MiCorps Cooperative Lakes Monitoring Program
Uses of Volunteer Monitoring Data

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Michigan State University Extension

Michigan Clean Water Corps

Cooperative Lakes Monitoring Program

Volunteer Stream Monitoring Program

Michigan Streams – Ours to Protect

Michigan Clean Water Corps

Cooperative Lakes Monitoring Program

EGLE

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

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Huron River Watershed Council

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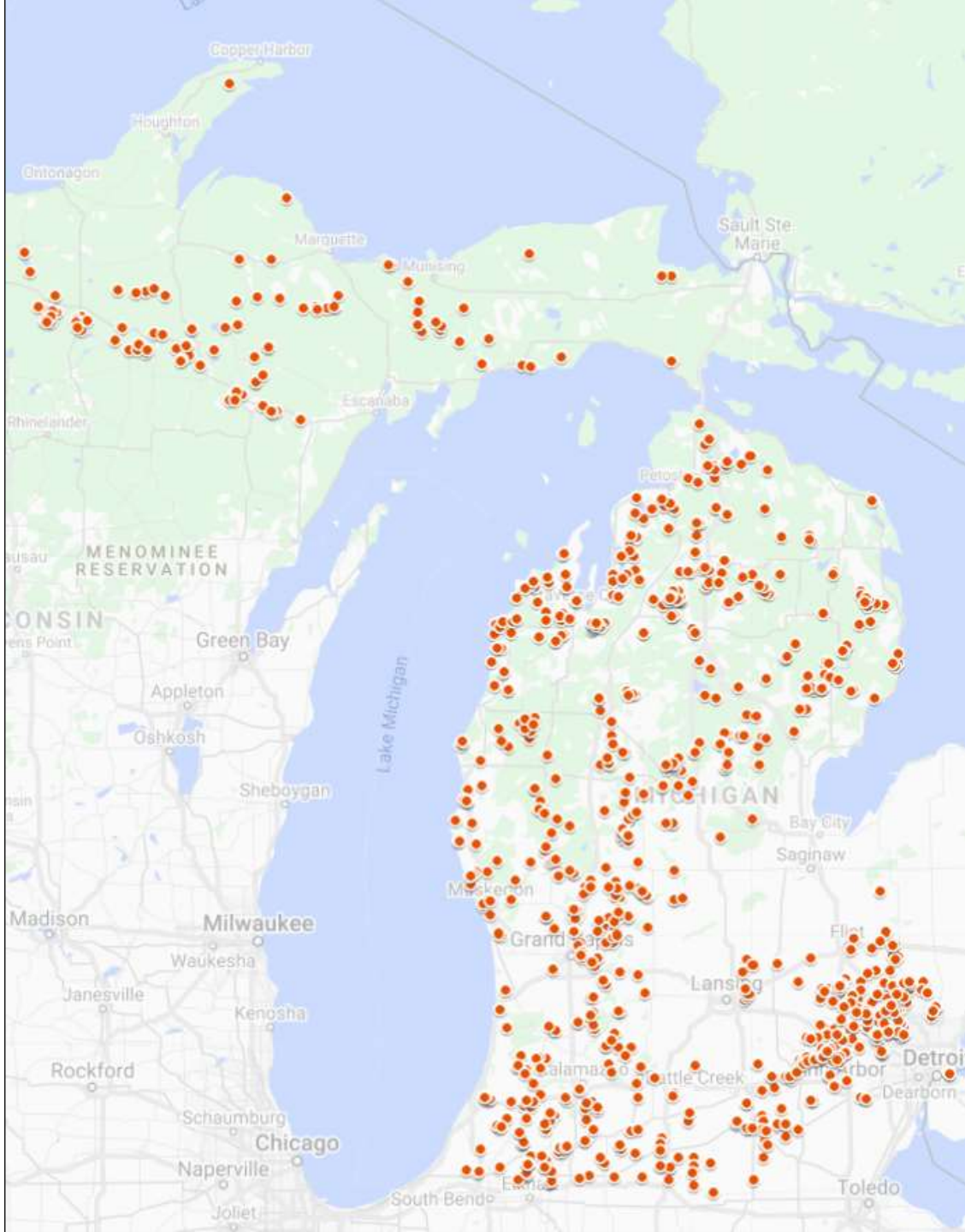
55 YEARS

Cooperative Lakes Monitoring Program

- Began in 1974
- A cost effective framework for: reliable, meaningful, long-term, baseline data collection
- Annual in-person, online, and recorded trainings
- Frequent communications and educational opportunities
  - Example: Annual Conference, check-ins
- Data:
  - Online public database
  - Individual lake reports (summarized data)



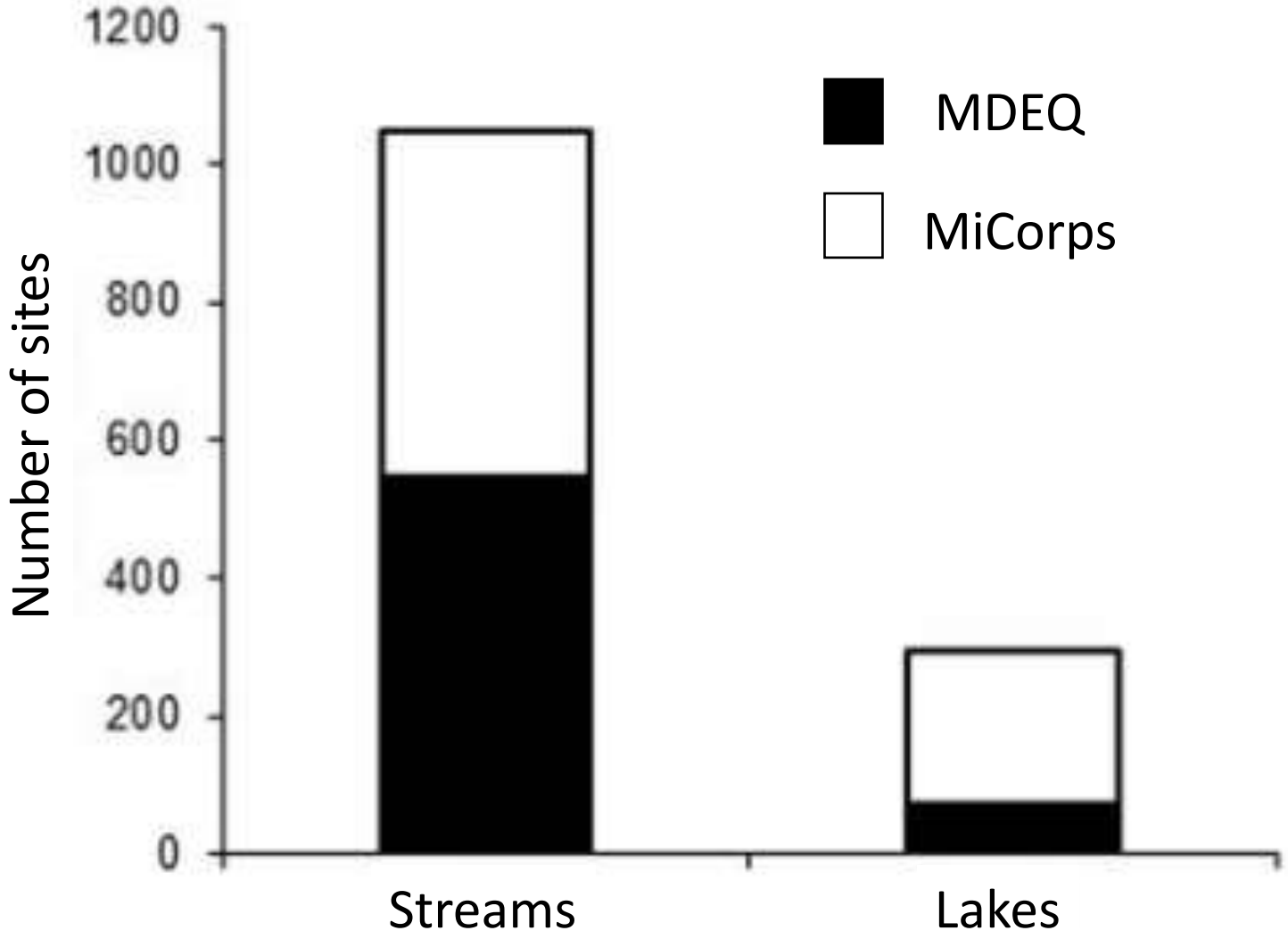
Monitoring Parameters

- Water Clarity
- Total Phosphorus
- Chlorophyll *a*
- Dissolved Oxygen
- Temperature
- Aquatic Plants
- Aquatic invasive plants
- Shoreline surveys



Data Use

- Local
- State
- Federal
- Academic



Latimore and Steen 2014

Data use - Local

Assessing current status

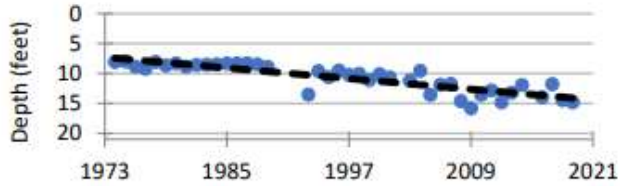
Site ID: 350076

Long Lake, Iosco County
2021 CLMP Results

Cooperative Lakes Monitoring Program

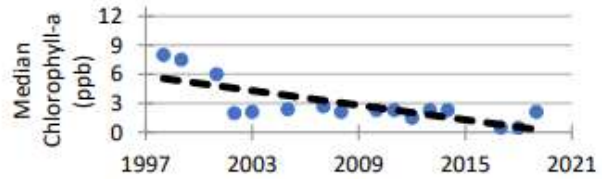
Secchi Disk Transparency (feet)

Year	# Readings	Min	Max	Average	Std. Dev	Carlson TSI
2019	15	13.0	16.0	14.8	1.0	38
2014-2018	70	10.0	19.0	14.8	1.0	40
1974-2013	608	6.0	19.5	10.4	1.3	44
2021 All CLMP Lakes	2817	1.0	50.0	12.7	2.9	42



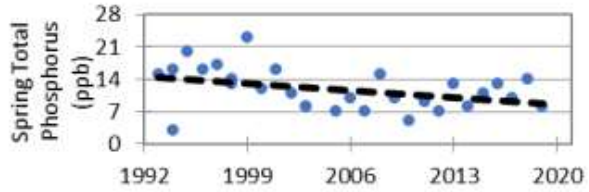
Chlorophyll-a (parts per billion)

Year	# Samples	Min	Max	Median	Std. Dev	Carlson TSI
2019	5	<1.0	4.7	2.1	1.9	38
2014-2018	20	<1.0	3.2	<1.0	0.8	<31
1998-2013	71	<1.0	9.0	<1.0	1.3	39
2021 All CLMP Lakes	635	< 1.0	42.0	2.2	3.4	39



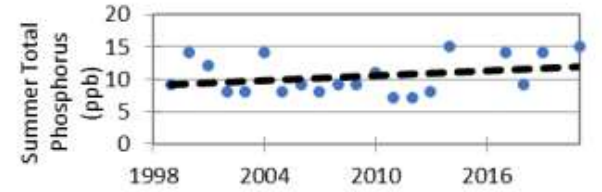
Spring Phosphorus (parts per billion)

Year	# Samples	Min	Max	Average	Std. Dev
2019	1	8.0	8.0	8.0	NA
2014-2018	5	8.0	14.0	11.2	2.4
1993-2013	23	<=3 W	23.0	12.0	4.9
2021 All CLMP Lakes	220	<= 3	100.0	14.9	11.0



Summer Phosphorus (parts per billion)

Year	# Samples	Min	Max	Average	Std. Dev	Carlson TSI
2021	1	15.0	15.0	15.0	NA	43
2016-2020	3	9.0	14.0	12.3	2.9	40
1999-2015	16	7.0	15.0	9.8	2.6	37
2021 All CLMP Lakes	281	<= 3	65.0	12.8	9.3	38



Dissolved Oxygen and Temperature Profile

This lake does not have recent (within 5 years) dissolved oxygen/water temperature data available. Consider enrolling in this parameter next year. Fish, insects, mollusks, and crustaceans need dissolved oxygen to live in water. By late summer, many lakes stratify, with cold anoxic water on the bottom and warm, oxygen rich water on the surface. Anoxic (oxygen-depleted) water occurring too

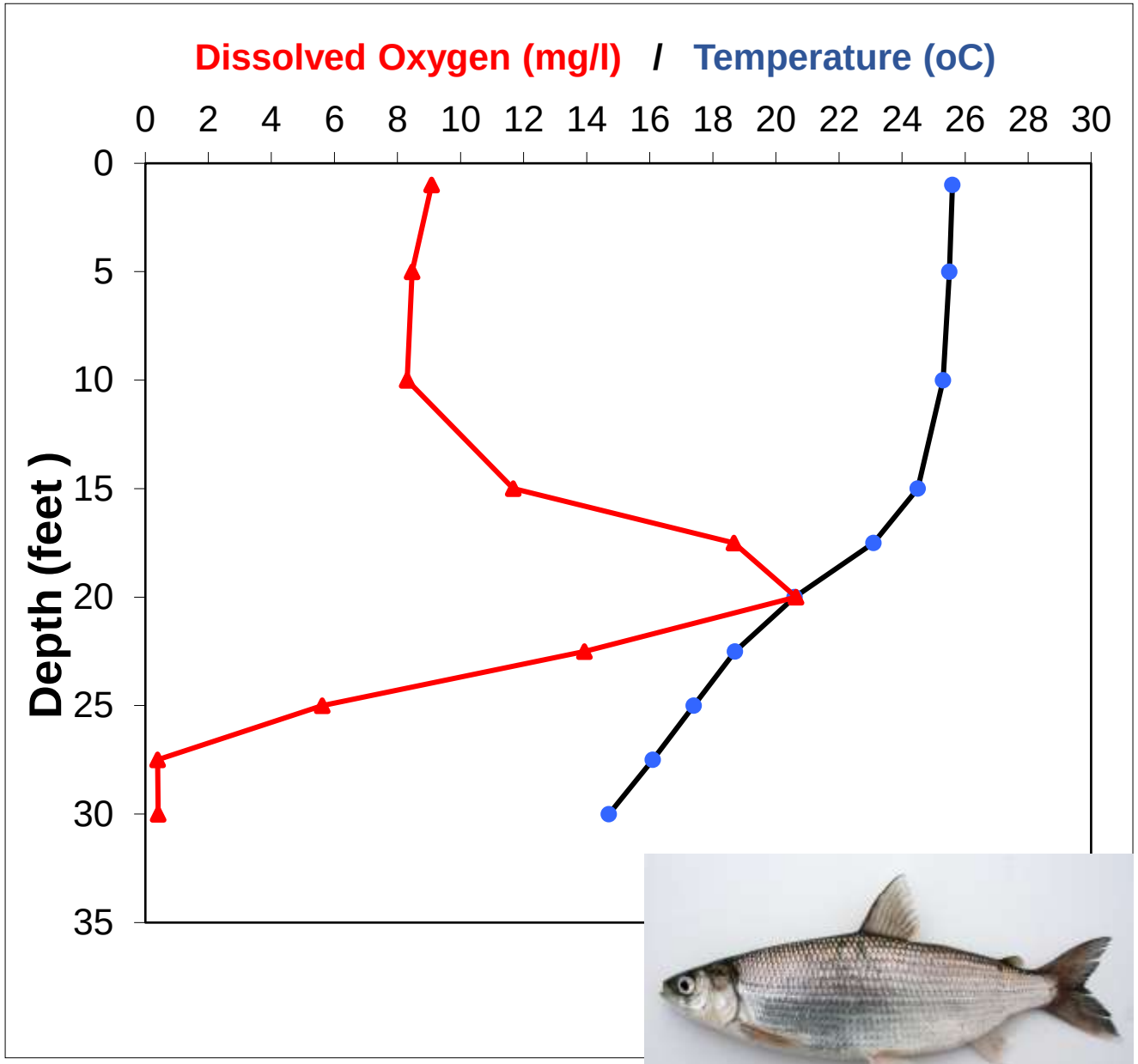
Summary

Average TSI	2021	2014-2020	1974-2013
Long Lake	43	37	40
All CLMP Lakes	42	40	43

Data use - Local

Little Bass Lake

Cisco and Eurasian milfoil



Data use – Local: Ausable lake Early Detection

STOP Starry Stonewort

Nitellopsis obtusa

P. Skawinski

The unique star-shaped bulbil of starry stonewort. These structures are used by the plant for reproduction.

A. D. Dow

Quick Facts:

Data Use: State Department of Environment, Great Lakes, and Energy

- CLMP trophic state data large data source
  - 266 lakes participated in 2021
  - 294 participated in 2022
- Used to help answer questions from the public about water quality of lakes
- Clean Water Act Sections 303(d) and 305(b) Integrated Report
  - Trophic State Indicators used to help determine if designated uses are being met
  - CLMP data is not used alone to determine if not attaining but is used to inform EGLE if more monitoring is needed.

EGLE

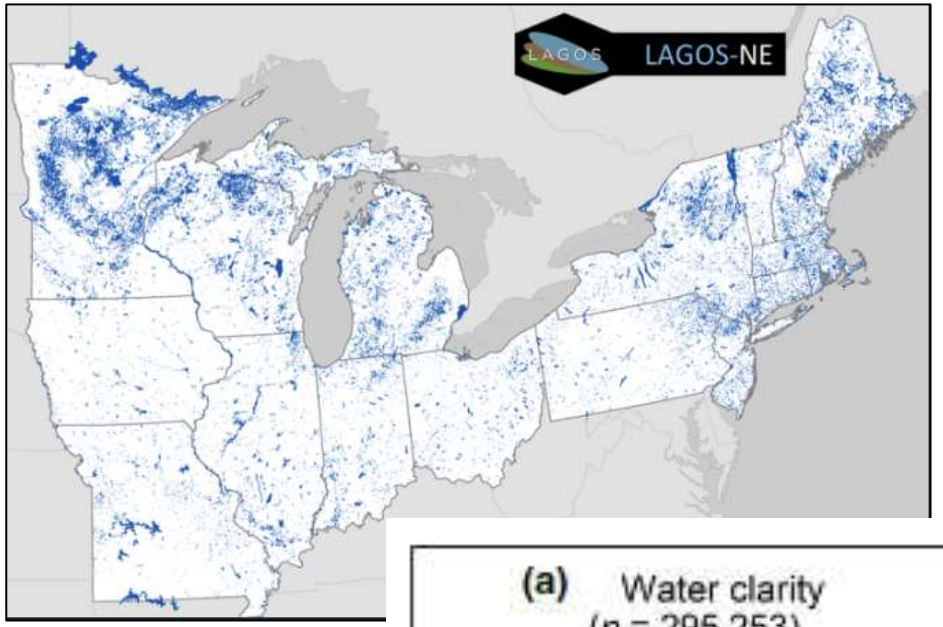
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Data Use – State Department of Natural Resources

- Status of the Fishery Reports
- Large Lake Special Reports
- Lake water quality
  - Invasive species
  - Nutrient additions
- Aquatic Invasive Species Early Detection
- Fisheries management planning
- Harvest regulations

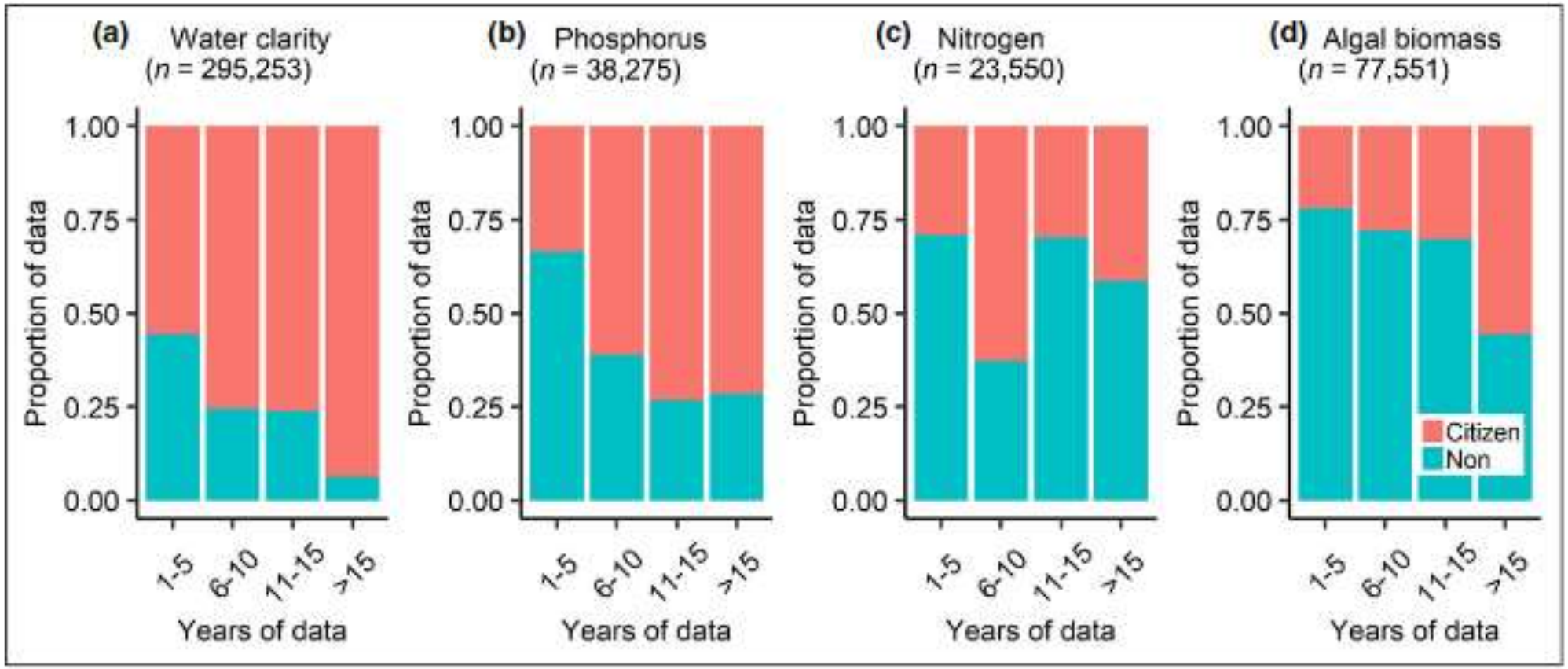
Data use - Federal

Huron-Manistee
U.S. National Forest
Lake Monitoring



Data use - Academic

LAGOS-NE



Poisson et al. 2020

Data use – Academic: Cooperative research projects

Invasive Plant Science and Management

www.cambridge.org/inp

Genetic diversity and differentiation in populations of invasive Eurasian (*Myriophyllum spicatum*) and hybrid (*Myriophyllum spicatum* × *Myriophyllum sibiricum*) watermilfoil

Research Article

Cite this article: Thum RA, Chorak GM, Newman RM, Eltawely JA, Latimore J, Elgin E, and Parks S (2020) Genetic diversity and differentiation in populations of invasive Eurasian (*Myriophyllum spicatum*) and hybrid (*Myriophyllum spicatum* × *Myriophyllum sibiricum*) watermilfoil. Invasive Plant Sci Manag **13**: 59–67. doi: 10.1017/inp.2020.12

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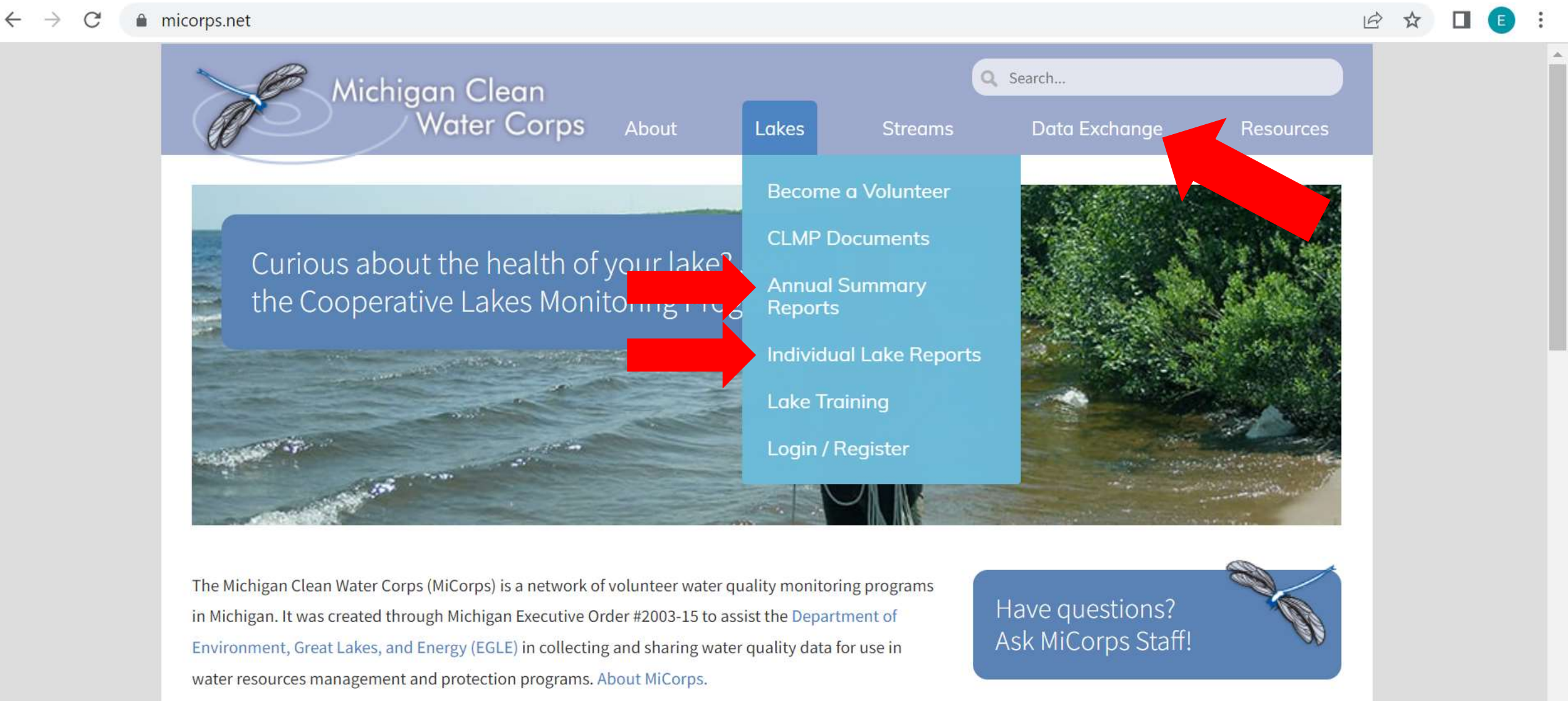
Abstract

Population genetic studies of within- and among-population genetic variability are still lacking for managed submerged aquatic plant species, and such studies could provide important information for managers. For example, the extent of within-population genetic variation may influence the potential for managed populations to locally adapt to environmental conditions and control tactics. Similarly, among-population variation may influence whether specific control tactics work equally effectively in different locations. In the case of invasive Eurasian watermilfoil (*Myriophyllum spicatum* L.), including interspecific hybrids with native northern watermilfoil (*Myriophyllum sibiricum* Kom.), managers recognize that there is genetic variation for growth and herbicide response. However, it is unclear how much overall genetic variation there is, and how it is structured within and among populations. Here, we studied patterns of within- and among-lake genetic variation in 41 lakes in Michigan and 62 lakes in Minnesota using microsatellite markers. We found that within-lake genetic diversity was

Data availability: MiCorps.net



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Questions

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