

COOPERATIVE LAKES MONITORING PROGRAM TRAINING FOR

Secchi Disk Transparency and Total Phosphorus



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MiCorps Program Manager



**Huron River Watershed
Council**

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The Self-Help Legacy

- **1974:** Secchi disk - second oldest program in country.
- **1993-1998:** added spring overturn total phosphorus, late-summer total phosphorus and summer chlorophyll.
- **2000:** added Dissolved oxygen/Temperature.
- **2001:** added Aquatic Plant Surveys
- **2011:** added Exotic Aquatic Plants
- **2016:** added Score the Shore

3

CLMP Goals- Education

- Build and educate a constituency of citizens to practice sound lake management at the local level and build public support of lake quality protection.

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Spread the word

Fact Sheets are available for each CLMP parameter

Want to make a presentation for your lake association? Use this as a base:

micorps.net → Lake Monitoring → CLMP Documents → Create Your Own Data Presentation



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CLMP Goals- Data

- ❑ Provide baseline information and document trends in water quality for individual lakes
- ❑ Provide a cost-effective process for the DEQ to increase baseline data for lakes in Michigan

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CLMP – Monitoring, Not Management

- The CLMP deals with baseline lake monitoring.
- This doesn't mean we aren't interested in management, but this is a larger, more complicated discussion.
- Today we are talking about monitoring.

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Training Videos and Documents

- Procedures, schedules, data forms
- Videos for most of the parameters

micorps.net → Lake Monitoring →
CLMP Documents

8

Some other resources to be aware of

- CLMP Manual- Read procedures section once a year and keep handy as a reference.
- Quick-reference procedures— bring them out on the boat with you and use it as a checklist.

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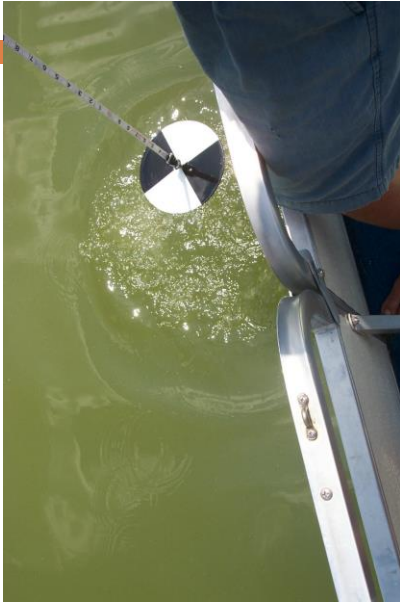
Trophic State Indicators

- Transparency
- Total Phosphorus
- Chlorophyll *a*
- Dissolved Oxygen and Temperature



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Transparency



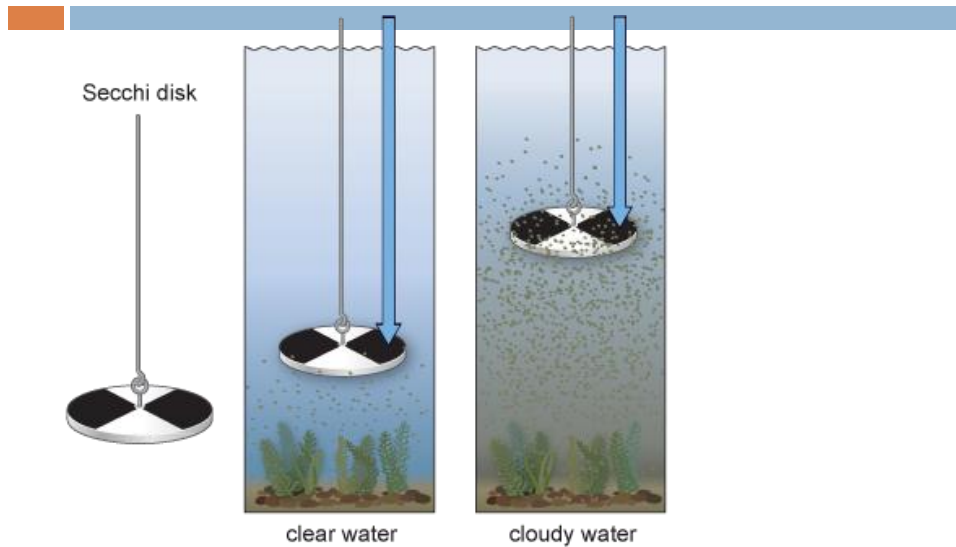
- Secchi disk measurements
- Evenly spaced monitoring through May 12-Sept 21.
- ***At least 8 measurements***
- Seasonal variability

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Secchi Disk Measurement



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Where to monitor? Lake Sampling Site (Field ID) Number

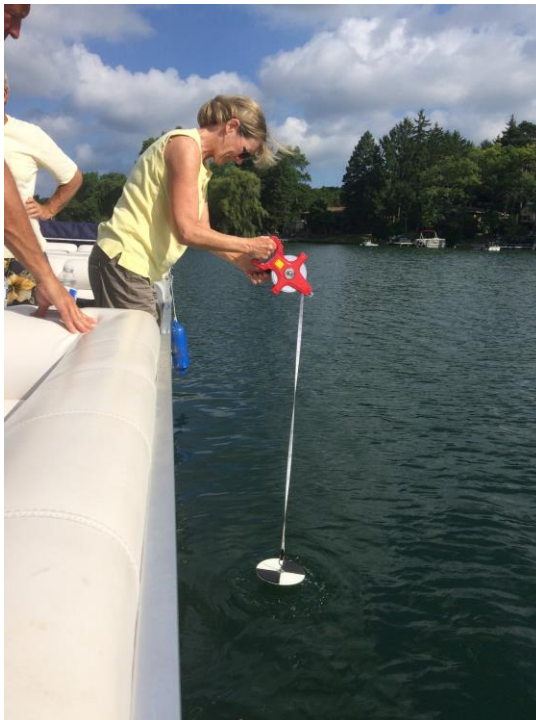
Listing at
micorps.net → Lake
 Monitoring → CLMP
 Documents

010017 Cedar	Alcona	44.52751	-83.33195
010101 Hubbard (1)	Alcona	44.77224	-83.55287
010102 Hubbard (2)	Alcona	44.80941	-83.5468
010103 Hubbard (3)	Alcona	44.83379	-83.58163
010104 Hubbard (4)	Alcona	44.8483	-83.59922
010105 Hubbard (5)	Alcona	44.83168	-83.60152
010106 Hubbard (6)	Alcona	44.81146	-83.56633
010107 Hubbard (7)	Alcona	44.7943	-83.57416
020127 Deer	Alger	46.48016	-86.98277
030203 Hutchins	Allegan	42.58316	-86.13441
030259 Eagle	Allegan	42.42559	-85.93059
030263 Osterhout	Allegan	42.43948	-86.03889
050052 Bellaire	Antrim	44.95333	-85.21889
050055 Torch (North)	Antrim	45.027781	-85.31556
050101 Clam	Antrim	44.93612	-85.27334
050240 Torch (South)	Antrim	44.9159	-85.3028
080071 Crooked (Upper)	Barry	42.490281	-85.431392
080092 Bristol	Barry	42.484449	-85.248892
080096 Duncan	Barry	42.749448	-85.534448
080103 Payne	Barry	42.749448	-85.521115
080176 Barlow	Barry	42.670559	-85.52042
080259 Cobb	Barry	42.6525	-85.537626
080279 Long (Little)	Barry	42.6525	-85.537626
080294 Wall	Barry	42.5215	-85.3862
100066 Crystal	Benzie	44.668615	-86.186115
100082 Ann	Benzie	44.721	-85.8512
100085 Herring (Lower)	Benzie	44.56226	-86.21056
100086 Platte (Big)	Benzie	44.69228	-86.09589

14



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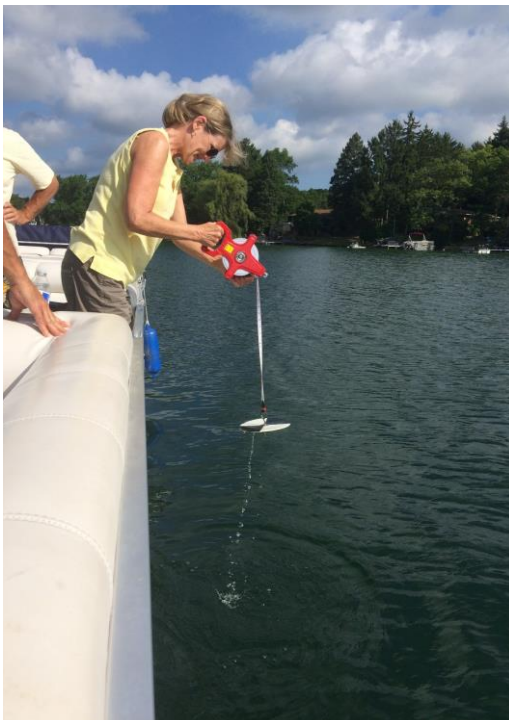
1. Slowly lower disk until it disappears from view

16



2. Slowly raise disk until it reappears

17



3. The official measurement is the average of the 2 depths.

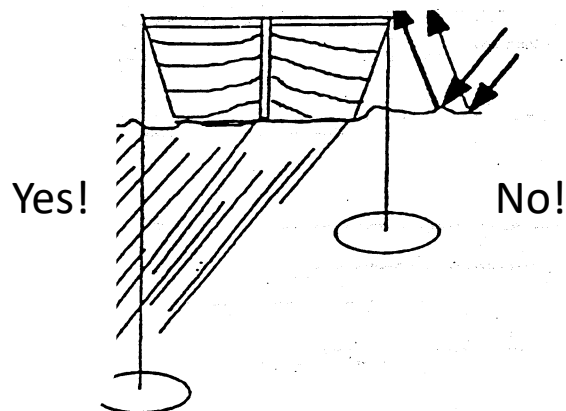
18

1. Don't use sunglasses!



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2. Pick the shadow!



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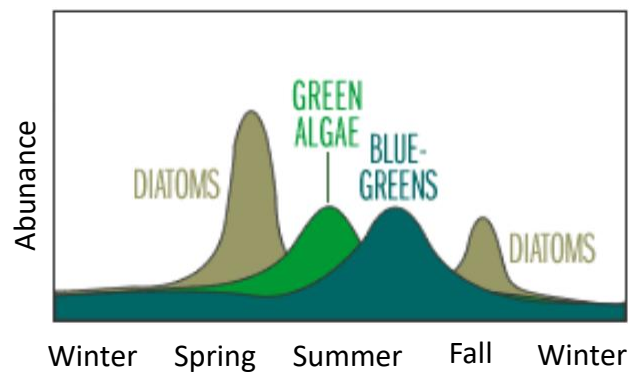
3. Be consistent in weather and timing!



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8 Measurements Required across whole summer: Lakes change over time!

Seasonal Succession of Lake Algae in a Mesotrophic Lake



Credit: Water on the Web

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SECCHI DISK TRANSPARENCY 2019 Data Form

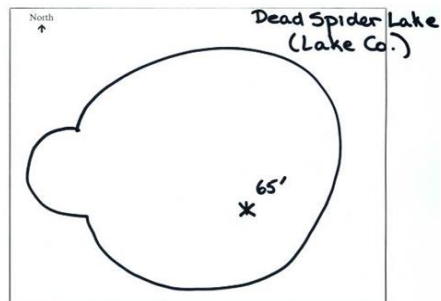


Lake Name: _____ County: _____ Township: _____
 Lake Sampling Site (Field ID) Number: _____ (see reverse and mark location on map)
 Latitude: _____ Longitude: _____
 Volunteer Monitor Name(s): _____

WEEKLY SAMPLING INTERVAL	DATE SAMPLED	TIME OF DAY	SECCHI DEPTH (to nearest ½ foot)	WEATHER CONDITIONS (sunny, cloudy, windy)	UNUSUAL CONDITIONS (secchi disk is on bottom of lake, heavy rain, boating, etc.)
May 12-18					
May 19-25					
May 26-June 1					
June 2-8					
June 9-15					
June 16-22					
June 23- 29					
June 30- July 6					
July 7-13					
July 14-20					

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- ❖ In the box below draw an outline of your lake (i.e lake map)
- ❖ On the lake map outline, mark your Secchi disk sampling location (this should be at the deepest basin in the lake) and write in the total LAKE DEPTH at this location.
- ❖ Surface Area of Lake (if known): _____ (acres)



DATA ENTRY

Check **ONE** box:

- ☐ The data **have** been entered into the MiCorps Data Exchange (before October 30!)
 Date entered: _____
- ☐ The data **have not** been entered into the MiCorps Data Exchange.

DATA SHEET TURN IN

No matter what box you check above, please do the following:
 Make a copy for your records, and mail data form by October 30 to:
MLSA, P.O. Box 303, Long Lake, MI 48743

CLMMP Secchi Disk Data Form - 2012

Page 2

March 2012

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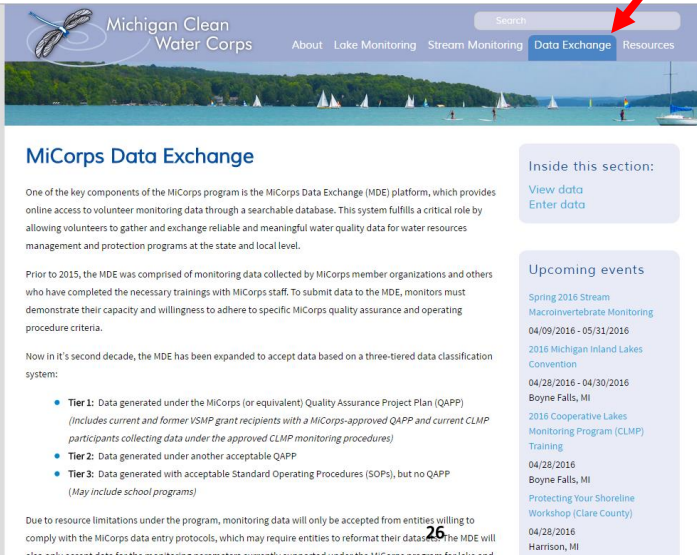
MiCorps Data Exchange Network

- Online data entry and data search of volunteer monitoring data collected by MiCorps member programs
- All volunteers are encouraged to use the online data entry system
 - ▣ **Data Entry Drawing**
- Data search website open to the public
- Contact MiCorps staff to sign up for a username and password to enter your data!
 - ▣ midata@glc.org

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MiCorps Data Exchange Entry Point

<https://micorps.net>



The screenshot shows the Michigan Clean Water Corps website. The navigation bar includes links for 'About', 'Lake Monitoring', 'Stream Monitoring', 'Data Exchange', and 'Resources'. A red arrow points to the 'Data Exchange' link. Below the navigation bar, the 'MiCorps Data Exchange' section is displayed, featuring a description of the MDE platform, a list of upcoming events, and a section for 'Inside this section' with links to 'View data' and 'Enter data'.

MiCorps Data Exchange

One of the key components of the MiCorps program is the MiCorps Data Exchange (MDE) platform, which provides online access to volunteer monitoring data through a searchable database. This system fulfills a critical role by allowing volunteers to gather and exchange reliable and meaningful water quality data for water resources management and protection programs at the state and local level.

Prior to 2015, the MDE was comprised of monitoring data collected by MiCorps member organizations and others who have completed the necessary trainings with MiCorps staff. To submit data to the MDE, monitors must demonstrate their capacity and willingness to adhere to specific MiCorps quality assurance and operating procedure criteria.

Now in it's second decade, the MDE has been expanded to accept data based on a three-tiered data classification system:

- **Tier 1:** Data generated under the MiCorps (or equivalent) Quality Assurance Project Plan (QAPP) (Includes current and former VSMF grant recipients with a MiCorps-approved QAPP and current CLMP participants collecting data under the approved CLMP monitoring procedures)
- **Tier 2:** Data generated under another acceptable QAPP
- **Tier 3:** Data generated with acceptable Standard Operating Procedures (SOPs), but no QAPP (May include school programs)

Due to resource limitations under the program, monitoring data will only be accepted from entities willing to comply with the MiCorps data entry protocols, which may require entities to reformat their data. The MDE will also only accept data for the monitoring parameters currently supported under the MiCorps program for lake and

Inside this section:


- [View data](#)
- [Enter data](#)

Upcoming events

- Spring 2016 Stream Macroinvertebrate Monitoring
04/09/2016 - 05/31/2016
- 2016 Michigan Inland Lakes Convention
04/28/2016 - 04/30/2016
Boyne Falls, MI
- 2016 Cooperative Lakes Monitoring Program (CLMP) Training
04/28/2016
Boyne Falls, MI
- Protecting Your Shoreline Workshop (Clare County)
04/28/2016
Harrison, MI

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Get your login/password from: midata@glc.org



Michigan Clean Water Corps

Search

About Lake Monitoring Stream Monitoring Data Exchange Resources

Login to MiCorps Data Exchange





Username

Password

Submit

[Site Map](#) | [Photo credits](#)

Program administered by the [Great Lakes Commission](#) and supported by funding from the [Michigan Department of Environmental Quality](#).
This is not an official State of Michigan/DEQ website.

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Lake Site Characteristics	
Site ID:	010122
Lake:	Badger
County:	Alcona
Township:	
Section	
Watershed	Thunder Bay(4070006)
Surface Area (acres)	0
GPS Coords	(44.777497° latitude,-83.437503° longitude)
Datum	
GPS Source	

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Secchi Disk Transparency Sampling Data

Required Fields = *

- *Date Sampled**
2010 yr mo day
- *Time Sampled**
 hr min
- *Secchi Depth** -Round to nearest half foot.
 . (feet)
- *Volunteer Monitor Names**
- Change from "CLMP Volunteer" default.
First Name Last Name
- Weather Conditions** - Check all that apply.
☐ Sunny ☐ Cloudy ☐ Partly Cloudy
☐ Rainy ☐ Windy ☐ Foggy
Other (describe:)

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Get a data
report
in early
2020



2017 Data Report
for
Deer Lake, Alger County

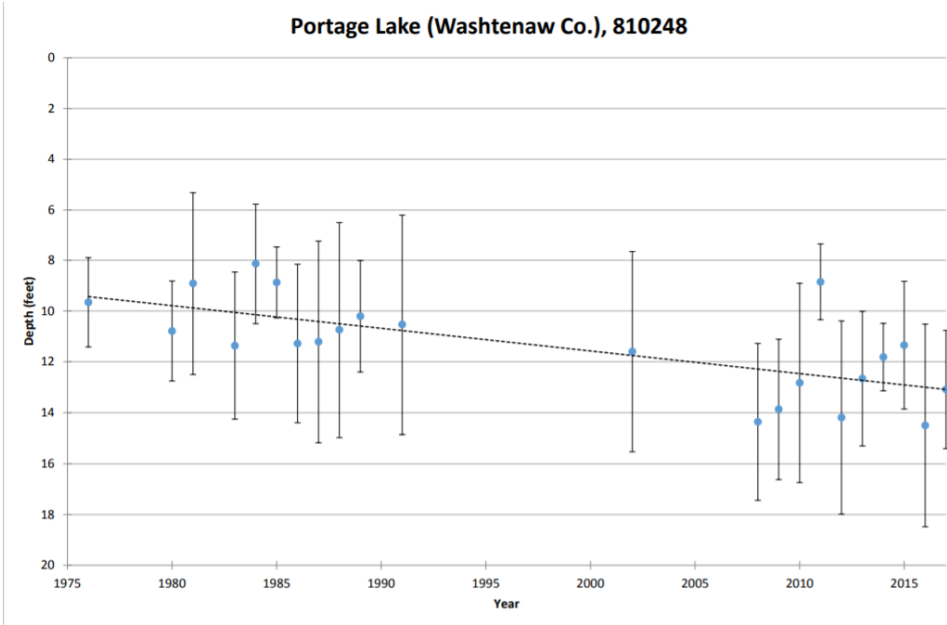
Site ID: 020127

46.48016°N, 86.98277°W

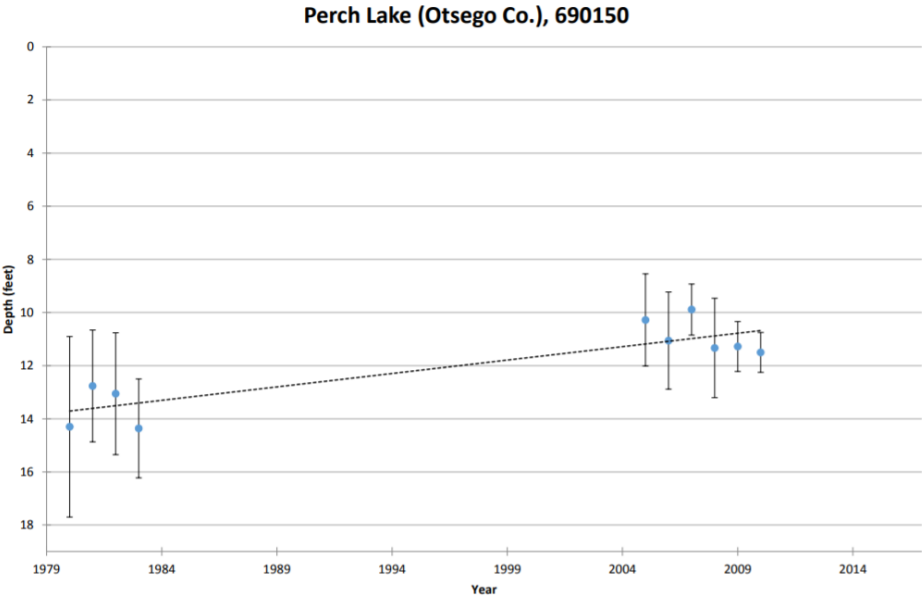
The CLMP is brought to you by:



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Questions?



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COOPERATIVE LAKES MONITORING PROGRAM TRAINING FOR

Total Phosphorus



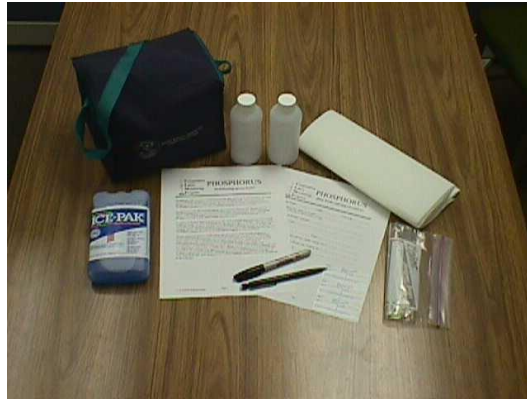
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What you get in the mail

- Monitoring instructions (if you asked for it)
- Sampling and sample turn-in schedule and locations (if you asked for it)
- Data form
- Bottle labels (3)
- Two 250ml bottles with caps on

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Other materials needed: Cooler bag, ice pack, zip lock baggies of different sizes, a pencil/Sharpee



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Spring Overturn

- Within 14 days after ice-out (March/April/May)
- Volunteer determines ice-out
- Surface grab sample
- Representative of whole lake

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Summer Stratification

- Late summer - early fall
(Aug. - Sept.)
- Surface grab sample
- Indicates the phosphorus available to plants/algae in the growing season.

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Spring P: Turn in June 18 before noon
Summer P: Depends on your location in the State



SPRING PHOSPHORUS

2019 spring sample turn-in dates and locations



Volunteers must sample on a date of their choosing, when safe, within 2 weeks of ice-out. The CLMP's goal is for the sample to reflect the spring turn-over, which occurs right after ice-out. After sampling, freeze the sample and turn it in on **June 18, 2019**. Samples must be turned in **8am-noon**. The turn-in location depends on your County and is given below in the tables. Call the appropriate phone below if other arrangements must be made.

PLEASE NOTE: If you are enrolled in the Chlorophyll parameter, you need to turn in your May and June samples at the same time you turn in the spring phosphorus sample.

COUNTY	TURN-IN ADDRESS	SAMPLING DATES	TURN-IN DATE
ALL COUNTIES	See below	Within 2 weeks of ice-out, when conditions are safe	8am - Noon June 18

COUNTY	TURN-IN ADDRESS (DEQ unless noted otherwise)	COUNTY	TURN-IN ADDRESS (DEQ unless noted otherwise)
Allegan, Kalamazoo, Barry, Van Buren, Berrien, Cass, St. Joseph	7953 Adobe Road Kalamazoo, MI 49009-5025 Deana Merza 269-567-3570	Iosco, Ogemaw, Alcona, Oscoda, Gladwin, Roscommon, Crawford	The Roth's Residence 7311 N. Chain Lake Drive South Branch, MI 48761 Jean Roth 989-257-3715
Calhoun, Jackson, Washtenaw, Branch, Hillsdale, Lenawee	301 E. Louis B. Glick Hwy Jackson, MI 49201-1535 Kris Coffey 517-780-7904	Antrim, Otsego, Montmorency, Alpena, Charlevoix, Emmet, Cheboygan, Presque Isle	2100 West M-52 Gaylord, MI 49735-9282 Amy Nevison 989-705-3435

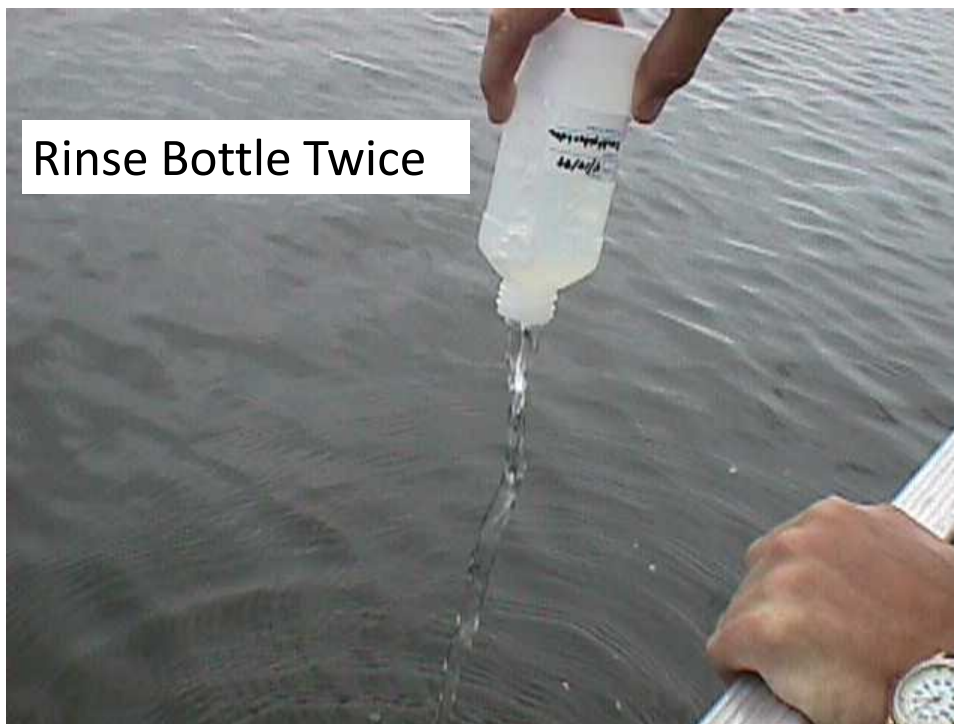
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Phosphorus Labels.. Pencil or sharpee

Collector's Initials TP	DEQ	Date 4-20-2013
Field ID 555432	Location DEAD SPIDER LAKE	
Analysis or Parameter Code GA	Chemicals Added	

Collector's Initials TP	DEQ	Date 4-20-2013
Field ID 555432	Location REP DEAD SPIDER LAKE	
Analysis or Parameter Code GA	Chemicals Added	

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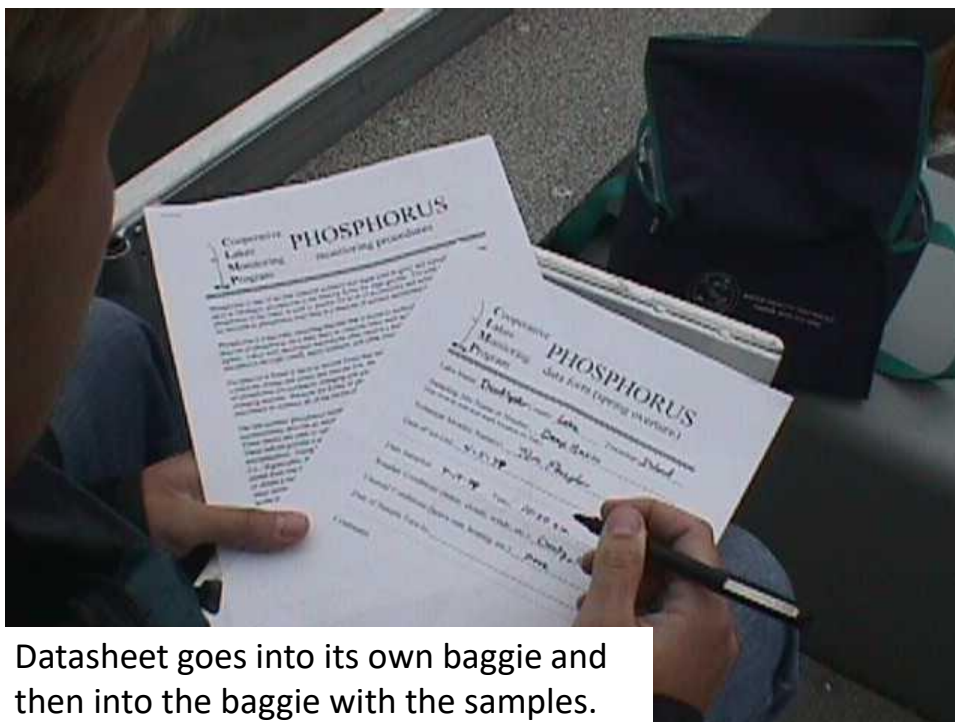


Pour water out
until bottle is
filled to here to
avoid cracking
the bottle
when frozen.

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Datasheet goes into its own baggie and then into the baggie with the samples.

44



SPRING OVERTURN PHOSPHORUS



Lake Name: _____ County: _____ Township: _____

Lake Sampling Site (Field ID) Number: _____ (see reverse and mark location on map)

Latitude: _____ Longitude: _____ GPS / Map
Circle

Volunteer Monitor Name(s): _____

Date of Ice-Out: _____

Date Sampled: _____ Time: _____

Weather Conditions (sunny, cloudy, windy, etc.): _____

Unusual Conditions (heavy rain, boating, etc.): _____

Date of Sample Turn-In: _____

Comments:

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- ❖ In the box below draw an outline of your lake (i.e. lake map)
- ❖ On the lake map outline, mark your total phosphorus sampling location (this should be at the deepest basin in the lake) and write in the total LAKE DEPTH at this location. (**Note:** If you sample at more than one location in the lake, use a separate data form for each location.)
- ❖ Surface Area of Lake (if known): _____ (acres)



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DATA SHEET TURN IN

No matter what box you check above, please do the following:
Make a copy for your records, put the data sheet in a baggie, and turn in the frozen sample and data sheet as directed by your procedures sheet.

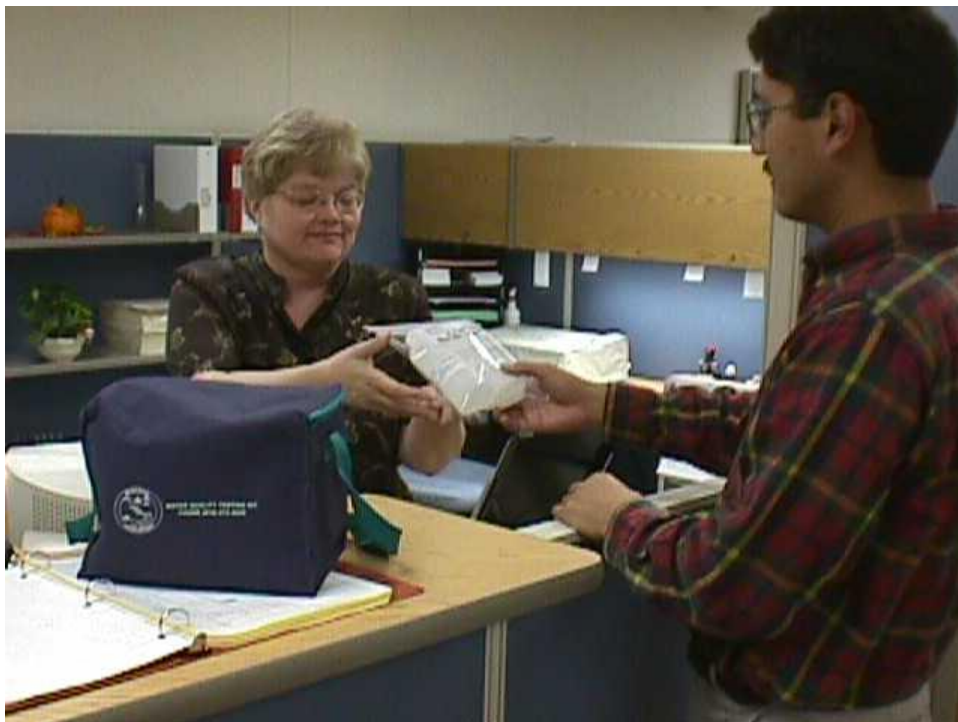
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Freezer Storage until Turn-in Date



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Common Reasons for Sample Rejection

- Sample collected at the wrong time
 - ▣ Spring P– samples collected >2 weeks after ice-out will be flagged for error, >4 weeks will be rejected.
 - ▣ Summer P – samples collected more than a week outside the assigned interval will be rejected
- Incorrect delivery
 - ▣ If you forget or can't turn your samples to the drop-off location on the assigned date, that can cause problems. CONTACT US for instructions on safe shipping. Unexpected shipments will thaw and be rejected.
- Cracked bottles/caps
 - ▣ Be sure to leave headroom in the bottle for expansion

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Common Reasons for Sample Rejection


- Wrong bottles used
 - ▣ We ONLY accept samples in the sterile bottles we send you



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There is a data entry component for Phosphorus, too.

www.micorps.net



Michigan Clean Water Corps

[About](#) [Lake Monitoring](#) [Stream Monitoring](#) [Data Exchange](#) [Resources](#)



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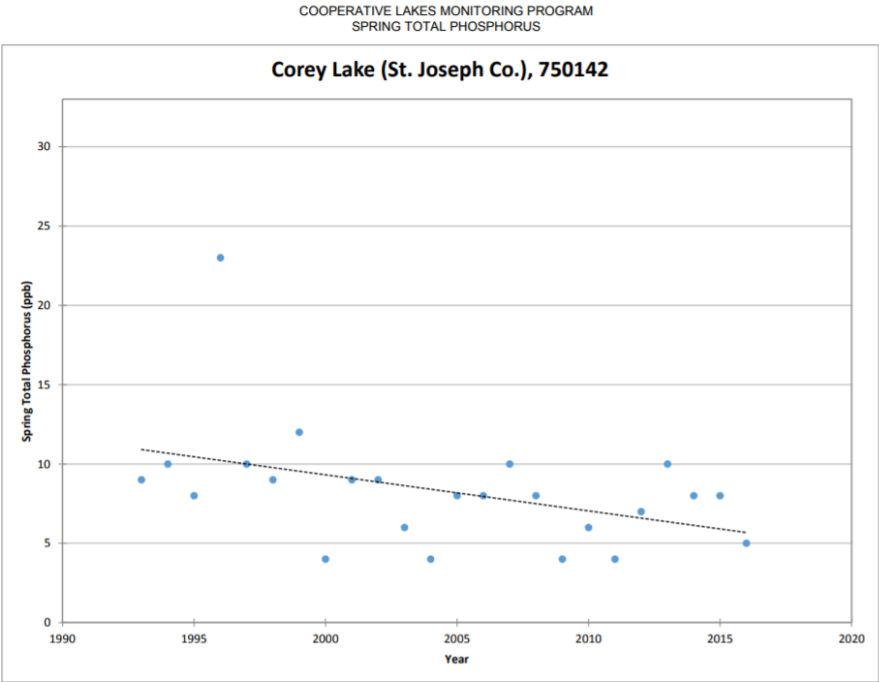
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04/28/2016
Harrison, MI

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Evaluation Forms

- ☐ Yellow form- fill it out throughout the day!
- ☐ You can leave them in the box by the door when you are done.

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Aquatic Invasive Species- Decontaminate!

- ☐ Following any removal of your watercraft from a water body:
 - ☐ Clean
 - ☐ Drain
 - ☐ Dry
- ☐ Clean Boats, Clean Waters
- ☐ Let's not contribute to the very problem we are trying to stop!

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Working together to protect lakes!



Questions?