# Bowling Green Lake #1

## 2009 DATA

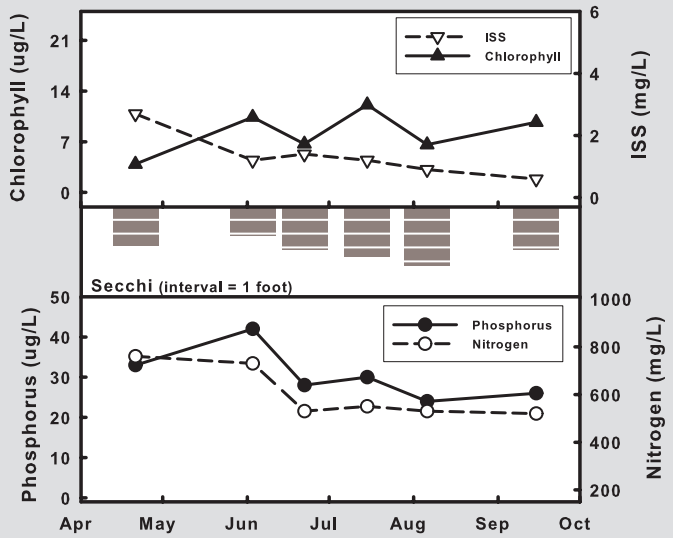
Pike County
Latitude: 39.3417 Longitude: -91.1532

| Date | 4/21 | X | 6/3 | 6/22 | 7/15 | 8/6 | X | 9/15 | Mean |
|---|---|---|---|---|---|---|---|---|---|
| Secchi (inches) | 34 | | 26 | 38 | 44 | 52 | | 38 | 38 |
| TP (µg/L) | 33 | | 42 | 28 | 30 | 24 | | 26 | 30 |
| TN (µg/L) | 760 | | 730 | 530 | 550 | 530 | | 520 | 595 |
| CHL (µg/L) | 3.9 | | 10.4 | 6.7 | 12.1 | 6.6 | | 9.7 | 7.7 |
| ISS (mg/L) | 2.7 | | 1.2 | 1.4 | 1.2 | 0.9 | | 0.6 | 1.2 |

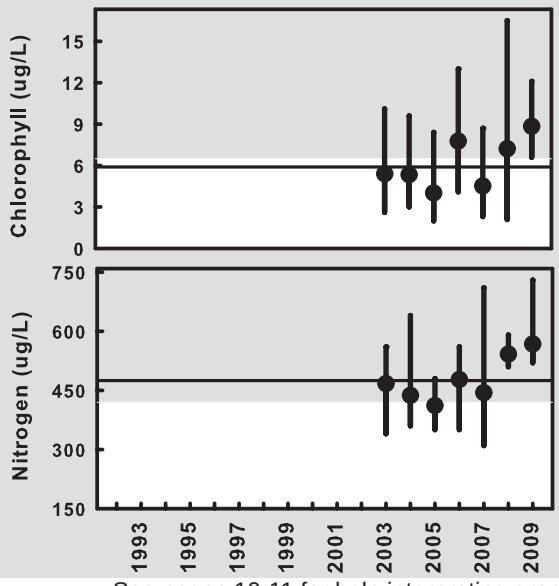
Results from the six samples collected across the season indicate stable water quality during 2009 in Bowling Green Lake 1. There was a slight trend for decreasing nutrient and inorganic suspended sediment (ISS) levels during the season, but the range of values measured in Bowling Green Lake 1 were minimal compared to the average Missouri lake.

2009 represents the second summer of higher than average nitrogen levels (about 100 µg/L higher than past means). The chlorophyll mean for 2009 was also high, with three of the last four summers being above the long-term mean. Continued sampling will determine if these higher values represent trends or reflect part of the normal year-to-year variations associated with differences in the timing and amount of precipitation. The long-term average chlorophyll value is below the calculated criteria level (shaded area in trend graph), while nitrogen levels are above the criteria.

## 2009 GRAPHS




## TREND GRAPHS




See pages 10-11 for help interpreting graphs

# Bowling Green Lake #2

Pike County

## 2009 DATA

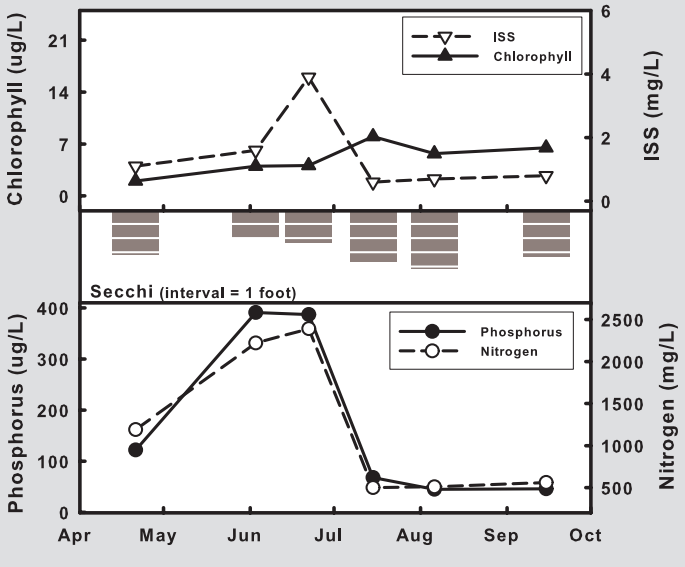
Latitude: 39.3436 Longitude: -91.1615

| Date | 4/21 | X | 6/3 | 6/22 | 7/15 | 8/6 | X | 9/15 | Mean |
|---|---|---|---|---|---|---|---|---|---|
| Secchi (inches) | 38 | | 24 | 28 | 44 | 50 | | 40 | 36 |
| TP (µg/L) | 122 | | 391 | 384 | 68 | 45 | | 46 | 117 |
| TN (µg/L) | 1190 | | 2220 | 2390 | 500 | 510 | | 560 | 983 |
| CHL (µg/L) | 2.0 | | 4.0 | 4.1 | 8.0 | 5.7 | | 6.5 | 4.6 |
| ISS (mg/L) | 1.1 | | 1.6 | 3.9 | 0.6 | 0.7 | | 0.8 | 1.1 |

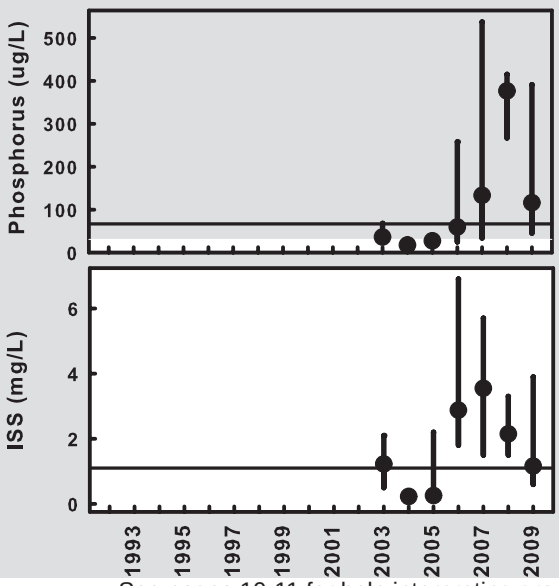
Bowling Green Lake 2 continues to be interesting in terms of water quality, with extreme ranges in nutrient concentrations. The 8-fold difference in phosphorus concentrations during the 2009 sample season represents unusually high variability for a Missouri lake. In contrast, chlorophyll and inorganic suspended sediment (ISS) displayed low levels of variability in 2009. In most Missouri lakes both ISS and phosphorus enter the lake via erosional runoff, meaning these two parameters tend to be positively related, with an increase of one equating to an increase of the other. This is not the case for Bowling Green Lake 2. Also, algal chlorophyll during the first half of the season was very low given the high phosphorus and nitrogen levels.

Water quality in Bowling Green Lake 2 has differed considerably during the last four seasons relative to the first three years of monitoring. Some of the change in water quality can be attributed to the pumping of surface water from lake #2 to lake #1 during drought years, which in effect has led to the sampling of nutrient rich waters that were at the bottom of the lake.

## 2009 GRAPHS




## TREND GRAPHS




See pages 10-11 for help interpreting graphs