

2017

Lake MinnieBelle

Lake Monitoring Report

TSI: Trophic State Index is a measurement of overall lake productivity (nutrient enrichment) The overall TSI of a lake is the average of the TSI for phosphorous, chlorophyll-a and secchi depth.

Secchi Number + Math Conversion = TSI
Total Phosphorous + Math Conversion = TSI
Chlorophyll-a + Math Conversion = TSI
TOTAL = TSI

TP (Total Phosphorous): The total amount of organic and inorganic phosphorous within a lake. Organic phosphorous includes detritus, feces, dead leaves and other organic matter.

Chlorophyll-a: Is the pigment that makes plants and algae green. Chlorophyll-a is measured in lakes to determine algal concentration.

Individual Lake Data Summary

County	MN Lake ID	Lake	Site	Date Range	Data Source
Meecker	47-0119-00	Minnie-Belle	204	05-22-2014 - 09-11-2017	RMB

**RMB Lab note: Prior to 2011, the reporting limit for total phosphorus was 5 ug/L. Starting in 2011, the reporting limit is 3 ug/L.*

Mean of data range selected in this report						17.4	4.2	14.7	44.7	42.7	39.2	42.5
Sample Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChlA ug/L	Secchi Ft.	TSI Phos.	TSI ChlAL	TSI Secchi Ft.	TSI Avg.
05-22-2014	11:05 AM	204	Stan Kittelson	222878	RMB	11	1	29.5	39	31	28	33
06-10-2014	12:45 PM	204	Stan Kittelson	229384	RMB	10	2	22	37	37	33	36
07-16-2014	11:35 AM	204	Stan Kittelson	233202	RMB	19	7	15	47	50	38	45
08-13-2014	11:15 AM	204	Stan Kittelson	235976	RMB	13	4	11	41	44	43	43
09-08-2014	10:20 AM	204	Stan Kittelson	238076	RMB	14	5	12	42	46	41	43
Annual Summer Mean						13.4	3.8	17.9	41.2	41.6	36.6	40.0
Sample Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChlA ug/L	Secchi Ft.	TSI Phos.	TSI ChlAL	TSI Secchi Ft.	TSI Avg.
05-20-2015	01:00 PM	204	Stan Kittelson	263694	RMB	19	5	10.5	47	46	43	45
06-16-2015	10:20 AM	204	Stan Kittelson	266809	RMB	16	1	20	44	31	34	36
07-14-2015	12:40 PM	204	Stan Kittelson	269791	RMB	34	2	16.5	55	37	37	43
08-26-2015	12:45 PM	204	Stan Kittelson	277254	RMB	17	3	12	45	41	41	42
09-14-2015	11:32 AM	204	Stan Kittelson	278615	RMB	17	8	11.6	45	51	42	46
Annual Summer Mean						20.6	3.8	14.1	47.2	41.2	39.4	42.4
Sample Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChlA ug/L	Secchi Ft.	TSI Phos.	TSI ChlAL	TSI Secchi Ft.	TSI Avg.
05-24-2016	12:35 PM	204	Stan Kittelson	304927	RMB	21	8.01	N/A	48	51	N/A	50
06-21-2016	12:30 PM	204	Stan Kittelson	318195	RMB	20	N/A	12	47	N/A	41	44
07-18-2016	02:15 PM	204	Stan Kittelson	321304	RMB	20	1.78	9.5	47	36	45	43
08-24-2016	01:10 PM	204	Stan Kittelson	327105	RMB	23	8.01	10	49	51	44	48
09-20-2016	11:00 AM	204	Stan Kittelson	329701	RMB	21	5.34	11.5	48	47	42	46
Annual Summer Mean						21.0	5.8	10.8	47.8	46.3	43.0	46.2
Sample Date	Time	Site	Sampler	Lab Code	Data Source	TP ug/L	ChlA ug/L	Secchi Ft.	TSI Phos.	TSI ChlAL	TSI Secchi Ft.	TSI Avg.
05-22-2017	09:45 AM	204	Stan Kittelson	357544	RMB	19	4.45	17	47	45	36	43
06-26-2017	11:35 AM	204	Stan Kittelson	362109	RMB	9	4	17.6	36	44	36	39
07-19-2017	12:40 PM	204	Stan Kittelson	364920	RMB	12	2.67	9.5	40	40	45	42
08-23-2017	01:30 PM	204	Stan Kittelson	371260	RMB	17	5.34	15	45	47	38	43
09-11-2017	11:10 AM	204	Stan Kittelson	372802	RMB	16	1.78	16.5	44	36	37	39
Annual Summer Mean						14.6	3.6	15.1	42.4	42.4	38.4	41.2

lakefinder.org
R.I.B laboratories

lower TSI
better quality

Wash
59

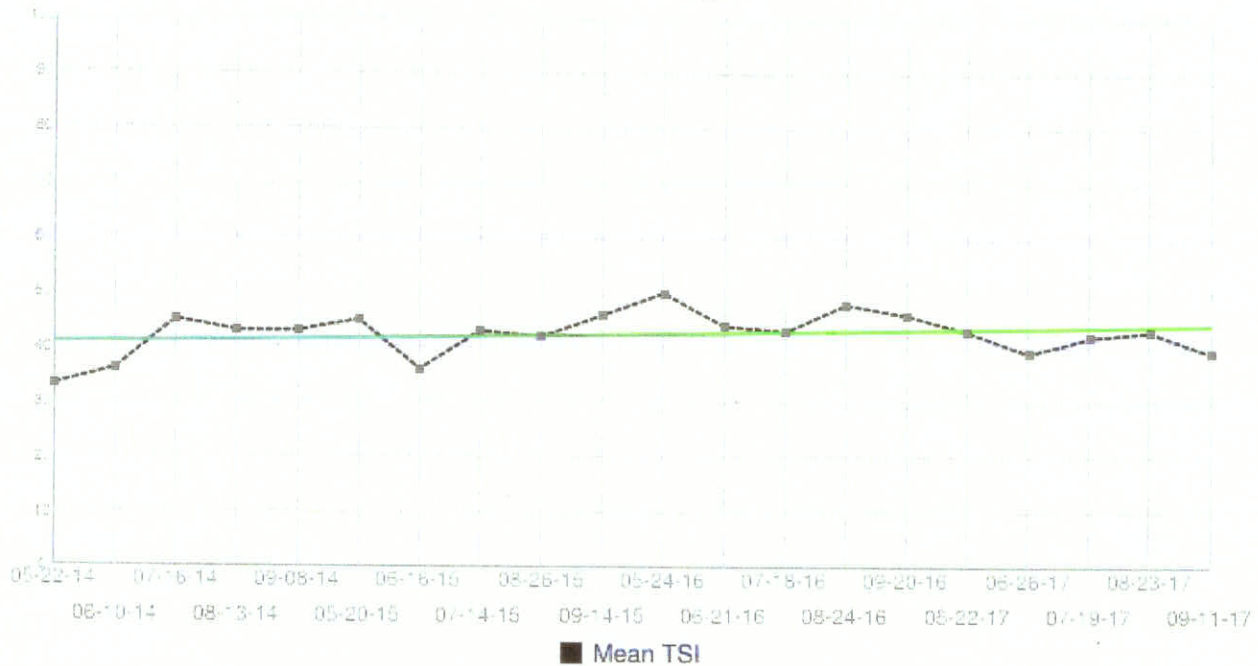
Sylvia 31

Trend Analysis Report

Meeker
47-0119-00
Minnie-Belle
204
Mean TSI
05-22-2014 - 09-11-2017
RMB

No significant trend exists.

Minnie-Belle (ID#47-0119-00) Mean TSI Values



Mann-Kendall Statistic for Trend Significance

Long-term Trends

Primary site only. Recommend minimum of 8-10 years of data with 4+ readings per season. Minimum confidence accepted by MPCA is 90%

Total Phosphorus: No significant trend exists.
Chlorophyll-a: No significant trend exists.
Secchi Depth: No significant trend exists.
Trophic State Index: No significant trend exists.

EcoRegion Comparisons

(Primary site only. Comparisons are based on interquartile range, 25th - 75th percentile, for ecoregion reference lakes)

Total Phosphorus: Below Expected Range
Chlorophyll-a: Below Expected Range
Secchi Depth: Above Expected Range

Lake Minnie Bell Stream Samples

Secchi Tube for water Clarity

MB 2-2	4/12 17	100 cm
	5/20/17	18 cm
	10/6/17	100 cm

MB 9-1	5/20/17	4 cm.	(Hoffman Ditch)
	10/6/17	51 cm	

1 Centimeter = .39 Inches

Lake Bottom Total Phosphorous

(Van Dorn Bottle)

5/22/17 0.014 mg/L

6/26/17 0.047 mg/L

7/17/17 0.1 mg/L

8/23/17 0.118 mg/L

9/11/17 0.149 mg/L