

Spring Fork Lake



Site 1

2010 DATA

Pettis County
 Latitude: 38.5678 Longitude: -93.2429

Date	4/28	5/21	6/9	6/28	7/21	X	9/1	9/21	Mean
Secchi (inches)	19	11	20	19	20		19	18	18
TP (µg/L)	182	247	237	195	212		163	210	205
TN (µg/L)	2070	2150	1800	1350	1260		1340	1360	1582
CHL (µg/L)	7.2	6.0	98.0	70.0	49.7		74.8	64.1	35.5
ISS (mg/L)	7.9	10.4	6.8	2.6	3.6		4.8	7.0	5.6

The algal community was apparently quite pleased with its environment in mid June. Chlorophyll concentrations were 7.2 and 6.0 µg/L for the first two sample dates, but exploded by more than an order of magnitude to a seasonal high of 98.0 µg/L in less than 3 weeks. Nutrient concentrations did not increase over the same time frame. A closer examination of the data shows high phosphorus concentrations relative to the amount of algae we see in the first two samples of 2010. In other words, based on the amount of phosphorus in the lake, we would expect high algal chlorophyll values. For some reason the algal community was suppressed during the early season. Secchi transparency was unaffected by the variability in algal chlorophyll, with the lowest water clarity measured on the date with the lowest chlorophyll concentration. The comparatively high suspended sedi-

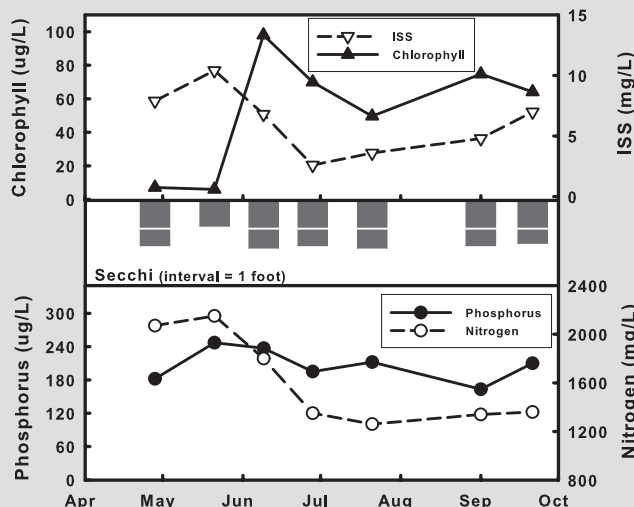
ment concentration was at least partly responsible for the low (11 inch) clarity reading.

Spring Fork Lake Sites

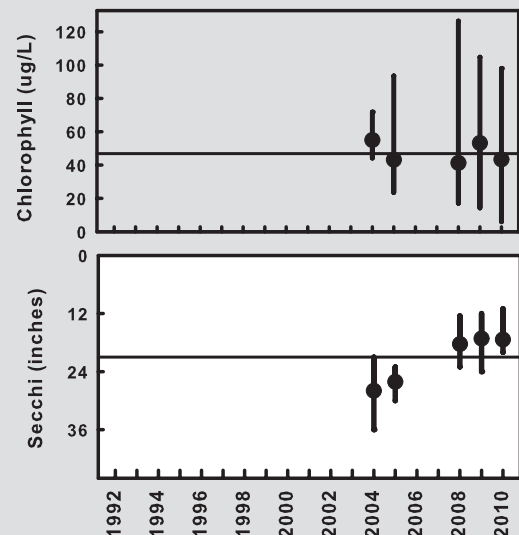


The “summer” 2010 mean chlorophyll concentration is slightly lower than was measured in 2009, while the Secchi transparencies from the same period are comparable. Chlorophyll concentrations show a history of high variability, ranging from a minimum of around 20 to a maximum of 100 µg/L each of the last 4 seasons sampled. Secchi shows much less variability, as is typical of turbid water bodies.

2010 GRAPHS



TREND GRAPHS



See pages 10-11 for help interpreting graphs

Spring Fork Lake



Site 2

2010 DATA

Pettis County
 Latitude: 38.5605 Longitude: -93.2440

Date	4/28	5/21	6/9	6/28	7/21	X	9/1	9/21	Mean
Secchi (inches)	16	12	20	16	15		22	19	17
TP (µg/L)	203	283	207	232	203		179	206	214
TN (µg/L)	2070	2160	1400	1310	1150		1390	1320	1503
CHL (µg/L)	7.0	20.4	33.2	81.0	49.4		67.0	54.7	35.4
ISS (mg/L)	8.3	11.6	6.9	5.7	5.2		4.0	6.2	6.5

The peak 2010 chlorophyll concentration at Site 2 occurred later in the season than at Site 1, but values were otherwise similar. In fact, the 2010 geometric mean values for all parameters were nearly indistinguishable from those of Site 1. While average suspended sediment concentrations at Site 2 were nearly identical to those of Site 1, individual Site 2 concentrations were slightly less variable.

Limnologists often look at comparative ratios when considering lake conditions. One such ratio is that of nitrogen to phosphorus (N:P). In Missouri, the median 2010 N:P ratio was 19, meaning that for every unit of phosphorus, there are 19 units of nitrogen. The N:P ratio at both sites on Spring Fork Lake were rather low, only exceeding 10:1 on one date and more typically around 7:1. This indicates an abundance

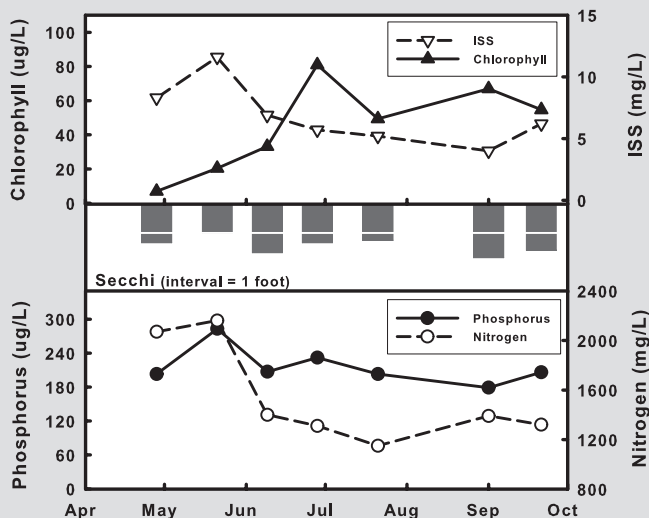
of phosphorus relative to the amount of nitrogen present. Excess phosphorus is often correlated with blooms of blue green algae.

The mean summer phosphorus concentration in 2010 was the highest recorded to date, with a only a single value falling below 200 µg/L. Water clarity was lower in 2010 than in previous years at Site 2, though the 2010 summer mean (17) was only 3 inches less than that of 2009 (20).

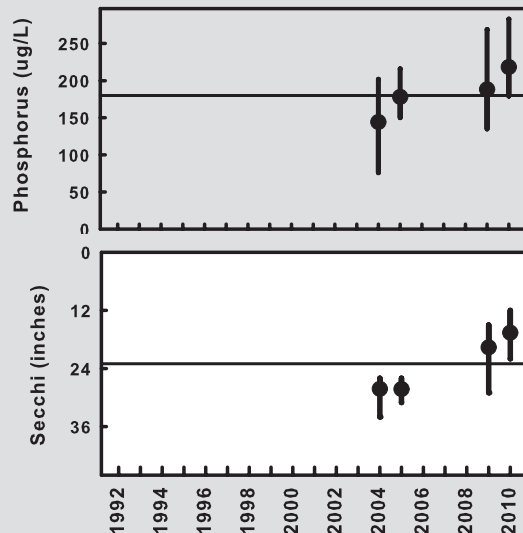
Spring Fork Lake Sites



2010 GRAPHS



TREND GRAPHS



See pages 10-11 for help interpreting graphs