

Smithville Lake

Smithville Lake is a 7,087 acre Army Corps of Engineers reservoir with a 134,000 acre watershed consisting of 46% grassland and pasture and 28% cropland. Smithville Lake is located north of the Kansas City metro area.

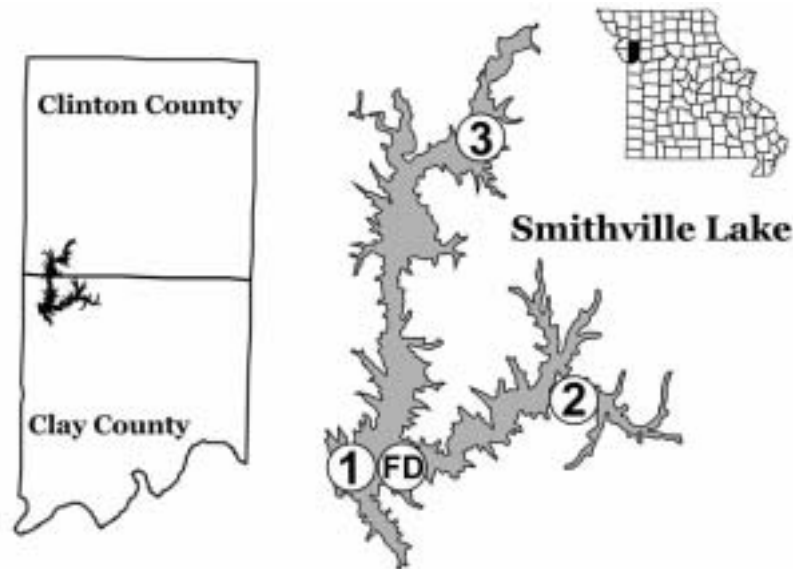


Figure 86. Location of Smithville Lake and its sample sites.

2004 Results

Figures 87-90 show how the parameters nitrogen, phosphorus, algal chlorophyll, inorganic suspended solids and Secchi transparency varied in Smithville Lake during 2004. The descriptive statistics appear in Tables 33-36.

A brief description of the results:

- Only 4 samples were collected at Sites 1, 2, and 3 over a 4 month period and 5 samples at site FD (Fishing Dock) over a 2 month period.
- Secchi transparency values at the dam were very consistent, varying only 6 inches during the sampling season.
- Concentrations of nutrients and chlorophyll were highest and most variable at Site 3.
- August 20 ISS values for Sites 1 and 2 are extraordinarily high and are not accompanied by an increase in phosphorus concentrations or a decrease in Secchi. Site FD, located between these Site 1 and Site 2, shows no similar increase on either August 16 or August 30.

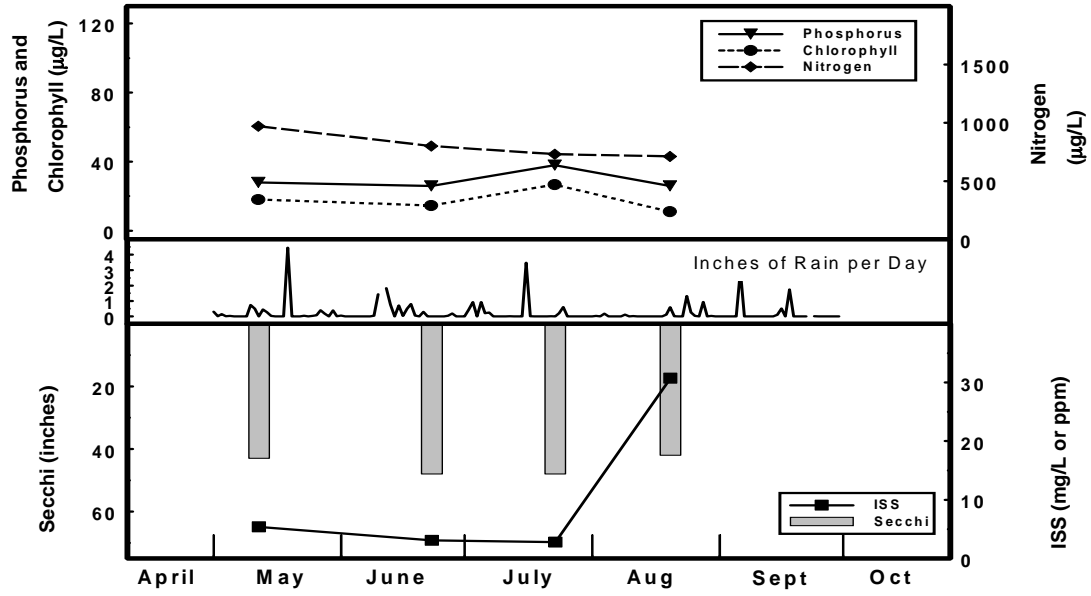


Figure 87. Seasonal fluctuations of parameters for Smithville Lake, Site 1 – 2004

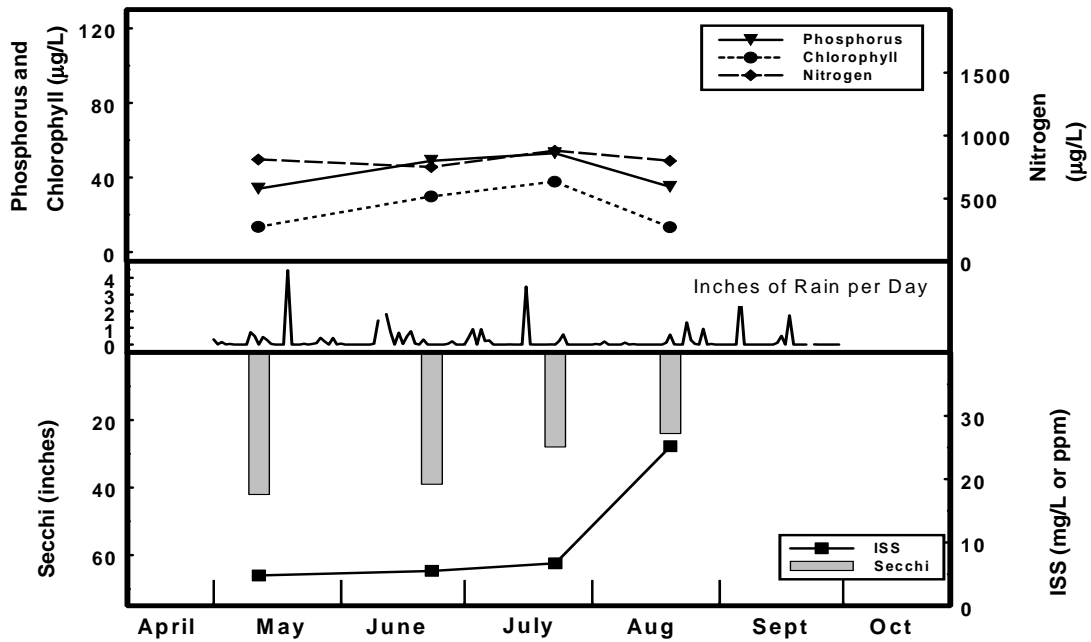


Figure 88. Seasonal fluctuations of parameters for Smithville Lake, Site 2 – 2004

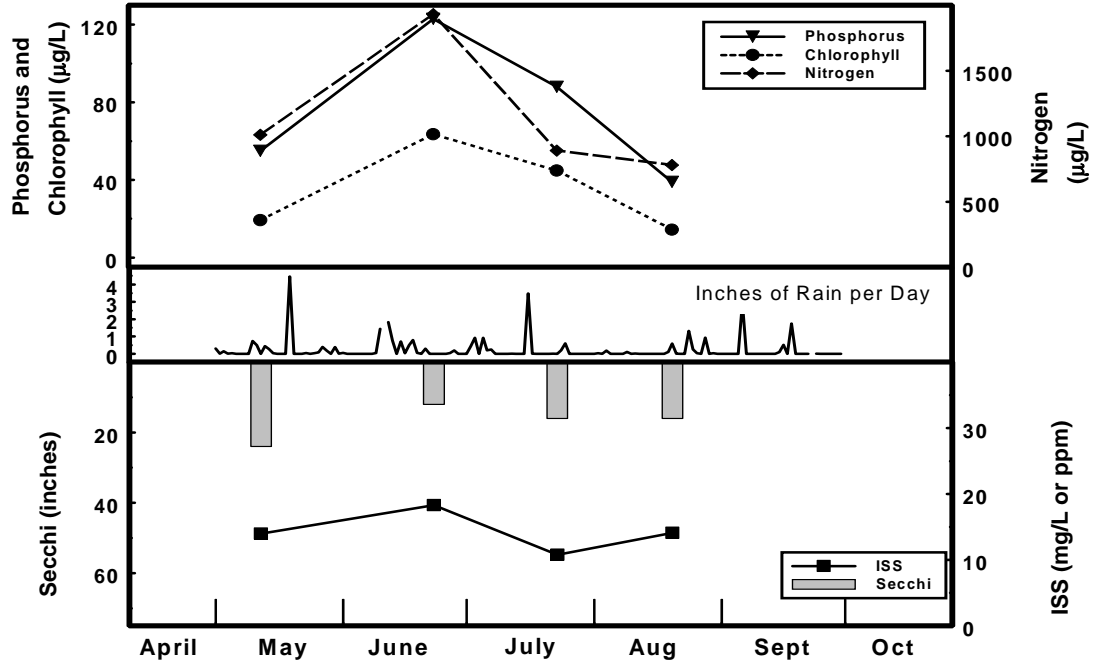


Figure 89. Seasonal fluctuations of parameters for Smithville Lake, Site 3 – 2004

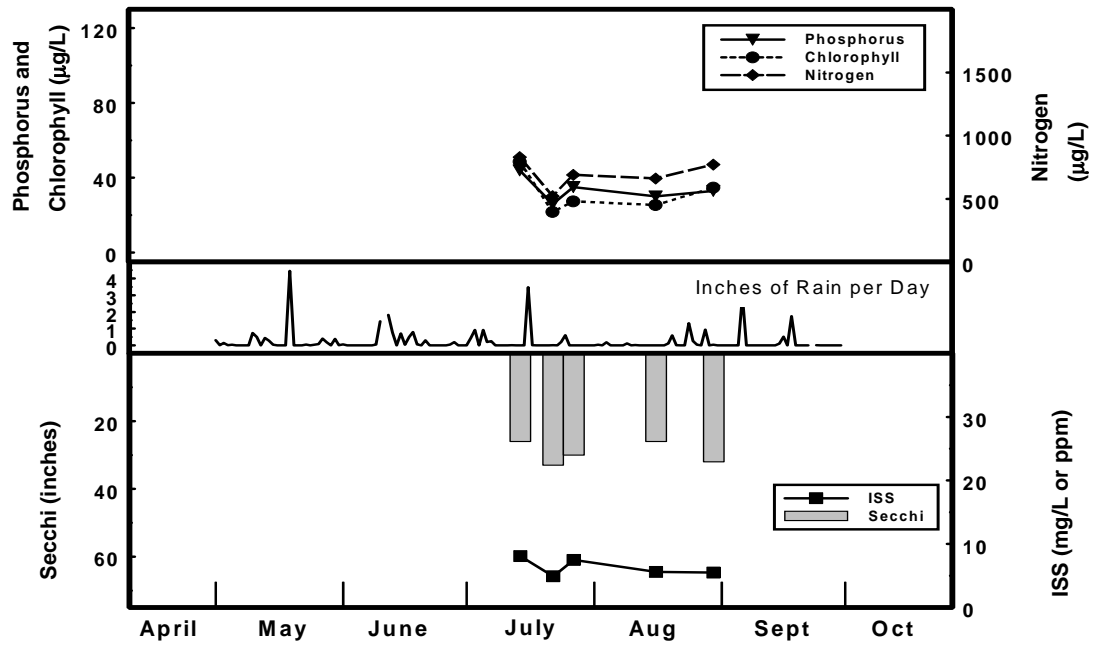


Figure 90. Seasonal fluctuations of parameters for Smithville Lake, Site FD – 2004

Table 33. Descriptive statistics for Smithville Lake, Site 1 – 2004

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	45	29	796	16.6	6.2
Minimum	42	26	710	11.0	2.8
Maximum	48	38	970	26.7	30.7
N	4	4	4	4	4

Table 34. Descriptive statistics for Smithville Lake, Site 2 – 2004

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	32	42	809	21.2	8.2
Minimum	24	34	750	13.3	4.8
Maximum	42	53	880	37.8	25.2
N	4	4	4	4	4

Table 35. Descriptive statistics for Smithville Lake, Site 3 – 2004

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	16	69	1079	29.7	14.1
Minimum	12	39	780	14.3	10.8
Maximum	24	123	1930	63.5	18.3
N	4	4	4	4	4

Table 36. Descriptive statistics for Smithville Lake, Site FD (Fishing Dock) – 2004

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	29	33	685	30.3	6.2
Minimum	26	26	520	21.7	4.9
Maximum	33	44	830	48.6	8.1
N	5	5	5	5	5

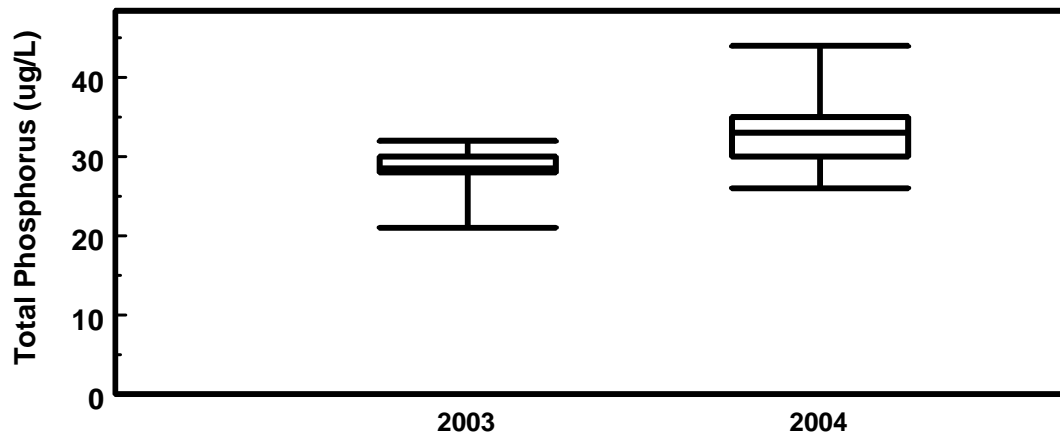


Figure 91. Phosphorus trends in Smithville Lake, Site FD (Fishing Dock). With only 2 years of data at this site, it is too early to speculate on trends. 2004 was quite similar to 2003