

## Lake Springfield

Ozark Highlands Region

Lake Springfield is used as a source of cooling water for the James River Power Plant. This 206 acre lake has a 165,000 acre watershed that is 34% forest, 9% cropland, 54% grassland and 3% urban. Construction on Lake Springfield was completed in 1956.



Figure 63. Location of Lake Springfield and its sample sites.

### 2003 Results

Figures 64 and 65 show how the parameters phosphorus, nitrogen, algal chlorophyll, inorganic suspended solids and Secchi transparency varied in Lake Springfield during the 2003 sampling season. The descriptive statistics appear in Tables 31 and 32. A brief description of these results:

- 7 samples were collected between May 2 and September 26
- The average temperatures were 89°F at Site 1 and 72°F at Site 2
- Chlorophyll concentrations were greater and Secchi transparencies lower at Site 1 than Site 2
- Chlorophyll and phosphorus concentrations at Site 2 were extremely variable
- Nutrient concentrations were comparable between sites
- Inorganic suspended sediments were twice as high at Site 1, probably due to the influence of urban runoff from the immediate area
- Site 1 was eutrophic based on nitrogen and phosphorus and hypereutrophic based on chlorophyll concentrations (though chlorophyll concentrations are borderline between eutrophic and hypereutrophic)
- Site 2 was eutrophic based on concentrations of chlorophyll, nitrogen and phosphorus

Table 31. Descriptive statistics for Lake Springfield Site 1 - 2003.

	Secchi (inches)	TP ( $\mu\text{g/L}$ )	TN ( $\mu\text{g/L}$ )	CHL ( $\mu\text{g/L}$ )	ISS (mg/L)
# of Samples	7	7	7	7	7
Median	24	46	800	40.2	11.7
Minimum	18	24	690	19.2	6.6
Maximum	36	72	950	73.5	17.3
Geometric Mean	24	47	800	40.6	11.2

Samples were collected between May 2 and September 26

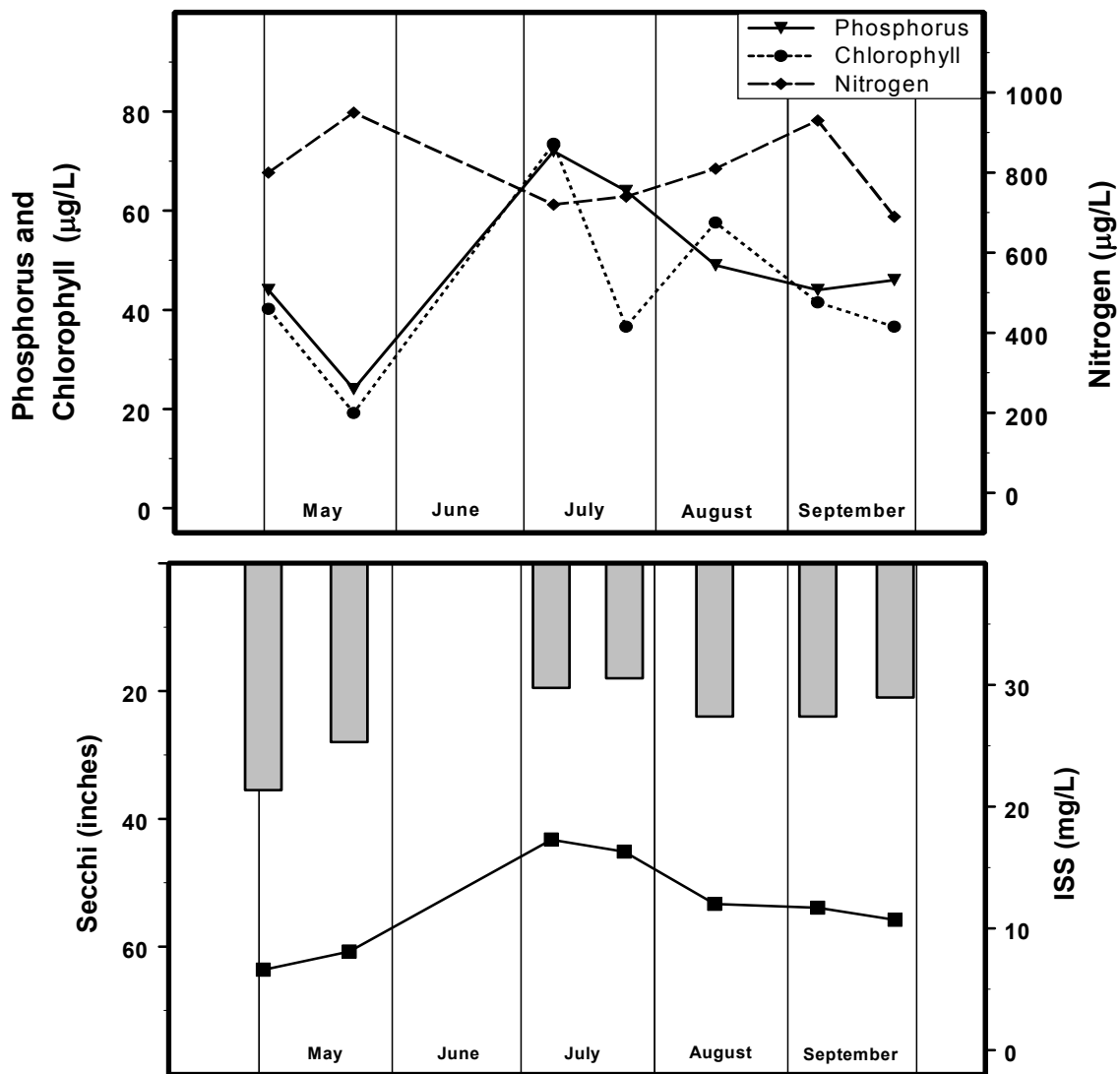


Figure 64. Seasonal fluctuations of parameters in Lake Springfield, Site 1 – 2003. Bars represent Secchi, line represents ISS.

Table 32. Descriptive statistics for Lake Springfield Site 2 - 2003.

	Secchi (inches)	TP ( $\mu\text{g/L}$ )	TN ( $\mu\text{g/L}$ )	CHL ( $\mu\text{g/L}$ )	ISS (mg/L)
# of Samples	7	7	7	7	7
Median	40	30	860	5.4	5.5
Minimum	32	19	710	1.1	2.7
Maximum	54	82	1090	62.7	8.7
Geometric Mean	41	36	866	10.1	5.1

Samples were collected between May 2 and September 26

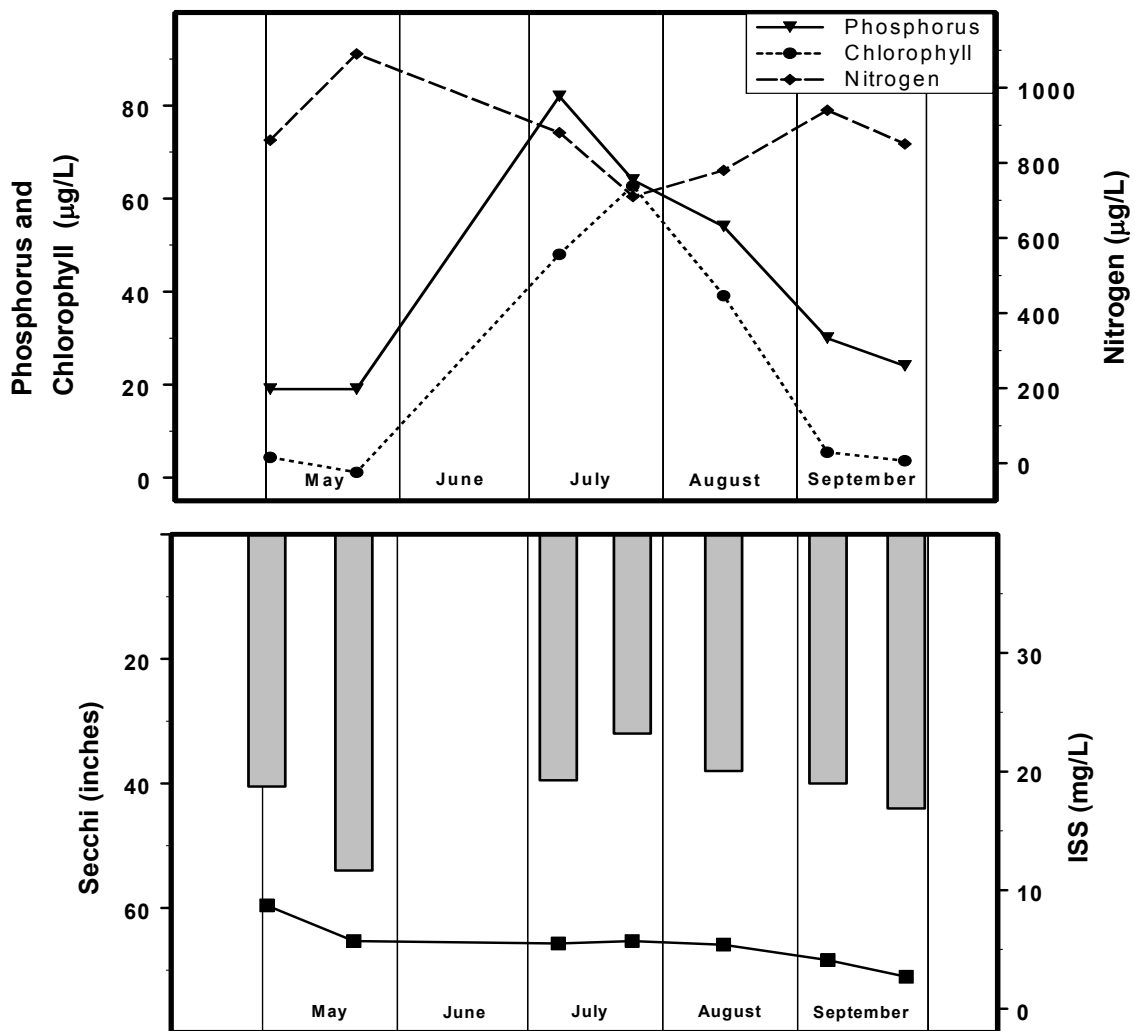


Figure 65. Seasonal fluctuations of parameters in Lake Springfield, Site 2 – 2003. Bars represent Secchi, line represents ISS.