

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).

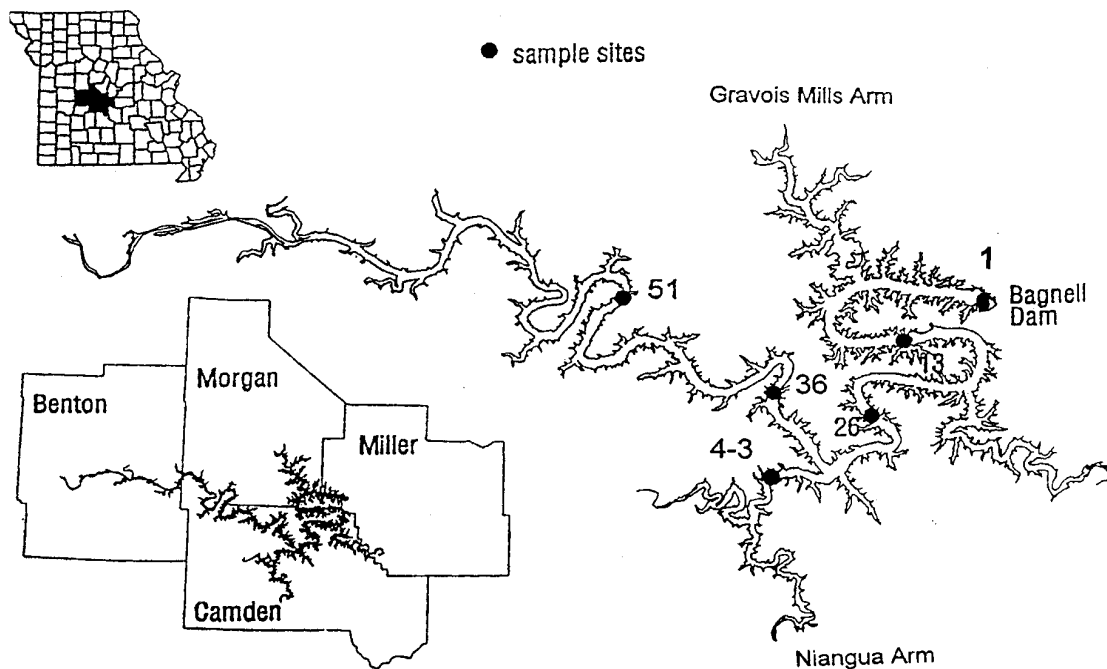


Figure 25. Location of Lake of the Ozarks sample sites.

Five sites were sampled at least seven times on Lake of the Ozarks between April and September, 2000. One sample, at the dam, was sampled only three times, therefore was not incorporated into the box plots. 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. Table 12 presents the descriptive data for the 2000 sampling season. The data from the five lake sites with at least seven samples were incorporated into box plots to investigate conditions across the lake during the 2000 season. See page 72 for trend analysis.

2000 Results

- ▶ Nitrogen values were comparable with low variability at all sites. Sample from Site 26 on 4/26 was the highest recorded value at 1490 $\mu\text{g/L}$. This value was approximately three times higher than any other value from site 26.
- ▶ Phosphorus values show a slight longitudinal gradient. Phosphorus values were not as comparable among sites as nitrogen values. There is also more variability of phosphorus values within some of the individual sites.
- ▶ The gradient for inorganic suspended solids (ISS) showed higher values at Site 51. All other sites had lower values that were comparable to each other. This is similar to what was reported last year, but ISS values were generally lower across the lake. (Inorganic suspended solids and Secch values are not shown as box plots.)
- ▶ Variability in the chlorophyll values are moderate to high within the individual sites. Although sites 26 and 13 have lower chlorophyll values than site 51 and 36, there is not extreme differences among all sites.
- ▶ Average values measured for all sites for chlorophyll were in the eutrophic range. Average values for sites 51, 36, 26, and 4-3 were in the eutrophic range while site 13 was in the mesotrophic range. Average values for nitrogen for sites 51, 36, 13, 4-3 were in the mesotrophic range while site 26 was in the eutrophic range.

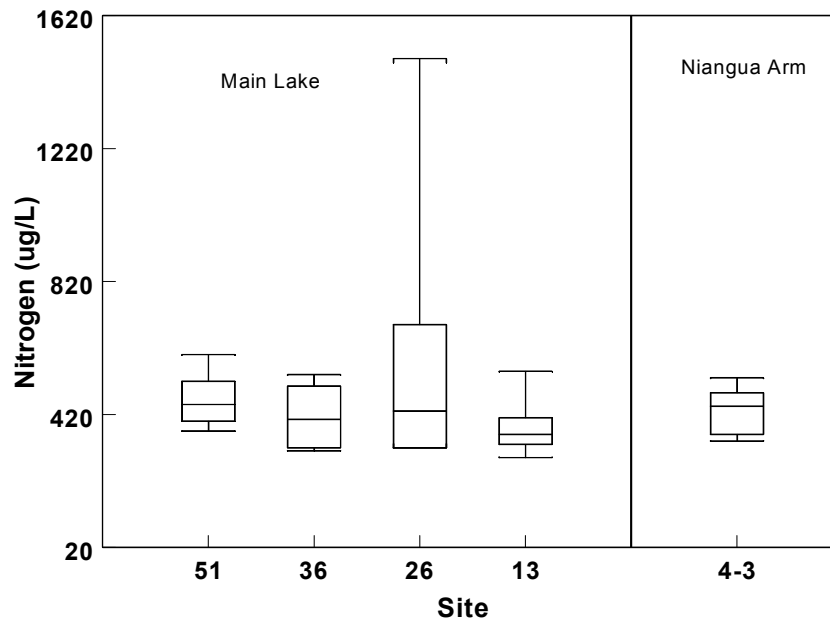


Figure 26. Nitrogen values for Lake of the Ozarks - 2000.

Table 12. Descriptive statistics for Lake of the Ozarks - 2000.

Parameter		Site				
		51	36	26	13	4-3
Chlorophyll ($\mu\text{g/L}$)	average	20.1	20.2	10.9	8.7	15.5
	median	17.6	19.5	9.1	8.4	11.5
	minimum	7.6	5.8	3.1	3.3	10.0
	maximum	40.9	42.9	21.8	15.9	32.9
Phosphorus ($\mu\text{g/L}$)	average	46	30	41	17	27
	median	44	28	25	17	25
	minimum	30	21	20	12	22
	maximum	73	51	98	20	39
Nitrogen ($\mu\text{g/L}$)	average	464	414	594	383	431
	median	450	405	430	360	445
	minimum	370	310	320	290	340
	maximum	600	540	1490	550	530
Inorganic Suspended Solids (mg/L)	average	4.8	1.5	0.5	0.8	0.8
	median	5.1	1.2	0.5	0.8	0.9
	minimum	1.8	0.7	0.2	na	na
	maximum	7.2	2.7	0.7	1.9	1.7
Secchi (inches)	average	36	61	70	78	62
	median	36	57	71	76	61
	minimum	31	43	53	65	47
	maximum	40	78	89	98	78

na = below limit of detection

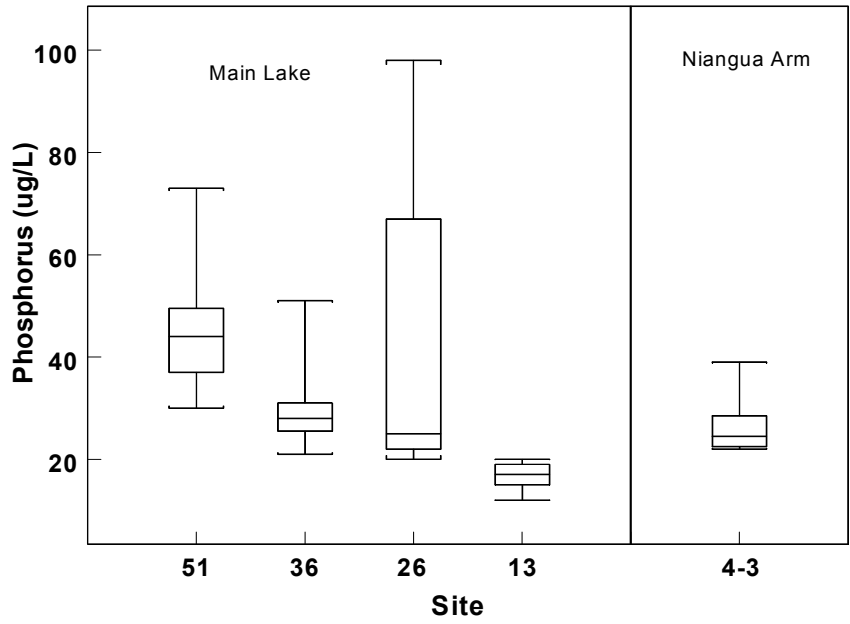


Figure 27. Phosphorus values for Lake of the Ozarks - 2000.

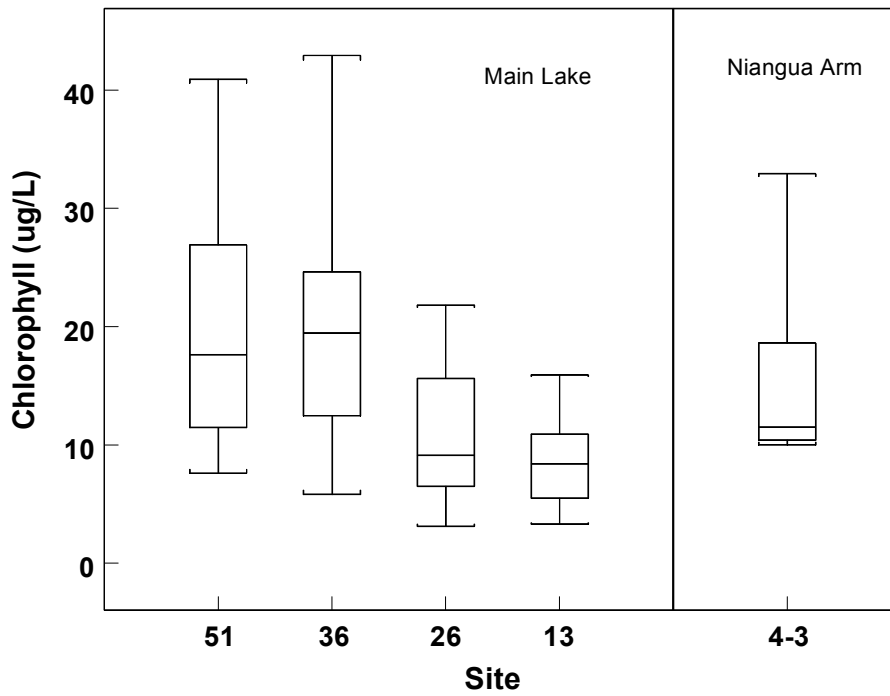


Figure 28. Chlorophyll values for Lake of the Ozarks - 2000.