



# 2019 Data Report for Platte Lake, Benzie County

Site ID: 100086

44.6923°N, 86.0959°W

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 most recent field season, five years prior to the most recent field season, 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. These numbers of measurements are required to ensure that the results are 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). If your lake stratifies, we will use a graph showing the earliest time of stratification, because identifying the timing of 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 an explanation of the Trophic Status Index and where your lake fits on that scale.

The rest of the report will be aquatic plant summaries, Score the Shore results, and 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.

Remember that some lakes see a lot of fluctuation in these parameters from year to year. Until you have eight years worth of data, consider all trends to be preliminary.

To learn more about the CLMP monitoring parameters or get definitions to unknown terms, check out the CLMP Manual, found at: <https://micorps.net/wp-content/uploads/sites/63/2019/06/CLMP-Manual-2019update.pdf>

**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: Marcy Knoll Wilmes, Jean Roth, Jo Latimore, Paul Steen, Mike Gallagher, Laura Kaminski, and Erick Elgin

**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:

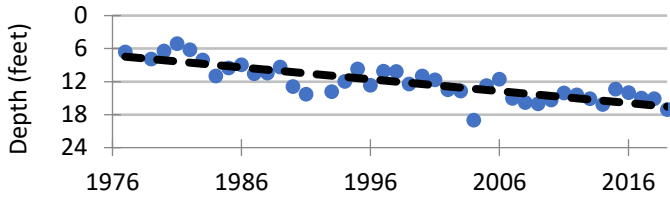
**Paul Steen (psteen@hrwc.org), MiCorps Program Manager**

# Platte Lake, Benzie County 2019 CLMP Results



## Secchi Disk Transparency (feet)

Year	# Readings	Min	Max	Average	Std. Dev	Carlson TSI
2019	8	11.0	21.5	17.1	4.5	36
2014-2018	91	9.0	24.0	17.1	3.5	38
1977-2013	691	2.5	29.0	11.6	3.2	42
2019 All CLMP Lakes	3392	1.5	50.0	12.8	5.8	42



## Chlorophyll-a (parts per billion)

Year	# Samples	Min	Max	Median	Std. Dev	Carlson TSI
2019	5	<1.0	3.5	1.7	1.1	36
2019 All CLMP Lakes	635	< 1.0	42.0	2.2	3.4	39

No graph: Not enough data

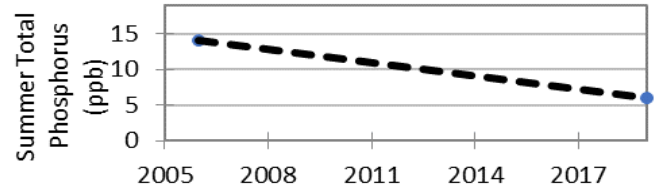
## Spring Phosphorus (parts per billion)

Year	# Samples	Min	Max	Average	Std. Dev	Carlson TSI
2019	1	7.0	7.0	7.0	NA	
2019 All CLMP Lakes	220	<= 3	100.0	14.9	11.0	

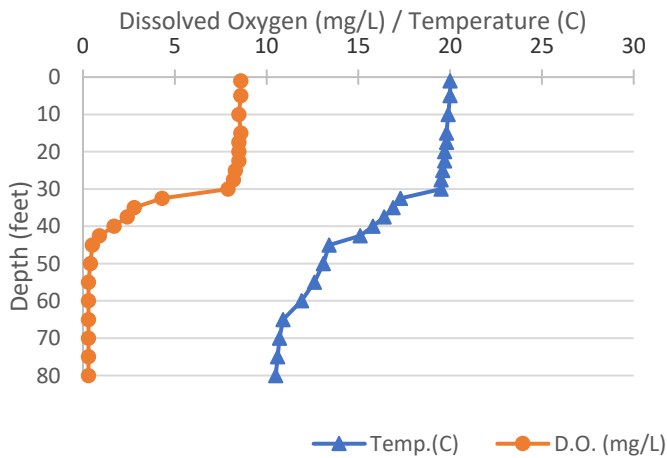
No graph: Not enough data

## Summer Phosphorus (parts per billion)

Year	# Samples	Min	Max	Average	Std. Dev	Carlson TSI
2019	1	6.0	6.0	6.0	NA	30
2006	1	14.0	14.0	14.0	NA	42
2019 All CLMP Lakes	281	<= 3	65.0	12.8	9.3	38



## Dissolved Oxygen and Temperature Profile 9/5/2019



## Summary

Average TSI	2019	2014-2018	1977-2013
Platte Lake	34	32	39
All CLMP Lakes	40	40	43

With an average TSI score of 34 based on 2019 Secchi transparency, chlorophyll-a, and summer total phosphorus data, this lake is rated as an oligotrophic lake.

The lake keeps some dissolved oxygen in the bottom waters through mid-summer, but by late summer the lake has stratified and the bottom water is devoid of oxygen.

Long term monitoring shows slight downward slopes on the parameters, indicating a very slow movement toward lower nutrient levels in the lake.

\* = No sample received W= Value is less than the detection limit (<3 ppb) T= Value reported is less than the reporting limit (5 ppb).  
<1.0 = Chlorophyll-a: Sample value is less than limit of quantification (<1 ppb).

# Trophic Status Index Explained

In 1977, limnologist Dr. Robert Carlson developed a numerical scale (0-100) where the numbers indicate the level of nutrient enrichment. Using the proper equations, we can convert results from Summer Total Phosphorus, Secchi Depth, and Chlorophyll-a to this Trophic Status Index (TSI). The TSI numbers are furthermore grouped into general categories (oligotrophic, mesotrophic, eutrophic, and hypereutrophic), to quickly give us a way to understand the general nutrient level of any lake.

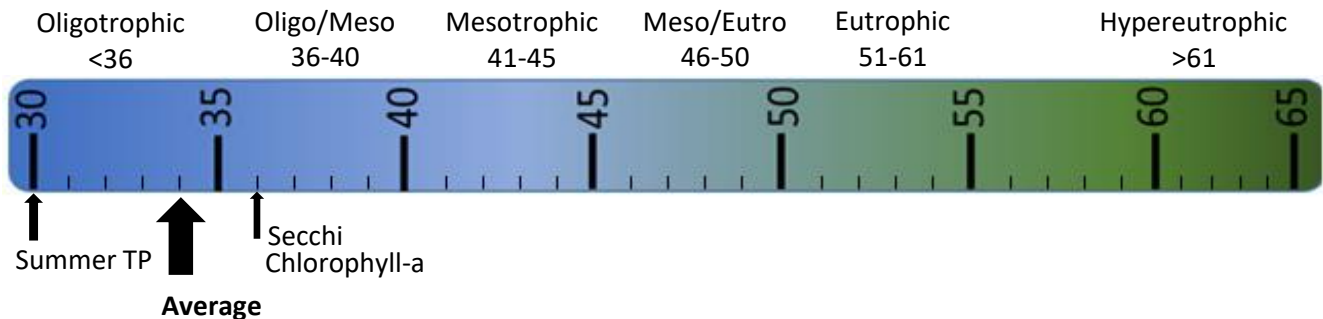
The tables below give the results-to-TSI conversions for the water quality data ranges normally seen in the CLMP. The formulas for this conversion can be found in the CLMP manual: <https://micorps.net/wp-content/uploads/sites/63/2019/06/CLMP-Manual-2019update.pdf>

Phosphorus (ppb)	TSI Value
<5	<27
6	30
8	34
10	37
12	40
15	43
18	46
21	48
24	50
32	54
36	56
42	58
48	60
>50	>61

Secchi Depth (ft)	TSI Value
>30	<28
25	31
20	34
15	38
12	42
10	44
7.5	48
6	52
4	57
<3	>61

Chlorophyll-a (ppb)	TSI Value
<1	<31
2	37
3	41
4	44
6	48
8	51
12	55
16	58
22	61
>22	>61

TSI for Platte Lake in 2019	
Average	34
Secchi Disk	36
Summer TP	30
Chlorophyll-a	36



**Oligotrophic:** Generally deep and clear lakes with little aquatic plant or algae growth. These lakes maintain sufficient dissolved oxygen in the cool, deep-bottom waters during late summer to support cold water fish, such as trout and whitefish.

**Mesotrophic:** Lakes that fall between oligotrophic and eutrophic. Mid-ranged amounts of nutrients.

**Eutrophic:** Highly productive eutrophic lakes are generally shallow, turbid, and support abundant aquatic plant growth. In deep eutrophic lakes, the cool bottom waters usually contain little or no dissolved oxygen. Therefore, these lakes can only support warm water fish, such as bass and pike.

**Hypereutrophic:** A specialized category of eutrophic lakes. These lakes exhibit extremely high productivity, such as nuisance algae and weed growth.

## Platte Lake, Benzie County 2019 CLMP Aquatic Plant Results



The Aquatic Plant Identification and Mapping survey was conducted on Platte Lake in 2019.

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 57 locations (19 transects) in Platte Lake in 2019. Below is a list of species reported, in order of relative abundance. Survey conducted June 11.

Platte Lake, Benzie County		
2019 Aquatic Plant Identification and Mapping: Species Reported		
<u>Common Name</u>	<u>Latin Name</u>	<u>Average Density*</u>
Stonewort/muskgrass	<i>Chara</i> sp.	2.7
Bladderwort	<i>Utricularia</i> sp.	0.9
Native milfoil	<i>Myriophyllum</i> sp. (poss. <i>M. verticillatum</i> )	0.7
Waterweed	<i>Elodea canadensis</i>	0.6
Illinois pondweed	<i>Potamogeton illinoensis</i>	0.4
Wild celery	<i>Vallisneria americana</i>	0.3
Bushy pondweed	<i>Najas flexilis</i>	0.3
Eurasian milfoil	<i>Myriophyllum spicatum</i>	0.3 (invasive)
Coontail	<i>Ceratophyllum demersum</i>	0.3
Thin-leaf pondweed	<i>Potamogeton</i> sp.	0.3
Flat-stemmed pondweed	<i>Potamogeton zosteriformis</i>	0.3
Sago pondweed	<i>Stuckenia pectinata</i>	0.1
Arrowhead	<i>Sagittaria</i> sp.	0.1
Clasping-leaf pondweed	<i>Potamogeton richardsonii</i>	0.1
Water marigold	<i>Bidens beckii</i>	0.1
Perfoliate pondweed	<i>Potamogeton perfoliatus</i>	0.1
Variable pondweed	<i>Potamogeton gramineus</i>	0.1
Bulrushes		<0.1
Nitella	<i>Nitella</i> sp.	<0.1
Blunt-leaf pondweed	<i>Potamogeton obtusifolius</i>	<0.1
Spiny hornwort	<i>Ceratophyllum echinatum</i>	<0.1
Large-leaf pondweed	<i>Potamogeton amplifolius</i>	<0.1
Curly-leaf pondweed	<i>Potamogeton crispus</i>	<0.1 (invasive)
Whitestem pondweed	<i>Potamogeton praelongus</i>	<0.1
Lesser duckweed	<i>Lemna minor</i>	<0.1
Needle spikerush	<i>Eleocharis acicularis</i>	<0.1

\*Lakewide. Scale: 0 (absent) - 5 (dense)

Visit the MiCorps Data Exchange ([www.micorps.net](http://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.

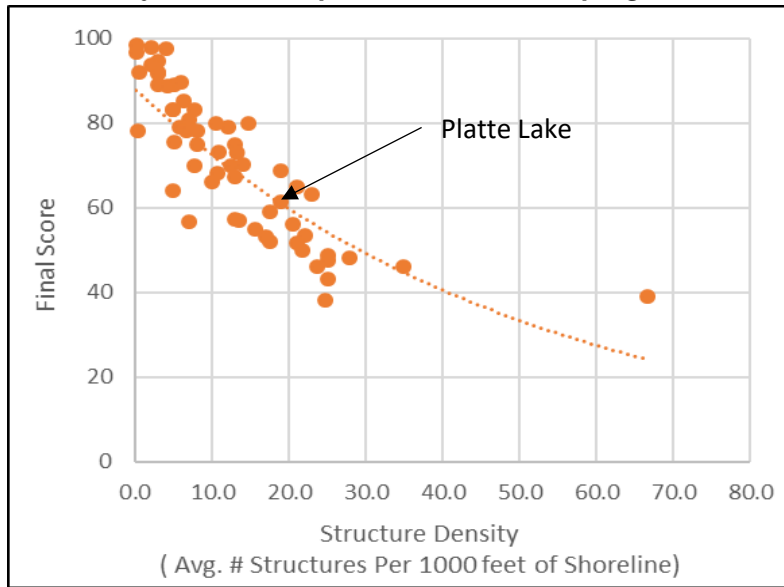
# Platte Lake, Benzie County 2019 Score the Shore Results



The Score the Shore Habitat Assessment was conducted on Platte Lake in 2019.

This assessment involves rating 1000 foot sections of shoreline for aquatic vegetation, shoreline vegetation, erosion, and erosion control practices (like sea walls). Each shoreline section is given three scores ranging from 0-100 for the categories of Littoral, Riparian, and Erosion Management. The three scores are averaged to produce an average section score. Then a total score is given to the entire lake by averaging all of the average section scores. A score of 0 indicates a shoreline that has been extremely disturbed by human impacts and no natural shoreline remains. A score of 100 indicates a shoreline that is nearly pristine.

### How does your lake compare to others in the program?



Platte Lake:	
Number of Sections:	47
Number of Structures:	874
Structure Density:	19
Final Score:	61

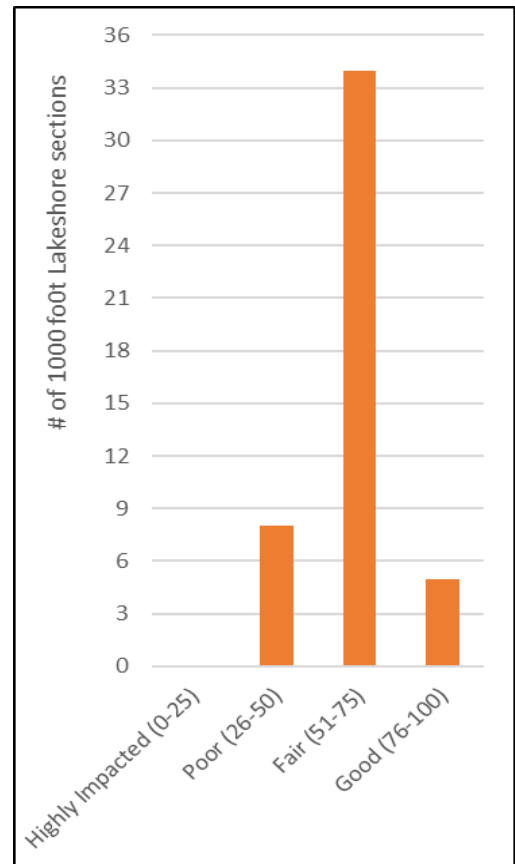
All 62 Participating Lakes from 2015-2019:	
Avg. Number of Sections:	16
Avg. Number of Structures:	228
Avg. Structure Density:	12.6
Avg. Final Score:	71

### Analysis specific to Platte Lake:

Overall, the lakeshore habitat of Platte Lake is slightly below average when compared to the other lakes in the program. The shorelines reaches were rated between poor through good, with the vast majority rated as fair. (8 poor, 34 fair, 5 good).

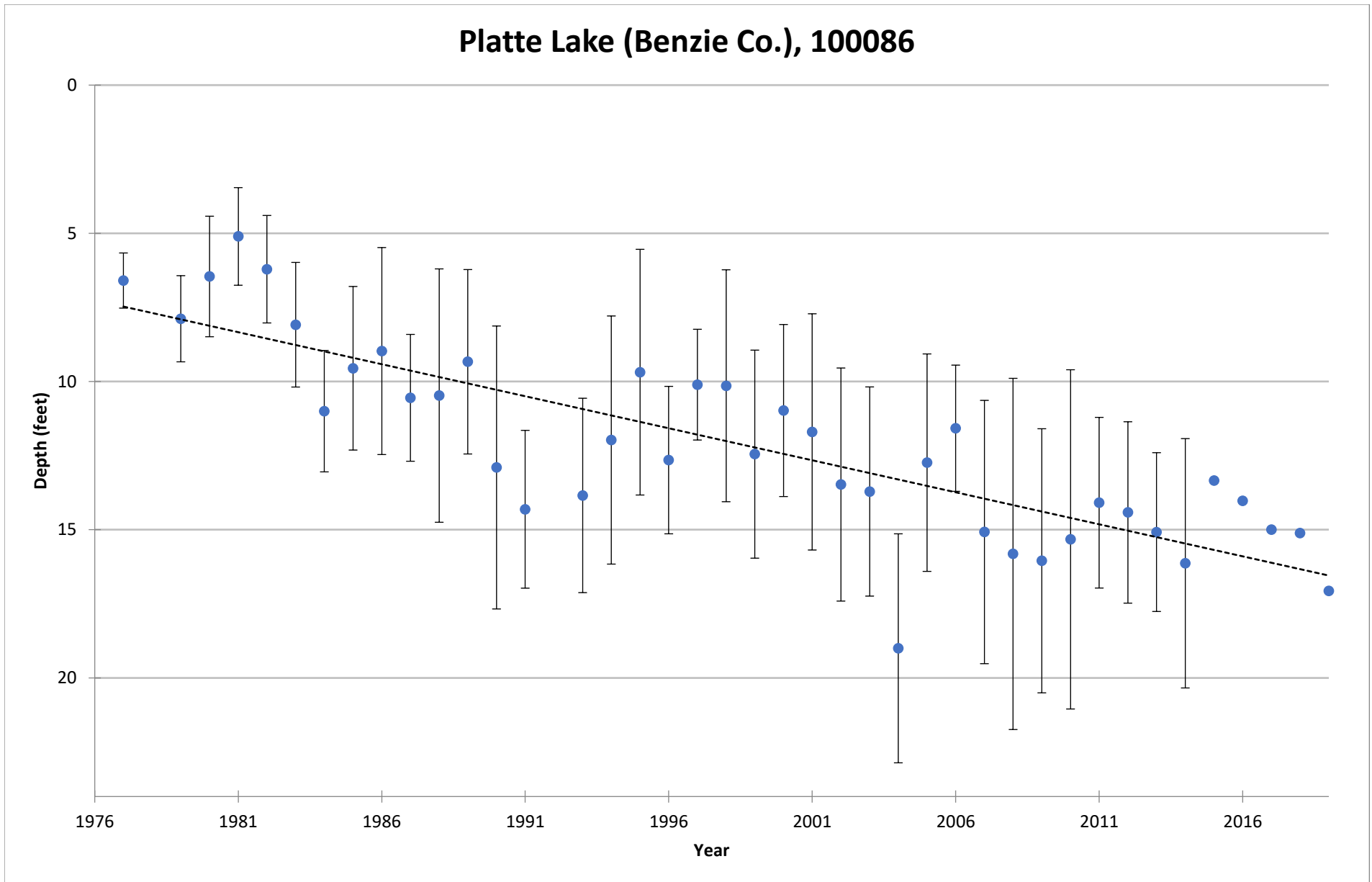
The lake sections scored highest for erosion control, with an average of 89, meaning that there are a low amount of sea walls, rock rip-rap, and other shoreline erosion structures.

The littoral zone and riparian zone were the weak points in Platte Lake's habitat (scoring an average of 49 and 47, respectively). To improve the littoral zone score, leave woody debris in place and allow native aquatic vegetation to grow in the shallow waters. Reduce the amount of mowed grass and increase the amount of unmowed native vegetation along the lakeshore to boost the riparian aspect of the shoreline habitat.



COOPERATIVE LAKES MONITORING PROGRAM  
SUMMER MEAN TRANSPARENCY

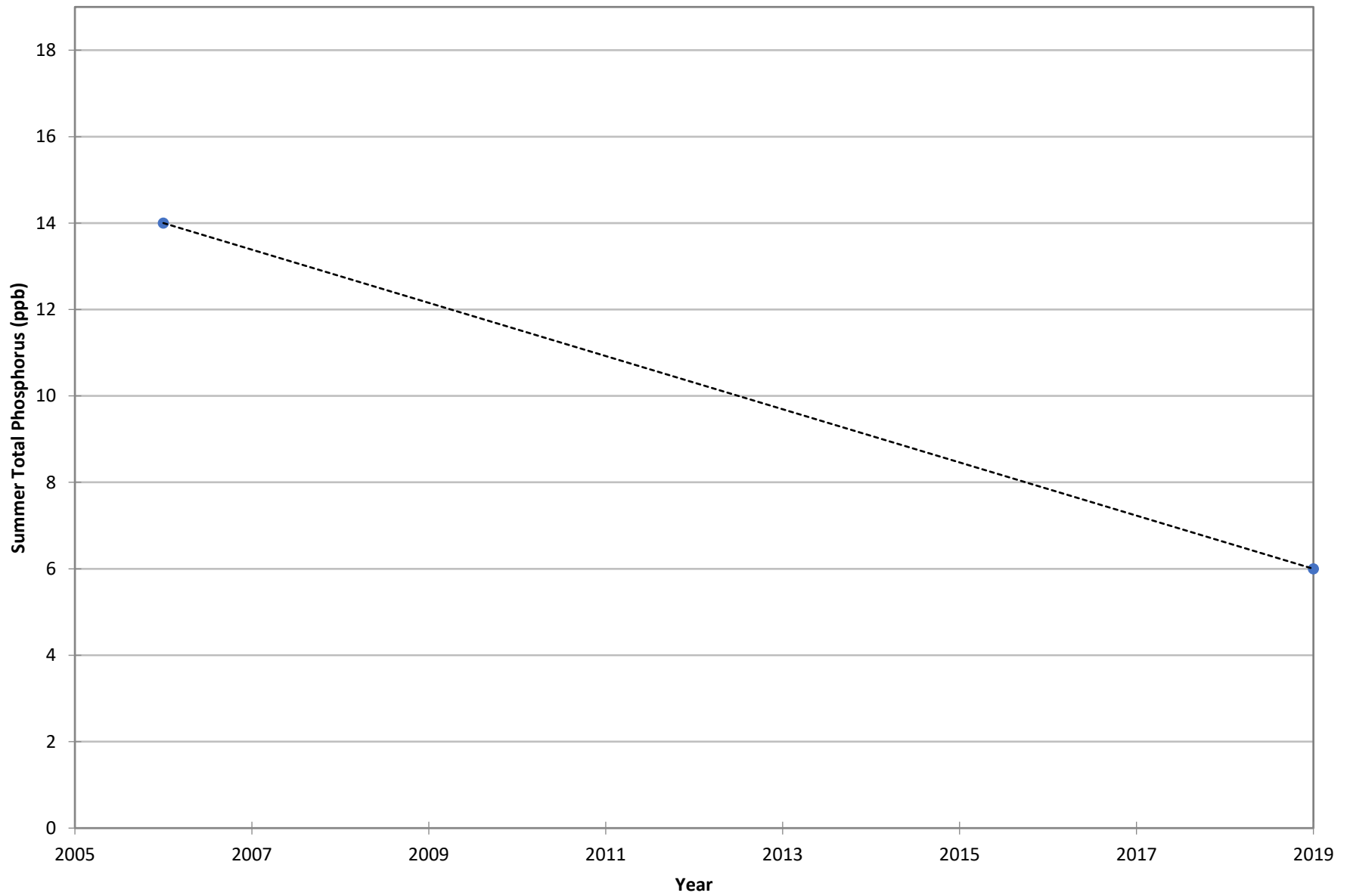
**Platte Lake (Benzie Co.), 100086**



Vertical bars indicate standard deviation

COOPERATIVE LAKES MONITORING PROGRAM  
SUMMER TOTAL PHOSPHORUS

**Platte Lake (Benzie Co.), 100086**





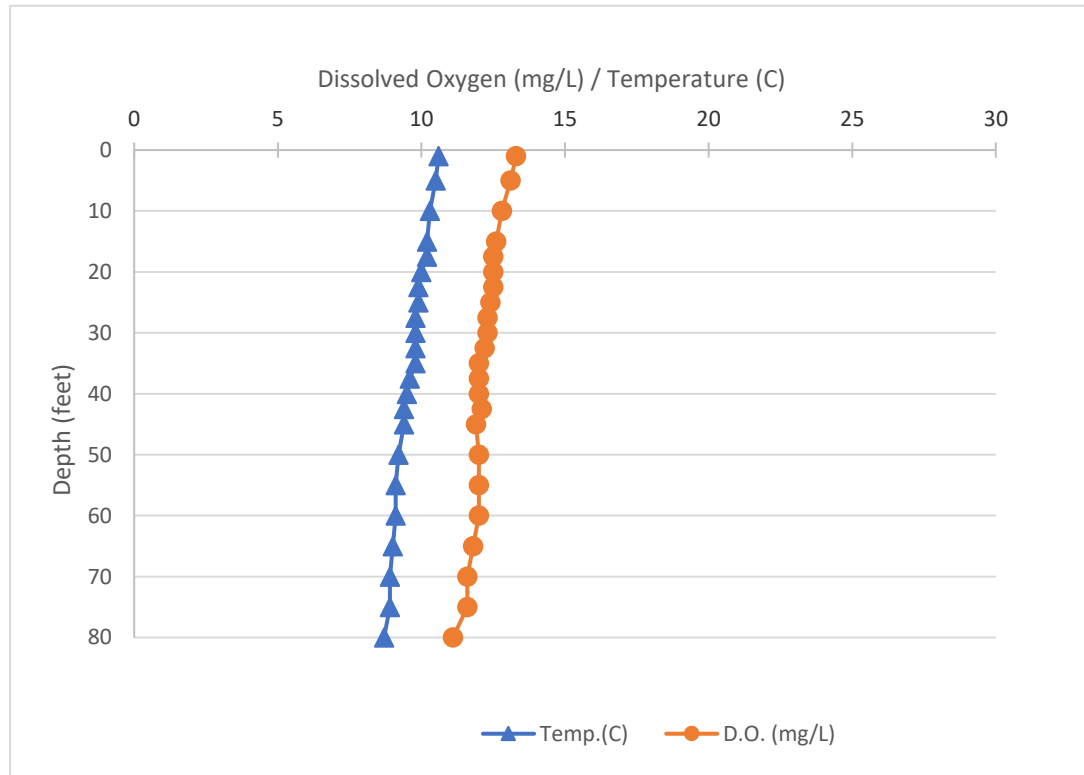
Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 5/14/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	10.6	13.3
5	10.5	13.1
10	10.3	12.8
15	10.2	12.6
17.5	10.2	12.5
20	10	12.5
22.5	9.9	12.5
25	9.9	12.4
27.5	9.8	12.3
30	9.8	12.3
32.5	9.8	12.2
35	9.8	12
37.5	9.6	12
40	9.5	12
42.5	9.4	12.1
45	9.4	11.9
50	9.2	12
55	9.1	12
60	9.1	12
65	9	11.8
70	8.9	11.6
75	8.9	11.6
80	8.7	11.1

Lake: **Platte Lake (Benzie Co.)**

**5/14/2019**



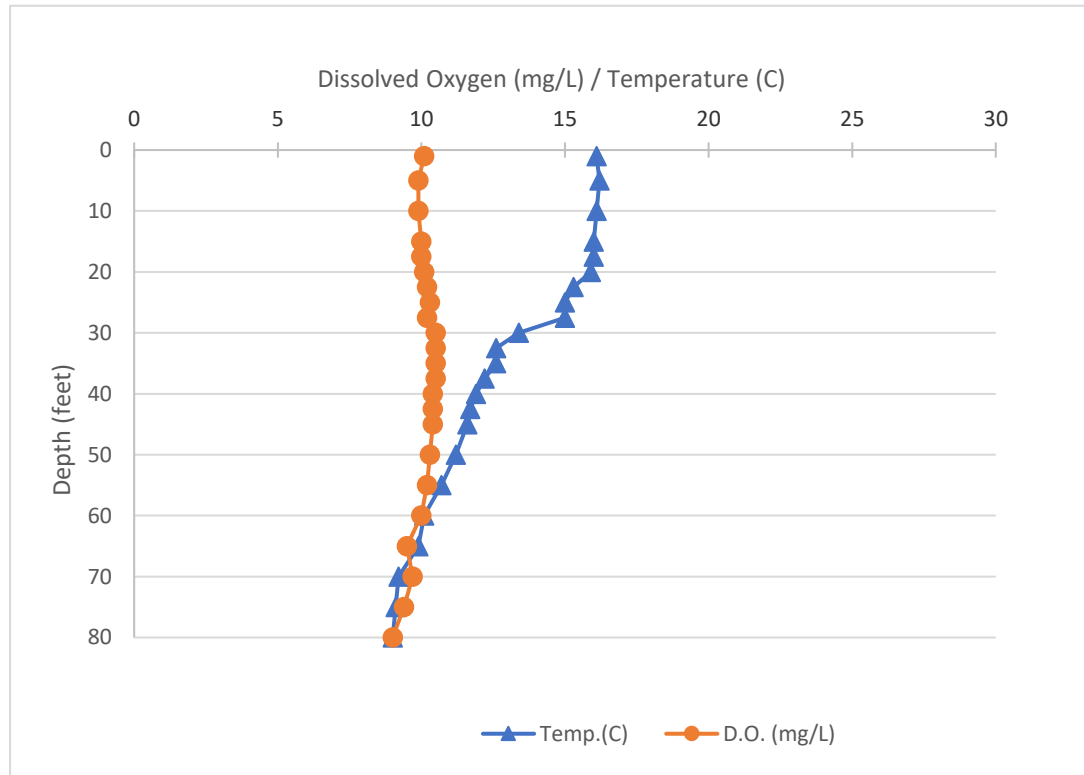
Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 5/31/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	16.1	10.1
5	16.2	9.9
10	16.1	9.9
15	16	10
17.5	16	10
20	15.9	10.1
22.5	15.3	10.2
25	15	10.3
27.5	15	10.2
30	13.4	10.5
32.5	12.6	10.5
35	12.6	10.5
37.5	12.2	10.5
40	11.9	10.4
42.5	11.7	10.4
45	11.6	10.4
50	11.2	10.3
55	10.7	10.2
60	10.1	10
65	9.9	9.5
70	9.2	9.7
75	9.1	9.4
80	9	9

Lake: **Platte Lake (Benzie Co.)**

**5/31/2019**



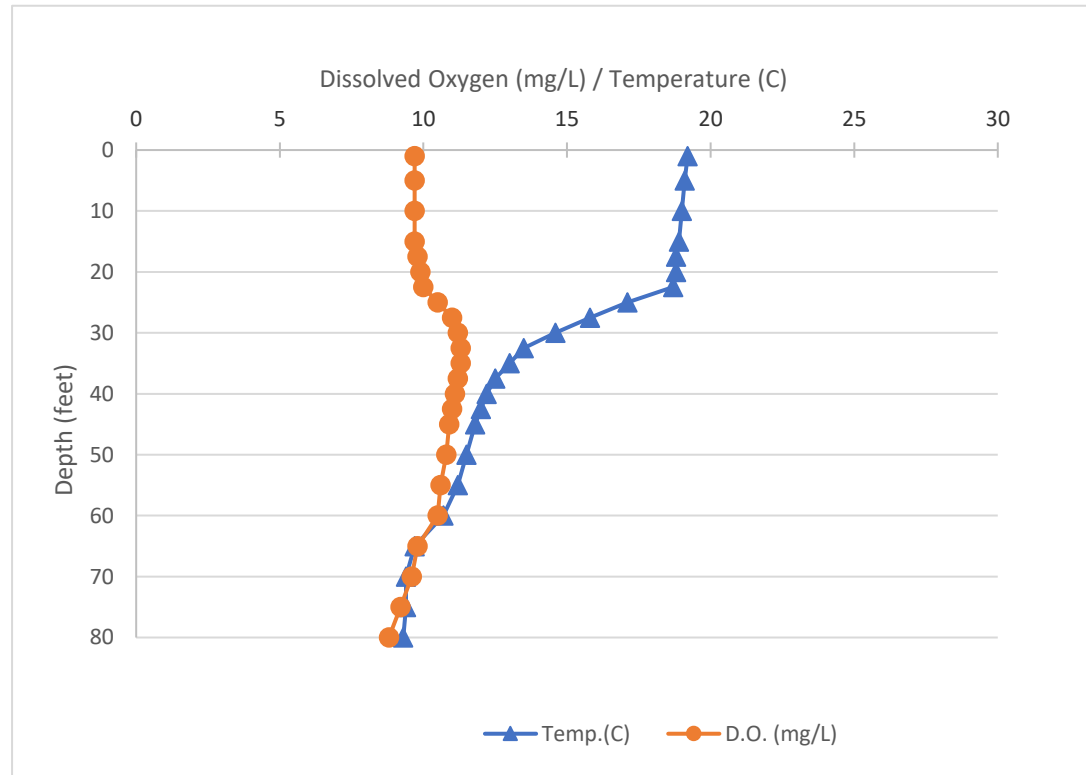
Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 6/12/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	19.2	9.7
5	19.1	9.7
10	19	9.7
15	18.9	9.7
17.5	18.8	9.8
20	18.8	9.9
22.5	18.7	10
25	17.1	10.5
27.5	15.8	11
30	14.6	11.2
32.5	13.5	11.3
35	13	11.3
37.5	12.5	11.2
40	12.2	11.1
42.5	12	11
45	11.8	10.9
50	11.5	10.8
55	11.2	10.6
60	10.7	10.5
65	9.7	9.8
70	9.4	9.6
75	9.4	9.2
80	9.3	8.8

Lake: Platte Lake (Benzie Co.)

6/12/2019



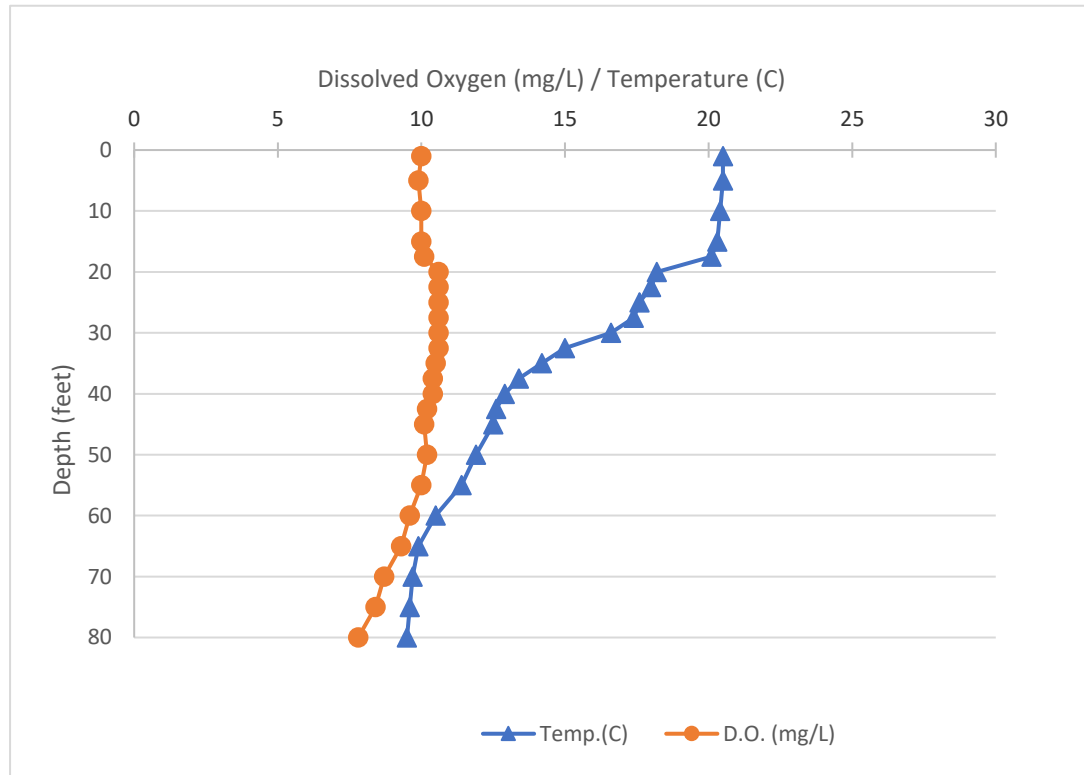
Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 6/25/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	20.5	10
5	20.5	9.9
10	20.4	10
15	20.3	10
17.5	20.1	10.1
20	18.2	10.6
22.5	18	10.6
25	17.6	10.6
27.5	17.4	10.6
30	16.6	10.6
32.5	15	10.6
35	14.2	10.5
37.5	13.4	10.4
40	12.9	10.4
42.5	12.6	10.2
45	12.5	10.1
50	11.9	10.2
55	11.4	10
60	10.5	9.6
65	9.9	9.3
70	9.7	8.7
75	9.6	8.4
80	9.5	7.8

Lake: **Platte Lake (Benzie Co.)**

**6/25/2019**



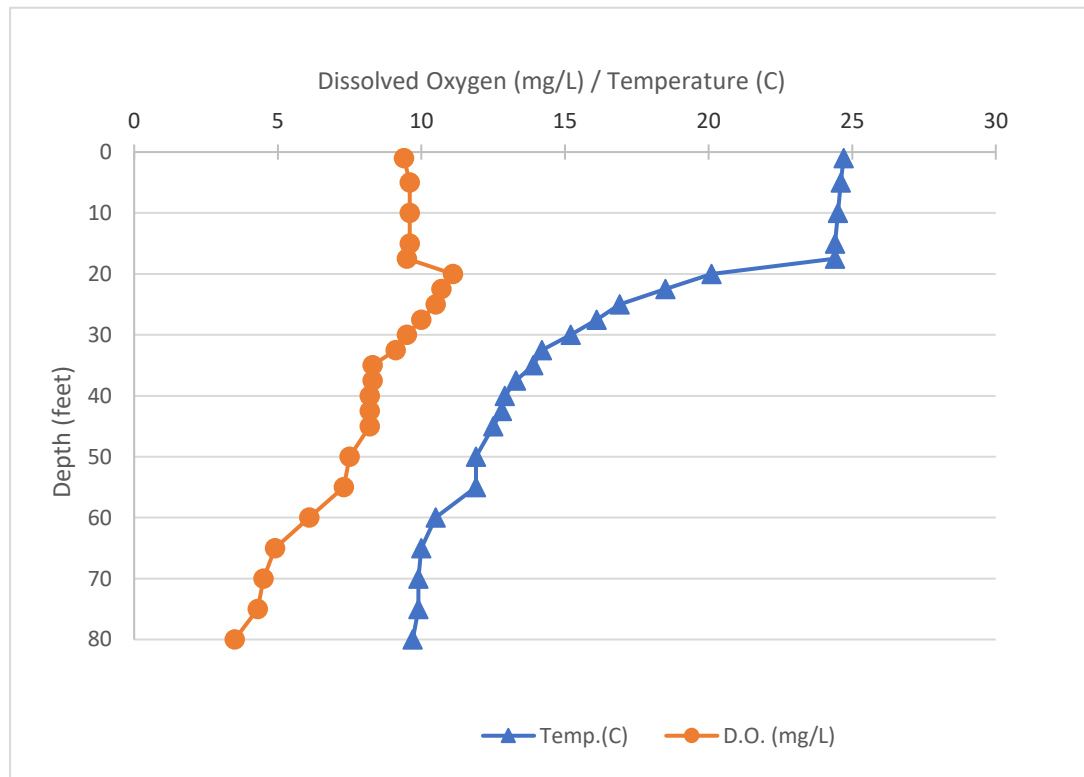
Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 7/10/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	24.7	9.4
5	24.6	9.6
10	24.5	9.6
15	24.4	9.6
17.5	24.4	9.5
20	20.1	11.1
22.5	18.5	10.7
25	16.9	10.5
27.5	16.1	10
30	15.2	9.5
32.5	14.2	9.1
35	13.9	8.3
37.5	13.3	8.3
40	12.9	8.2
42.5	12.8	8.2
45	12.5	8.2
50	11.9	7.5
55	11.9	7.3
60	10.5	6.1
65	10	4.9
70	9.9	4.5
75	9.9	4.3
80	9.7	3.5

Lake: Platte Lake (Benzie Co.)

7/10/2019



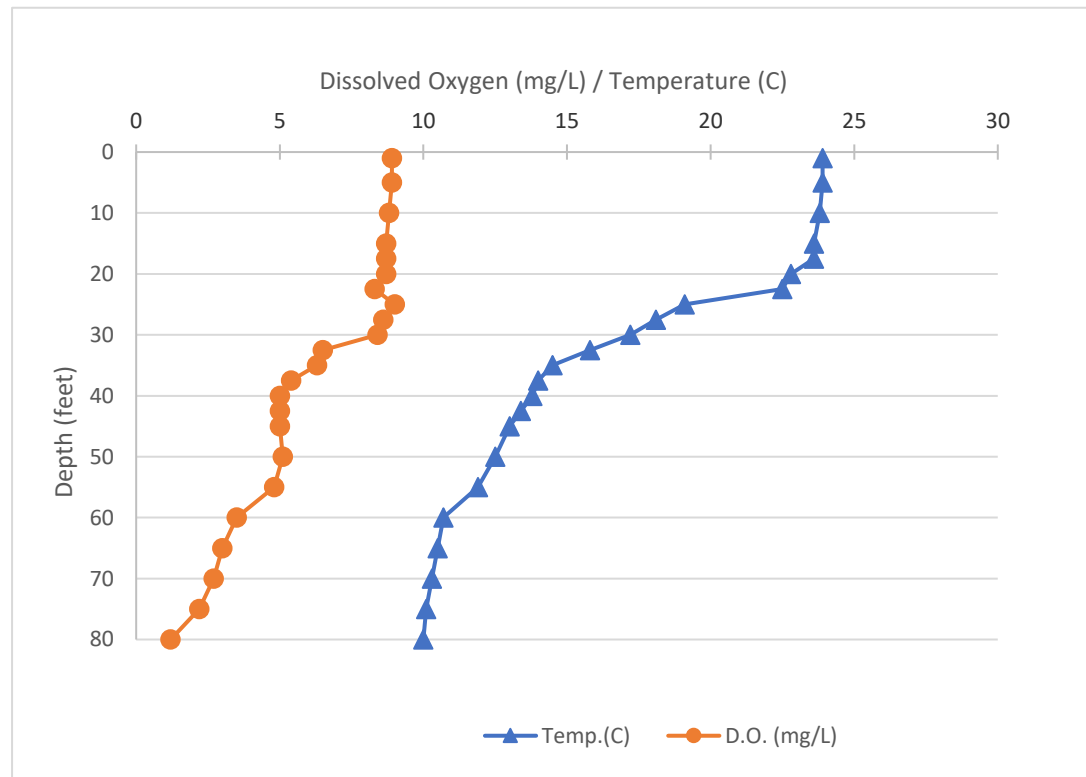
Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 7/24/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	23.9	8.9
5	23.9	8.9
10	23.8	8.8
15	23.6	8.7
17.5	23.6	8.7
20	22.8	8.7
22.5	22.5	8.3
25	19.1	9
27.5	18.1	8.6
30	17.2	8.4
32.5	15.8	6.5
35	14.5	6.3
37.5	14	5.4
40	13.8	5
42.5	13.4	5
45	13	5
50	12.5	5.1
55	11.9	4.8
60	10.7	3.5
65	10.5	3
70	10.3	2.7
75	10.1	2.2
80	10	1.2

Lake: **Platte Lake (Benzie Co.)**

**7/24/2019**



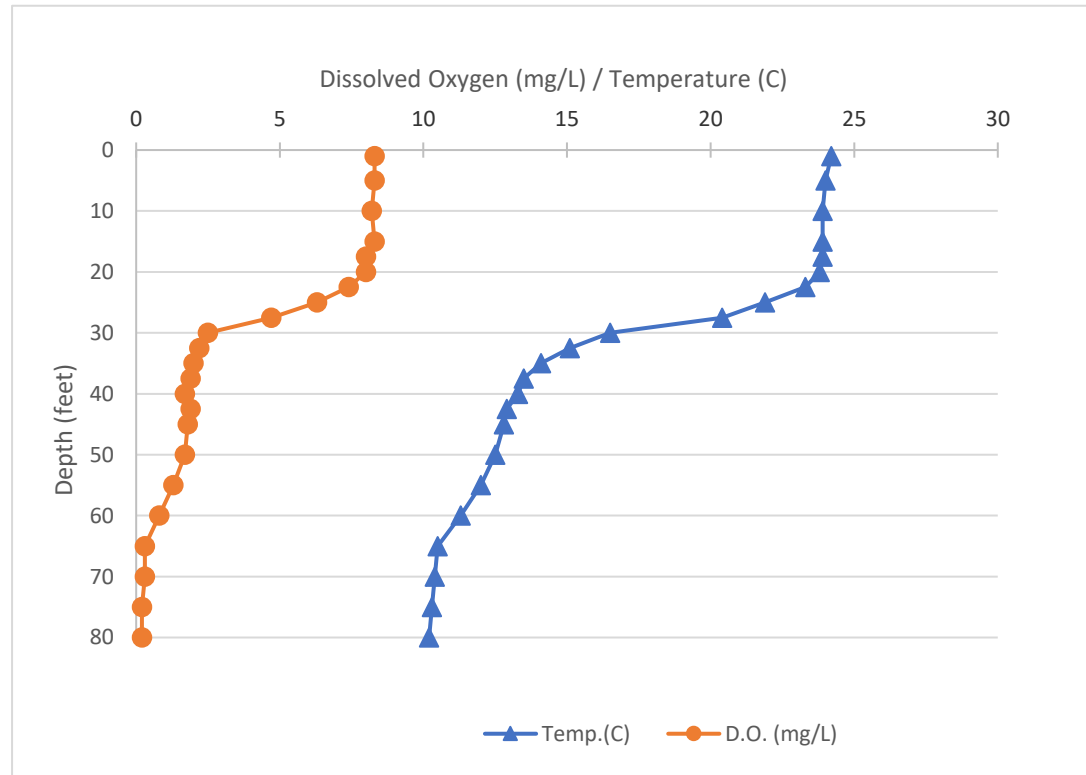
Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 8/14/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	24.2	8.3
5	24	8.3
10	23.9	8.2
15	23.9	8.3
17.5	23.9	8
20	23.8	8
22.5	23.3	7.4
25	21.9	6.3
27.5	20.4	4.7
30	16.5	2.5
32.5	15.1	2.2
35	14.1	2
37.5	13.5	1.9
40	13.3	1.7
42.5	12.9	1.9
45	12.8	1.8
50	12.5	1.7
55	12	1.3
60	11.3	0.8
65	10.5	0.3
70	10.4	0.3
75	10.3	0.2
80	10.2	0.2

Lake: Platte Lake (Benzie Co.)

8/14/2019



Name: Platte Lake  
 County: Benzie  
 Site ID: 100086  
 Date: 9/5/2019

### Dissolved Oxygen and Temperature Profile

Depth (ft)	Temp.(C)	D.O. (mg/L)
1	20	8.6
5	20	8.6
10	19.9	8.5
15	19.8	8.6
17.5	19.8	8.5
20	19.7	8.5
22.5	19.7	8.5
25	19.6	8.3
27.5	19.5	8.2
30	19.5	7.9
32.5	17.3	4.3
35	16.9	2.8
37.5	16.4	2.4
40	15.8	1.7
42.5	15.1	0.9
45	13.4	0.5
50	13.1	0.4
55	12.6	0.3
60	11.9	0.3
65	10.9	0.3
70	10.7	0.3
75	10.6	0.3
80	10.5	0.3

Lake: **Platte Lake (Benzie Co.)**

**9/5/2019**

