

**2008 SUMMARY REPORT
of
North Loon Lake – NICC Pond
Lake County, Illinois**

Prepared by the

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NICC Pond – North Loon Lake – Summary 2008

On September 18, 2008 the Lake County Health Department – Lakes Management Unit (LMU) visited the pond located on the Northern Illinois Conservation Club (NICC) property to conduct a site evaluation. Located in northern Lake County just south of the Village of Antioch, the pond, known as North Loon Lake, is completely surrounded by woodlands, has a surface area of 0.96 acres, and a shoreline length of 0.18 miles. The maximum depth is 8.5 feet. At this point water quality parameters were measured (Figure 1). These parameters included water temperature, dissolved oxygen, conductivity, pH, water clarity, and light penetration (Table 1). The DO was 3.28 mg/L at the surface and dropped to < 1.0 mg/L at four feet. This is expected since the lake was approximately 80% covered by Watermeal (*Wolffia* spp.) and had dense areas of Coontail (*Ceratophyllum demersum*). Although aquatic plants release oxygen during photosynthesis, at night they actually consume oxygen through respiration. The aerator in North Loon Lake was not functioning in 2008. It is recommended that the aerator be repaired and maintained to provide circulation of the water during the summer months. This will help stabilize oxygen levels and keep an area of the pond free of Watermeal. However, the aerator will not eliminate the Watermeal. Little is known of the current aerator, but to efficiently circulate the pond it was calculated that the system should have an output of 1 – 2 cubic feet per minute and at least ¼ horsepower compressor. Also the diffusers should be suspended off the bottom to ensure they do not get buried in the flocculent bottom of the lake.

To compare the conductivity with other lakes within the county we looked at the three foot depth. In North Loon Lake the conductivity was 0.3575 mS/cm. This was 129% less than the Lake County median of 0.8195 mS/cm. This is likely due to North Loon Lake having a small watershed, approximately 55.92 acres (Figure 2). Although the main landuse within the watershed is agriculture, any runoff is filtered through forest and grassland or wetland before reaching the pond which helps to remove nutrients and minerals such as phosphorus and chloride (Figure 3).

The water clarity is measured by Secchi disk transparency. In North Loon Lake the Secchi disk was able to be seen resting on the bottom of the lake. This clarity is due to the abundant plants using available nutrients and holding the bottom sediments in place. Also, with the low DO levels it is likely that there are not many fish present in the pond. Although not observed, fish such as Common Carp can disturb bottom sediments and cause the water to become turbid.

As previously stated, the pond has a very abundant aquatic plant population dominated by Watermeal and Coontail. Other plants found include Common Bladderwort (*Utricularia vulgaris*), Small Duckweed (*Lemna minor*), Star Duckweed (*Lemna trisulca*), Eurasian Watermilfoil (EWM, *Myriophyllum spicatum*), and Sago Pondweed (*Potamogeton pectinatus*). EWM is an exotic plant that can be very invasive. It is recommended that this population be monitored and managed to prevent further spread. NICC may also want to consider hand-harvesting the aquatic plants in portions of the pond if recreational opportunities such as fishing are desired.

The LMU also conducted a preliminary shoreline assessment. The area along the north and northeast side of the pond had moderate erosion and there were areas along the south end that

has slight erosion. Some of the shoreline plants present include Common Buckthorn (*Rhamnus cathartica*), Red Osier Dogwood (*Cornus sericea*), Reed Canary Grass (*Phalaris arundinacea*), Goldenrod (*Solidago* spp.), and Cattails (*Typha* spp.). Common Buckthorn and Reed Canary Grass are exotic invasive plants that should be eliminated and the Cattails should be monitored as to not become too abundant.

In summary, North Loon Lake had low conductivity and good water clarity. This is likely due to the abundant plants and small watershed. As mentioned earlier, the lake is completely surrounded by woodlands, this provides excellent wildlife habitat. The lake had low DO and it is recommended that the aerator be repaired to maintain suitable DO levels during the summer. In addition, some of the abundant plants should be removed to increase recreational activities. There were several exotic species noted in and around the pond. It is also recommended that these species be removed to prevent further spread. There was some shoreline erosion noted around the pond which should be remediated.

Figure 1. Water quality sampling site on North Loon Lake.

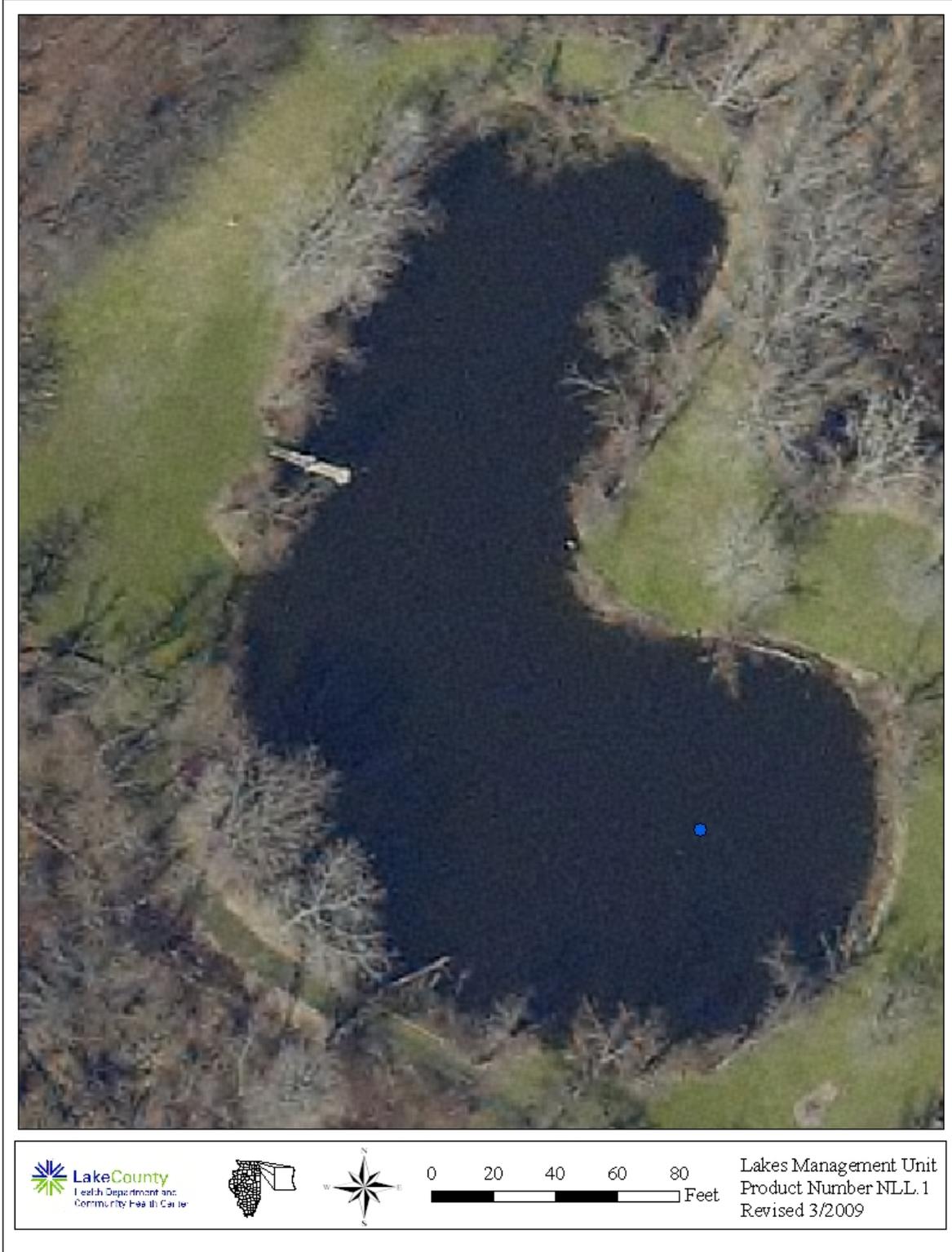


Table 1. Multi-parameter Data of North Loon Lake, September 2008.

DATE	DEPTH	Temp	DO	DO%	COND	pH	PAR	Light meter depth	% Light Transmission	SECCHI
09/18/2008	0.25	19.72	3.28	36.2	0.3635	7.61	2779	Surface	100%	
09/18/2008	1	18.18	3.14	33.9	0.3613	7.65	2949	Surface	100%	
09/18/2008	2	17.34	2.77	29.3	0.3610	7.67	1159	0.250	39%	
09/18/2008	3	17.23	2.94	31.5	0.3575	7.72	860	1.250	29%	
09/18/2008	4	16.85	0.70	7.0	0.3573	7.58	492	2.250	17%	
09/18/2008	5	16.74	0.32	3.2	0.4894	7.06	185	3.250	6%	
09/18/2008	6	16.72	0.22	2.3	0.6475	6.72	69	4.250	2%	
09/18/2008	7	16.34	0.20	2.1	0.7190	6.56	12	5.250	0.4%	
09/18/2008	8	15.93	0.19	2.0	0.7767	6.48	0	6.250		

Average 17.2 1.53 16.4 0.4926 7.23

8.50^a

Glossary

Temp = °C
 DO = Dissolved oxygen, mg/L
 DO% = DO percent saturation
 COND = Conductivity, milliSiemens/cm
 pH = units
 PAR = micromoles/sec/cm
 Light meter depth = feet
 % Light transmission = % penetration
 SECCHI = Secchi disk depth, ft.

a = Secchi depth was obstructed by the bottom

Figure 2. Approximate watershed delineation for North Loon Lake, 2008.



Figure 3. Approximate land use within the North Loon Lake watershed, 2008.

