

Welcome to MiCorps Cooperative Lakes Monitoring Program's Annual Training.

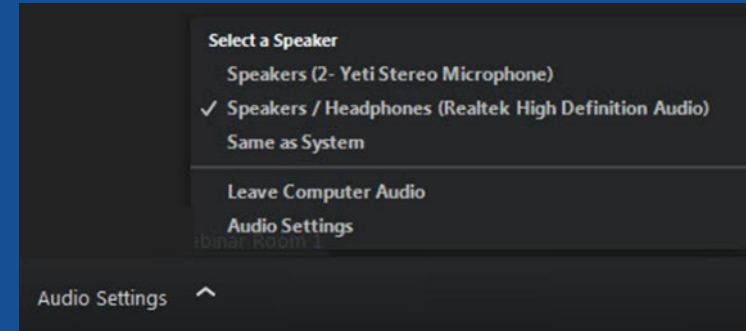
- For CLMP procedures and data forms please visit: micorps.net/lake-monitoring/clmp-documents/ and then click on the name of the parameter.

Today's Agenda:

9:00 AM – 9:15 AM	Welcome and CLMP Review
9:15 – 10:15 AM	Secchi Disk & Phosphorus
10:15 - 10:30 AM	BREAK
10:30 – 11:30 AM	Dissolved Oxygen & Temperature
11:30 AM – 1:00 PM	LUNCH BREAK
1:00 – 2:00 PM	Chlorophyll-a
2:00 – 3:00 PM	Score the Shore
3:00 – 3:15 PM	BREAK
3:15 PM – 4:30 PM	Exotic Aquatic Plant Watch

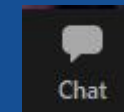
Getting Started

- Audio is through your computer speakers or headset: **You may not hear sound until training begins.**
- Use the **Audio Settings** option to do a sound check.
- During the webinar if you do not hear audio, make sure your sound is turned on then contact the **Help Desk**.



How to Ask Questions

1. Click on the Chat Icon to submit a question to the presenters.



Help Desk

Call the Distance Learning Help Desk (800) 500-1554 for technical support.



Cooperative Lakes Monitoring Program

Welcome and Introduction

Tamara Lipsey and Jo Latimore



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Tamara Lipsey

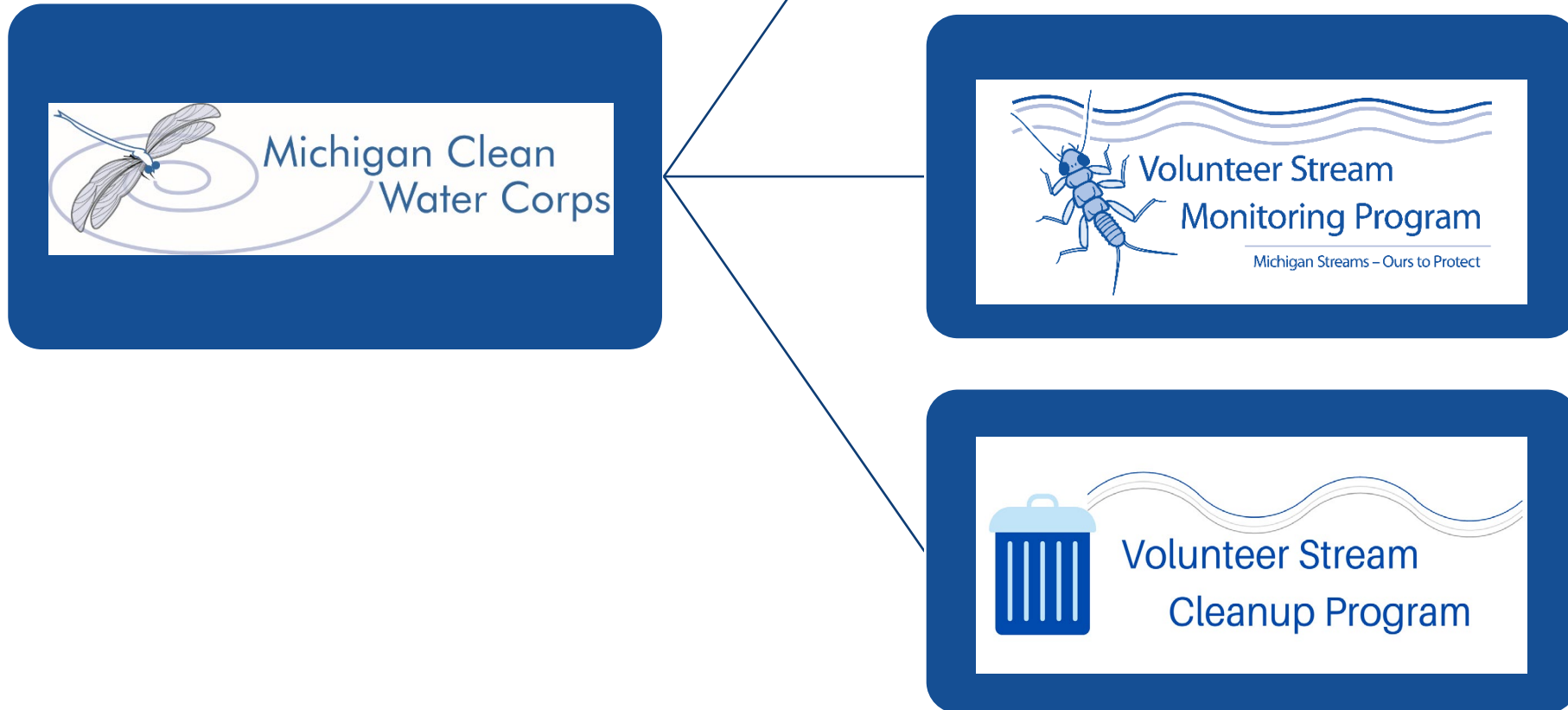
Aquatic Biologist

Water Resources Division

517-342-4372

lipseyt@michigan.gov

MiCorps Program Organization





Cooperative Lakes Monitoring Program

- Celebrating 50 years
 - Second oldest volunteer monitoring program in the country
 - Online Database available
 - Reliable data is used by many!!

Michigan Clean Water Corps (MiCorps)



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

MICHIGAN STATE
UNIVERSITY



- Funded through EGLE
 - RENEW Michigan-state general fund
 - Special water quality license plate funds
- 5-Year Contract with MSU
 - 2 staff, plus 2 additional RS/GIS staff
- 2 subcontracts
 - 2 staff
- TEAMWORK!!



Jo Latimore
(MSU)



Erick Elgin
(MSU)



Paul Steen
(HRWC)



Tamara Lipsey
(EGLE)



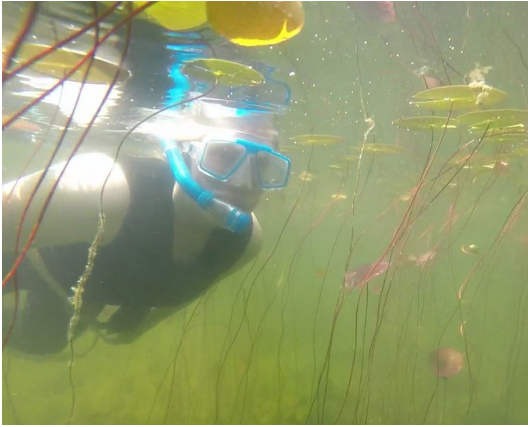
Melissa
DeSimone
(MLSA)



Mike
Gallagher
(MLSA)



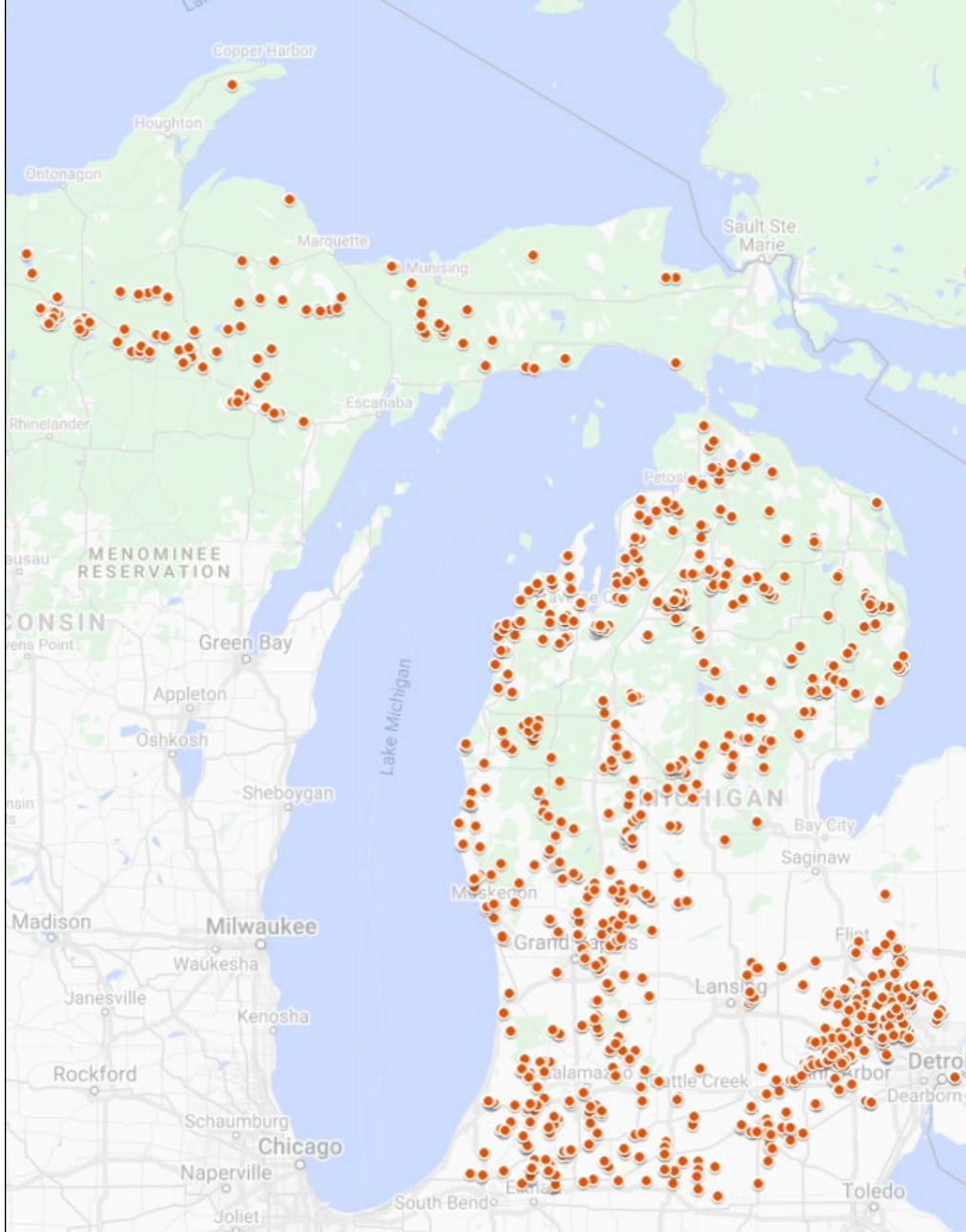
Jean Roth
(MLSA)



MICHIGAN STATE
UNIVERSITY

Jo Latimore, Ph.D.
MiCorps Director
517-432-1491
latimor1@msu.edu

You collect a lot of data!



Michigan Clean Water Corps

Search...

About Lake Monitoring Stream Monitoring Data Exchange Resources

MiCorps Data Exchange Search Results

Download in Excel New Search

Searched by county: Oakland

Page 1 of 29

From January, 01 1970 to November, 12 2021

5, 10, 25 sites per page

Sort by: County Watershed

County HUC and Watershed	Lake Name	STORETID
Oakland 4090005Huron Secchi	Angela	631121

Date	Time	Depth	Weather	
Sep 17, 2019	13:30:00	6 ft	Windy	View Graph
Sep 13, 2019	14:30:00	5 ft	Windy	View Graph
Sep 7, 2019	16:15:00	6 ft	Windy	View Graph
Aug 29, 2019	12:20:00	5 ft	Windy	View Graph
Aug 19, 2019	15:30:00	4 ft		View Graph



Resources

Resources on MiCorps.net

- Fact sheets for each CLMP parameter
- **Protocol manual**
- Historical CLMP Reports
- All data forms, schedules, and **quick protocols**
- Training videos

micorps.net → Lake Monitoring → CLMP Documents



Fact Sheet

Chlorophyll *a*

What do chlorophyll measurements tell us about our lakes?

What is chlorophyll *a*?

Chlorophyll is the pigment that allows plants (including algae) to use sunlight to convert simple molecules into organic compounds via the process of photosynthesis. Of the several kinds of chlorophyll, chlorophyll *a* is the predominant type found in green plants and algae. Measuring chlorophyll *a* concentrations in water is a surrogate for actually measuring algae biomass, which is far more expensive and time consuming.

Why is chlorophyll important?

Algae are remarkably diverse and are naturally present in all lakes. They produce oxygen and form the base of the entire lake food web. By measuring chlorophyll *a*, we can better understand the biological community a lake can support and how a lake may be changing through time. For example, if chlorophyll *a* is increasing in a lake through the years, this may indicate there are serious nutrient pollution problems. Chlorophyll *a* is also the main parameter used to calculate the trophic state of a lake (Oligotrophic, Mesotrophic, and Eutrophic). Trophic state is used to classify lakes based on productivity/overall biological growth. Trophic state helps us understand many aspects of the lake from its chemical properties to the amount of fish biomass a lake can support.

What affects chlorophyll?

Algae growth, and thus chlorophyll *a* levels, are directly affected by the amount of nutrients in a lake. Phosphorus is a naturally occurring element in the sediment, water, and biota of a lake. It is the most influential nutrient in most Michigan lakes. Some lakes naturally have more phosphorus than others. However, humans often introduce extra phosphorus into a lake through poorly maintained septic systems, shoreline erosion, lawn fertilizer, and from agricultural or urban runoff. The more phosphorus inputs a lake receives, the more algae it will likely have.



Bruce Lichliter, CLMP volunteer from Big Glen Lake, prepares to lower the water column composite sampler into the lake (credit: Mike Litch).

How is it measured?

The amount of chlorophyll in an algal cell varies with algae species as well as with changing light conditions at different depths within the lake. Changing seasons also create different light and nutrient conditions that, in turn, affect the algae community. To account for some of this variability, Cooperative Lake Monitoring Program (CLMP) volunteers monitor chlorophyll *a* during five sampling events over the summer season (May through September) using a sampling technique that collects water throughout the lake's photic zone. The photic zone of the lake is the upper portion of the water column where sunlight penetrates and supports growth and reproduction of free-floating algae (aka phytoplankton). The CLMP program defines the photic zone as twice the Secchi disk transparency measurement.

Once the water sample is obtained, CLMP volunteers push a known volume of water through a filter disk, which collects the algal cells. The filter disk is frozen and delivered to the Michigan Department of Environment, Great Lakes, and Energy laboratory for analysis.

A lake is going to vary in chlorophyll *a* levels over time. Therefore, it is very important to monitor it over a long period of time to understand if levels are truly increasing, decreasing, or staying the same. Increasing chlorophyll *a* levels may indicate that management actions are needed to maintain a healthy lake.

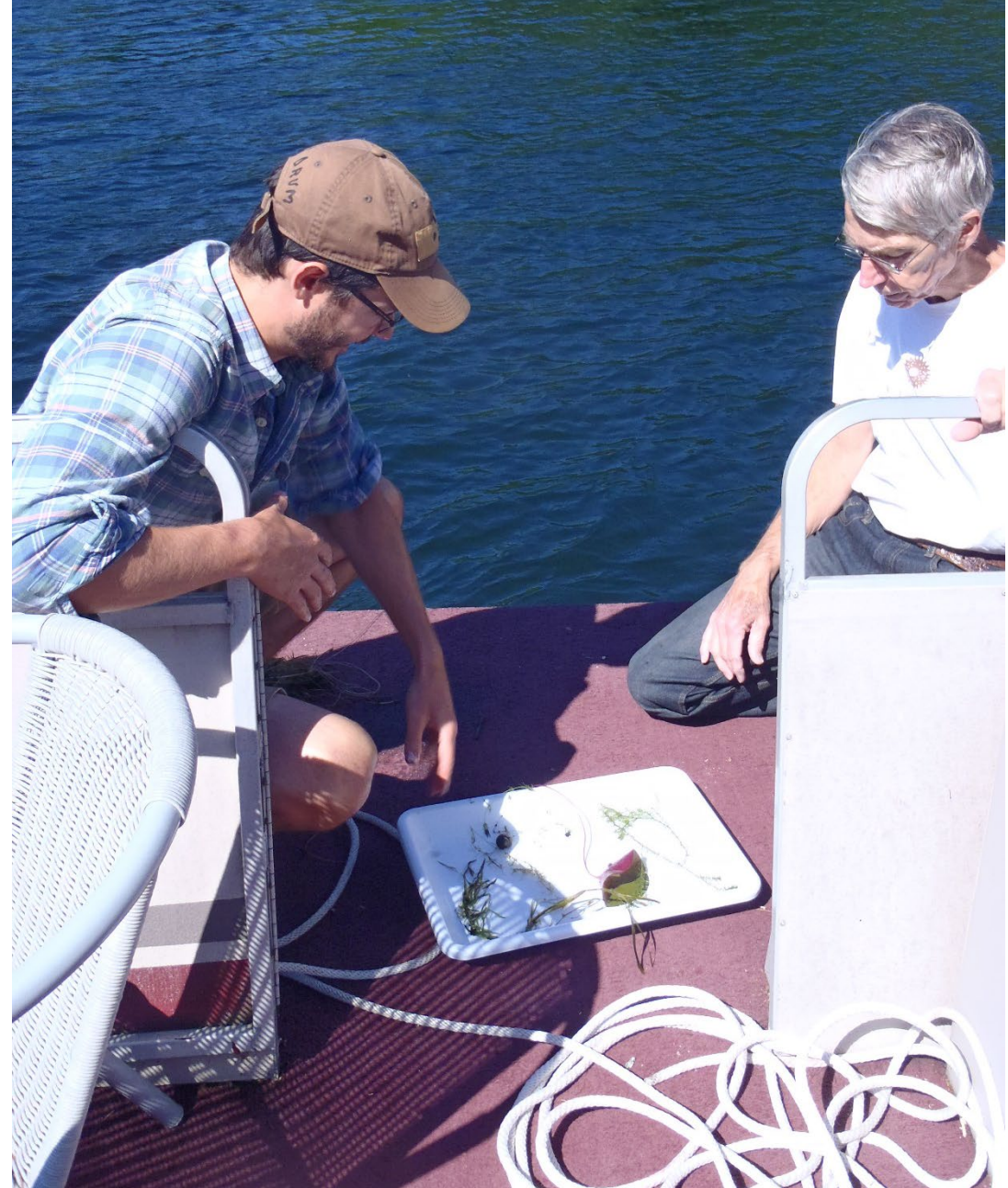
For more information about the MiCorps Cooperative Lakes Monitoring Program, visit www.MiCorps.net



MiCorps is funded by the Michigan Department of Environment, Great Lakes, and Energy and administered in partnership with Michigan State University Extension, Michigan Lakes and Streams Association, and the Huron River Watershed Council.

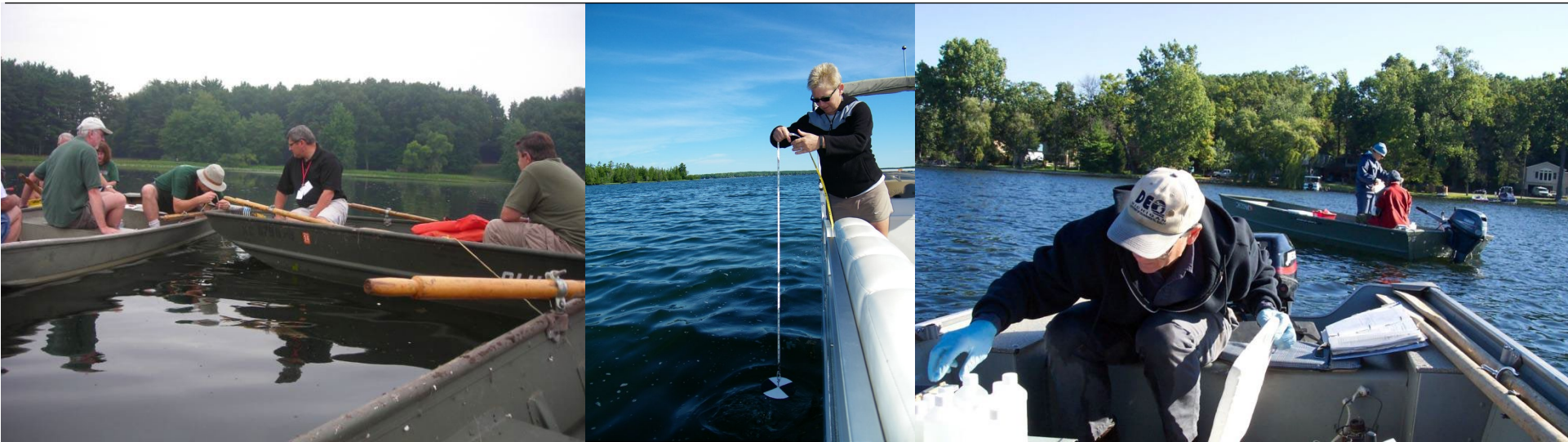
CLMP: Monitoring First

- Since 1974
 - 2023: 50th year of data collection!
- Supports management
 - But today – monitoring first!

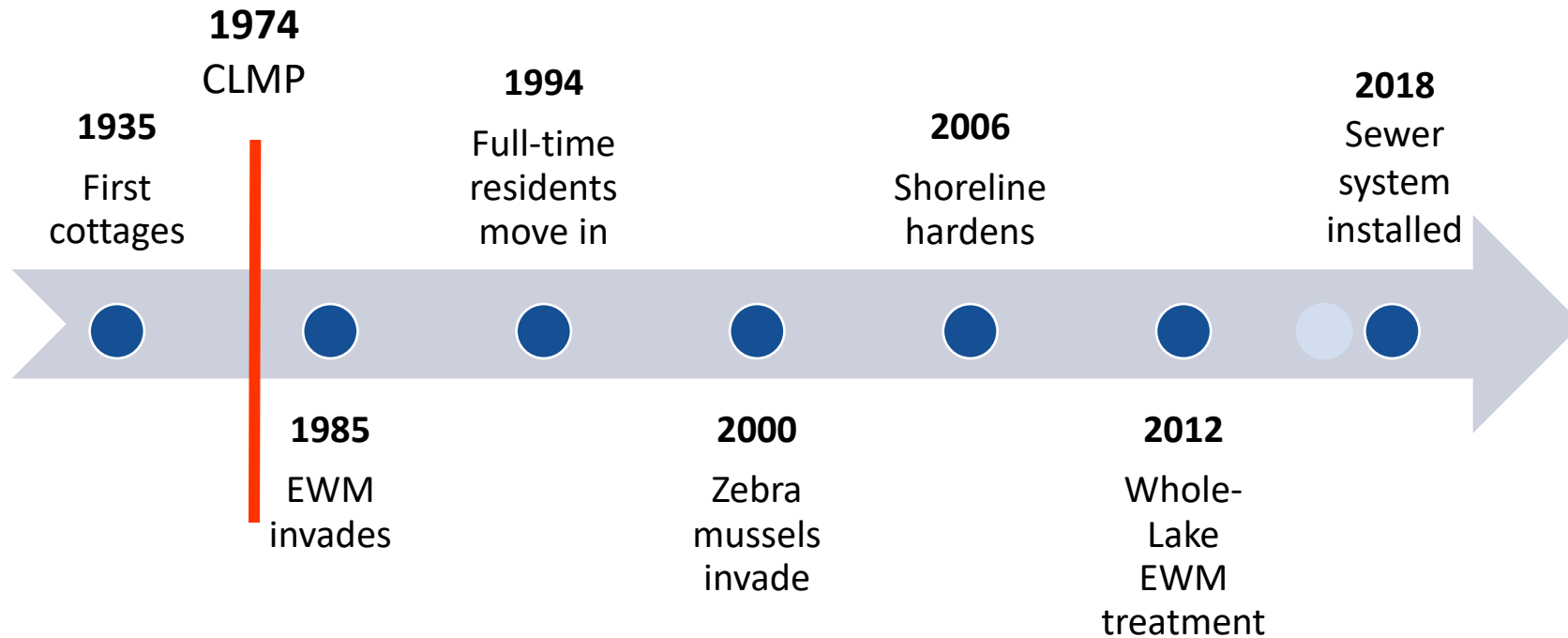


Monitoring Parameters

- Water Clarity (Secchi disk)
- Total Phosphorus
- Aquatic invasive plants
- Shoreline conditions
- Chlorophyll *a*
- Dissolved oxygen & Temperature
- Aquatic Plants



Benefit of long-term monitoring: You capture the history of your lake



Save the Date!

MiCorps Annual Volunteer Lake and Stream Monitoring Conference

October 20, 2023

Kellogg Biological Station

Hickory Corners, MI

(between Kalamazoo and Battle Creek)



Training Agenda

9:00 AM – 9:15 AM	Welcome to CLMP
9:15 AM – 10:15 AM	Secchi Disk & Phosphorus
10:15 AM-10:30 AM	BREAK
10:30 AM – 12:00 PM	Chlorophyll-a (algae indicator)
12:00 PM – 1:00 PM	Lunch
1:00 PM – 2:00 PM	Score the Shore
2:00 PM – 3:30 PM	Exotic Aquatic Plant Watch
3:30 PM – 3:45 PM	BREAK
3:45 PM – 5:00 PM	Dissolved Oxygen & Temperature

Questions?

To learn more about the Cooperative Lakes Monitoring Program, visit:

MiCorps.net



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY



Huron
River
Watershed
Council



Working Together to Protect Lakes

