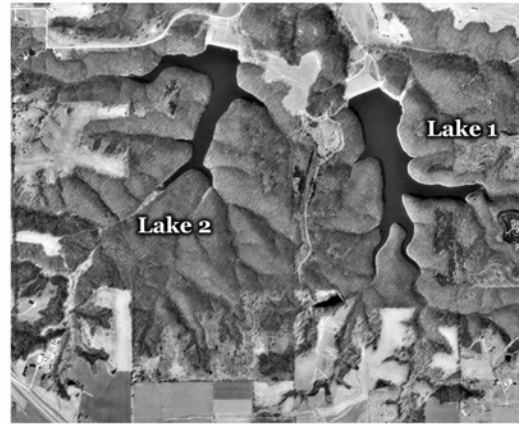


# Bowling Green Lakes 1 and 2

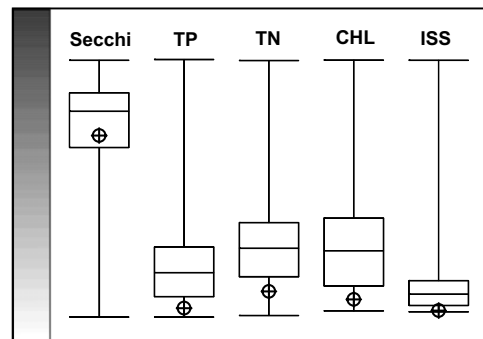
The Bowling Green lakes provide drinking water for the City of Bowling Green. Lake 1 was built in 1954. Its surface area is 45 acres and it has a 900 acre watershed. Of those 900 acres, 44% are forest, 27% are cropland, and 26% are grassland (including pasture). Lake 2 was expanded in 1990 and covers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



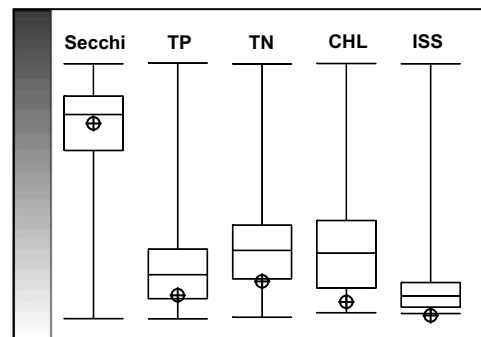
Location of the Bowling Green Lakes

- Relative to statewide data, both Bowling Green lakes have good water quality with all 2005 parameter means (except Secchi) falling into the lower 25<sup>th</sup> percentile of statewide rankings.
- Mean ISS levels were some of the lowest in the state.
- The two lakes had similar ISS levels and nitrogen concentrations (with the exception of an early season high nitrogen value in Lake 2), while phosphorus tended to be slightly lower in Lake 1. Chlorophyll levels were comparable, though Lake 2 varied more than Lake 1. Secchi values would have been comparable except for an extremely deep reading of 120 inches in Lake 1.

Relative Rank for Bowling Green Lake 1



Relative Rank for Bowling Green Lake 2



# Bowling Green Lake 1

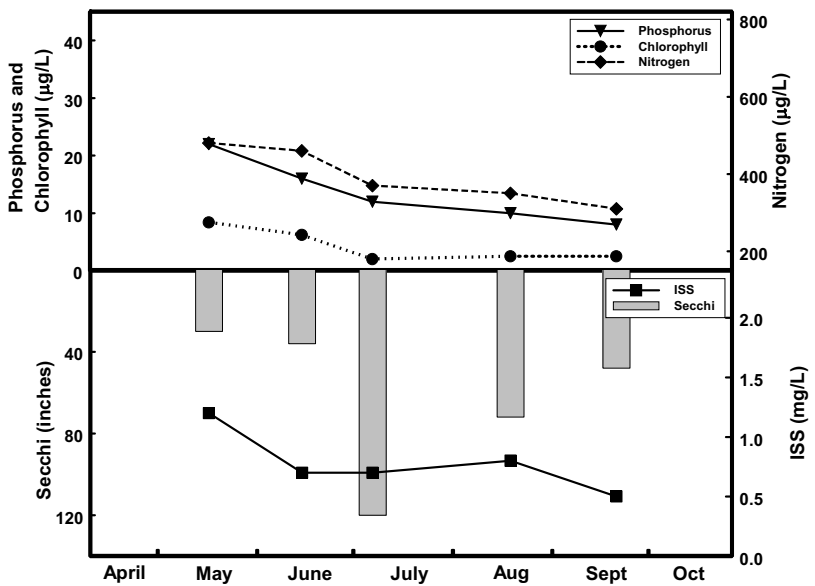
## Descriptive statistics for Bowling Green Lake 1 – 2005

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
<b>Geometric Mean</b>	<b>54</b>	<b>13</b>	<b>389</b>	<b>3.7</b>	<b>0.7</b>
<b>Minimum</b>	30	8	310	2.0	0.5
<b>Maximum</b>	120	22	480	8.4	1.2
<b>Number of Samples</b>	5	5	5	5	5

## Seasonal fluctuations of parameters for Bowling Green Lake 1 – 2005

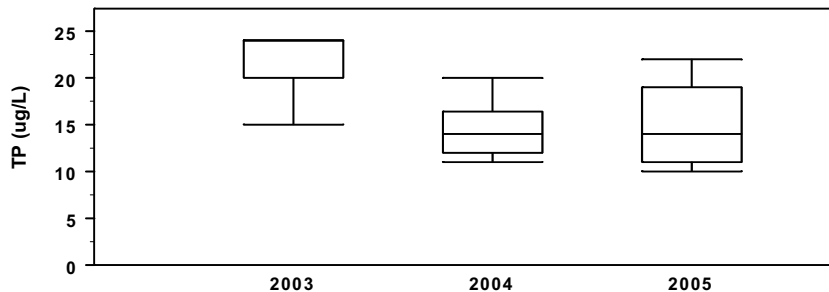
Nutrients showed a pattern of decreasing values over the sample season, with minimum values being measured in September. The chlorophyll pattern tracks the nutrients.

The maximum Secchi reading of 120 inches corresponded with the minimum chlorophyll concentration (2.0 µg/L). Chlorophyll values on the next two sample dates were only slightly higher (2.5 µg/L) yet Secchi readings were noticeably lower due to the sensitivity of water clarity to small increases in algal biomass at low levels of algal chlorophyll.



## Total Phosphorus trends in Bowling Green Lake 1

With only three years of data, detecting a trend is impossible. However, we can surmise that phosphorus concentrations tend to range from 10 to 25 ug/L.



# Bowling Green Lake 2

## Descriptive statistics for Bowling Green Lake 2 – 2005

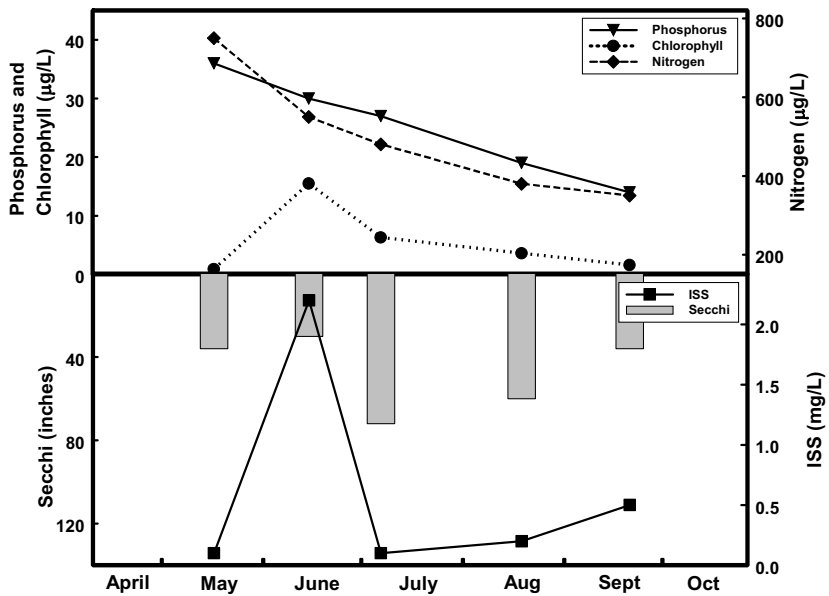
	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
<b>Geometric Mean</b>	44	24	483	3.5	0.3
<b>Minimum</b>	30	14	350	0.9	0.1
<b>Maximum</b>	72	36	750	15.5	2.2
<b>Number of Samples</b>	5	5	5	5	5

## Seasonal fluctuations of parameters for Bowling Green Lake 2 – 2005

Nutrients levels in Lake 2 follow the same general pattern as seen in Lake 1, with decreasing values during the sample season.

The chlorophyll spike on the second sample in Lake 2 does not correspond to increases in either nutrient, suggesting that a different controlling mechanism was involved. This may be the result of a shift in the zooplankton community.

The maximum ISS value in Lake 2 was not as extreme as it appears, due to the small scale of the graph.



The Secchi reading on the first sample date for Lake 2 was very low given that both ISS and chlorophyll values were minimal.

## Secchi trends in Bowling Green Lake 2

It is not possible to detect trends in water quality over a three-year period. However, the box plot data show the amount of variation within each year, as well as how the years compare to one another.

