

Stockton Lake

Stockton Lake is a U.S. Army Corps of Engineers lake, located in Cedar, Dade, and Polk counties. Stockton Lake was constructed by damming the Sac River, creating a large lake with a surface area of 25,000 acres and a watershed of 742,400 acres. The project was completed in 1969 and the lake had filled by 1971. 58% of the land in Stockton Lake's watershed is covered by grassland/pasture and 28% is forested. Stockton Lake is an important recreational resource.

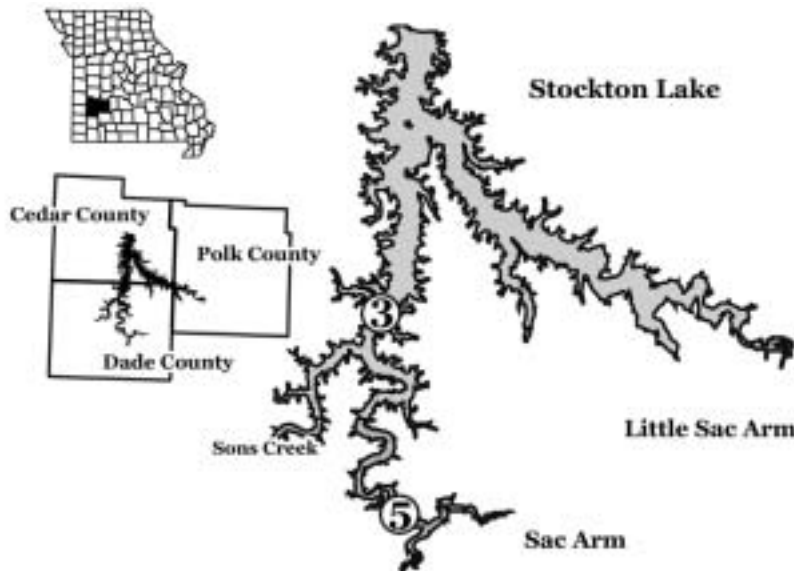


Figure 102. Location of Stockton Lake and its sample sites.

2004 Results

Figures 103 and 104 show how the parameters nitrogen, phosphorus, algal chlorophyll, inorganic suspended solids and Secchi transparency varied in Stockton Lake during 2004. The descriptive statistics appear in Tables 42 and 43.

A brief description of the results:

- Secchi transparency values follow the same pattern at both sites, though Site 3 has almost double the clarity of Site 5. Secchi values peaked at both sites in mid-June.
- Phosphorus concentrations were higher at Site 5, displaying a longitudinal gradient that is very common in reservoirs. Phosphorus-rich particles tend to settle out of the water column to the bottom of the lake as water flows toward the dam.
- Nitrogen concentrations are similar at both sites, with the exception of a single high value at Site 3 in May.
- Chlorophyll concentrations are 81% higher at Site 5 than at Site 3.

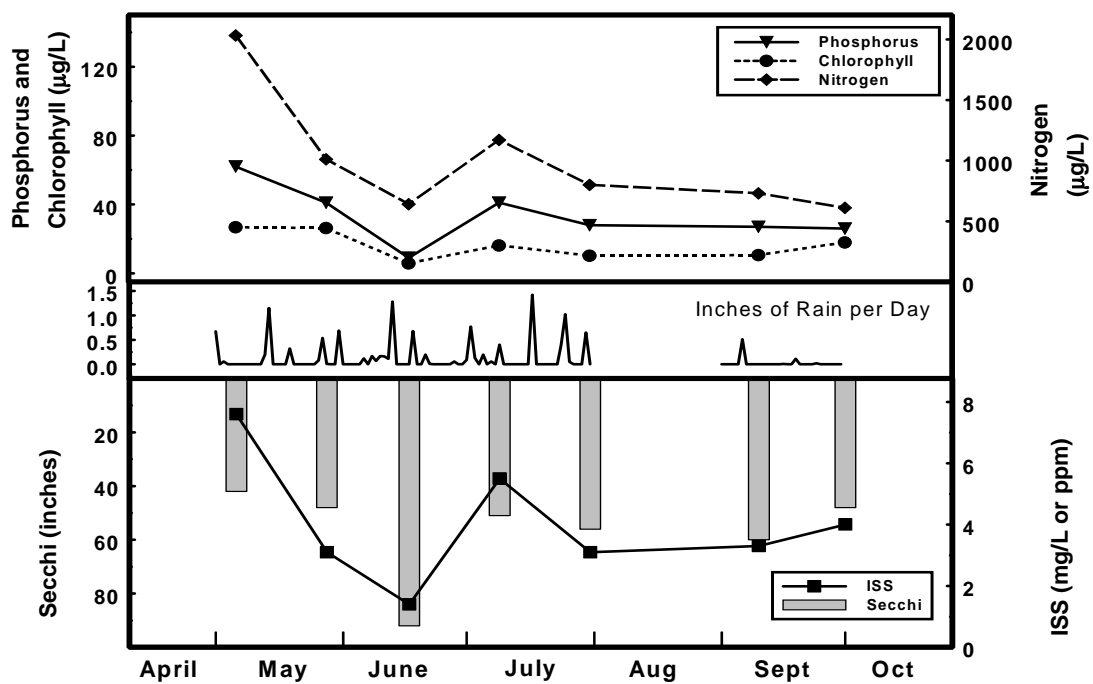


Figure 103. Seasonal fluctuations of parameters for Stockton Lake, Site 3 – 2004

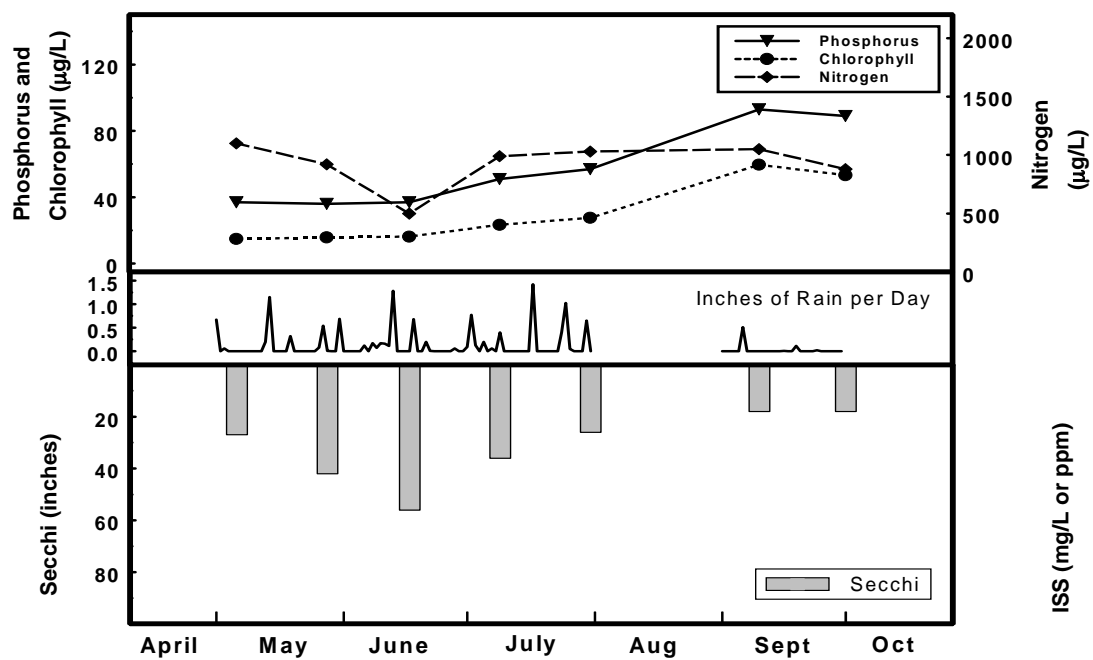


Figure 104. Seasonal fluctuations of parameters for Stockton Lake, Site 5 – 2004

Note: there was no rainfall data for the month of August at Stockton Lake.

Note: ISS data was not collected at site 5

Table 42. Descriptive statistics for Stockton Lake, Site 3 – 2004

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	55	29	917	14.3	3.6
Minimum	42	9	610	5.7	1.4
Maximum	92	62	2030	26.7	7.6
Number of Samples	7	7	7	7	7

Table 43. Descriptive statistics for Stockton Lake, Site 5 – 2004

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	29	53	900	25.9	
Minimum	18	36	500	14.9	
Maximum	56	93	1100	59.7	
Number of Samples	7	7	7	7	

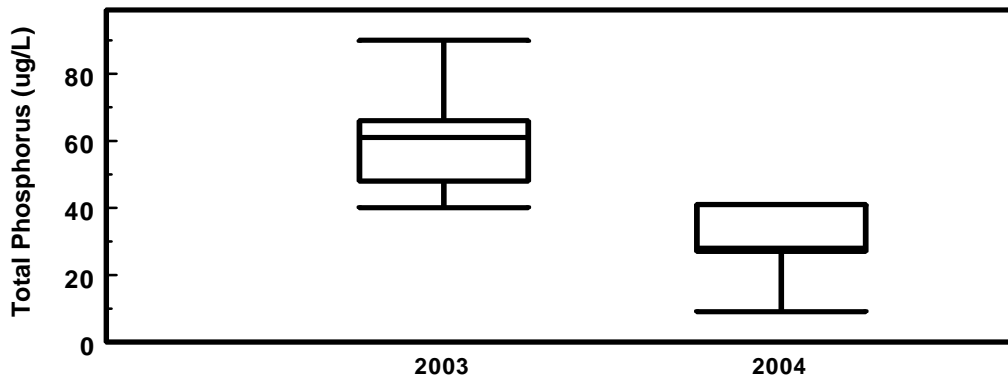


Figure 105. Chlorophyll trends in Stockton Lake, Site 3. With only 2 years of data at this site, it is too early to speculate on trends. 2004 concentrations were lower than in 2003.

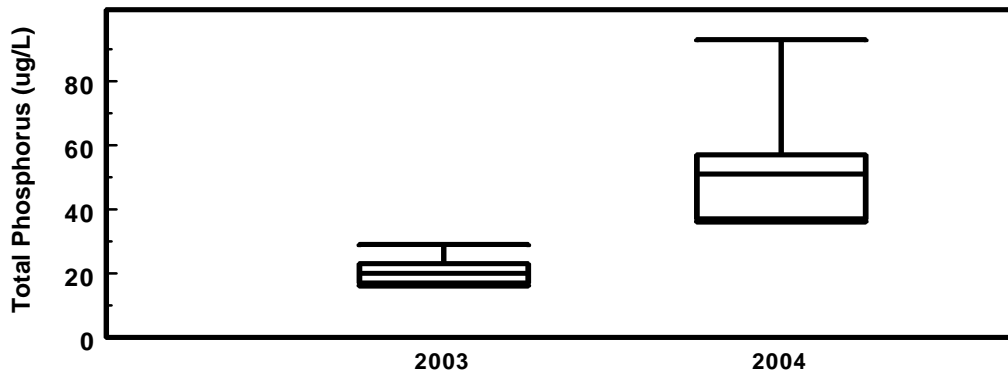


Figure 106. Chlorophyll trends in Stockton Lake, Site 5. With only 2 years of data at this site, it is too early to speculate on trends. 2004 concentrations were higher than in 2003.