

Mark Twain Lake

Mark Twain Lake is a large reservoir (18,600 acres at normal pool) that lies in Monroe and Ralls counties. Construction of the Clarence Cannon Dam and power plant was completed in 1983. Row crops cover just over half of the land in Mark Twain Lake's watershed and grass/pasture land covers slightly more than a quarter. This reservoir provides drinking water, electricity and flood control in addition to the usual recreational amenities.

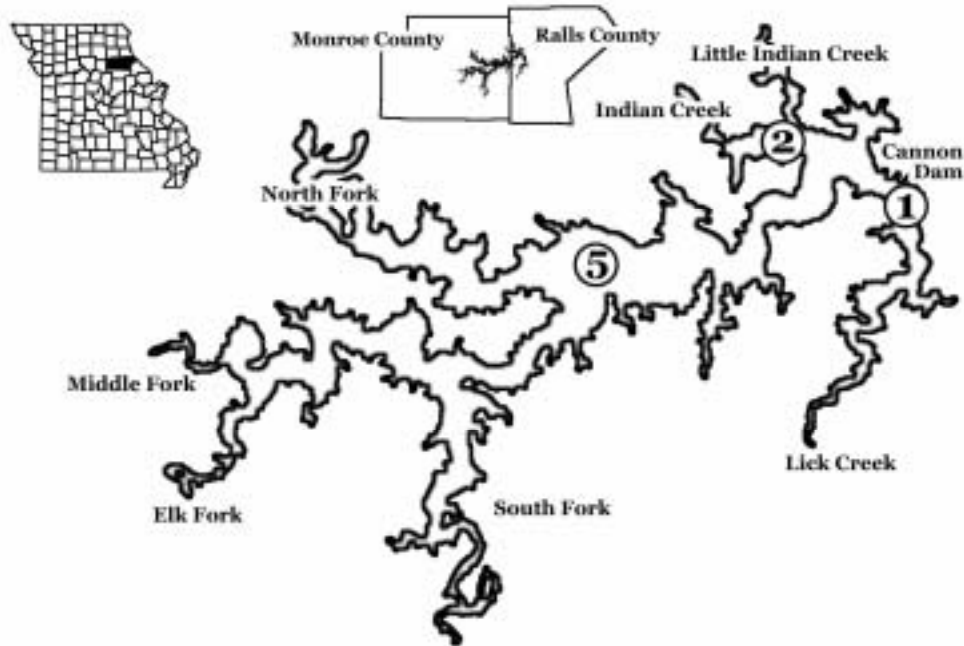


Figure 69. Sampling locations on Mark Twain Lake

2004 Results

Figure 70 shows how the parameters nitrogen, phosphorus, algal chlorophyll, inorganic suspended solids and Secchi transparency varied in Mark Twain Lake during 2004. The descriptive statistics appear in Tables 25-27.

A brief description of the results:

- Algae may be light limited in May and early June, based on low concentrations of chlorophyll compared to phosphorus
- The water quality at all 3 sites is very similar. Geometric mean concentrations for Secchi, nitrogen and chlorophyll are almost identical. Phosphorus and ISS concentrations vary only slightly among sites.
- Late summer jump in phosphorus and ISS likely due to a mid-September rain event.

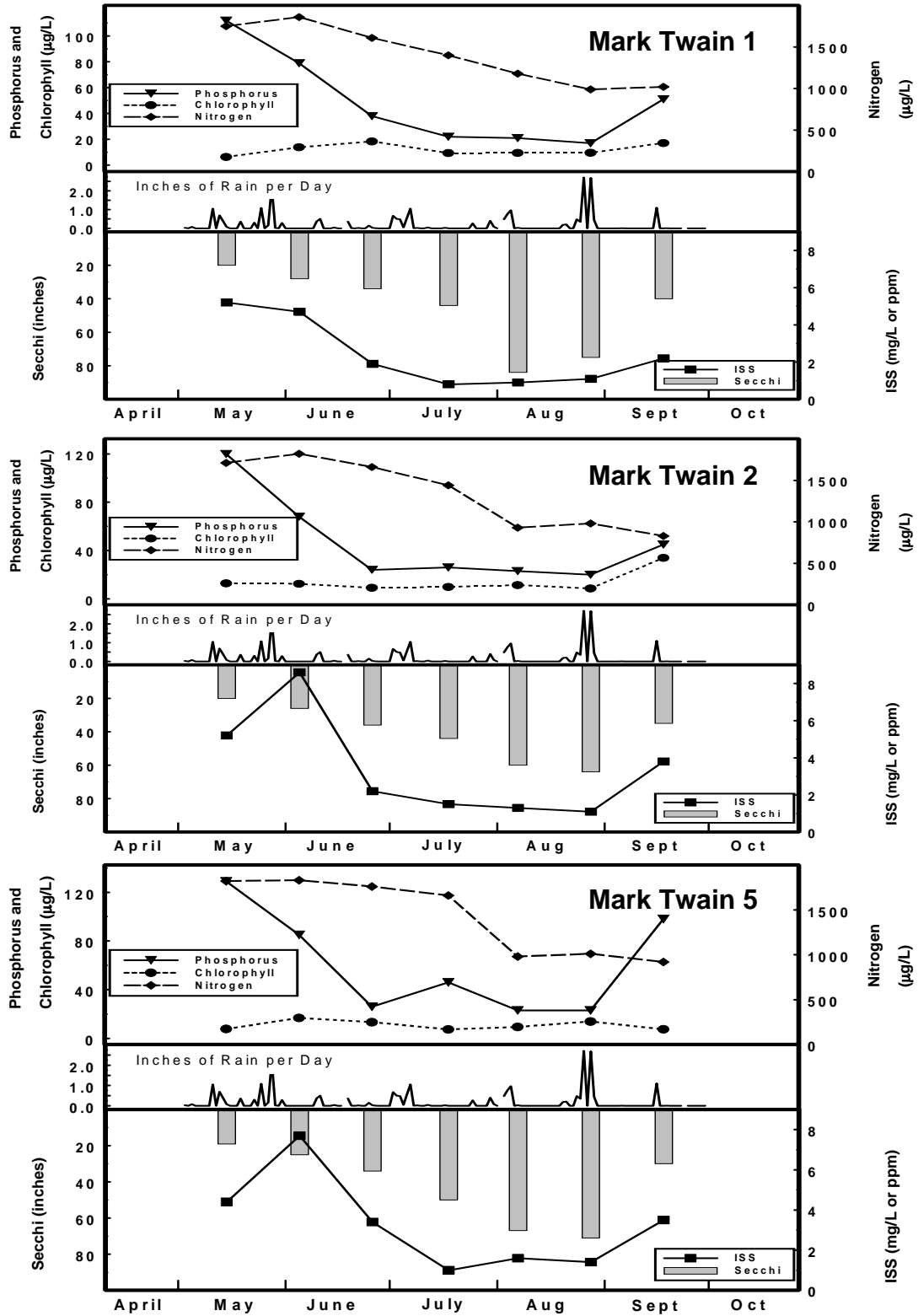


Figure 70. 2004 seasonal fluctuations of parameters for Mark Twain Lake, sites 1, 2, 5

Table 25. Descriptive statistics for Mark Twain Lake, Site 1 – 2004.

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	41	39	1363	11.3	1.9
Minimum	20	17	990	6.4	.8
Maximum	84	112	1860	18.4	5.2
Number of Samples	7	7	7	7	7

Table 26. Descriptive statistics for Mark Twain Lake, Site 2 – 2004.

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	38	38	1280	12.5	2.6
Minimum	20	20	830	8.6	1.1
Maximum	64	120	1820	33.9	8.6
Number of Samples	7	7	7	7	7

Table 27. Descriptive statistics for Mark Twain Lake, Site 5 – 2004.

	Secchi (inches)	TP (ug/L)	TN (ug/L)	CHL (ug/L)	ISS (mg/L)
Geometric Mean	38	49	1366	10.4	2.6
Minimum	19	23	920	7.5	1.0
Maximum	71	129	1830	16.8	7.7
Number of Samples	7	7	7	7	7

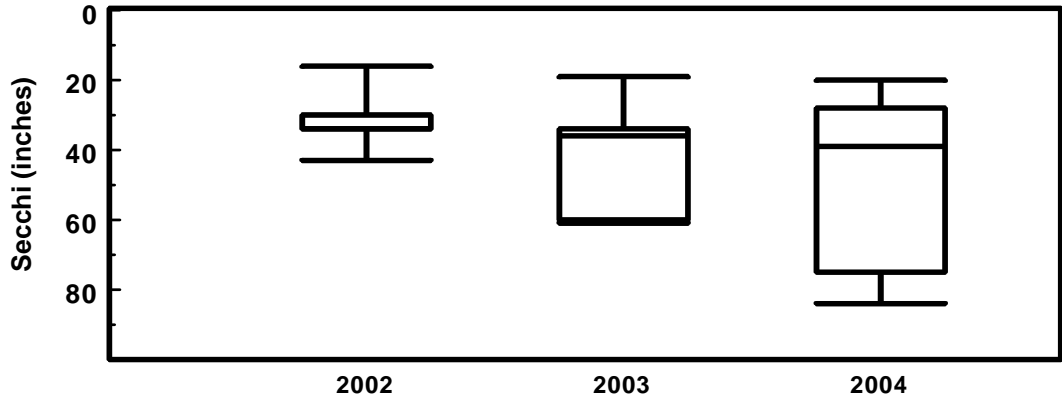


Figure 71. Secchi trends in Mark Twain Lake, Site 1. No apparent trend. Higher Secchi transparency values were observed at the dam in 2004, though the 2004 median is almost identical to 2003.

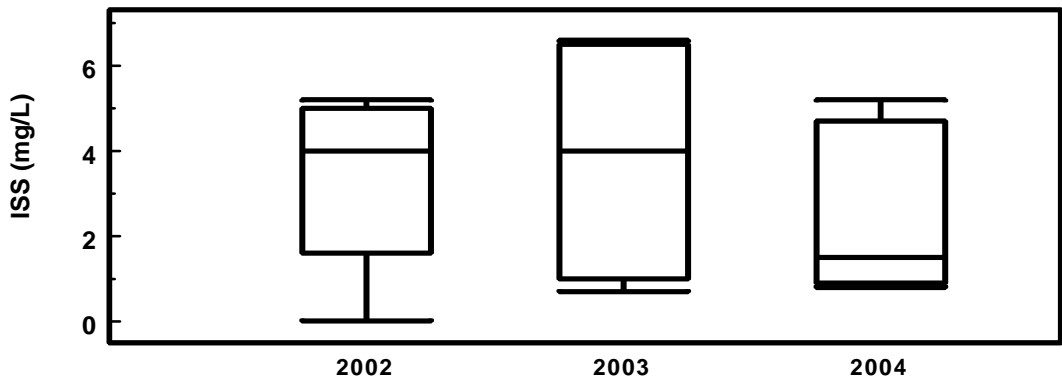


Figure 72. ISS trends in Mark Twain Lake, Site 1. No trend apparent, but the median 2004 ISS concentration at Site 1 was half that of the previous 2 years.

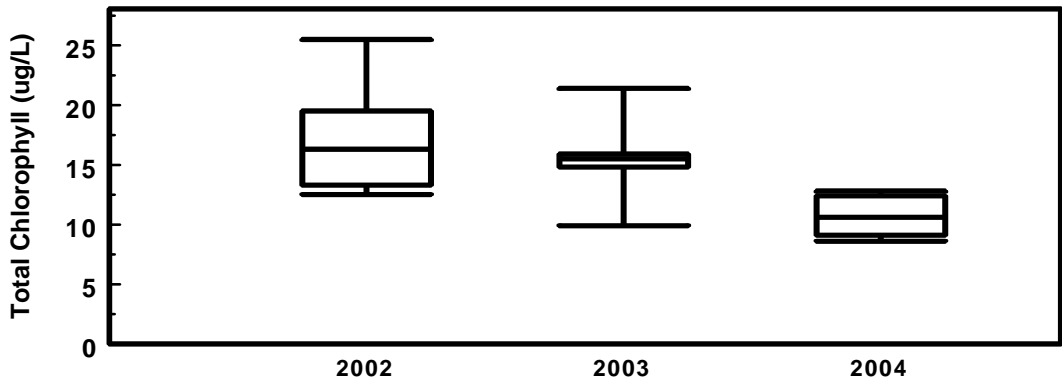


Figure 73. Chlorophyll trends in Mark Twain Lake, Site 2. No trend apparent. 2004 chlorophyll concentrations were lower than observed in 2003.