Lake of the Ozarks - 2001 Data Ozark Highlands Region

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 locally influence water quality. Truman Reservoir also influences water quality. 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).

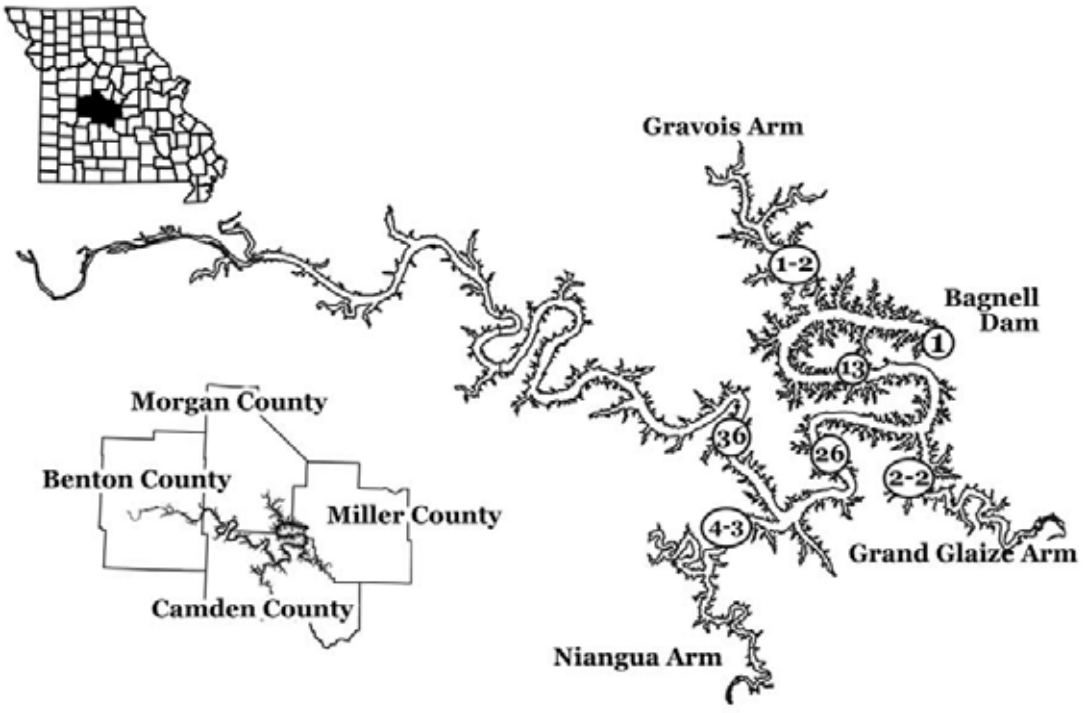

Figure 30. Location of sampling sites on Lake of the Ozarks.

Table 15. Descriptive statistics for Lake of the Ozarks – 2001.

Parameters		Site 1	Site 13	Site 26	Site 36	Site 51	Site 1-2	Site 4-3	Site C-1	Site 2-2
Secchi (inches)	# samples	9	9	9	8	0	9	9	8	3
	geomean	63	61	40	44	X	60	45	65	45
	median	62	68	42	47	X	59	47	69	43
	minimum	37	31	17	17	X	40	37	40	38
	maximum	90	94	62	69	X	87	52	94	57
Phosphorus (μg/L)	# samples	9	9	9	8	9	9	9	7	2
	geomean	22	29	36	42	64	22	34	26	12
	median	22	31	42	40	61	24	34	37	12
	minimum	15	19	23	20	38	14	24	13	11
	maximum	37	48	66	108	94	36	45	42	13
Nitrogen (μg/L)	# samples	9	9	9	8	9	9	9	7	2
	geomean	536	589	791	745	714	536	730	609	745
	median	590	600	740	710	830	500	790	510	745
	minimum	430	330	510	460	350	280	430	410	740
	maximum	1010	970	1350	1530	920	990	1380	1000	750
Chlorophyll (μg/L)	# samples	9	9	9	8	9	9	7	7	2
	geomean	13.7	15	15.8	14.8	16.9	13.7	19.5	17.7	21
	median	10	17.9	12.1	17.4	15.4	12.6	22.3	18	21.5
	minimum	5	3.8	6.5	4.4	12.2	7.5	8.5	6.6	16.7
	maximum	27	27.8	35.5	30.4	28.3	32.6	29	40.5	26.3
ISS (mg/L)	# samples	9	5	8	8	9	8	9	8	2
	geomean	0.9	0.3	1.7	2.3	6.1	0.9	2	1.3	1.1
	median	1.3	0.3	2.0	2.2	5.8	1.1	2.6	1.6	1.2
	minimum	>0.1	>0.1	0.6	0.8	3.2	0.3	0.3	0.3	0.8
	maximum	19.1	1.6	5.3	14.7	9.8	2.0	6.1	5.9	1.5

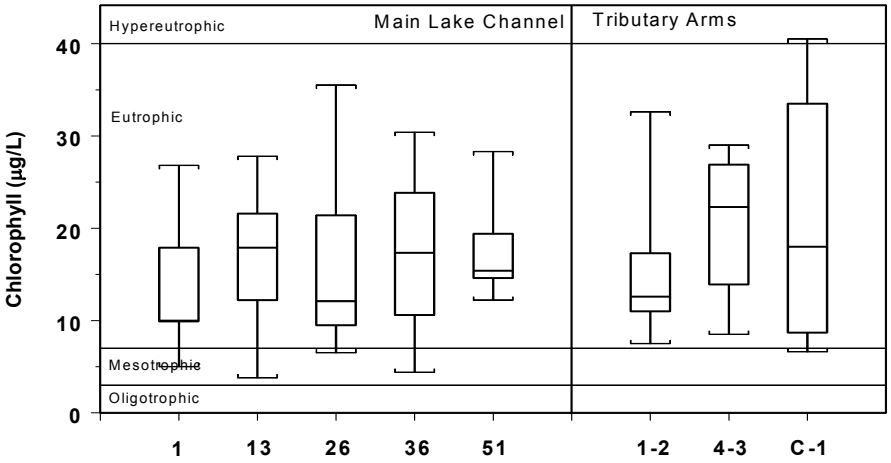

Figure 31. Box plot of chlorophyll values across Lake of the Ozarks.

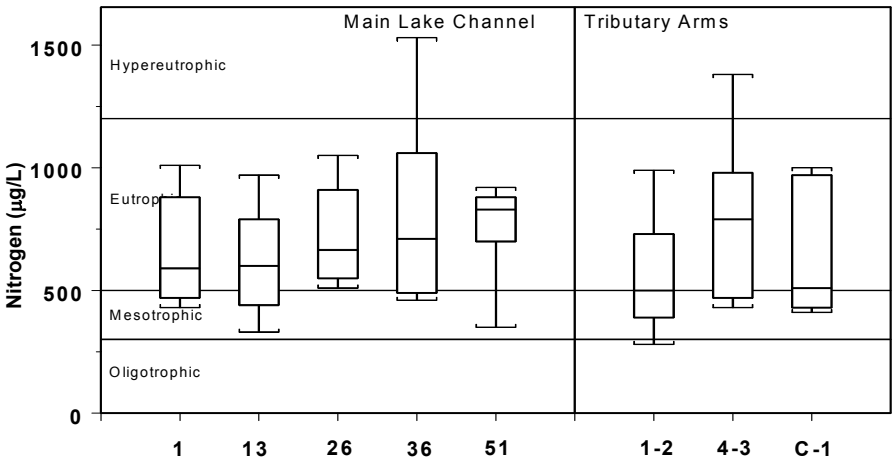

Figure 32. Box plot of nitrogen values across Lake of the Ozarks.

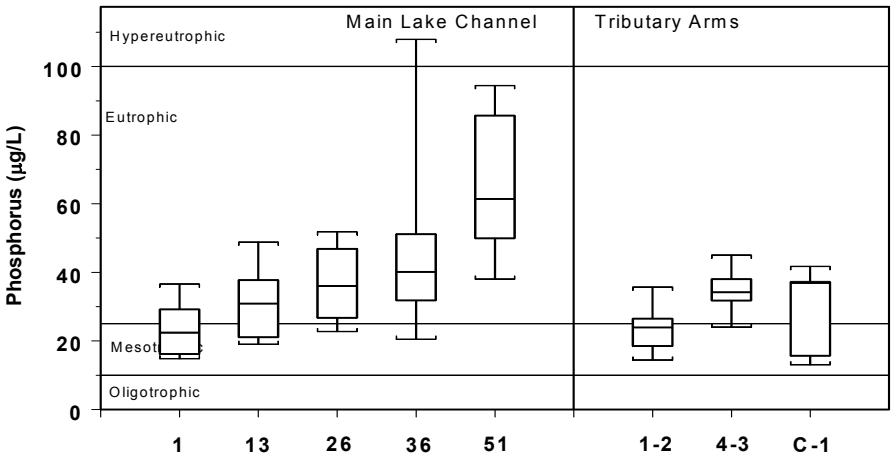

Figure 33. Box plot of phosphorus values across Lake of the Ozarks.

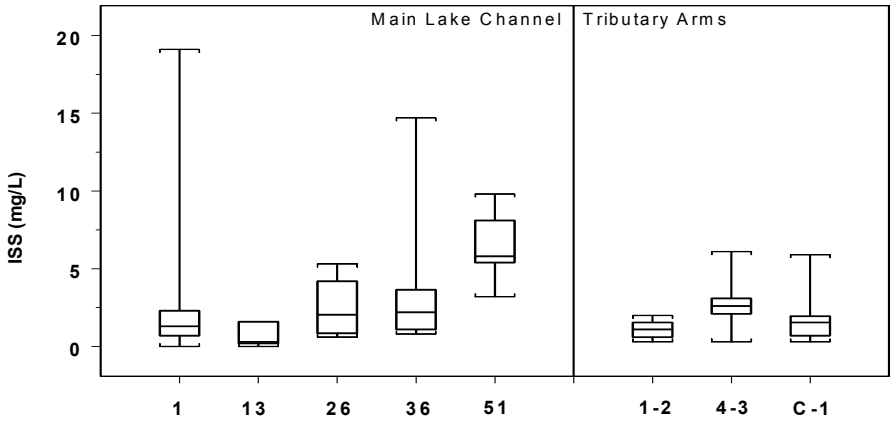

Figure 34. Box plot of inorganic suspended solids values across Lake of the Ozarks.

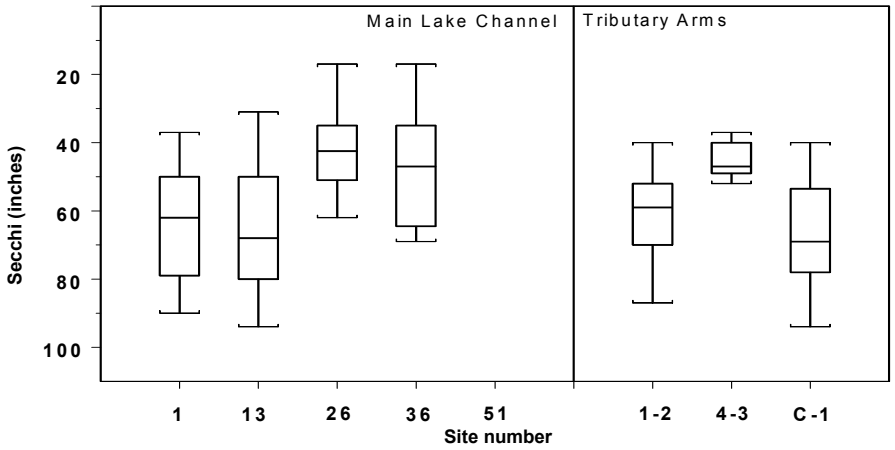

Figure 35. Box plot of Secchi values across Lake of the Ozarks.

Trends for Lake of the Ozarks (see page 18 for a description of box plots)

- Median chlorophyll concentrations were similar across the lake, though values varied within each site (Figure 31). All sites were eutrophic based on geometric mean chlorophyll values.
- All sites were eutrophic based on geometric mean nitrogen values, with no spatial trends (Figure 32).
- Median ISS values increased with distance from the dam (Figure 34), with sites 1 and 36 each having a single, unseasonably high value (on August 18th and April 10th, respectively).
- Sites 1 and 13 had similar Secchi transparencies (geometric means ~ 5 feet) and the water was more transparent than sites 26 and 36 (geometric means ~ 3.5 feet)(Figure 35).
- There was an upward trend in phosphorus values with increasing distance uplake from the dam (Figure 33). Lake of the Ozarks was mesotrophic at the dam (Site 1) and in the Gravois Mills arm (Site 1-2) and was eutrophic for all other sites, based on geometric mean phosphorus data.