



2014 Data Report
for
White Lake (West), Muskegon County

Michigan Lakes– Ours to Protect

The CLMP is brought to you by:



About this report:

This report is a summary of the data that have been collected through the Cooperative Lakes Monitoring Program. The contents have been customized for your lake. The first page is a summary of the Trophic Status Indicators of your lake (Secchi Disk Transparency, Chlorophyll-a, Spring Total Phosphorus, and Summer Total Phosphorus). Where data are available, they have been summarized for the past field season, the past five years, and since the first year your lake has been enrolled in the program.

If you did not take 8 or more Secchi disk measurements or 4 or more chlorophyll measurements, there will not be summary data calculated for these parameters. This is because missing measurements result in the data not being indicative of overall summer conditions.

If you enrolled in Dissolved Oxygen/Temperature, the summary page will have a graph of one of the profiles taken during the late summer (typically August or September). A late summer graph is used because dissolved oxygen is often depleted in the late summer, and identifying this condition and the depth at which it occurs is typically the most important use of dissolved oxygen measurements.

The back of the summary page will be the results of the Exotic Aquatic Plant Watch or Plant Identification and Mapping, if you participated in that parameter.

The rest of the report will be larger graphs, including all Dissolved Oxygen/Temperature Profiles that you recorded. For Secchi Disk, Chlorophyll, and Phosphorus parameters, you need to have two years of data for a graph to make logical sense. Therefore if this is the first year you have enrolled in the CLMP, you will not receive a graph for these parameters.

To learn more about these parameters or get definitions to unknown terms, check out the CLMP Manual found at: http://www.micorps.net/documents/CLMP_Manual.pdf. [Please note: This is a new publication and a printed version will not be available until April 2015. The printed version will be available at the CLMP training held during the annual MLSA Conference in early May.]

Thank you!

The CLMP Leadership Team would like to thank you for all of your efforts over the past year. The CLMP would not exist without dedicated and hardworking volunteers!

The CLMP Leadership Team is made of: Bill Dimond, Marcy Knoll Wilmes, Jean Roth, Jo Latimore, Paul Steen, Scott Brown, Laura Kaminski, and Anne Sturm.

Questions?

If you have questions on this report or believe that the tabulated data for your lake in this report are in error please contact:

Paul Steen (psteen@hrwc.org), MiCorps Program Manager

White Lake (West), Muskegon County

2014 CLMP Results



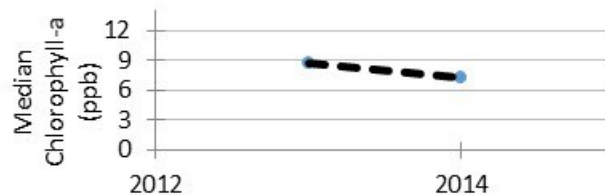
Secchi Disk Transparency (feet)

Year	# Readings	Min	Max	Average	Std. Dev	Carlson TSI
2014	*					
2013	14	5	9	7	1.3	49
2014 All CLMP Lakes	3050	2.0	50.0	13.1	2.1	41

No graph: Not enough data

Chlorophyll-a (parts per billion)

Year	# Samples	Min	Max	Median	Std. Dev	Carlson TSI
2014	4	2.9	10.0	7.3	3.1	50
2013	5	4.2	21.0	8.7	6.6	52
2014 All CLMP Lakes	583	<1.0	23.5	2.0	2.9	37



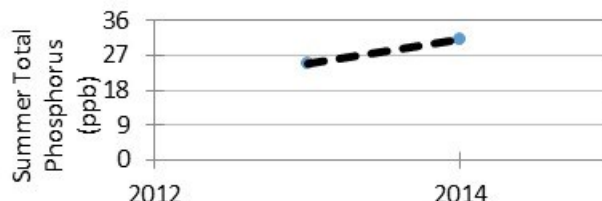
Spring Total Phosphorus (parts per billion)

Year	# Samples	Min	Max	Average	Std. Dev
2014	1	24	24	24.0	NA
2013	1	28	28	28.0	NA
2014 All CLMP Lakes	164	3 W	77	13.2	11.1

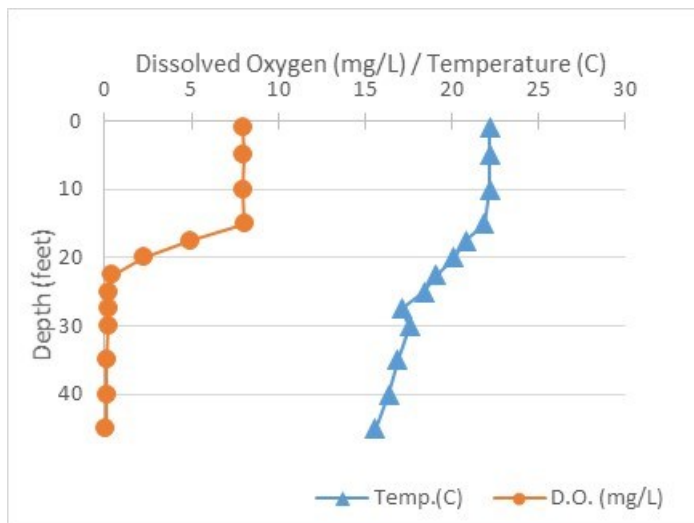


Summer Total Phosphorus (parts per billion)

Year	# Samples	Min	Max	Average	Std. Dev	Carlson TSI
2014	1	31	31	31.0	NA	54
2013	1	25	25	25.0	NA	51
2014 All CLMP Lakes	180	4 T	62	13.5	7.9	41



Dissolved Oxygen and Water Temperature Profile



Summary

	2014	2013	1974-2012
Average TSI	54	50	NA
White (West)	54	50	NA
All CLMP Lakes	40	NA	NA

With an average TSI score of 54 based on chlorophyll-a and summer total phosphorus, this lake is rated as an eutrophic lake. The lake keeps some dissolved oxygen in the bottom waters through early summer, but by late summer the bottom water is completely devoid of oxygen.

There is too little data to assess long term trends. CLMP recommends eight years of consistent monitoring in order to develop a strong data baseline.

*= No sample received W= Value is less than the detection limit (<3 ppb) T= Value reported is less than the reporting limit (5 ppb). Result is estimated.
 <1 = Chlorophyll-a: Sample value is less than limit of quantification (<1 ppb).



White Lake, Muskegon County

2014 Aquatic Plant Identification and Mapping

The Aquatic Plant Identification and Mapping survey was conducted on White Lake in 2013-2014.

This survey involves intensive sampling at multiple locations and depths around the lake produce a complete map of all aquatic plants present in a lake. A great deal of effort is involved both on the lake and back on shore to identify plants, compile data, and develop a detailed plant map, but the result is an extremely valuable record of the plant community of the lake.

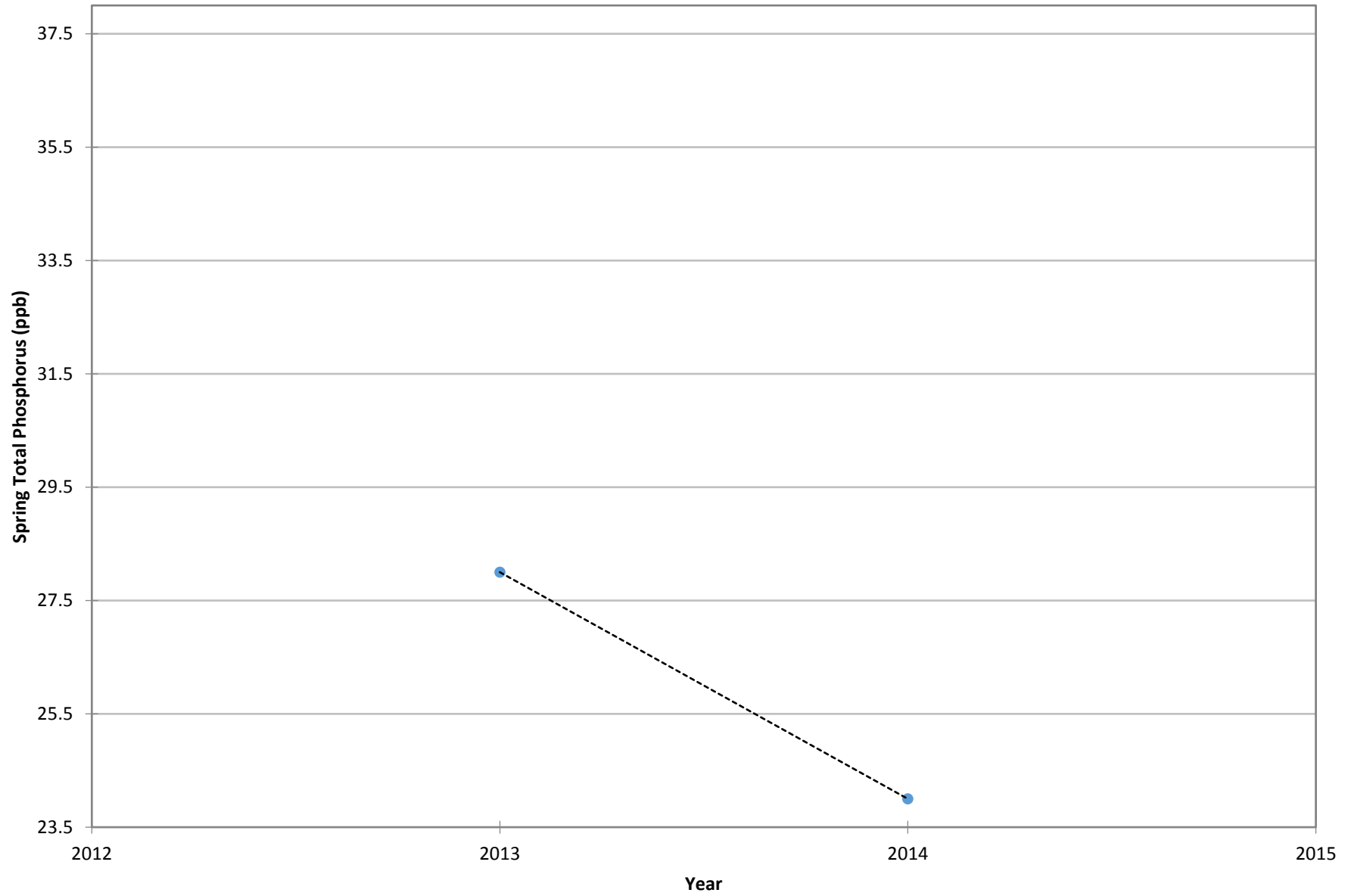
Aquatic plants were sampled from a total of 71 locations in White Lake in 2013-2014. Below is a list of species reported, in order of relative abundance, on a scale of 1-4.

White Lake, Muskegon County		
2014 Aquatic Plant Identification and Mapping: Species Reported		
<u>Species</u>	<u>Relative Density Rating</u>	<u>Nuisance Status</u>
Coontail	1.9	Potential nuisance
Eurasian watermilfoil	1.3	Invasive; nuisance
Wild celery	1.1	Generally beneficial
Native milfoils	0.5	Potential nuisance
Clasping-leaf and whitestem pondweeds	0.4	Neutral
Sago pondweed	0.4	Potential nuisance
Bushy pondweed	0.4	Generally beneficial
Illinois pondweed	0.3	Generally beneficial
Chara (Muskgrass)	0.3	Generally beneficial
Fernleaf pondweed	0.2	Generally beneficial
Curly-leaf pondweed	0.1	Invasive; nuisance
Elodea (Amer. waterweed)	0.1	Generally beneficial
Variable pondweed	0.1	Generally beneficial

Visit the MiCorps Data Exchange (www.micorps.net) or contact the lead volunteer on your lake for more details on the survey, including sampling locations, maps, and abundance information, and for information on past surveys.

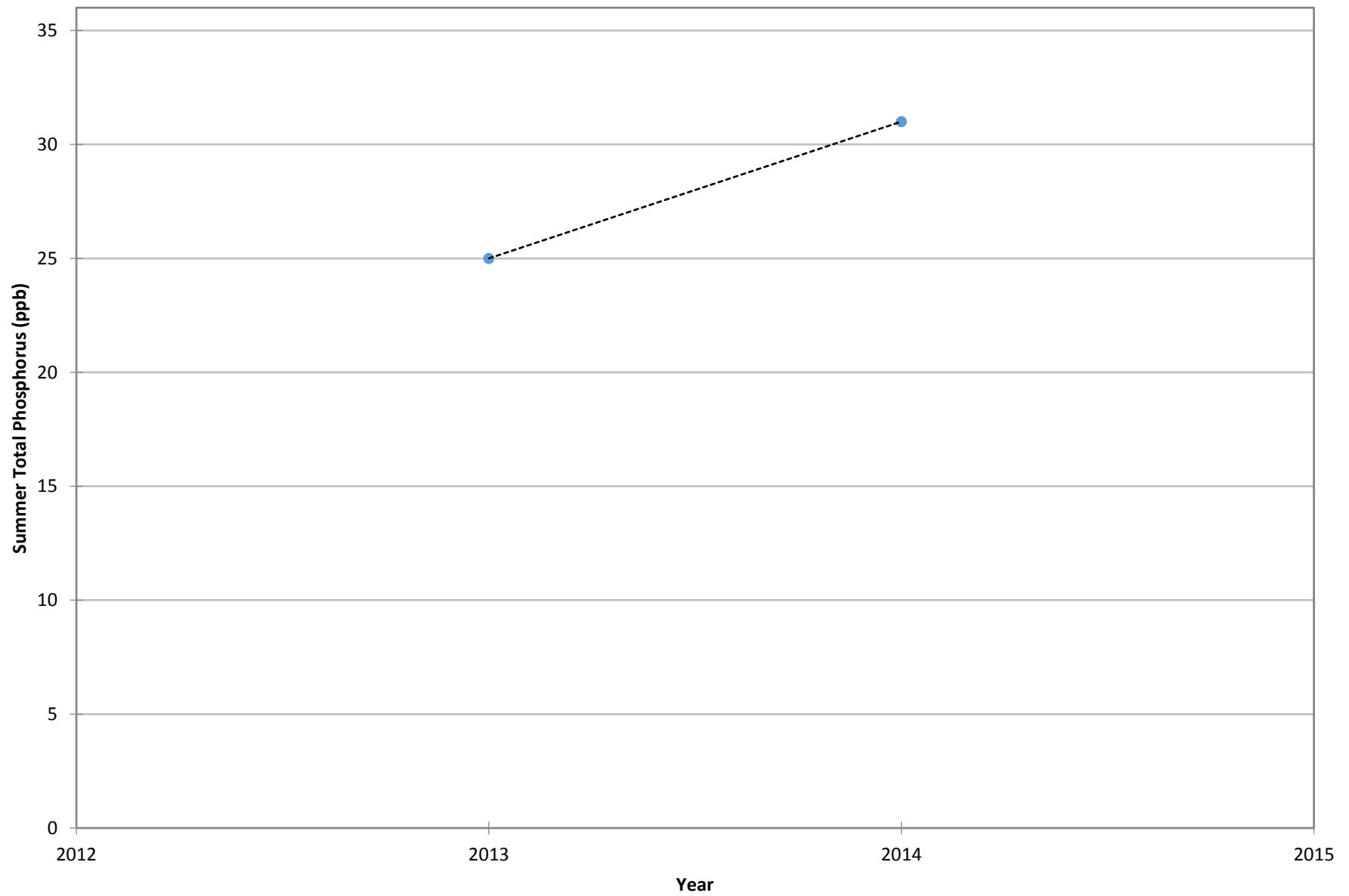
COOPERATIVE LAKES MONITORING PROGRAM
SPRING TOTAL PHOSPHORUS

White (West) Lake (Muskegon Co.), 610349



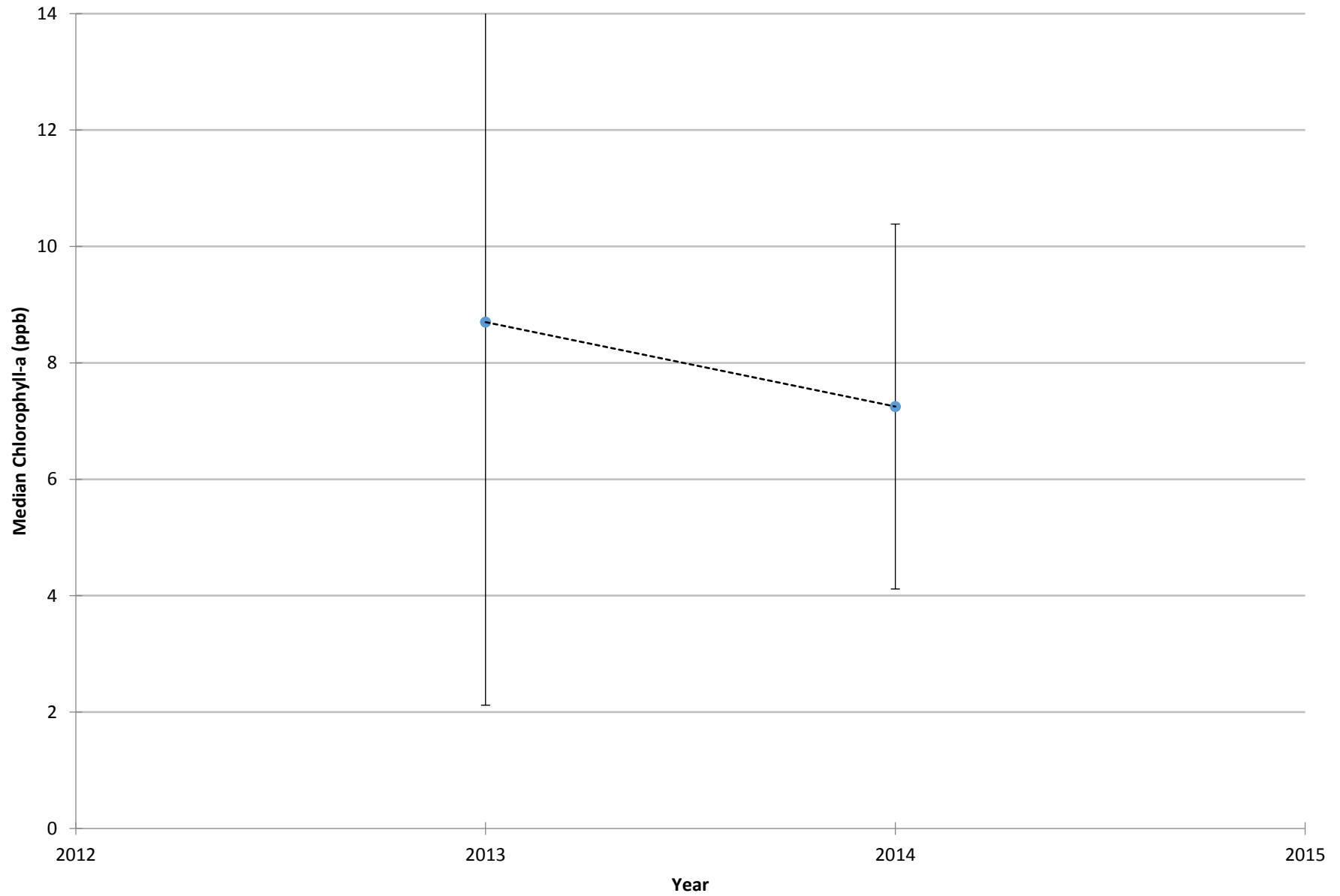
COOPERATIVE LAKES MONITORING PROGRAM
SUMMER TOTAL PHOSPHORUS

White (West) Lake (Muskegon Co.), 610349



COOPERATIVE LAKES MONITORING PROGRAM
SUMMER MEDIAN CHLOROPHYLL-A

White (West) Lake (Muskegon Co.), 610349



Vertical bars indicate standard deviation

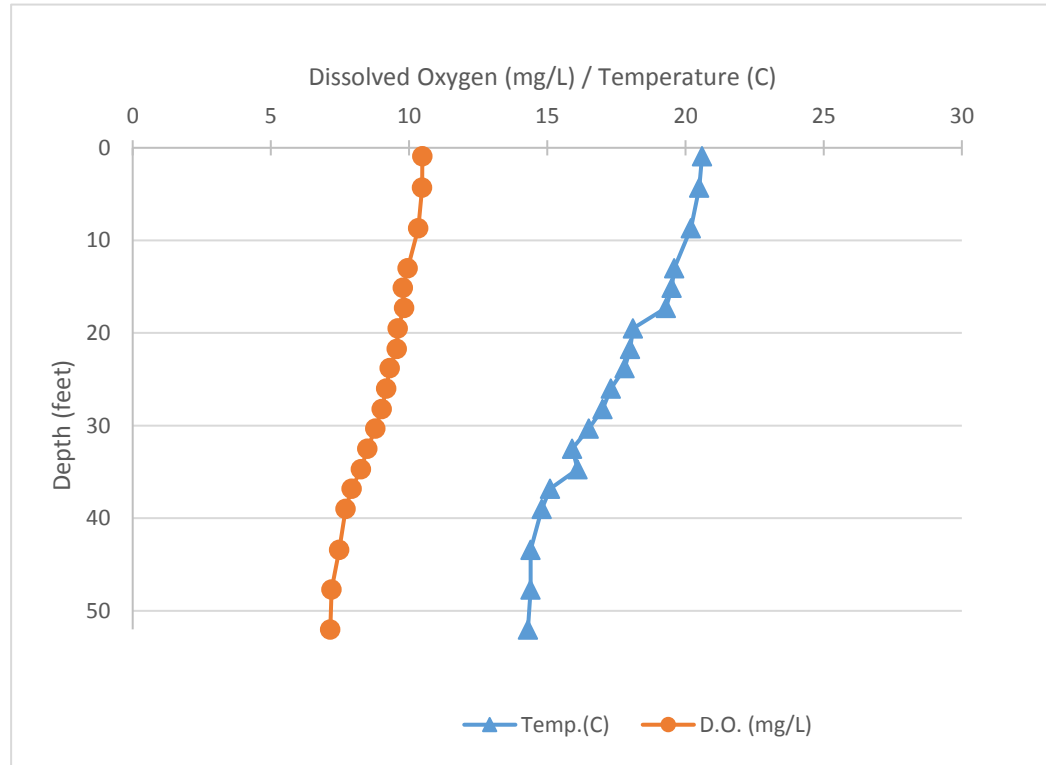
Name: White (West)
County: Muskegon
Site ID: 610349
Date: 6/5/2014

Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
0.9	20.6	10.48
4.3	20.5	10.47
8.7	20.2	10.34
13	19.6	9.95
15.1	19.5	9.78
17.3	19.3	9.83
19.5	18.1	9.59
21.7	18	9.56
23.8	17.8	9.3
26	17.3	9.18
28.2	17	9.01
30.3	16.5	8.78
32.5	15.9	8.49
34.7	16.1	8.26
36.8	15.1	7.93
39	14.8	7.71
43.4	14.4	7.48
47.7	14.4	7.2
52	14.3	7.15

Lake: White (West) (Muskegon Co.)

6/5/2014



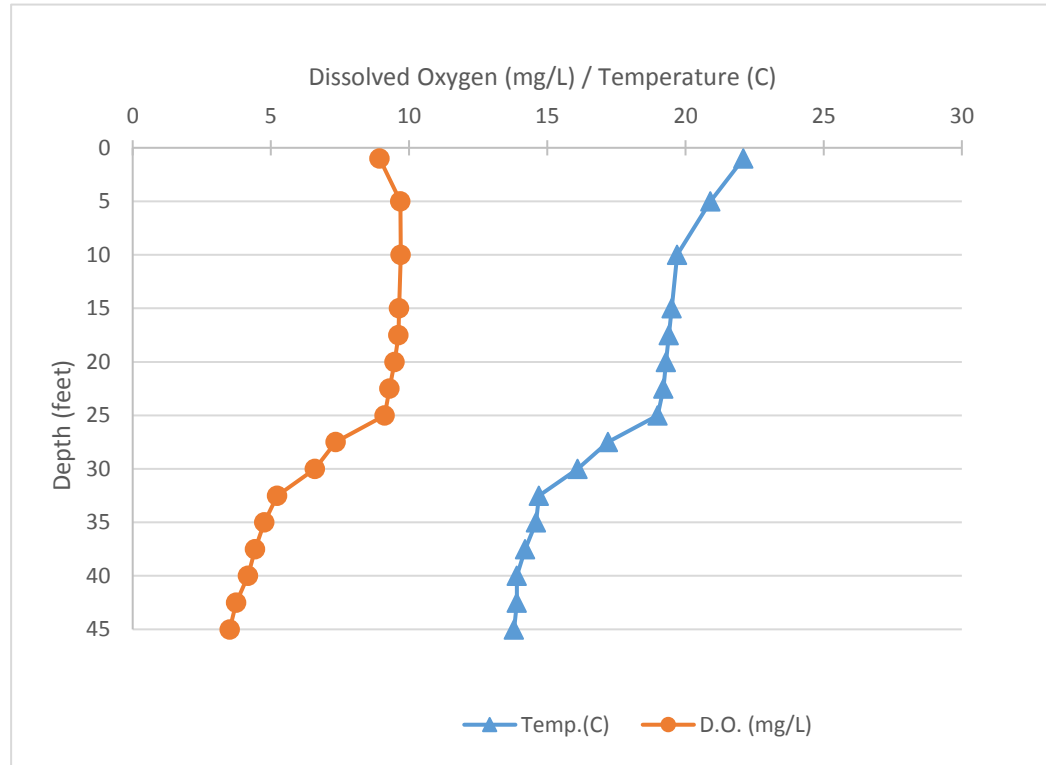
Name: White (West)
 County: Muskegon
 Site ID: 610349
 Date: 6/17/2014

Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	22.1	8.93
5	20.9	9.69
10	19.7	9.7
15	19.5	9.64
17.5	19.4	9.62
20	19.3	9.48
22.5	19.2	9.29
25	19	9.12
27.5	17.2	7.35
30	16.1	6.6
32.5	14.7	5.23
35	14.6	4.77
37.5	14.2	4.43
40	13.9	4.17
42.5	13.9	3.75
45	13.8	3.51

Lake: White (West) (Muskegon Co.)

6/17/2014



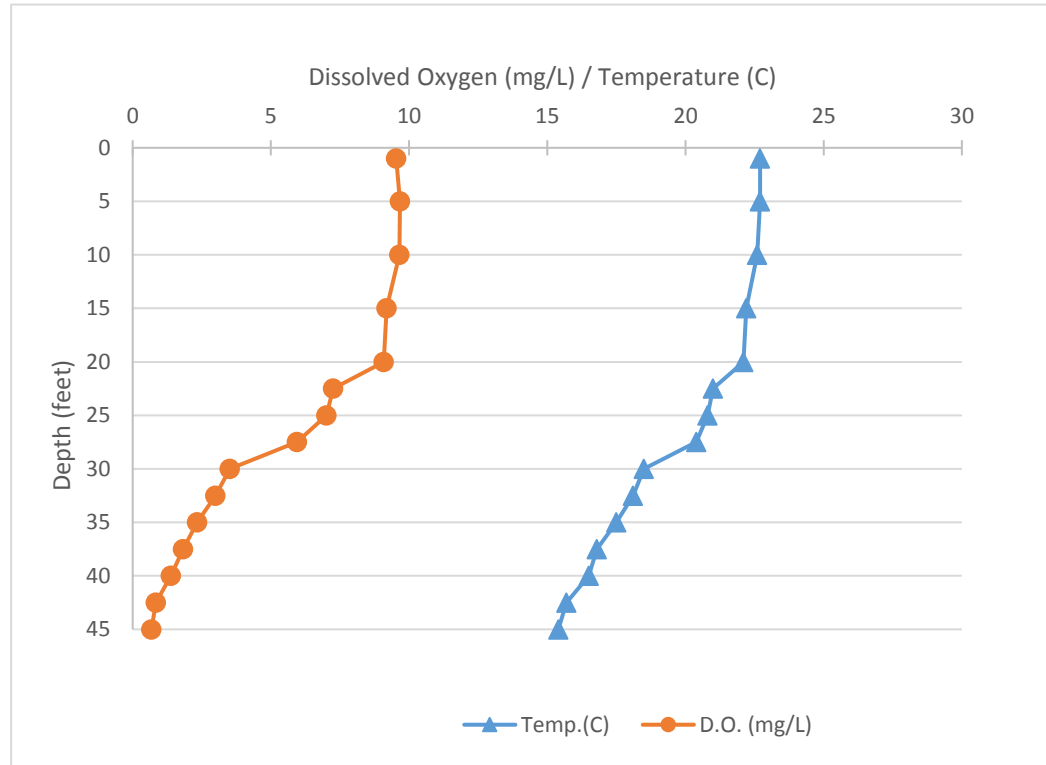
Name: White (West)
 County: Muskegon
 Site ID: 610349
 Date: 7/9/2014

Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	22.7	9.54
5	22.7	9.67
10	22.6	9.65
15	22.2	9.19
20	22.1	9.08
22.5	21	7.26
25	20.8	7.01
27.5	20.4	5.95
30	18.5	3.51
32.5	18.1	2.99
35	17.5	2.33
37.5	16.8	1.82
40	16.5	1.39
42.5	15.7	0.84
45	15.4	0.68

Lake: White (West) (Muskegon Co.)

7/9/2014



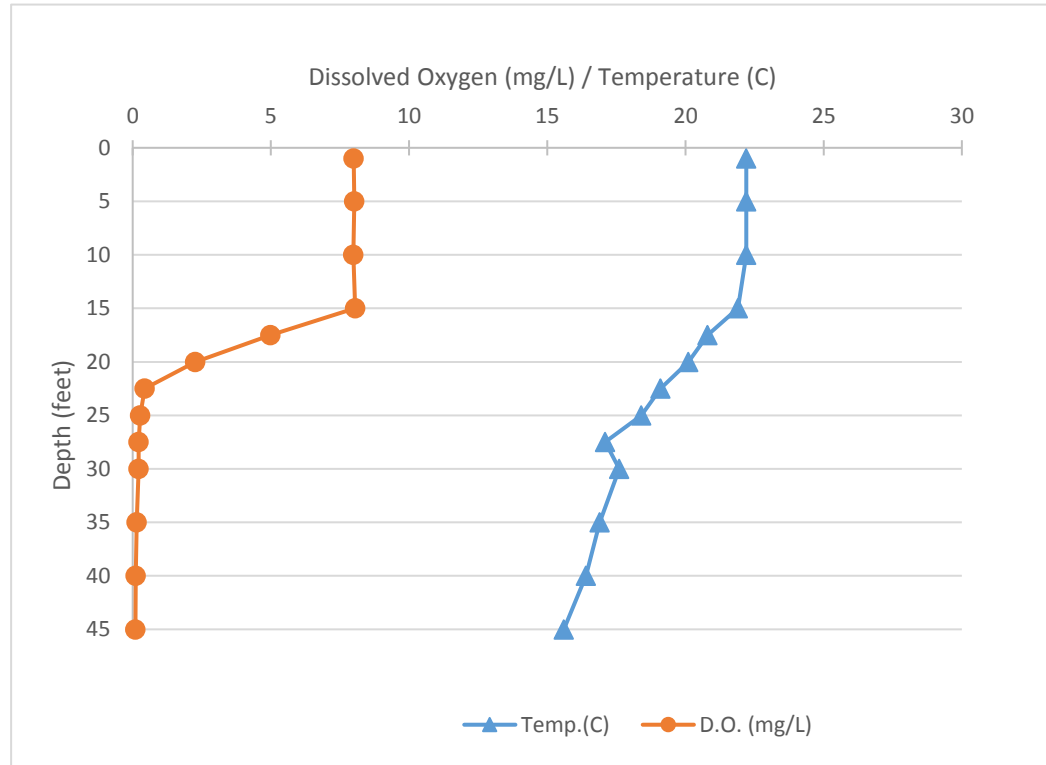
Name: White (West)
County: Muskegon
Site ID: 610349
Date: 8/13/2014

Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	22.2	7.99
5	22.2	8.02
10	22.2	7.98
15	21.9	8.05
17.5	20.8	4.99
20	20.1	2.27
22.5	19.1	0.43
25	18.4	0.27
27.5	17.1	0.22
30	17.6	0.22
35	16.9	0.15
40	16.4	0.11
45	15.6	0.1

Lake: White (West) (Muskegon Co.)

8/13/2014



Name: White (West)
County: Muskegon
Site ID: 610349
Date: 9/19/2014

Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	17.9	9.23
5	17.9	9.27
10	17.8	9.25
15	17.8	9.24
17.5	17.8	9.21
20	17.8	9.21
22.5	17.8	9.13
25	17.8	9.17
27.5	17.8	9.13
30	17	5.03
32.5	16.1	3.46
35	16	4.01
37.5	15.8	5.24
40	15.8	5.61
42.5	15.7	5.8
43	15.7	5.84

Lake: White (West) (Muskegon Co.)

9/19/2014

