

Weaver Lake 2004 Sampling Results

Weaver Lake has water quality conditions that potentially inhibit recreational use. The water quality conditions for Weaver Lake have gradually declined since 2002. The average phosphorus concentrations have increased from 43 $\mu\text{g/L}$ in 2002 to 51 $\mu\text{g/L}$ in 2003. The excessive in-lake phosphorus was conducive for the development of algae blooms. The average chlorophyll-a concentration increased from 22 $\mu\text{g/L}$ in 2002 to 40 $\mu\text{g/L}$ in 2004. The average phosphorus and chlorophyll-a concentrations in 2004 were the highest observed since the implementation of the monitoring program in 1991. Despite relatively high phosphorus and chlorophyll-a concentrations, the water clarity conditions were excellent in which the average secchi depth measurement was 2.7 m. This was the highest average secchi depth measurement reported since 1993. This value was relatively high because of a clear water phase that occurred in May that contributed to secchi depth measurements of 7.6 and 6.2 m. The remaining secchi depth measurements ranged between 0.4 to 3.3 m. The water quality conditions began to degrade after 6.5 inches of rainfall occurred in early June. The increased watershed nutrient loading caused an increase in total phosphorus concentration from 32 $\mu\text{g/L}$ to 73 $\mu\text{g/L}$. Another increase in phosphorus concentration occurred from mid-June through early July due to the senescence of curlyleaf pondweed. Weaver Lake has dense mats of curlyleaf pondweed that frequently grow to the surface. Consequently, there was a substantial amount of internal loading due to the plant senescence. The in-lake phosphorus concentration increased from 44 $\mu\text{g/L}$ to 96 $\mu\text{g/L}$ after the senescence of curlyleaf pondweed. The released nutrients from curlyleaf pondweed senescence contributed to a substantial algae bloom. Chlorophyll-a concentrations increased from 10 $\mu\text{g/L}$ to 71 $\mu\text{g/L}$. After the senescence of curlyleaf pondweed, the algae blooms persisted throughout the summer in which water clarity conditions did not improve considerably until the end of September.

Sample Id	Sample Date	Secchi m	Temp °C	DO mg/L	DO %	Sp. Cond $\mu\text{S/cm}$	pH	TP $\mu\text{g/L}$	SRP $\mu\text{g/L}$	TN mg/L	Chl-a $\mu\text{g/L}$
WEAVER	27-Apr-04	1.60	10.9	14.0	127	0.36	10.30	32	3.6	0.99	21.8
WEAVER	12-May-04	7.57	16.9	10.3	107	0.28	9.21	32	25.0	0.89	1.8
WEAVER	25-May-04	6.15	14.7	10.2	100	0.35	8.71	32		0.76	2.7
WEAVER	08-Jun-04	3.27	22.6	10.1	118	0.34	8.53	73		0.92	10.0
WEAVER	21-Jun-04	2.90	21.1	9.6	108	0.34	8.39	44		1.05	16.2
WEAVER	06-Jul-04	1.00	22.5	8.6	100	0.37	9.43	52		1.59	71.2
WEAVER	19-Jul-04	0.70	27.0	12.8	160	0.36	9.68	96		2.49	159.8
WEAVER	02-Aug-04	0.93	25.0	9.6	117	0.38	8.93	63		1.66	58.9
WEAVER	16-Aug-04	1.00	22.2	11.5	132	0.36	7.88	51		1.71	48.6
WEAVER	07-Sep-04	0.39	21.4	8.1	92	0.37	7.53	39		1.11	16.9
WEAVER	27-Sep-04	3.06	19.2	10.3	111	0.37	7.32	31	1.7	0.99	18.1
	Mean	2.60		10.5	116	0.35	8.72	50	10.1	1.29	38.7
	Std.Dev.	2.35		1.7	19	0.03	0.92	20.7	12.9	0.52	46.3
	Summer Mean (May-Sept)	2.70		10.1	114.4	0.35	8.56	51.3	13.4	1.3	40.4

Secchi = Secchi Disc Transparency TP = Total Phosphorus TN = Total Nitrogen
 Sp. Cond = Specific Conductivity SRP = Soluble Reactive Phosphorus Chl-a = Chlorophyll a
 Note: Temperature, DO, DO%, Specific Conductivity and Ph are measured at the surface.



