PRAIRIE CROSSING: LAKE LEOPOLD

WATER QUALITY SUMMARY 2005

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INTRODUCTION:

Integrated Lakes Management (ILM) has performed water quality testing at Lake Leopold since 1995, before most of the site had been developed. We have seen the lake change dramatically over the years and have collected a lot of data. Due to the extensive database and the costs associated with collection and analysis, the community decided that for 2005 only minimal sampling would be performed. The samples collected were based on problems observed at the lake, such as heavy plant growth and high salt levels. Seven site visits were made to test for total phosphorous, chloride, chlorophyll *a*, algae and zooplankton. Diagnostic field testing for dissolved oxygen/temperature profiles, conductivity, pH, secchi, alkalinity, and chloride were also performed. This letter report also deviates from past reports since it includes only a short summary of our findings with recommendations.

SUMMARY

1. Aquatic Plants:

Eurasian water milfoil (EWM) and curly leaf pondweed (CLP) have become very dominant in the lake. Although other species have been found (see 2005 plant monitoring report), the dominant species during the late spring is CLP and EWM in the late summer. The overall rooted aquatic plant burden has increased dramatically during the last few years. Year to year, strategies for control of these two populations need to be reviewed since there have been complaints from swimmers and probably also from fishermen.

Spot treatments using Sonar (fluridone) have been used for the last two years at different locations (the outlet area in 2004 and the north bay in 2005). These treatments have been very effective in the short term. The use of sediment curtains has helped contain the herbicide in selected areas, thus protecting the greater lake habitat. According to the comments received by Donna Sefton, she recommends that herbiciding be done for three years in the same location in order to have a long term effect. This has not been done at Lake Leopold. For next year, there has been some discussion regarding herbiciding areas that are more heavily used by the public, the swimming area, fishing pier, and the semi-circular outcrop area. If CLP and EWM continue to expand, an early season / whole lake treatment may be recommended in future years.

EWM weevils have finally increased sufficiently in Sanctuary Pond to be effective against the EWM. Approximately 7 years ago EWM had become dominant in Lake Leopold, and had been successfully controlled by EWM weevils. Although some offspring of those weevils may be present and some may flush down from Sanctuary Pond, it is recommended that additional weevils be stocked in the lake this summer.

2. Algae:

Minor blue green algal blooms have occurred periodically during past years. The existence of a public beach makes it critical that populations of blue green algae be screened for toxicity. According to the attached chart, the worst algal bloom in 2005 occurred in mid October, after the swimming season had ended. Potentially toxic species of blue green algae have occurred at Lake Leopold this past season. This situation needs to be monitored much more aggressively based on new information which is available from the World Health Organization (WHO). A plan to monitor for this on a continuous basis is being submitted under separate cover from Keith Gray.

In mid August ILM ran an ELISA (enzyme-linked immunosorbent assay) screening test for microcystin. The results indicated that approximately 0.5 ppb of microcystin was present, which was lower than the WHO drinking water guideline of 1 ppb. Since it was below the WHO guidelines ILM did not send a sample to the Wisconsin State Lab of Hygiene for a quantitative amount.

Next year ILM hopes to purchase a microcystin screening kit that is more precise than the one we currently own. However, there are some toxins that ELISA tests cannot screen for, such as anatoxin from *Aphanizomenon*. Testing for anatoxin is very expensive and the samples need to be sent to a special lab for analysis. Although *Aphanizomenon* has been present in Lake Leopold, it has not been the dominant blue-green algae present in terms of biovolume.

Chlorophyll *a* concentrations at Lake Leopold averaged 8.3 ug/l over our seven water quality tests. Chlorophyll *a* is a way to measure the amount of algae in the lake. Algal blooms occur above 20 ug/l of chlorophyll *a*. This year an algal bloom was observed in October, with a chlorophyll *a* concentration of 25.2 ug/l. Typically Lake Leopold has chlorophyll *a* concentrations under 10 ug/l and frequently under 5 ug/l. Reasons for this can be functions of the drought, warm fall temperatures, natural eutrophication process, or any combination of other factors.

3. Water Movement:

A staff gage was installed at the outlet for Lake Leopold last spring. With the drought this year the lake was lower than we had observed in ten years, with no flow for 5 of the 7 site visits. The lowest elevation measured was 0.5 feet below normal water level. With the gage being present, a volunteer should read the gage on a more frequent basis, or a continuous water level monitor could be included as an option on the multiprobe sonde...

Technical studies undertaken during 2004 suggest that the hydraulic retention time of Lake Leopold is quite long : >3 years. As a consequence nutrients and other conservative pollutants will accumulate across time. ILM has recommended that a hydrologic and a nutrient budget should be prepared for the lake. Supplemental documentation of lake level and discharge should be undertaken to correlate rainfall with inflow and discharge. Efforts should be made to confirm that infiltration is being promoted by the plantings and landscaping associated with the complex.

4. Water Quality:

This year only total phosphorous and chloride were tested in Lake Leopold. The chloride concentration was higher than in other years probably due to the drought and the lack of water flow into the lake (see charts). The average chloride concentration for this year was 346 mg/l compared to 200 mg/l for 2004 and 250 mg/l for 2003. Most of this is due to road salt applications, since very little chloride occurred in the lake prior to 2001 when the Village began salting the roads. Since the lake is accumulating salt and is approaching the IL state standard of 500 mg/l, it is recommended that road salt be restricted in the Prairie Crossing development.

Total phosphorus concentrations were similar to previous years until October. The average total phosphorus without the October sample was 0.029 mg/l, which is similar to previous years (0.025 mg/l in 2004 & 0.042 mg/l in 2003). By including the October sample (0.123 mg/l, the 2005 annual average phosphorous concentration was 0.048mg/l. This is still below the IL State Standard of 0.05 mg/l for general use water quality.

Water clarity was significantly reduced in the north bay after the herbicide treatments (see chart). This difference in turbidity lasted throughout the summer months, even after the sediment curtain had been removed. Although some changes in turbidity between the two sites naturally occur due to wave action, there seemed to be more of a difference this year due to fewer plants in the north bay.

Secchi depth (ft) in Lake Leopold			
Date	Main Lake	North Bay	Comments
4/5/05	5.1	5.0	Pre herbicide treatment
5/10/05	6.0	3.3	Curtain in place, herbicide applied 5/3 & 5/24
6/7/05	12.3	8.9	Curtain still in place
7/14/05	10.5	6.3	Curtain removed 7/11
8/15/05	4.5	2.6	
9/21/05	3.9	3.0	
10/19/05	2.0	2.3	

5. Energy Relationships:

Lake plants can be classified as planktonic (floating) algae, attached algae, submerged aquatic plants, emergent aquatic plants, and floating aquatic plants. Primary productivity refers to the amount of biomass created by photosynthetic organisms across a defined amount of time, generally a year or a growing season. Trophic state indices or TSIs are an indirect method of measuring the amount of organic material (i.e. algae) generated during key stages in the growing season. While Lake Leopold's TSI's have not changed dramatically from year to year it is clear that the size of the rooted aquatic plant community has. Both submergent and emergent rooted aquatic plant communities have increased in spatial extent, density, and biomass. In future years more efforts should be put into mapping and assessment of the relative biomass of the plant communities.

Carlson's Trophic State Index (TSI) is a quick way to determine the health of a pond or lake using water clarity, total phosphorus, and chlorophyll *a* concentrations. The index indirectly measures the relative planktonic algae productivity across the growing season. It does not measure the productivity of rooted aquatic plants and that will clearly be increasingly important in Lake Leopold. The index therefore is becoming less significant as a predictor of performance characteristics of the Lake.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
TSI	54	53	54	52	53	50	51	58	49	56
Class	Eutrophic	Meso / Eutrophic	Eutrophic	Meso.	Meso / Eutrophic	Meso.	Meso.	Eutrophic	Mesotrop hic	Eutrophic

6 Bathymetric & Sediment Survey:

Bathymetric and sediment surveying were performed this fall on Lake Leopold. Since the lake is now 10 years old, this data should be compared to as-builts and to future maps of the lake. Major areas of sediment accumulation include the north bay & narrow "neck" section of the lake, southwest side of the island, and by the outlet. The average sediment thickness was only 5.2 inches (0.43 ft), and the thickest area measured was 1.6 feet. Thicker areas may exist but were not picked up with our 144 probe locations. The deepest section of the lake was 14.9 feet, with an average depth of 6.5 feet.

RECOMMENDATIONS:

PLANTS

- EWM needs to be controlled since it is out-competing the native vegetation in the lake. Herbiciding selected areas will only control the growth in those areas, so we recommend that EWM weevils be installed in the lake. A large number or several additions of weevils may be needed due to predation by sunfish. Although some weevils may be present in the lake they are likely to be in very small numbers and it will take a long time to have an effect on the milfoil.

- CLP also needs to be controlled since it has expanded throughout the lake. The best treatment appears to be spot herbicide treatments. Although several new areas are planned for this year (the beach, fishing pier and stone outcrop areas), it has been recommended that three years of treatment occur in the same area to control turion formation. However, due to the use of sediment curtains, only limited areas can be treated. In order to treat more areas either ILM or Prairie Crossing will need to purchase longer curtains, or start treatments earlier so that more areas can be treated.

- Back planting areas that have been herbicided with other species may be helpful in controlling the nuisance species. It is critical that the plants chosen occupy the same water depth and are aggressive. Since EWM, CLP and coontail all occupy about the same depth (~ 2 ft – 6 ft depths), sago pondweed, chara, and V*allisneria* may be successful. Pickerel weed may be successful in shallow areas.

- Yearly aquatic plant surveys should occur to determine changes in the aquatic plant community.

- EWM weevil stem counts are recommended.

ALGAE

- Next year ILM is planning on purchasing a microcystin ELISA test for microcystin with a broader range 0.15 – 5 ppb. This will give us a better idea on the amount of microcystin present and if there is a problem that needs further testing. ILM has only been testing the lake monthly from April through October, but the chart shows that the blue-green algal blooms occurred last year in August and again in October. Since these represent monthly tests, some blooms may have been missed.
    - Due to the potential for toxic algal blooms to occur in the lake, especially in the swimming area, ILM recommends that more frequent testing occur during the late summer and early fall. Weekly or biweekly plankton tows should be made at the beach and if a bloom is occurring a sample should have an ELISA test and confirmation by a laboratory if needed. A quick response is needed if signs need to be posted warning people of this hazard for dogs or children drinking the water. Because of the potential health implications ILM suggests that a briefing be held on behalf of the homeowners association.

WATER QUALITY

- Although nutrients are fairly low in the lake, they are concentrating due to the long retention time in the lake. Phosphorus release from the sediments is probably occurring during anoxic conditions at the lake bottom. Additional sediment testing and anoxic water testing of phosphorous is recommended to determine if internal phosphorus loading is occurring. This information is needed to work on a nutrient budget and to determine where the phosphorus is originating from. This will be important for predictions of future productivity and lake performance.

- Donna Sefton had recommended that sediment samples be taken at multiple locations and tested for iron (Fe), Manganese (Mn), organic matter, pH, exchangeable N, and exchangeable P. This information would help estimate internal nutrient loading and predict where milfoil and curly leaf will be at nuisance levels.

- A hydrologic budget should be performed to determine water inflows and outflows. This information is required before a nutrient budget can be created. Efforts should be made to estimate or monitor groundwater contributions to the main lake.

- A volunteer should read the staff gage at the outlet on a weekly basis and more frequently after heavy rain events. Possibly a continuous water level recorder should be purchased so that more frequent water level elevation is collected.

- Road salt applications in areas that drain to the lake should be restricted or minimized. Alternative deicing compounds should be researched.

FISHERIES

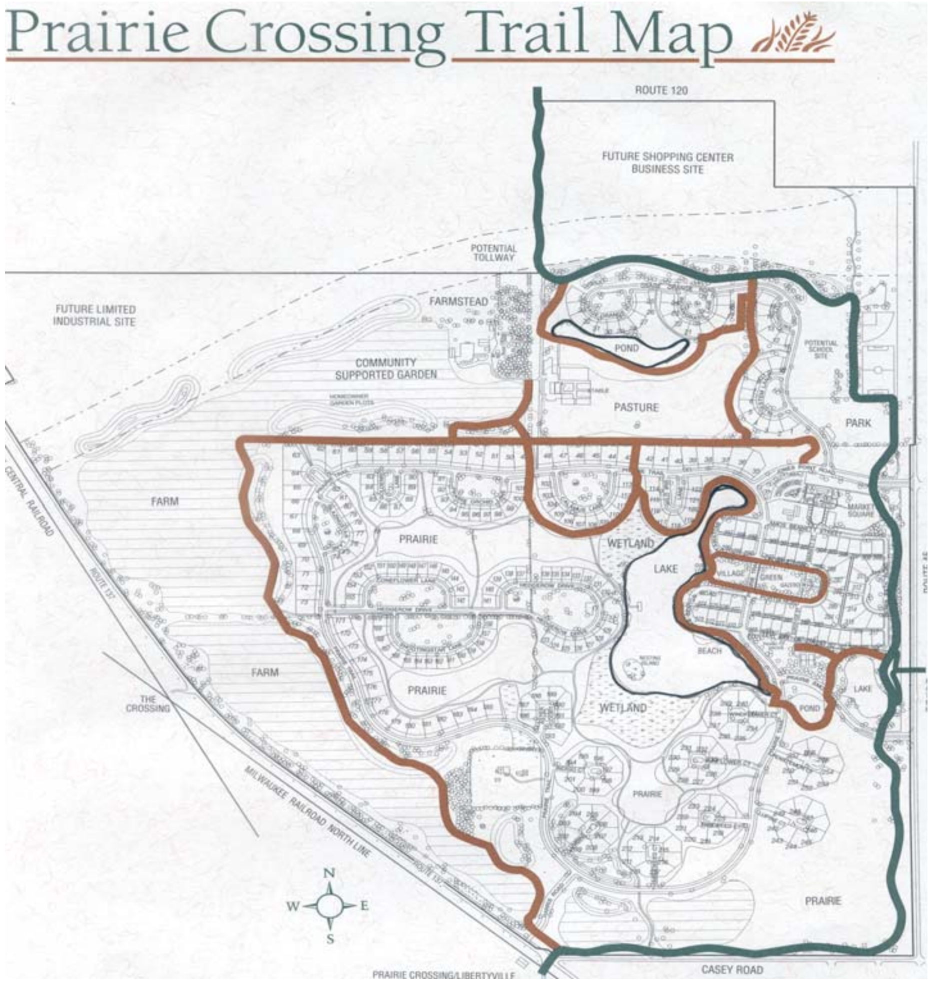
- The Donna Sefton report had recommended removal of stunted sunfish which could be done by installing predator fish such as tiger muskies, bowfin or gar, or removing fish by seining, or both. She recommends that this be done prior to installing EWM weevils. This aspect needs to be discussed further.

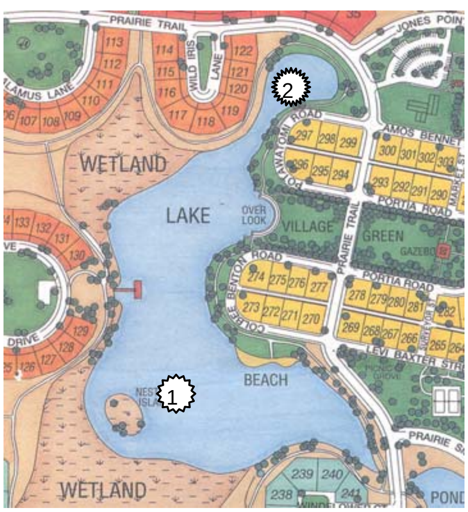
OTHER

- Goose populations and gull populations have continued to remain high despite some efforts at control. ILM suggests that volunteers be used to do estimates of weekly numbers of resident birds. These data can contribute to the construction of a detailed nutrient budget for the Lake.

- We believe that community seminars should be held concerning the performance of the lake.

- Additional monitoring could be done by or getting a resident to be a Volunteer Lake Monitor (VLMP), which involves monthly testing that is collected by the Illinois Environmental Protection Agency.





Prairie Crossing Site Map and Lake Leopold Monitoring Stations

Figure 1

Prairie Crossing Site Map and Lake Leopold Monitoring Stations.

APPENDICES

DESCRIPTION OF MONITORING PARAMETERS

Field Monitoring

Dissolved oxygen (D.O.) *is needed for aquatic life to survive. A healthy environment for fish has D.O. concentration above 5 mg/L. Below 5 mg/L, fish become stressed. When the D.O. reaches 3 mg/L, fish may begin to die. Dissolved oxygen varies depending day/night cycles, the amount of direct sunlight, and the temperature. D.O. drops at night and is highest on sunny days. D.O. is also much higher in cool water in the spring and fall, than during the summer. The Illinois State standard for D.O. is 5 mg/L at all times, and should not fall below 6 mg/L during at least 16 hours out of any 24 hour period (IEPA Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter 1: Pollution Control Board, State of Illinois Rules and Regulations, 1993).*

pH *Some changes in pH occurs naturally and is related to the amount of algal growth in the lake. Most lakes in this area have a pH of greater than 7 and often in the 8 range. pH measures the acidity and alkalinity of the water. A pH of 7.0 is neutral, below 7 is acidic and above 7 is alkaline. The pH scale is logarithmic, so a pH change of 1 unit is very significant.*

Alkalinity *measures the buffering capacity of the lake. Normal alkalinity for this region is about 90-250 mg/L.*

Secchi *indicates the clarity of the lake water. A high secchi depth indicates that the water is quite clear and free of algae and/or suspended sediments. A low secchi depth of less than 3 feet indicates that the water is very turbid. Turbidity could be due to either planktonic algae or suspended sediments.*

Chemical Analysis

Chloride *is usually tested in lake waters as an indicator of human activity. Natural waters away from human influence usually have chloride measurements below 20 mg/L. Sources of chloride include agricultural chemicals, human and animal wastes, and road salt.*

Conductivity *measures the water's ability to conduct an electrical current, and is influenced by the amount of dissolved ions in the water. Conductivity levels vary dramatically from site to site. Distilled water has essentially no conductivity, while seawater is about 50,000 μmhos/l. Typical streams have a conductivity ranging from 150 to 3000 μmhos/l.*

Total phosphorus (P) *has been the nutrient most often measured in lakes. Phosphorus is the nutrient that stimulates plant growth in most lakes. Total phosphorus represents a sum of all of the different forms of phosphorus in the water column, both dissolved and particulate. Total P includes orthophosphorus, phosphorus contained within organisms and, phosphorus attached to sediments. Orthophosphorus is the dissolved inorganic form of phosphorus that can be used easily by plants. Organisms such as algae contain small amounts of phosphorus that are released when the organism dies. Only very small amounts of phosphorus are needed to stimulate aquatic plant growth.*

The standard for total P is 0.05 mg/L, which is a guideline for natural waters. Urban and rural lakes usually have a much higher total phosphorus level than 0.05 mg/L. Although the state exceedence standard is 0.05 mg/L for natural water (IEPA Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter 1: Pollution Control Board, State of Illinois Rules and Regulations, 1993), many lakes are well above that level because of nutrient loading in stormwater runoff.

Chlorophyll *a*, *which is present in plants and algae, is the primary green pigment necessary for photosynthesis to occur. Measuring the amount of chlorophyll a in the water gives a rough indication of the amount of algae present in the lake. The pheophytin a, and trichromomatic chlorophyll a, b, and c represent different pigments that occur in algae. Pheophytin a, in particular, is a degradation product of chlorophyll a that interferes with its analysis. Therefore, corrected chlorophyll a represents the amount of algae present in the lake after adjusting for the presence of pheophytin a.*

FIELD METHODS FOR WATER QUALITY TESTING

FIELD MONITORING:

Water clarity is measured using a 20-cm secchi disk, a black-and-white painted metal disk attached to a cord which is marked at one-foot intervals. The disk is lowered into the water to the point at which the painted divisions are no longer visible. This depth is recorded as the secchi depth, which is an indicator of the amount of water clarity. At least two readings are taken at every sample site.

Dissolved oxygen (DO) is measured using a Hydrolab Quanta Water Quality Monitoring System, a digital multiprobe meter which gives readouts of temperature, dissolved oxygen, pH, and conductivity concentrations. The meter is calibrated at ILM against a solubility table for oxygen in water at various temperatures. The meter is calibrated based on temperature and barometric pressure. Calibrated is typically only needed once per day. To operate the meter, Quanta Transmitter is lowered into the water at one-foot depth intervals and measurements recorded. The Quanta is routinely compared with DO analyses using a HACH kit (model OX-2P). If the differential is greater than 1 mg/l, the readings are regarded as invalid and both the meter and HACH tests are redone.

Water temperature is recorded using the Hydrolab Quanta Water Quality Monitoring System, as well as with a backup non-mercury thermometer.

pH measurements are taken using the Hydrolab Quanta Water Quality Monitoring System and a back up test is done with a LaMotte model HA analog pH meter. Both meters are standardized before use in the field by inserting the probe into buffer solutions of pH 7.0 and 10.0, and calibrating the meter to the appropriate pH. PH buffers are chosen to be slightly above and below the expected pH encountered in the field. The meter is set to the appropriate water temperature for each site, the probe inserted into the water column, and the pH reading then recorded for each foot of depth.

Conductivity measurements are taken in the field using the Hydrolab Quanta Water Quality Monitoring System. The meter uses a two-point calibration, distilled water and 500 umhos/cm. Conductivity is read per foot of water depth.

Chloride measures the amount of salt in the water. A Hach Model 8-P, 5-400 mg/l test kit is used for field analysis. Frequently laboratory backup is also employed. Both high range 0 – 400 mg/l and low range 0-100 mg/l can be used. The method utilized involves titrating silver nitrate into the mixing bottle until a color change is noted. The amount of chloride is then calculated from the number of drops added.

Alkalinity is measured using a HACH model AL-DT with digital titrator. A sulfuric acid titration cartridge is attached to the titrator body. A 100-ml water sample is collected and placed in a glass flask. Phenolphthalein indicator is added to the sample and swirled to mix. Bromcresol green-methyl red indicator is then added to the sample and mixed. Using the digital titrator, the sample is titrated with the sulfuric acid standard solution to a light pink color, and the concentration of alkalinity recorded from the digital reading. Periodically the kit results are graded against a known standard solution provided by the manufacturer.

A **plankton tow** from Wildlife Supply Company, Wildco 48 C60, is used for specimen collection. The plankton tow is comprised of mesh netting with a weighted chamber and rope attachment. The plankton tow is thrown several feet from the boat and pulled through the water at a depth of one to two feet. The clamp attachment on the outlet hose is released and the water poured from the collection chamber into the specimen bottle, which is then reviewed under a microscope back at ILM. The tow is cleaned between sampling sites with a solution of Chlorox. Chlorox residual is rinsed off with distilled water.

CHEMICAL TESTING:

Water samples for laboratory analysis are collected using Wildlife Supply Company's Wildco model 1930-G62 beta bottle. The bottle is lowered into the water column to the appropriate depth (2 feet for all sites except the deep sample taken at 10 feet). When the weighted metal attachment is dropped along the rope from the surface, the collection chamber's doors are released and the water sample is thus captured and retrieved. To avoid contamination, the beta bottle is periodically cleaned with a solution of liquid Alconox and rinsed with tap water. Prior to specimen collection, the bottle is rinsed with lake water at the site.

All samples are placed on ice in the field immediately after collection. Several tests can be conducted from each sample bottle. Bottles used for collection are clean bottles provided by Northern Lakes Service. A 1-liter unpreserved bottle is collected and tested for chloride, total suspended solids, and conductivity. A 250-ml bottle preserved with sulfuric acid is collected from the lake and tested for the nitrogen series and total phosphorus. A separate 1-liter unpreserved bottle is collected for chlorophyll *a* testing. Following any additional preparation required for each sample, the samples are placed on ice and shipped overnight to Northern Lakes Service in Crandon, Wisconsin for laboratory analysis.

Chloride samples are placed in 250-ml plastic containers with no preservative.

Chlorophyll *a* samples are composites taken from 2, 4, and 6-foot depths when the lake is stratified. When the lake is well mixed, chlorophyll *a* samples are collected only at a 2-foot depth. The samples are placed in 1-liter plastic bottles with no preservatives. The samples are maintained at a temperature of approximately 4 ° C upon collection and during shipment.

Total phosphorus samples are placed into 250-ml plastic containers with sulfuric acid preservative. The samples are maintained at a temperature of approximately 4 deg. C upon collection and during shipment.

Algae samples are collected using a 250-ml plastic bottle that contains 1% Lugols iodine. Sample depth is at 2-ft when the lake is well mixed, and is a composite sample a 2, 4, and 6-ft when the lake is stratified. Samples are sent to Water's Edge for analysis.

Zooplankton samples are also collected at 2-ft when the lake is mixed and 2, 4, and 6-ft when the lake is stratified. A total of 2 liters of water are collected and sieved through the bottom portion of a plankton tow. The resulting 20 – 40 mls represent a concentrated sample. Samples are preserved in 70% ethyl alcohol and are sent to Water's Edge for analysis.

Water Quality Results

Lake Leopold at Prairie Crossing

2005 Trophic State Index

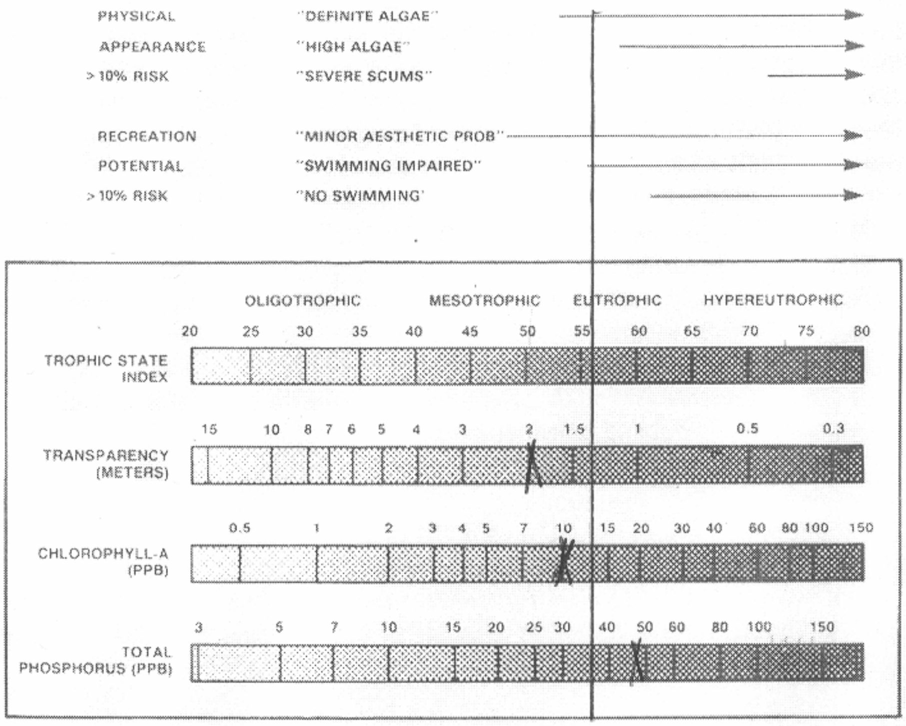


Figure 4-5.—Carlson's Trophic State Index related to perceived nuisance conditions (Heiskary and Walker, 1987). Length of arrows indicate range over which a greater than 10 percent probability exists that users will perceive a problem.

From: The Lake and Reservoir Restoration Guidance Manual, Second Edition, U. S. Environmental Protection Agency, August 1990.

Chemical analysis of Lake Leopold

Site 1 Location: About 200 feet southwest of Beach

Samples collected at a 2 foot depth. The values are mg/l

	BOD 5-Day	C.O.D	Chloride as CL	Conduct. umhos	Nitrogen Ammonia as N	Nitrogen Nitrate/ Nitrite	Nitrogen Kjeldahl	Phos. Dis. as P	Phos. Total	Tot. Susp. Solids	Total Susp. Volatile Solids	Turbidity NTU	Total Solids	Tot. Dis. Solids	Fecal Coliform colonies/100 ml
*Standard**	*5*	*30*	500	NA	15/0.01**	NA	NA	*0.01*	0.05	*15*	NA	NA	NA	1000	200
Avg. for 1995	ND	17	25	465	0.17	0.66	0.79	0.005	0.034	12	ND	NA	NA	NA	NA
Avg. for 1996	ND	19	40	462	0.25	0.34	0.91	0.008	0.044	8	ND	NA	332	NA	NA
Avg for 1997	ND	19	99	607	0.17	0.26	0.95	0.004	0.026	3	ND	NA	423	NA	NA
Avg for 1998	ND	21	49	475	0.06	0.23	0.60	0.007	0.042	6	34	NA	396	NA	NA
Avg. for 1999	ND	21	30	420	0.16	0.11	0.67	ND	0.041	ND	ND	NA	278	NA	NA
Avg. for 2000	1	23	34	403	0.03	0.16	0.78	0.005	0.034	6	5	NA	280	NA	NA
Avg. for 2001	2	21	294	1150	0.03	ND	0.92	0.007	0.031	1	ND	NA	823	NA	NA
Avg. for 2002	1	22	230	1065	0.09	0.11	0.76	ND	0.029	3	2	5.8	725	NA	11
Avg. for 2003	NA	NA	250	1075	ND	0.01	1.00	0.0018	0.042	4.2	1	5.3	678	616	NA
Avg. for 2004	< 3	21	200	NA	< 0.2	< 0.05 / < 0.4	0.87	< 0.010	0.025	< 3	< 3	2.6	633	NA	NA
4/5/05	NA	NA	298	NA	NA	NA	NA	NA	< 0.01	NA	NA	NA	NA	NA	NA
5/11/05	NA	NA	319	NA	NA	NA	NA	NA	0.027	NA	NA	NA	NA	NA	NA
6/7/05	NA	NA	326	NA	NA	NA	NA	NA	0.022	NA	NA	NA	NA	NA	NA
7/14/05	NA	NA	364	NA	NA	NA	NA	NA	0.034	NA	NA	NA	NA	NA	NA
8/15/05	NA	NA	376	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	NA	NA
9/21/05	NA	NA	377	NA	NA	NA	NA	NA	0.043	NA	NA	NA	NA	NA	NA
10/19/05	NA	NA	361	NA	NA	NA	NA	NA	0.123	NA	NA	NA	NA	NA	NA
Avg. for 2005	NA	NA	346	NA	NA	NA	NA	NA	0.048	NA	NA	NA	NA	NA	NA

*IL State Standards (Title 35, Subtitle C Water Pollution, IEPA 1998) or **typical limnological recommended concentrations**

** Ammonia nitrogen is dependent on pH and temperature. At pH 9 & temp 80°C, std = 0.1 mg/l. At pH 7 and 65° temp and below std = 15 mg/l

*** Dredging standard for return water

represent concentrations above State Standards or Recommended Maximum Concentration

˚ Samples collected at different times and somewhat different parameters this year, using LCHD methods

SITE 1 Chlorophyll Results — The values are ug/l

	Corrected Chlor. *a*	Pheoph. *a*	Trichro. Chlor. *a*	Trichro. Chlor. *b*	Trichro. Chlor. *c*
*Standard**	*20*				
Avg for 1995	trace				
Avg. for 1996	3.19				
Avg. for 1997	2.64				
Avg. for 1998	3.03	1.81	4.17	3.50	1.13
Avg. for 1999	4.90	1.77	5.40	0.36	0.61
Avg. for 2000	8.75	0.54	9.18	0.15	1.40
Avg. for 2001	4.85	0.39	4.73	0.30	0.86
Avg. for 2002	4.35	0.32	4.55	0.03	0.38
Avg. for 2003	16.30	0.08	16.36	0.06	1.14
Avg. for 2004	1.90				
4/5/05	5.5	ND			
5/10/05	ND	2.12			
6/7/05	1.9	ND			
7/14/05	4.9	0.35			
8/15/05	6.2	1.54			
9/21/05	14.6	ND			
10/19/05	25.2	1.92			
Avg. for 2005	8.3	0.85			

SITE 1 Deep Sample

	Nitrogen Ammonia as N	Nitrogen Nitrate/ Nitrite	Nitrogen Kjeldahl	Phos. Total	BOD 5-Day	COD
Avg.1995	0.12	0.67	NA	NA	ND	NA
Avg.1996	0.30	0.67	NA	0.027	ND	19
Avg.1997	0.22	0.06	0.77	0.017	ND	20
Avg.1998	ND	0.03	NA	0.050	ND	20
Avg.1999	0.14	ND	0.73	0.135	ND	20
Avg. 2000	0.06	ND	NA	0.030	NA	NA
Avg. 2001	ND	ND	0.79	0.035	2.0	21
Avg. 2002	0.04	ND	0.76	0.028	1.0	24
Avg. 2003	0.24	ND	2.00	0.055	ND	32
Avg. 2004	< 0.19	NA	0.71	0.03	2	18.4
4/5/05	Chloride N. Bay = 568 mg/l					
5/10/05	No deep samples collected					
6/7/05	No deep samples collected					
7/14/05	No deep samples collected					
8/15/05	No deep samples collected					
9/21/05	No deep samples collected					
10/19/05	No deep samples collected					

Site 3 Location: North Bay — Samples are mg/l

	Chloride	Cond. umhos	Nitrogen Ammonia N	Nitrogen Nitrate/N	Nitrogen Kjeldahl	Phos. Dis. as P	Phos. Total	Tot. Susp. Solids
Avg. for 1996	NA	NA	0.18	N/A	N/A	0.020	0.038	5.0
Avg. for 1997	134	605	0.13	0.21	0.84	ND	0.037	10.0
Avg. for 1998	48	544	0.06	0.13	0.56	0.003	0.047	4.4
Avg. for 1999	32	430	0.16	0.17	0.74	0.003	0.044	ND
Avg. for 2000	35	440	0.02	0.16	0.87	0.004	0.029	3.8
Avg. for 2001	273	1125	0.04	ND	1.10	0.004	0.039	3.5
Avg. for 2002	233	1050	0.08	0.10	0.86	ND	0.031	3.3
Avg. for 2003	254	NA	0.08	ND	1.274	ND	0.041	3.4
Avg. for 2004	NA	NA	< 0.05	NA	0.83	< 0.01	0.024	2.6
4/5/05	NA	NA	NA	NA	NA	NA	0.010	NA
5/10/05	NA	NA	NA	NA	NA	NA	NA	NA
6/7/05	NA	NA	NA	NA	NA	NA	0.037	NA
7/14/05	NA	NA	NA	NA	NA	. NA	0.015	NA
8/15/05	NA	NA	NA	NA	NA	NA	0.173	NA
9/21/05	NA	NA	NA	NA	NA	NA	0.05	NA
10/19/05	NA	NA	NA	NA	NA	NA	NA	NA
Avg. for 2005	NA	NA	NA	NA	NA	NA	0.057	NA

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Field testing of Lake Leopold

Site 1 Location: Southwest of Beach	DO (surface)	DO (bottom)	Depth (ft)	pH	Secchi (ft)	PAR* (ft)	Temp oC (surface)	Temp oC (bottom)	Alkalinity (mg/l)	Conduct. umhos	Chloride	IEPA Color	Suspended Sediment	Algae	Weeds	Odor
Avg. for 1995	9.1	7.1	11.6	8.5	4.2	7.6	20.8	18.1	92	NA	NA					
Avg. for 1996	9.5	5.7	11.5	8.1	2.5	4.5	16.8	13.8	107	NA	NA					
Avg. for 1997	8.8	5.8	12.5	8.2	3.1	5.6	17.3	14.9	107	NA	NA					
Avg. for 1998	9.3	4.6	13.6	8.4	5.4	9.7	20.2	17.0	124	487	NA					
Avg. for 1999	8.9	5.7	12.5	8.3	5.2	9.3	19.0	17.4	127	272	NA					
Avg. for 2000	8.6	3.7	12.4	8.3	5.1	9.1	19.2	17.3	120	342	NA					
Avg. for 2001	9.6	6.9	13.8	8.5	6.3	11.3	18.4	15.9	111	1250	NA					
Avg. fpr 2002	9.7	7.3	11.3	8.5	5.6	10.0	18.5	15.7	129	1125	267					
Avg. for 2003	9.4	5.4	12.6	8.4	4.5	8.1	18.6	16.5	111	1180	300					
Avg. for 2004	8.8	6.4	12.4	8.0	5.5	9.9	17.9	16.5	137	1016	220					
4/5/05	11.3	10.1	12.3	7.8	5.1	9.2	11.9	10.0	125	1406	1424	#3 Lt. yellow	none	none	none	none
5/10/05	10.8	11.6	12.1	8.5	6.0	10.8	16.5	12.2	117	1470	400	# 13 lt. green	none	none	none	none
6/7/05	9.2	16.9	12.5	8.9	12.3	22.1	23.7	19.6	67	1275	320	# 12 yellow	none	none	slight	none
7/14/05	7.9	8.1	12.3	9.7	10.5	18.9	25.6	25.0	51	1256	360	# 3 Lt. yellow	none	slight	slight	none
8/15/05	3.8	1.1	12.2	7.8	4.5	8.1	24.3	23.2	64	1468	380	# 15 lt. brown	moderate	slight	slight	none
9/21/05	8.9	1.6	12.2	8.6	3.9	7.0	21.6	20.9	57	1490	380	# 9 green	slight	slight	slight	none
10/19/05	8.8	2.3	12.0	8.5	2.0	3.6	13.7	13.4	83	1560	400	#17 lt. yellow	slight	slight	slight	none
Avg. for 2005	8.7	7.4	12.2	8.5	6.3	11.4	19.6	17.8	81	1418	523					

* PAR Photosynthetic Active Radiation = roughly 1.8 X secchi depth based on Lake County Health Dept. data for light transmission.

Water level - measured at the outlet
NWL = 0.92 ft

		Compared to NWL
Avg. for 1998	+ 1.7 inches	
Avg. for 1999	-0.13 inches	
Avg. for 2000	+ 1.4 inches	
Avg. for 2001	+ 0.6 inches	
Avg. for 2002	+ 0.9 inches	
Avg. for 2003	+ 0.4 inches	
Avg. of 2004	+ 0.8 inches	
	Gage	Compared to NWL
4/5/05	1.09 ft.	0.17 ft.
5/10/05	0.98 ft.	0.06 ft.
6/7/05	0.89 ft.	-0.03 ft.
7/14/05	0.42 ft.	-0.5 ft.
8/15/05	0.46 ft.	-0.46 ft.
9/21/05	0.44 ft.	-0.48 ft.
10/19/05	NA	NA

SITE 2 Location: North Bay	DO (surf.)	DO (bottom)	Depth (ft)	pH	Secchi (ft)	Conduct. umhos (field)	Temp oC (surface)	Temp oC (bottom)
Avg. 1996	8.1	4.1	10.1	8.3	2.1	NA	21.4	13.4
Avg. 1997	9.1	5.3	10.3	8.4	2.7	NA	18.5	14.5
Avg. 1998	8.9	2.9	9.5	8.4	3.8	464	19.9	17.3
Avg. 1999	8.6	5.4	10.2	8.4	4.2	296	19.3	17.2
Avg. 2000	9.2	5.4	10.6	8.3	5.2	349	19.5	16.3
Avg. 2001	9.8	5.8	10.2	8.4	4.2	1245	18.9	16.3
Avg. 2002	9.7	6.2	10.1	8.5	4.8	1145	20.6	16.1
Avg. 2003	9.5	3.7	9.8	8.5	3.9	1178.5	18.9	16.3
Avg. 2004	8.5	5.6	10.6	8.0	4.8	1012.3	17.9	16.2
4/5/05	11.3	12.9	10.5	7.7	5.0	1427*	11.3	12.9
5/10/05	10.8	15.8	11.0	8.2	3.3	1490	17.7	12.3
6/7/05	8.0	9.7	11.0	8.5	8.9	1413	24.5	17.9
7/14/05	7.0	4.4	10.1	8.6	6.3	1388	25.7	24.6
8/15/05	5.0	1.6	10.5	7.6	2.6	1439	24.1	23.3
9/21/05	8.5	1.1	10.3	8.8	3.0	1470	22.1	21.0
10/19/05	9.4	0.3	10	8.7	2.3	1570	14.4	14.4
Avg. 2005	8.6	6.5	10.5	8.3	4.5	1462	20.0	18.1

* 4/5/05 Bottom conductivity = 5,520

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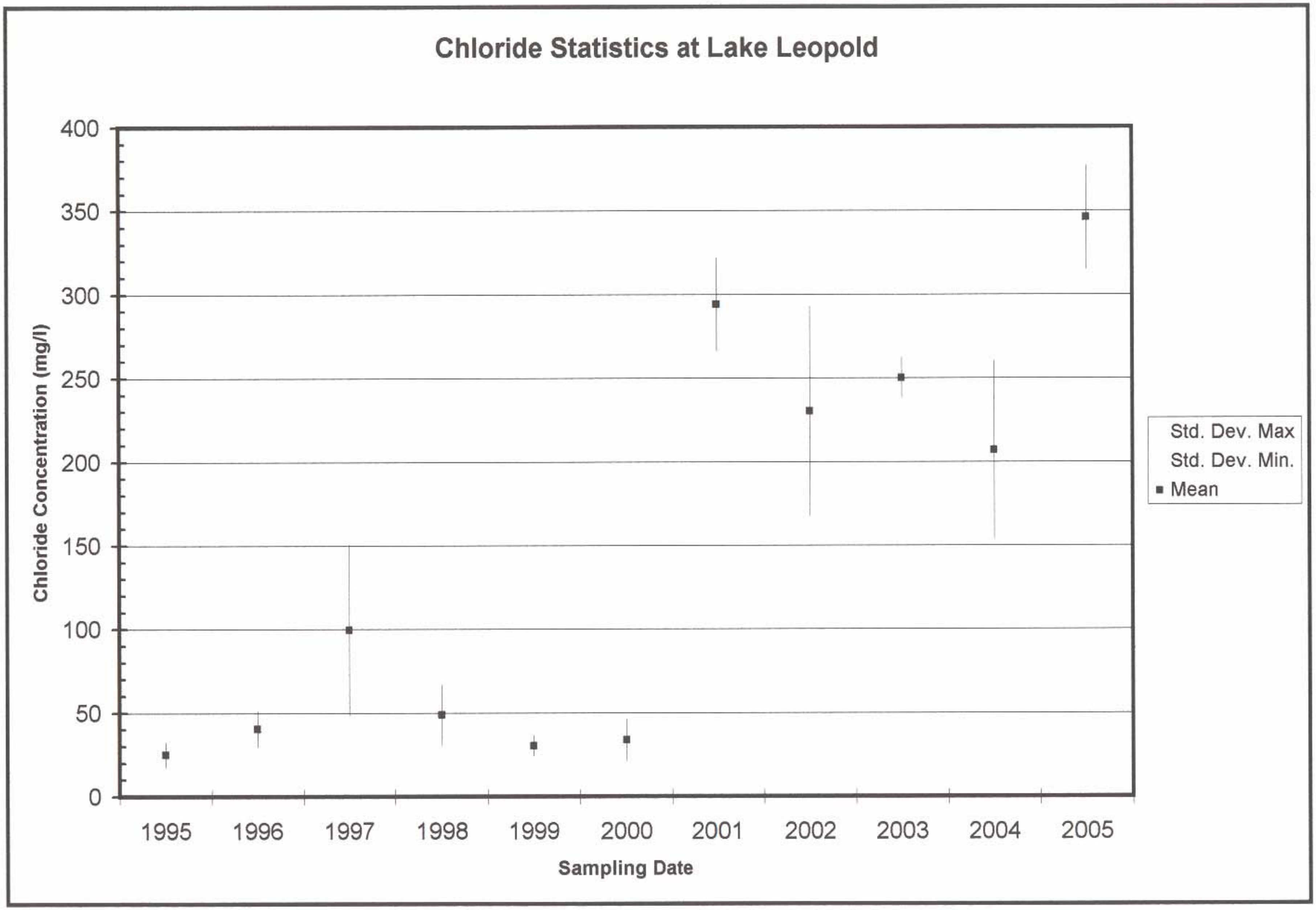
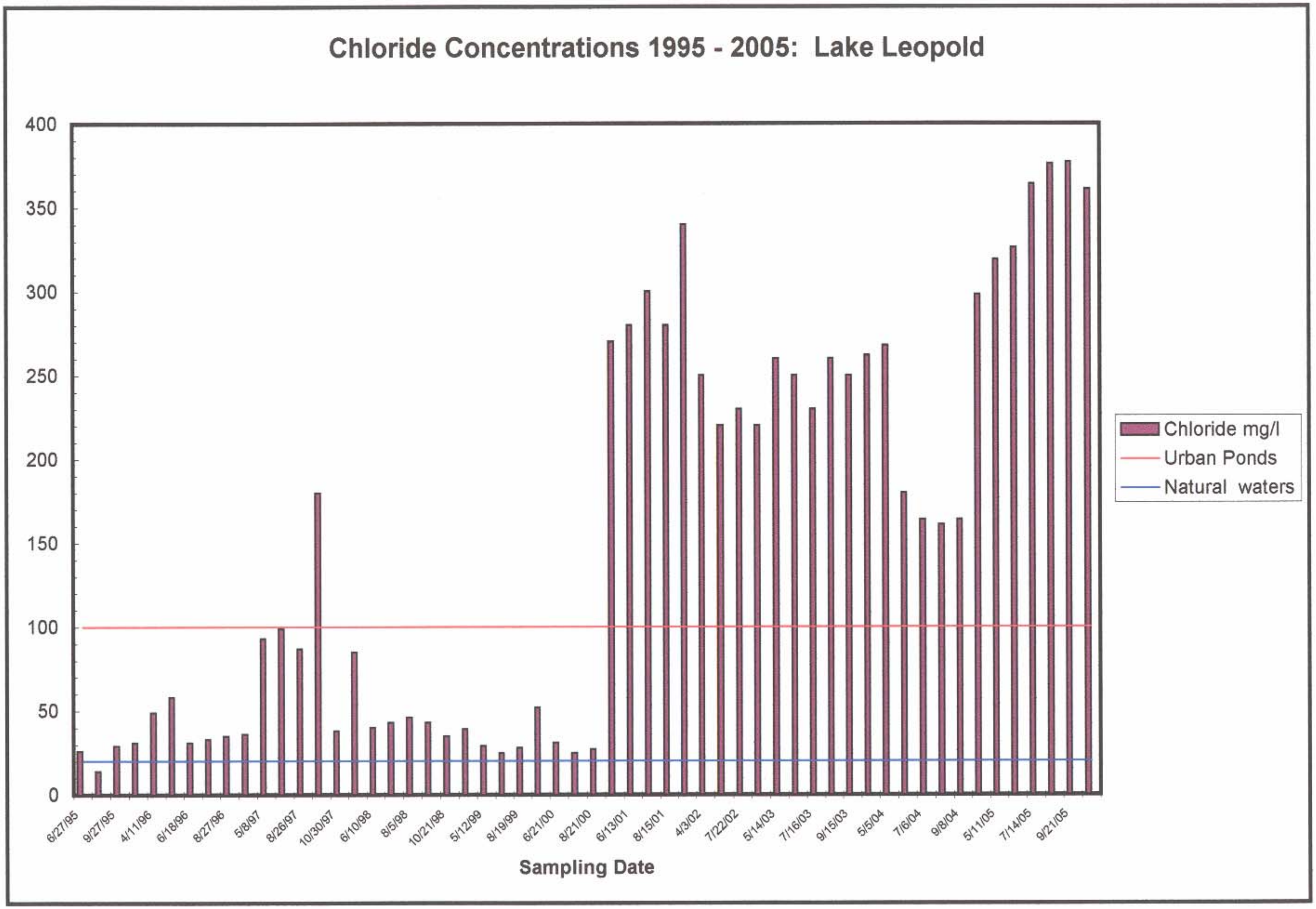
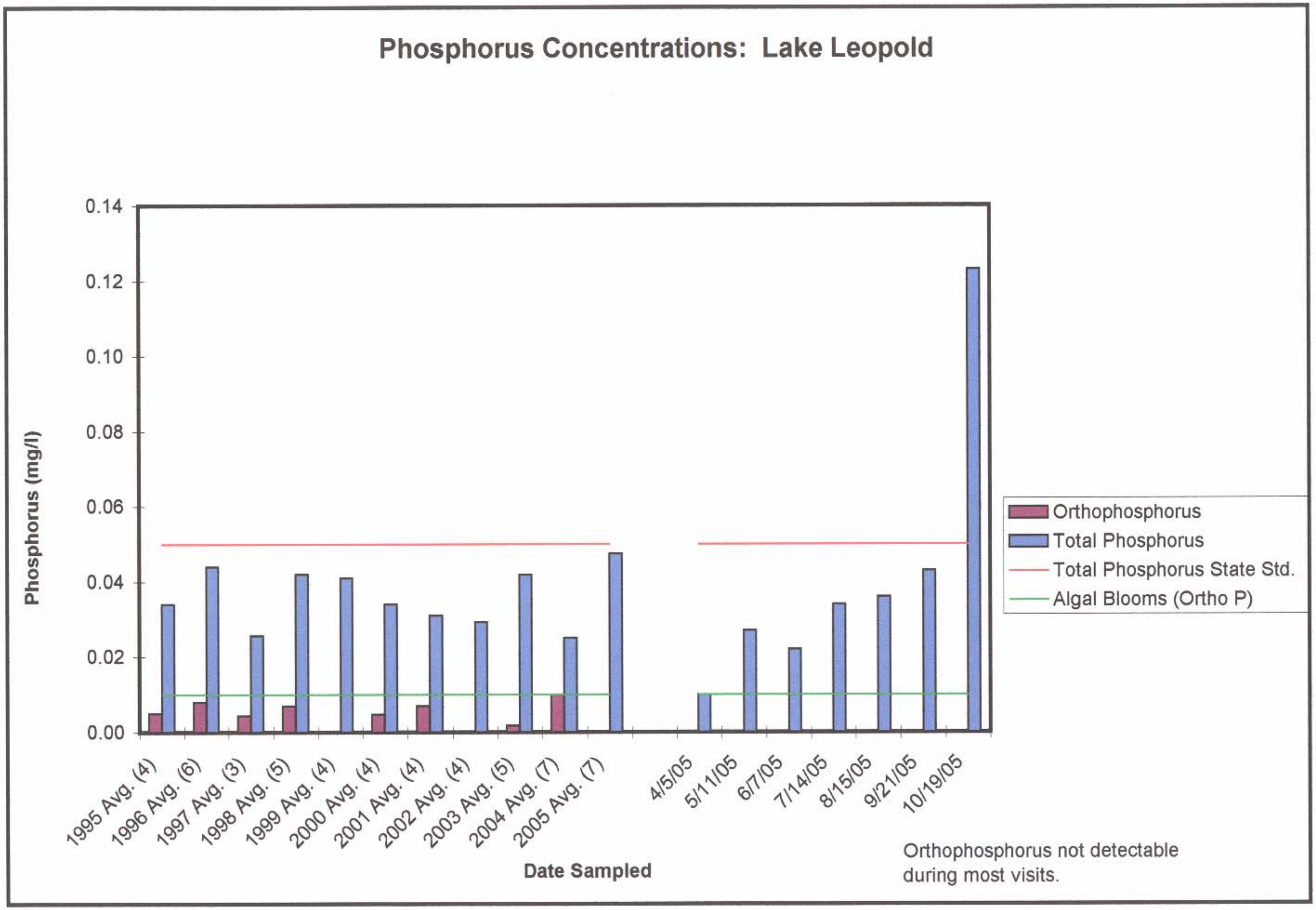

Chloride Statistics at Lake Leopold
Chloride Concentration (mg/l)
400
350
300
250
200
150
100
50
0
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Sampling Date
Std. Dev. Max
Std. Dev. Min.
Mean

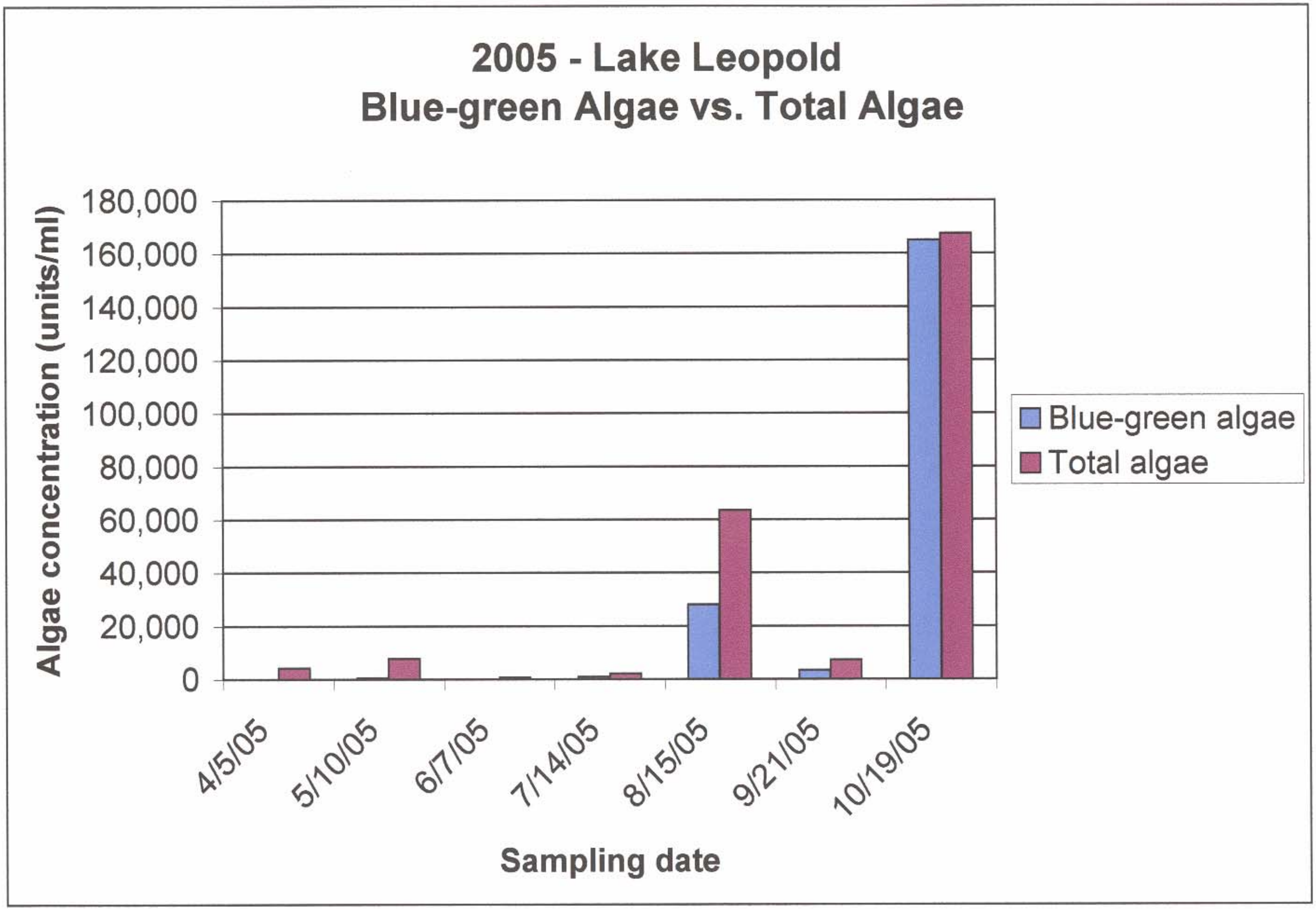


PXLWQ2005.xls



Phosphorus Concentrations: Lake Leopold
Phosphorus (mg/l)
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1995 Avg. (4)
1996 Avg. (6)
1997 Avg. (3)
1998 Avg. (5)
1999 Avg. (4)
2000 Avg. (4)
2001 Avg. (4)
2002 Avg. (4)
2003 Avg. (5)
2004 Avg. (7)
2005 Avg. (7)
4/5/05
5/11/05
6/7/05
7/14/05
8/15/05
9/21/05
10/19/05
Date Sampled
Orthophosphorus
Total Phosphorus
Total Phosphorus State Std.
Algal Blooms (Ortho P)
Orthophosphorus not detectable
during most visits.

Biological Sampling



2005 - Lake Leopold
Blue-green Algae vs. Total Algae
Algae concentration (units/ml)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
4/5/05
5/10/05
6/7/05
7/14/05
8/15/05
9/21/05
10/19/05
Sampling date
Blue-green algae
Total algae

Lake Leopold - Algae Analysis Summary, 2005

Taxa	Division	4/5/05 Rel. Abund. (%)	4/5/05 Rel. Biovol. %	4/5/05 Conc. (units/mL)	5/10/05 Rel. Abund. (%)	5/10/05 Rel. Biovol. %	5/10/05 Conc. (units/mL)	6/7/05 Rel. Abund. (%)	6/7/05 Rel. Biovol. %	6/7/05 Conc. (units/mL)	7/14/05 Rel. Abund. (%)	7/14/05 Rel. Biovol. %	7/14/05 Conc. (units/mL)	8/15/05 Rel. Abund. (%)	8/15/05 Rel. Biovol. %	8/15/05 Conc. (units/mL)	9/21/05 Rel. Abund. (%)	9/21/05 Rel. Biovol. %	9/21/05 Conc. (units/mL)	10/19/05 Rel. Abund. (%)	10/19/05 Rel. Biovol. %	10/19/05 Conc. (units/mL)
Achnathes sp.	Diatom																					
Asterionella sp.	Diatom	2.2	2.3	94.5																		
Aulacoseira sp.	Diatom																					
Cocconeis sp.	Diatom																					
Cyclotella sp.	Diatom	7.7	4.0	330.8																		
Cyclostephanos	Diatom																					
Denticulla sp.	Diatom																					
Diatoma sp.	Diatom																					
Fragilaria sp.	Diatom																					
Gomphoneme sp.	Diatom																					
Navicula	Diatom																					
Nitzschia sp	Diatom	1.1	0.2	47.3																0.7	0.0	1,250.0
Rhizosolenia	Diatom																					
Rhopalodia sp.	Diatom																					
Stephanodiscus sp.	Diatom																					
Synedra sp.	Diatom	4.4	0.8	189.0							2.5	0.1	53.2	1.6	0.7	1041.7				0.7	0.1	1,250.0
Tabellaria sp.	Diatom																					
Diatom 2005 Totals		**15.4**	**7.3**	**661.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**2.5**	**0.1**	**53.2**	**1.6**	**0.7**	**1041.7**	**0.0**	**0.0**	**0.0**	**1.4**	**0.1**	**2,500.0**
Actinastrum sp.	Chlorophyte																					
Ankistrodesmus sp.	Chlorophyte																					
Botryococcus sp.	Chlorophyte																					
Carteria sp.	Chlorophyte																					
Chlamydomonas sp.	Chlorophyte	1.1	1.6	47.3							2.5	0.2	53.2									
Closteriopsis sp.	Chlorophyte																					
Closterium sp.	Chlorophyte																					
Coelastrum sp.	Chlorophyte																					
Cosmarium	Chlorophyte										5.1	9.1	106.5									
Crucigenia sp.	Chlorophyte																					
Dictyosphaerium so.	Chlorophyte																					
Dysmorphococcus sp.	Chlorophyte							25.1	65.3	177.2												
Elakatothrix sp.	Chlorophyte																					
Monoraphidium sp.	Chlorophyte	11.0	0.3	472.5	1.3	0.3	101.3	4.8	0.5	33.8							3.0	0.1	250.0			
Mougeotia sp.	Chlorophyte																					
Oocystis sp.	Chlorophyte																					
Pandorina sp.	Chlorophyte																					
Pyramichlamys sp.	Chlorophyte																					
Quadrigula sp.	Chlorophyte																					
Scenedesmus sp.	Chlorophyte										2.5	0.1	53.2									
Schizochlamys sp.	Chlorophyte										15.2	0.0	319.4									
Schroederia sp.	Chlorophyte																0.6	0.0	50.0			
Selenastrum sp.	Chlorophyte																					
Spaerellopsis sp.	Chlorophyte										2.5	0.0	53.2									
Sphaerocystis sp.	Chlorophyte																					
Staurastrum sp.	Chlorophyte																					
Tetraedron sp.	Chlorophyte																0.6	0.1	50.0			
Tetrastrum sp.	Chlorophyte																					
Non-motile Chlorophyte cocc	Chlorophyte																					
Chlorophyte 2005 Totals		**12.1**	**1.9**	**519.8**	**1.3**	**0.3**	**101.3**	**29.9**	**65.8**	**211.0**	**27.8**	**9.4**	**585.5**	**0.0**	**0.0**	**0.0**	**4.2**	**0.2**	**350.0**	**0.0**	**0.0**	**0.0**
Chrysococcus sp.	Chrysophyte																					
Desmarella sp.	Chrysophyte																					
Dinobryon sp.	Chrysophyte	1.1	0.6	47.3																		
Ellipsoidion	Chrysophyte																					
Erkenia sp.	Chrysophyte																					
Kephyrion sp.	Chrysophyte																					
Mallomonas sp.	Chrysophyte																					
Chrysophyte, flagellated	Chrysophyte																					
Chrysophyte, cyst	Chrysophyte																					
Non-motile Chrysophytes	Chrysophyte																					
Ochromonas sp.	Chrysophyte	41.8	7.7	1,795.5	42.5	1.6	3,290.6	1.9	0.6	13.5												
Synura sp.	Chrysophyte																					
Uroglena sp.	Chrysophyte																					
Chrysophyte 2005 Totals		**42.9**	**8.3**	**1,842.8**	**42.5**	**1.6**	**3,290.6**	**1.9**	**0.6**	**13.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Chroomonas sp.	Cryptophyte																					
Cryptomonas sp.	Cryptophyte	5.6	59.7	236.3	0.7	14.3	50.6	1.0	1.7	6.8				11.5	3.8	7291.7	3.6	3.5	300.0			
Rhodomonas sp.	Cryptophyte	14.3	1.7	614.3	4.6	0.4	354.4	9.5	0.8	67.5	10.1	0.2	212.9	21.3	0.3	13541.7	17.2	0.4	1,450.0			
Cryptophyte 2005 Totals		**19.8**	**61.4**	**850.6**	**5.3**	**14.7**	**405.0**	**10.5**	**2.5**	**74.3**	**10.1**	**0.2**	**212.9**	**32.8**	**4.1**	**20833.4**	**20.8**	**3.9**	**1,750.0**	**0.0**	**0.0**	**0.0**

Lake Leopold - Algae Analysis Summary, 2005

(continued)

Taxa	Division	4/5/04 Rel. Abund. (%)	Rel. Biovol. %	Conc. (units/mL)	5/10/04 Rel. Abund. (%)	Rel. Biovol. %	Conc. (units/mL)	6/7/05 Rel. Abund. (%)	Rel. Biovol. %	Conc. (units/mL)	Rel. Abund. (%)	Rel. Biovol. %	Conc. (units/mL)	Rel. Abund. (%)	Rel. Biovol. %	Conc. (units/mL)	Rel. Abund. (%)	Rel. Biovol. %	Conc. (units/mL)	Rel. Abund. (%)	Rel. Biovol. %	Conc. (units/mL)
Anabaena sp.	Cyanophyte							5.0	27.2	35.4	2.5	0.6	53.2	16.4	75.4	10416.7	3.6	9.6	300.0			
Aphanizomenon sp.	Cyanophyte				0.7	39.4	50.6				30.3	10.5	638.8	1.6	2.0	1041.7	14.8	27.4	1,250.0			
Aphanocapsa sp.	Cyanophyte													8.2	1.1	5208.3						
Aphanothece sp. (colony)	Cyanophyte																					
Chroococcus sp.	Cyanophyte																					
Coelosphaerium sp.	Cyanophyte										12.6	79.0	266.1									
Dactylococcopsis sp.	Cyanophyte																					
Gomphosphaeria sp.	Cyanophyte																					
Lyngbya sp.	Cyanophyte																					
Merismopedia sp.	Cyanophyte																					
Microcystis sp.	Cyanophyte													1.6	7.4	1041.7	1.8	13.3	150.0			
Non-motile blue-greens	Cyanophyte																					
Oscillatoria sp.	Cyanophyte	1.1	19.9	47.3	5.2	42.6	405.0							16.4	9.0	10416.7	20.1	43.2	1,700.0	98.5	99.9	165,000.0
Pseudanabaena sp.	Cyanophyte																					
Raphidiopsis sp.	Cyanophyte																					
Synechococcus sp.	Cyanophyte																					
Cyanophyte 2005 Totals		**1.1**	**19.9**	**47.3**	**5.9**	**82.0**	**455.6**	**5.0**	**27.2**	**35.4**	**45.4**	**90.1**	**958.1**	**44.2**	**94.9**	**28125.1**	**40.3**	**93.5**	**3,400.0**	**98.5**	**99.9**	**165,000.0**
Amphidinium sp.	Dinoflagellate																					
Ceratium sp.	Dinoflagellate																					
Dinoflagellate cyst	Dinoflagellate																					
Glenodinium sp.	Dinoflagellate																					
Gymnodinium sp.	Dinoflagellate																0.6	0.1	50.0			
Misc. Dinoflagellates	Dinoflagellate							5.0	0.6	35.4	12.6	0.1	266.1	3.3	0.0	2083.3						
Peridinium sp.	Dinoflagellate																					
Dinoflagellate 2005 Totals		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.6**	**35.4**	**12.6**	**0.1**	**266.1**	**3.3**	**0.0**	**2083.3**	**0.6**	**0.1**	**50.0**	**0.0**	**0.0**	**0.0**
Chrysochromulina sp.	Haptophyte	8.8	1.2	378.0	45.1	1.4	3493.1	47.7	3.4	337.5	1.5	0.0	31.9	18.0	0.3	11458.3	18.9	0.4	1600.0			
Haptophyte 2005 Totals		**8.8**	**1.2**	**378.0**	**45.1**	**1.4**	**3493.1**	**47.7**	**3.4**	**337.5**	**1.5**	**0.0**	**31.9**	**18.0**	**0.3**	**11458.3**	**18.9**	**0.4**	**1600.0**	**0.0**	**0.0**	**0.0**
Euglena sp.	Euglenophyte																					
Lepocinclis sp.	Euglenophyte																					
Phacus sp.	Euglenophyte																					
Trachelomonas sp.	Euglenophyte																					
Euglenophyte 2005 Totals		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
2005 Totals	Misc.	100.1	100.0	4,300.1	100.1	100.0	7,745.6	100.0	100.1	707.1	99.9	99.9	2,107.7	99.9	100.0	63,541.8	84.8	98.1	7,150.0	99.9	100.0	167,500.0

Lake Leopold Zooplankton Analysis, 2005

	4/5/05 Concentration (#/L)	Total Biomass (ug/l)	Relative Biomass %	6/7/2005 Concentration (#/L)	Total Biomass (ug/l)	Relative Biomass %	7/14/05 Concentration (#/L)	Total Biomass (ug/l)	Relative Biomass %	8/15/05 Concentratior (#/L)	Total Biomass (ug/l)	Relative Biomass %	9/21/05 Concentratior (#/L)	Total Biomass (ug/l)	Relative Biomass %
CLADOCERANS															
Daphnia				3.5	17.3	25.9				0.5	1.8	3.1			
Bosmina	0.20	4.00	1.50	5.50	4.80	7.30	3.00	1.30	9.60	1.00	0.50	0.90	8.50	5.60	3.00
Ceriodaphnia	0.10	1.20	0.50	0.50	0.00	0.00	0.50	0.40	3.10				18.00	5.30	2.90
Diaphanosoma				0.50	0.90	1.30	2.50	4.10	31.00	1.00	1.30	2.40	3.50	8.40	4.50
Acroperus sp.															
Chydorus															
Alonella															
Immature clad.															
TOTAL CLADS	0.30	5.20	2.00	10.00	23.00	34.50	3.00	5.80	43.70	2.50	3.60	6.40	30.00	19.30	10.40
COPEPODS															
Acanthocyclops															
Leptodiaptomus															
Calanoid copepodid															
Chydorus															
Cyclopoid copepodid	0.20	2.70	1.00	1.00	0.60	0.80	0.50	0.10	0.90	1.00	0.20	0.40	1.00	0.20	0.40
Diacyclops															
Mesocyclops													7.00	16.60	8.90
Nauplii	4.50	60.40	22.60	39.50	27.50	41.30							145.0	136.9	73.2
Skistodiaptomus				3.00	12.60	18.90							2.00	6.20	3.30
TOTAL COPES	4.70	63.10	23.60	42.50	40.70	60.20	0.50	0.10	0.90	1.00	0.20	0.40	155.00	159.90	85.80
ROTIFERS															
Asplanchna	0.10	0.50	0.20												
Bdelloid															
Brachionus															
Euchlanis															
Filinia	12.40	28.30	10.60							72.5	9.4	16.6			
Gastropus															
Conochilus															
Kellicotia	53.60	94.30	35.30												
Keratella				12.50	2.70	4.00	72.50	7.30	55.40	435.00	43.50	76.60	72.50	7.30	3.90
Lecane				1.00	0.20	0.30									
Polyarthra	28.90	76.10	28.50	0.50	0.10	0.20									
Synchaeta															
Tetramastix															
Trichocerca															
TOTAL ROTIFERS	28.90	199.20	28.50	14.00	3.00	4.50	72.50	7.30	55.40	507.50	52.90	93.20	72.50	7.30	3.90
Ostracods															
TOTAL ZOOPS	100.00	267.50	100.20	67.50	66.70	99.20	79.00	13.20	100.00	511.00	56.70	100.00	257.50	186.50	100.10

PHOTOS

Photo 1: Algae at Lake Leopold (10/19/05).

Photo 2: Collecting data at the lake (10/19/05).

Photo 3: Testing the lake water (10/19/05).

Photo 4: Measuring the dissolved oxygen / temperature profile (10/19/05).

Photo 5: Whitewater buttercup near the outlet (6/7/05).

Photo 6: Geese hanging out on the lake (8/15/05).

Photo 7: Algal scum near the outlet (8/15/05).