

Lake Springfield, Site 1

Greene County

2007 DATA



Date	Secchi (inches)	TP (µg/L)	TN (µg/L)	CHL (µg/L)	ISS (mg/L)
4/23	38	20	1100	16.0	6.0
5/14	27	32	930	16.3	8.0
6/18	30	42	1790	35.7	7.1
6/26	24	41	1220	26.4	13.0
7/12	24	40	1040	24.6	13.3
8/8	20	63	840	42.2	14.4
8/30	24	60	1020	35.1	13.0
9/15	28	51	1720	64.1	9.1
Mean	26	41	1170	29.5	10.0

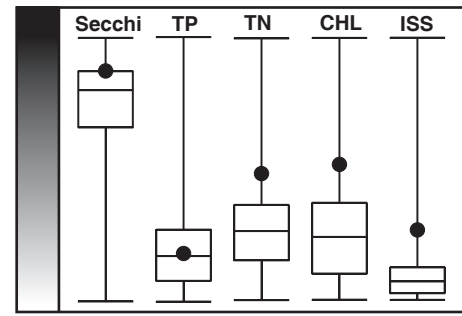
2007 SUMMARY

Lake Springfield was sampled 8 times at two sites in 2007.

Water from Lake Springfield is used to cool a City of Springfield power plant. As a result, the water at the dam (Site 1) is much warmer than water from up-lake (Site 2). The irregular thermal structure causes sediments and phosphorus from the bottom of the lake to be mixed into the surface water, making nutrients available for algae.

A typical Missouri lake has an average chlorophyll to phosphorus ratio of around 0.4. The amount of chlorophyll relative to phosphorus in Lake Springfield is quite high, averaging 0.7. This implies very efficient algae, likely due to the warm water and the mixing.

Despite phosphorus concentrations being equal to the Missouri median value, chlorophyll concentrations are higher than found in more than 75% of Missouri lakes.

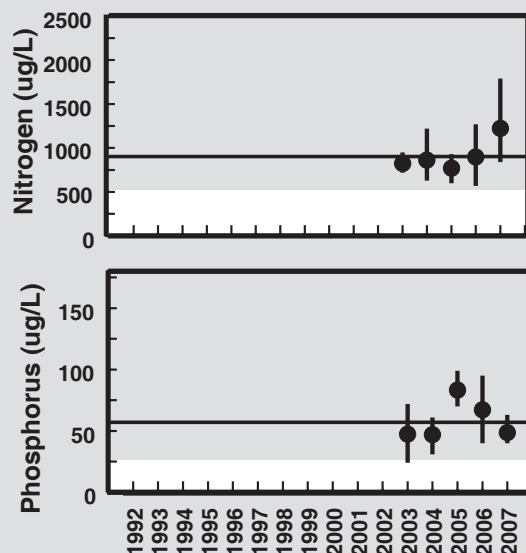


Relative Rank Graph
See page 11 for details

TRENDS

Nitrogen concentrations were higher this year than observed since monitoring began in 2003. Conversely, phosphorus concentrations were below the long-term average.


Long-term concentrations of both nitrogen and phosphorus are well above the proposed nutrient criteria of 520 and 26 µg/L, respectively. Chlorophyll concentrations (not shown) closely follow the phosphorus values from year to year, and are also well above the proposed criteria limit of 10.9.



Springfield Lake, Site 2

Greene County

2007 DATA



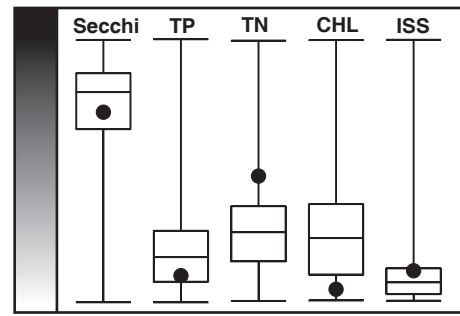
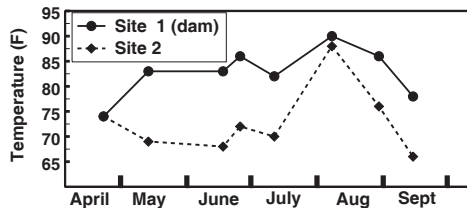
Date	Secchi (inches)	TP (µg/L)	TN (µg/L)	CHL (µg/L)	ISS (mg/L)
4/23		12	1020	5.5	3.6
5/14	51	23	550	3.4	6.3
6/18	46	29	1810	1.4	7.7
6/26	60	19	1450	2.2	3.6
7/12	70	22	1530	3.1	3.7
8/8	43.5	48	760	24.2	2.8
8/30	46	35	1120	3.8	4.9
9/15	44	35	1690	1.3	6.6
Mean	51	26	1160	3.5	4.6

2007 SUMMARY

Site 2 is located well upstream from the dam, on the James River.

This site has about twice the clarity found at the dam, a third less phosphorus, an eighth of the chlorophyll and half the sediments. Nitrogen concentrations, however, were nearly identical to those found at the dam.

Much of the difference between this site and the dam can be attributed to the mixing and thermal influence of the power plant. The graph below shows the temperatures observed at both sites in 2007. Temperatures at the dam were as much as 15°F higher than at Site 2.



Relative Rank Graph
See page 11 for details

TRENDS

Similar to the dam site, nitrogen concentrations at Site 2 were considerably higher than the long-term mean. This implies that the higher than normal nitrogen concentrations observed at the dam likely had their origin somewhere upstream.

Unlike the nitrogen concentrations observed, chlorophyll concentrations were considerably lower than the long-term mean.

Reservoir nutrient criteria would not apply to this site, so the values are shown for reference only.

There are no apparent trends at either site on Lake Springfield.

