water. As the marl drops out of the water solution, it binds to phosphorus and locks it up in the sediments in an unusable form for plants and algae. This results in high water clarity on many marl lakes.



The sediments from this Marquette Co. lake are gray and gooeey - typical traits of marl-based sediments.

Announcements

Come to the 2019 Wisconsin Lakes Partnership Convention

The 2019 Wisconsin Lakes Partnership Convention will be held on April 10-12, 2019 at the Stevens Point Holiday Inn & Convention Center. Next year's Convention includes a full day of workshops and two days of concurrent presentations. We are excited to announce keynote presentations by:

Dr. Doug Tallamy, University of Delaware, Entomologist and author of
Bringing Nature Home: How you can sustain wildlife with native plants

Dr. Stephen Polasky, University of Minnesota, Ecological Economist and co-founder of
The Natural Capital Project

Join over 500 lake residents and aquatic scientists as we celebrate lakes and the many ways that we interact with them! A full agenda and registration information will be available soon at

<https://www.uwsp.edu/cnr-ap/UWEXLakes/Pages/programs/convention/default.aspx>

Longtime CLMN volunteer shares her story

Mary Jane Bumby has been a CLMN volunteer on Big Green Lake since 1986, making her one of only 3 volunteers that have monitored their lake through the entire 34-year duration of the Citizen Lake Monitoring Network. Ripon College recently published an article highlighting Mary Jane's work.

<https://www.ripon.edu/2018/10/25/mary-jane-bumby-52-takes-biology-from-the-classroom-to-the-environment/>

Please submit any remaining data as soon as possible

If you have any remaining CLMN data that has not been entered into the SWIMS database, please enter it as soon as possible, or send datasheets to Paul Skawinski to enter into the database. Remember that your lake data shows up in your annual report by the next day and is viewable at any time by visiting this link:

<http://dnr.wi.gov/lakes/clmn/>

The contents of *The Monitor* do not necessarily reflect the views and policies of UW-Extension, UWSP-CNR, the Wisconsin DNR, or Wisconsin Lakes. Mention of trade names, commercial products, private businesses, or publicly financed programs does not constitute endorsement. Articles in the *The Monitor* may be reprinted or reproduced for further distribution with acknowledgement to the author, *The Monitor* (including volume and issue numbers), and the Wisconsin Lakes Partnership. If you need this material in an alternate format, please contact our office.

www.uwsp.edu/uwexlakes | uwexlakes@uwsp.edu | 715-346-2116
A bi-monthly electronic publication of the Wisconsin Lakes Partnership

Editor/Designer: Paul Skawinski, CLMN Statewide Coordinator -- Paul.Skawinski@uwsp.edu
Author/photographer: Paul Skawinski, unless otherwise noted



College of Natural Resources
University of Wisconsin - Stevens Point

UW
Extension
University of Wisconsin-Extension