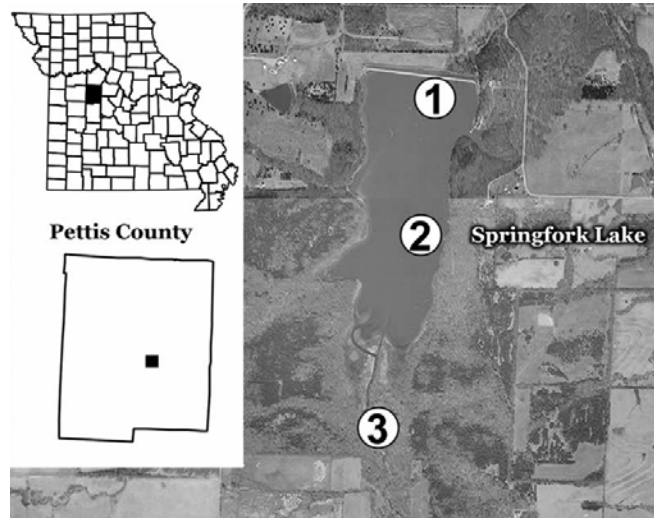


# Spring Fork Lake

Springfork Lake provides drinking water for the city of Sedalia. The lake covers 93 acres and has a large 6,950 acre watershed consisting of 52% grass land and pasture, 26% cropland, and 20% forest cover. The large ratio of watershed size to lake volume means that inputs from the watershed can have a large impact on water quality in the lake by reducing the lake's ability to dilute inflows and settle out particulate matter.



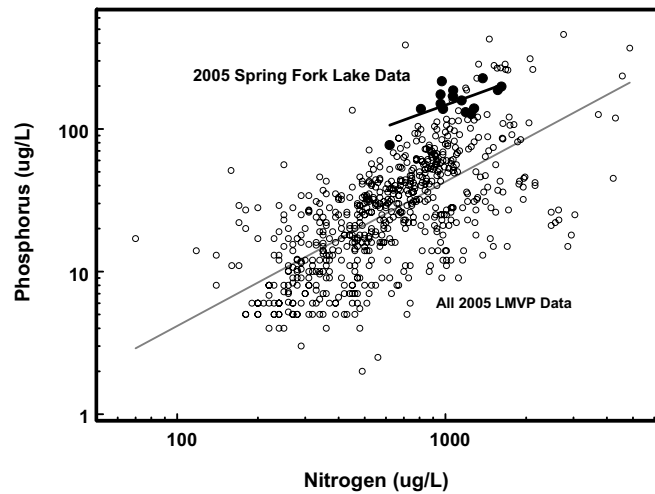
Location of Spring Fork Lake and its sample sites

Spring Fork Lake is in the process of being officially listed as “impaired” due to nutrients. The lake receives an estimated 100 pounds of phosphorus per day, and as such has phosphorus concentrations that are roughly five times higher than expected of a lake in this region.

Because of the extremely high phosphorus concentrations, algae growth is significant and water clarity is low.

Nitrogen concentrations, though high, are lower than expected relative to phosphorus concentrations (see figure to right).

Samples were collected at the dam, at a site mid-lake and at a site in Cheese Creek, the inflowing stream. No samples were collected after July.



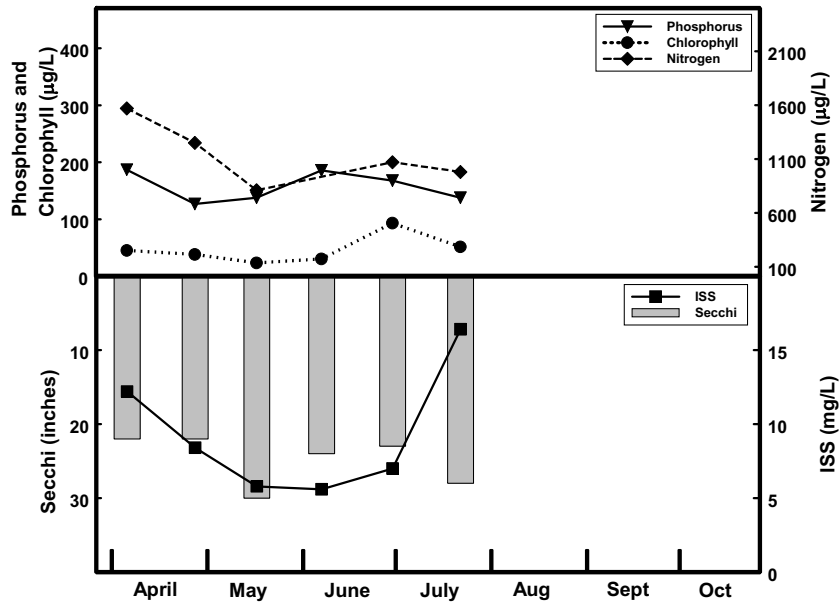
2005 Phosphorus and Nitrogen concentrations in Spring Fork Lake, relative to other Missouri lakes.

Hollow circles represent all 2005 LMVP data, closed circles are data from Spring Fork Lake, 2005.

The phosphorus concentrations (vertical axis) are quite a bit higher in Spring Fork Lake than is expected, based on nitrogen concentrations (horizontal axis).

# Spring Fork Lake, Site 1

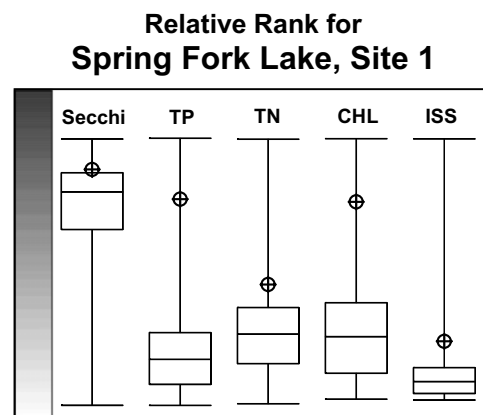
## Seasonal fluctuations of parameters for Spring Fork Lake, Site 1 – 2005



## Descriptive statistics for Spring Fork Lake, Site 1 – 2005

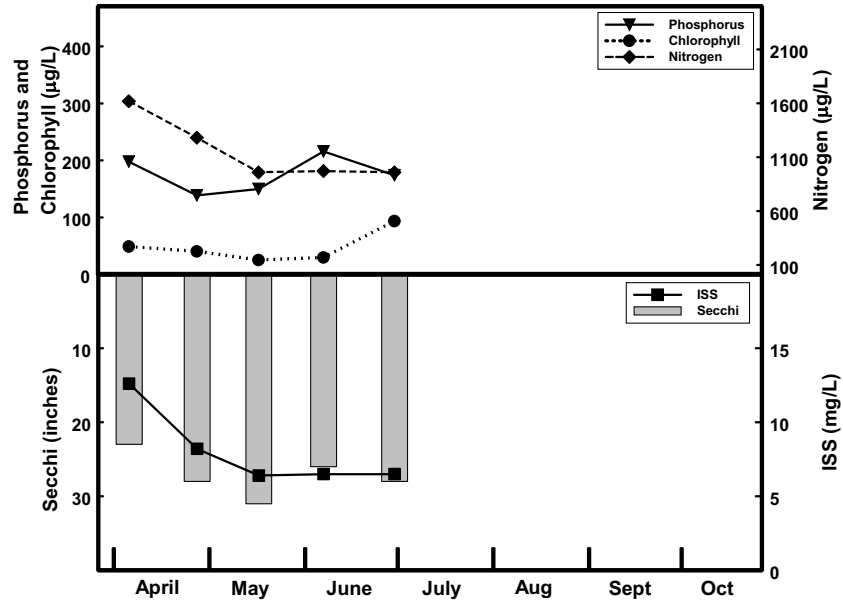
	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
<b>Geometric Mean</b>	25	155	1101	42.7	8.5
<b>Minimum</b>	22	127	810	23.5	5.6
<b>Maximum</b>	30	187	1570	93.5	16.4
<b>Number of Samples</b>	6	6	6	6	6

Phosphorus concentrations in Spring Fork Lake are higher than observed in over 75% of Missouri lakes. The same holds true for nitrogen, chlorophyll and suspended sediments. Secchi transparency is lower in Spring Fork Lake than in most Missouri lakes.



# Spring Fork Lake, Site 2

## Seasonal fluctuations of parameters for Spring Fork Lake, Site 2 – 2005

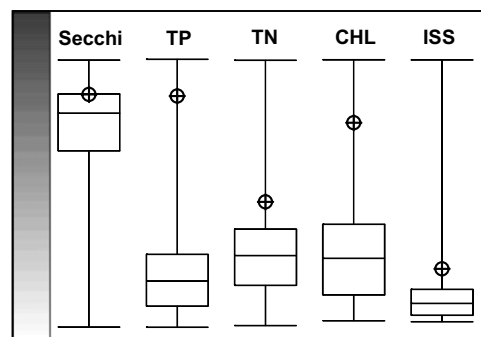


## Descriptive statistics for Spring Fork Lake, Site 2 – 2005

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
<b>Geometric Mean</b>	27	173	1131	42.8	7.7
<b>Minimum</b>	23	139	960	25.6	6.4
<b>Maximum</b>	31	216	1620	93.7	12.6
<b>Number of Samples</b>	5	5	5	5	5

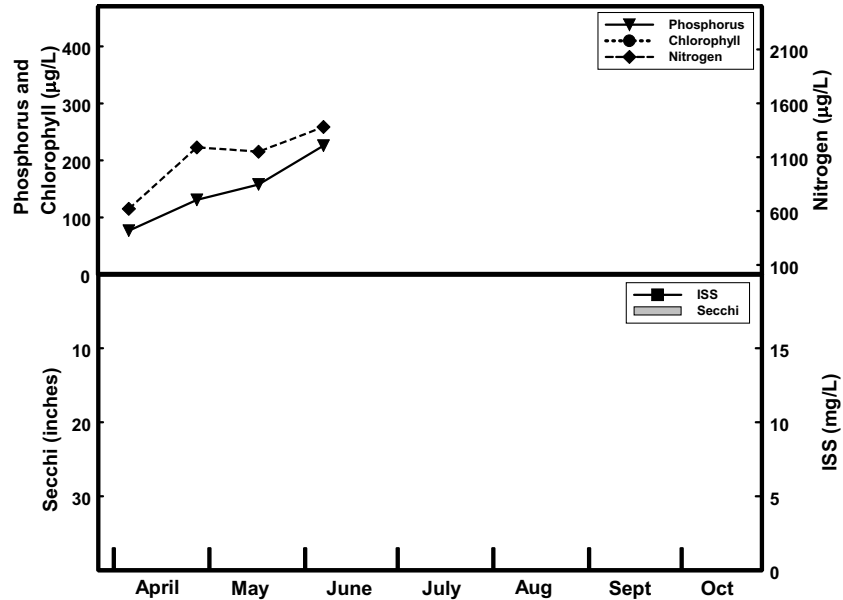
Conditions at Site 2 are nearly identical to conditions at Site 1. This is not surprising, given the large watershed relative to lake volume. The short residence time of water in the lake would hinder the development of longitudinal gradients.

### Relative Rank for Spring Fork Lake, Site 2



# Spring Fork Lake, Site 3

## Seasonal fluctuations of parameters for Spring Fork Lake, Site 3 – 2005



## Descriptive statistics for Spring Fork Lake, Site 3 – 2005

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
<b>Geometric Mean</b>		138	1040		
<b>Minimum</b>		77	620		
<b>Maximum</b>		226	1380		
<b>Number of Samples</b>		4	4		

Only nutrients were sampled at Site 3, and no usable data were collected after June. Nutrient concentrations at Site 3 are nearly identical to those found at the dam. This implies that Cheese Creek may be the source of the excessive nutrients in Spring Fork Lake.

### Relative Rank for Spring Fork Lake, Site 3

