

# Forest Lake, Site 1

Adair County



Latitude: 40.1706

Longitude: -92.6556

## 2009 DATA

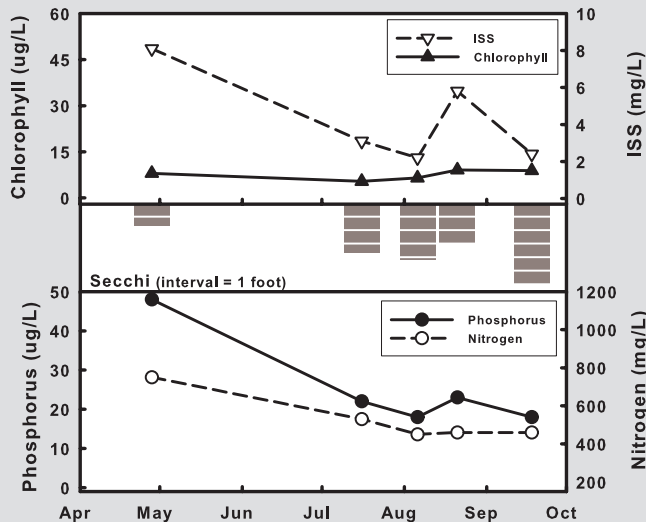
Date	4/28/09	X	X	X	7/16	8/6	8/21	9/18	Mean
Secchi (inches)	20				44	50	36	72	41
TP (µg/L)	48				22	18	23	18	24
TN (µg/L)	750				530	450	460	460	520
CHL (µg/L)	8.0				5.4	6.5	9.1	8.9	7.4
ISS (mg/L)	8.1				3.1	2.2	5.8	2.4	3.8

The highest nutrient and inorganic suspended sediment (ISS) values were measured in April, with lower levels during the late season. This is a common seasonal pattern in Missouri lakes as springtime inflows often carry nutrients and sediment material into the lake, impacting the surface layer (inflows later in the summer tend to plunge into deeper waters, having limited impact on surface waters). Water quality from July into September was stable, with only ISS and Secchi showing any notable variability.

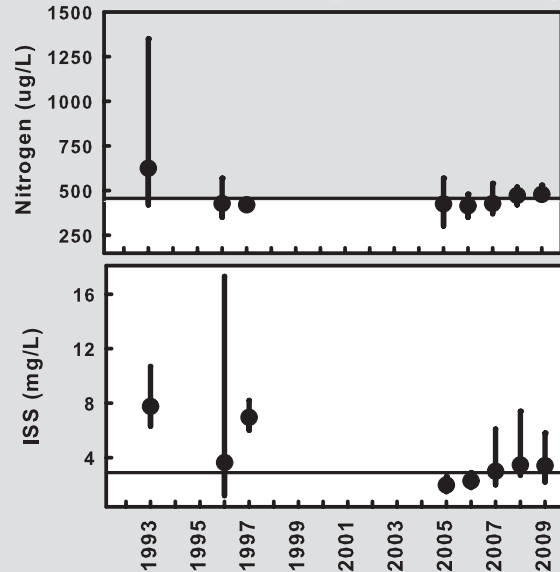
fall among the years. Long-term nitrogen (horizontal line on nitrogen trend graph) is slightly higher than the adopted nitrogen criteria (shaded area of graph). If the 1993 data were excluded from the analysis the long-term nitrogen value would be within the criteria.

Water quality has been comparable during the last five summers, with 2008 and 2009 mean nitrogen, ISS and phosphorus values being slightly higher than those measured 2005-2007. The small increase in nutrients and sediment may reflect differences in rain-

## 2009 GRAPHS



## TREND GRAPHS



See pages 10-11 for help interpreting graphs

# Forest Lake, Site 2

Adair County



Latitude: 40.1697

Longitude: -92.637

## 2009 DATA

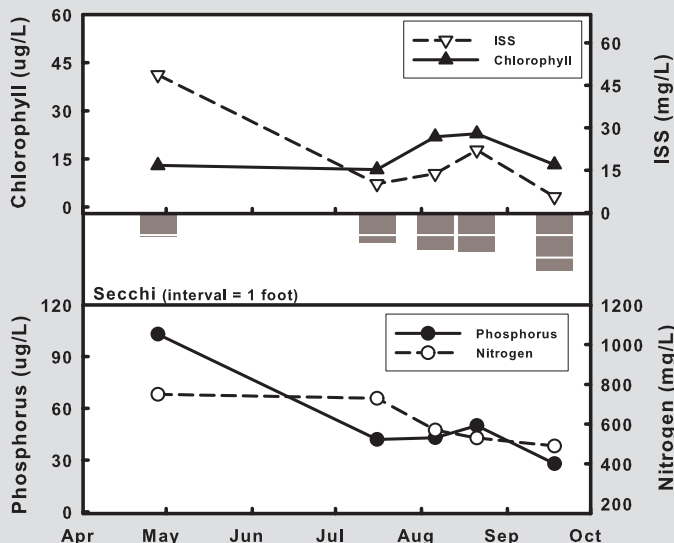
Date	4/28/09	X	X	X	7/16	8/6	8/21	9/18	Mean
Secchi (inches)	13				16	20	21	31	19
TP (µg/L)	103				42	43	50	28	48
TN (µg/L)	750				730	570	530	490	605
CHL (µg/L)	13.0				11.7	21.9	22.9	13.2	15.9
ISS (mg/L)	48.7				10.2	13.8	22.1	5.6	15.3

Similar to Site 1, Site 2 had maximum nutrient and ISS values measured during April. Water quality during the late season was a little more variable at this up-lake site relative to that observed at the dam. This increased variability is not surprising given the site's location within a tributary arm of the lake, which would make Site 2 more sensitive to rain events than Site 1. ISS levels at Site 2 were almost five times higher than at Site 1. Phosphorus and chlorophyll were twice as high, with Secchi being half as deep. Interestingly, nitrogen was only marginally higher at Site 2 than Site 1.

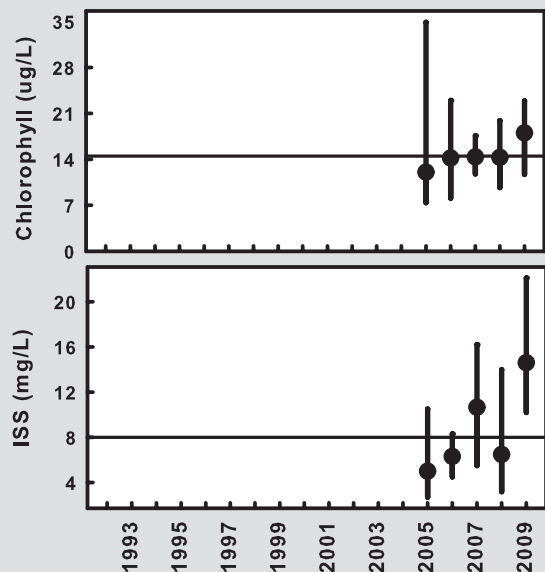
a result of higher than average rainfall. The total precipitation for 2009 in Kirksville was 59 inches, compared to the long-term average of 38 inches. Put another way, by September, Kirksville had already received six inches more rain than in a normal year.

Summertime mean chlorophyll, ISS, and nutrient concentrations were higher in 2009 than in previous years, probably as

## 2009 GRAPHS



## TREND GRAPHS



See pages 10-11 for help interpreting graphs