

## Bowling Green Lakes

Glacial Plains Region

The Bowling Green Lakes provide drinking water for the City of Bowling Green. Lake 1 was built in 1954. Its surface area is 45 acres and it has a 900 acre watershed. Of those 900 acres, 44% are forest, 27% are cropland, and 26% are grassland (including pasture). Lake 2 was built in 1990 and covers 31 acres. The watershed of Lake 2 is 850 acres, which includes 52% forest, 10% cropland, 23% grassland (including pasture), and 14% urban.

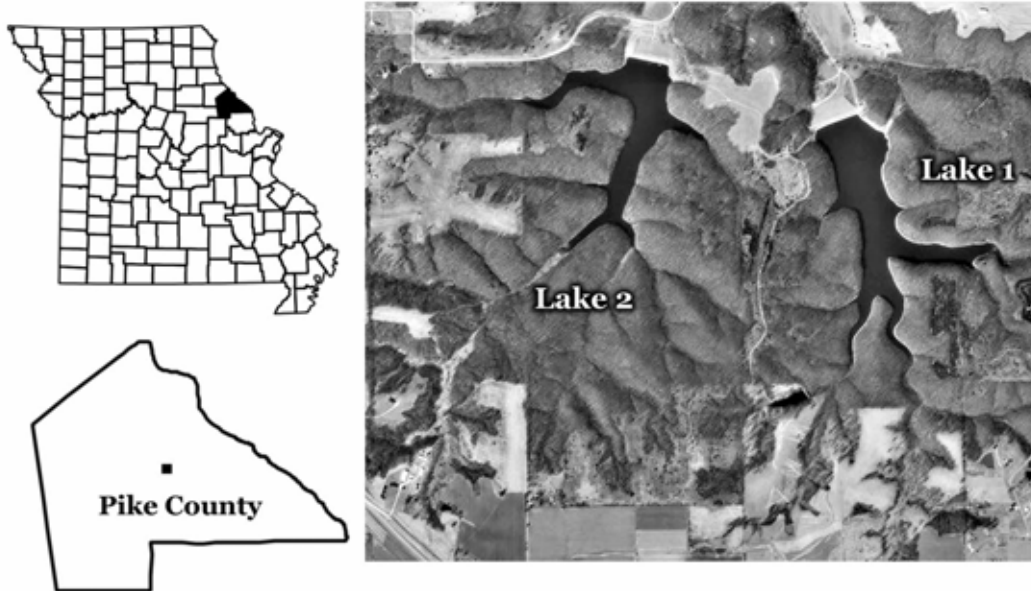


Figure 16. Location of the Bowling Green Lakes.

### 2003 Results

Figures 17 and 18 show how the parameters phosphorus, nitrogen, algal chlorophyll, inorganic suspended solids and Secchi transparency varied in the Bowling Green Lakes during the 2003 sampling season. The descriptive statistics appear in Tables 7 and 8. A brief description of these results:

- Lake 1 was sampled on 7 occasions and Lake 2 was sampled 6 times between May 5 and October 6.
- Lake 1 had lower geometric means of nitrogen, phosphorus and chlorophyll concentrations, and a deeper geometric mean Secchi transparency
- Inorganic suspended sediment concentrations were comparable between the 2 lakes, so differences in Secchi are due to differing values of algal biomass (as estimated by chlorophyll concentration)
- Nutrients and chlorophyll were more variable in Lake 2 than in Lake 1
- Based on nitrogen, phosphorus and chlorophyll concentrations, Lake 1 is mesotrophic and Lake 2 is eutrophic
- This is the first year that either of these lakes were sampled for the LMVP

Table 7. Descriptive statistics for Bowling Green Lake #1 – 2003

Parameters	Secchi (inches)	TP ( $\mu\text{g/L}$ )	TN ( $\mu\text{g/L}$ )	CHL ( $\mu\text{g/L}$ )	ISS ( $\text{mg/L}$ )
# of Samples	7	7	7	7	7
Median	64	24	490	6.0	1.7
Minimum	39	15	340	2.0	.8
Maximum	108	24	560	13.2	2.3
Geometric Mean	64	20	453	5.3	1.4

Samples were collected on May 5 and October 6

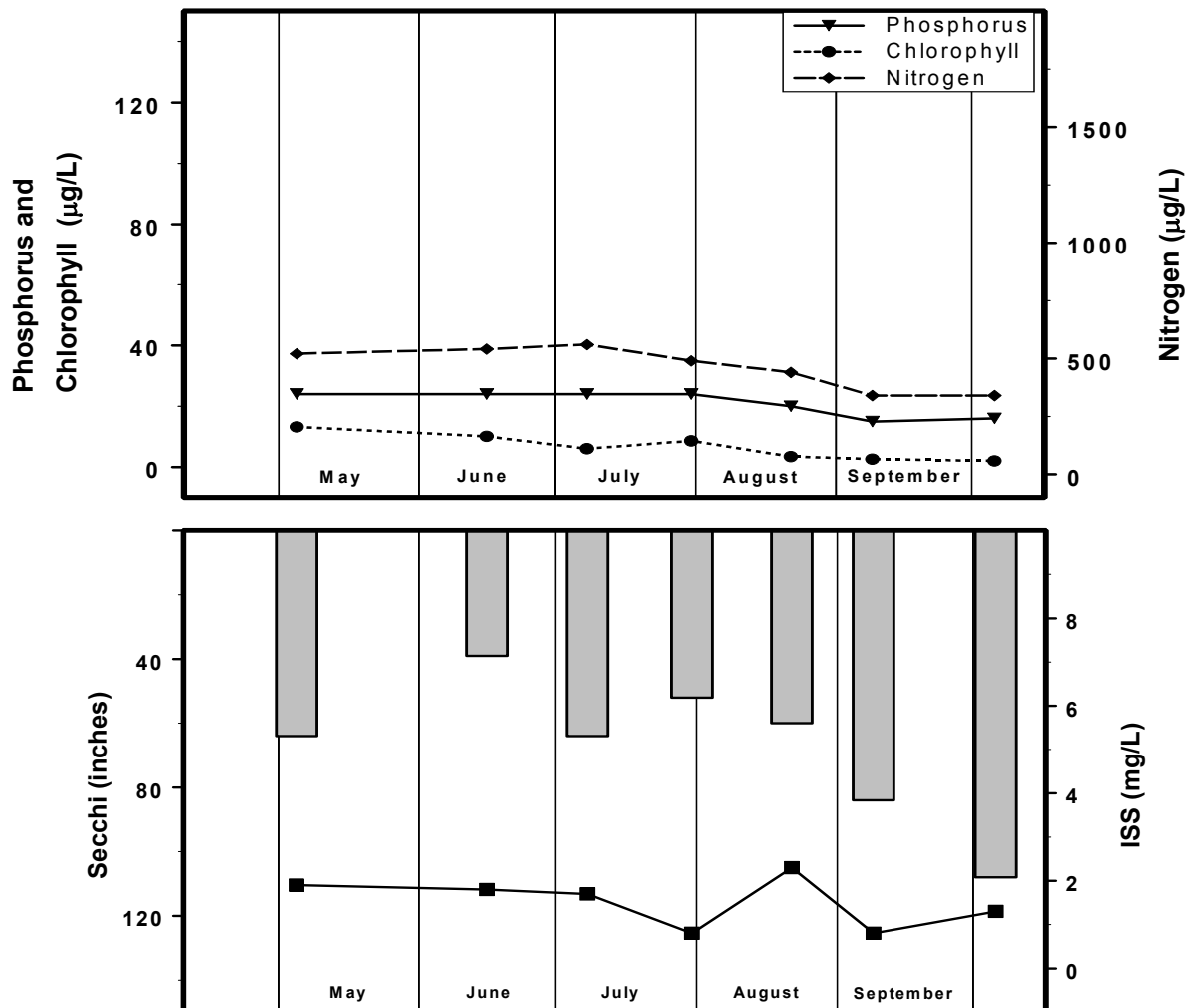


Figure 17. Seasonal fluctuations of parameters for Bowling Green Lake #1 – 2003. Bars represent Secchi, line represents ISS.

Table 8. Descriptive statistics for Bowling Green Lake #2 – 2003

Parameters	Secchi (inches)	TP ( $\mu\text{g/L}$ )	TN ( $\mu\text{g/L}$ )	CHL ( $\mu\text{g/L}$ )	ISS (mg/L)
# of Samples	6	6	6	6	6
Median	53	36	690	21.0	1.2
Minimum	13	25	660	12.0	0.5
Maximum	84	68	1800	137.0	2.1
Geometric Mean	43	36	876	25.2	1.2

Samples were collected on May 5 and October 6

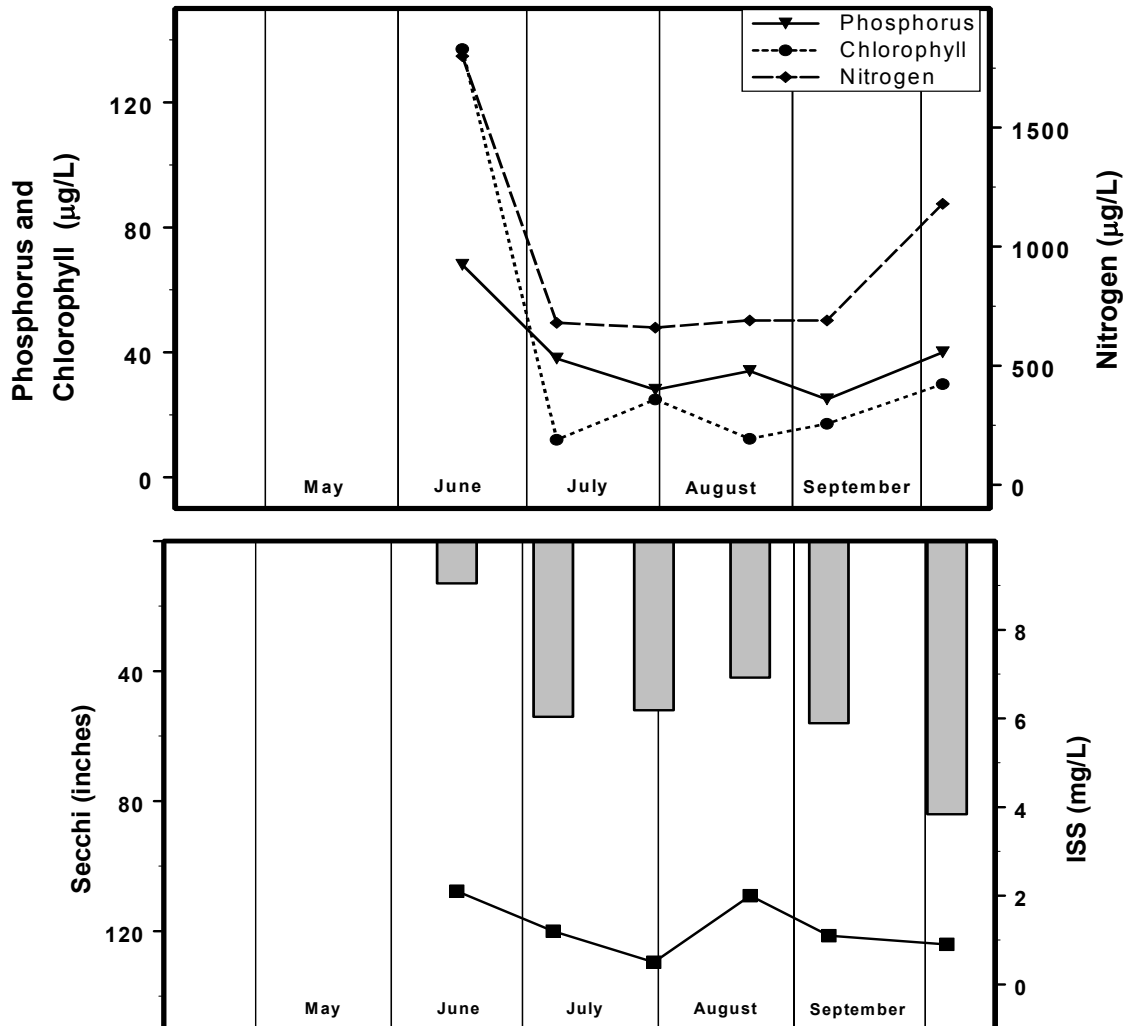


Figure 18. Seasonal fluctuations of parameters for Bowling Green Lake #2 – 2003. Bars represent Secchi, line represents ISS.