

## Lake of the Ozarks

Region - Ozark Highlands

Lake of the Ozarks is located in the Ozark Highlands, though a portion of the watershed originates in the Osage Plains Region. This large impoundment on the Osage River is preceded upstream by the Harry S. Truman Reservoir. Even though the majority of the watershed is forest and grassland, the proximity of urban areas to the lake may influence water quality. Water quality is also influenced by Truman Reservoir. Past research has shown that when large volumes of water are being released from Truman, scouring occurs in the old river channel and large amounts of inorganic suspended solids along with high concentrations of nutrients are brought into Lake of the Ozarks (Jones and Kaiser 1988).

Figure 29. Location of Lake of the Ozarks sample sites.

Five sites were sampled on Lake of the Ozarks between April and September, 1999. Four of the five sampling sites were in the main lake channel, with Site 4-3 being located in the Niangua Arm of the lake. Site numbers on the main lake correspond to mile markers. Sites 51, 26 and 4-3 were sampled eight times, Site 13 was sampled seven times and Site 36 was sampled five times. Table 14 presents the descriptive data for the 1999 sampling season. The data from the five lake sites were incorporated into box plots to investigate conditions across the lake during the 1999 season.

## 1999 Results

- ▶ Phosphorus and nitrogen values were comparable at all sites. There was no longitudinal gradient of decreasing values as we moved down-lake for nitrogen. Phosphorus showed a very weak gradient.
- ▶ Though maximum chlorophyll values for the lake occurred at Site 51, there was not a longitudinal gradient for this parameter.
- ▶ The gradient for inorganic suspended solids showed high values at Site 51. All other sites had lower values that were comparable to each other. (Inorganic suspended solids and Secch values are not shown as box plots.)
- ▶ Secchi values reflected the longitudinal pattern of inorganic suspended solids. The maximum Secchi reading of 79 inches at Site 13 correlated to the minimum chlorophyll and inorganic suspended solids for that site.
- ▶ Water quality in the Niangua Arm was very similar to that in the lower lake.
- ▶ Average values measured for all sites for phosphorus, nitrogen and chlorophyll were in the eutrophic range.



Figure 30. Nitrogen values for Lake of the Ozarks - 1999.

Table 14. Descriptive statistics for Lake of the Ozarks - 1999.

Parameter		Site				
		51	36	26	13	4-3
Chlorophyll (µg/L)	average	28.2	23.6	17.2	17.1	21.5
	median	20.1	22.5	14.7	12.1	24.3
	minimum	9.4	9.2	5.6	7.2	3.5
	maximum	56.4	39.8	31.5	39.7	34.8
Phosphorus (µg/L)	average	52	41	46	37	40
	median	51	44	43	35	36
	minimum	40	30	25	15	22
	maximum	71	53	85	63	76
Nitrogen (µg/L)	average	746	734	745	627	666
	median	795	800	780	470	640
	minimum	520	550	480	390	470
	maximum	900	830	1080	990	940
Inorganic Suspended Solids (mg/L)	average	8.4	3.4	4.2	2.7	3.1
	median	7.2	4.0	4.1	1.5	2.7
	minimum	1.8	1.0	0.9	0.9	0.7
	maximum	18.2	5.2	10.5	5.7	7.0
Secchi (inches)	average	25	43	37	45	39
	median	21	43	40	43	43
	minimum	16	36	12	20	17
	maximum	44	52	55	79	50

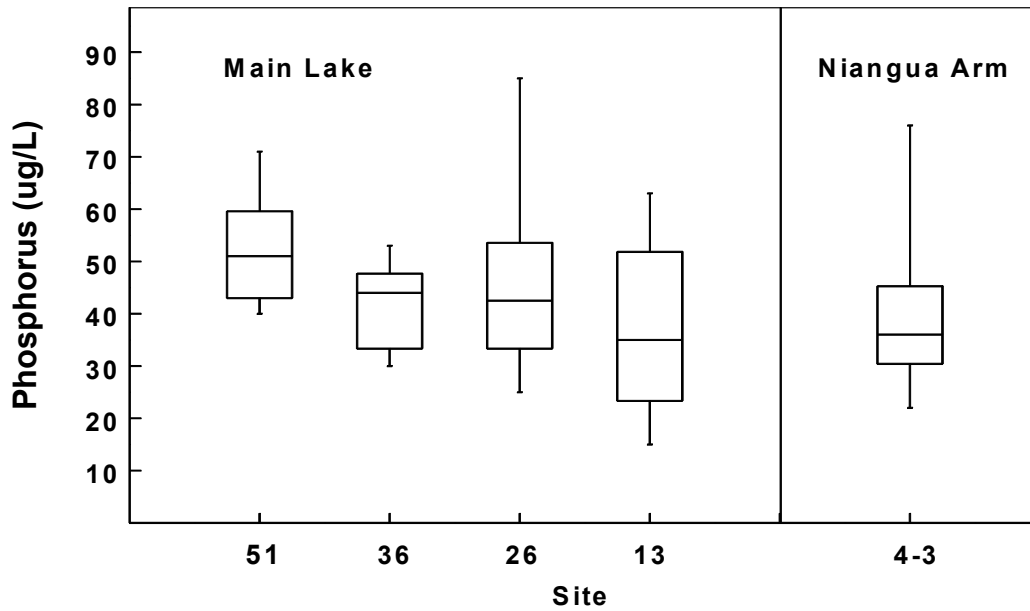


Figure 31. Phosphorus values for Lake of the Ozarks - 1999.

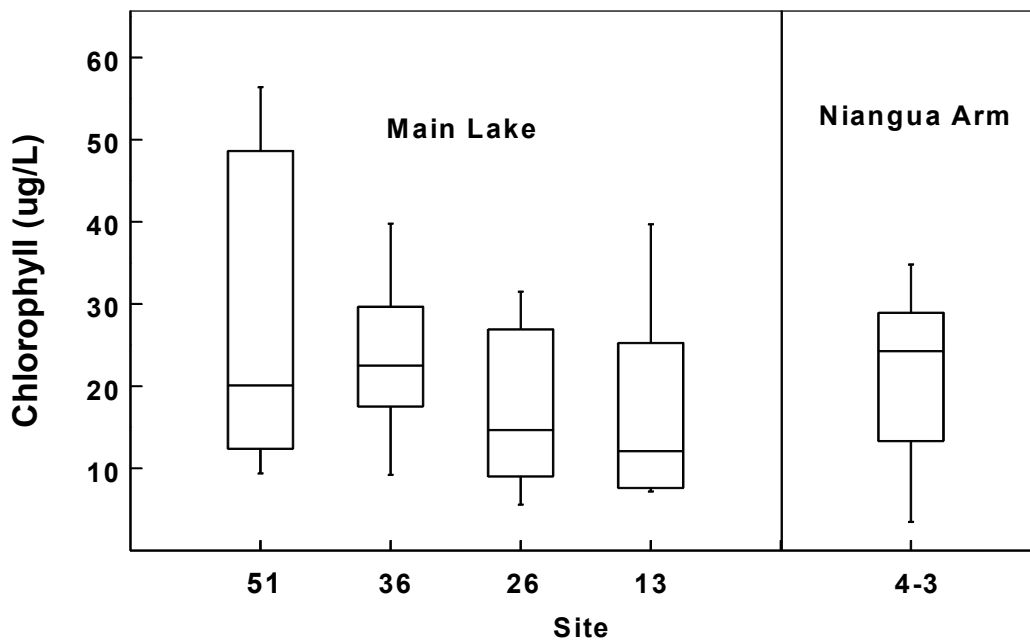


Figure 32. Chlorophyll values for Lake of the Ozarks - 1999.