

LOON LAKE  
Kosciusko County  
2006 Fish Management Report

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## EXECUTIVE SUMMARY

- A general lake survey was completed on Loon Lake from June 26 to 27, 2006. During this survey, water chemistry data was also collected. An aquatic vegetation survey was conducted on July 24, 2006.
- The Secchi disk reading was 7 ft on May 22, 4 ft 7 in on June 26, and 5 ft on July 24. Dissolved oxygen concentration was adequate for fish survival above 8 ft on June 26. Submerged vegetation was found to a maximum depth of 12 ft on May 22 and 6 ft on July 24. Coontail dominated the plant community in both surveys. Most of the shoreline on this lake is natural and a large portion of it is a significant wetland.
- A total of 441 fish, representing 17 species and 1 hybrid, was collected during the general survey. Total weight of the fish sample was approximately 249 lbs. By number, bluegill ranked first, spotted gar ranked second, and largemouth bass ranked third in the survey sample. By weight, spotted gar ranked first followed by carp, bluegill, and largemouth bass.
- Mean length-at-age data indicated bluegill in Loon Lake reached 6 in (i.e. quality size) between their 3<sup>rd</sup> and 4<sup>th</sup> year of growth while largemouth bass reached 14 in (i.e. harvestable size) between their 4<sup>th</sup> and 5<sup>th</sup> year of growth. Spotted gar continue to comprise a large proportion of the fishery and as surmised in the 1980 survey, this may be the reason that the game fish populations are so balanced
- In Loon Lake, the DFW should maintain a 14-in minimum size limit on largemouth bass. In addition, a diagnostic study should be conducted on Loon and Beaver Dam Lakes to determine the cause of the water quality decline and determine ways to remediate the problem.

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## INTRODUCTION

Loon Lake is a 40-acre natural lake located in southern Kosciusko County west of Silver Lake, Indiana (Figure 1). The lake is connected to Beaver Dam and Yellow Creek Lakes via ditches. Maximum depth is 40 ft with an average depth of 20 ft. This lake was classified as eutrophic in 1998 based on the Indiana Trophic Status Index, meaning that there is high productivity within the lake (Indiana Department of Environmental Management-IDEM, 2004). Aquatic vegetation is dense in most of the shallow water areas. Access is limited to a county easement on the west shore. Previous fish population surveys were conducted by the Indiana Department of Natural Resources in 1965 and 1980. A fisheries survey was conducted at the request of the lake residents in order to evaluate the current fishery of Loon Lake.

## METHODS

The Loon Lake general survey was conducted from June 26 to 27, 2006 as part of DFW Work Plan 204755 that covers general fisheries surveys of natural lakes. Some physical and chemical characteristics of the water were measured in the deepest area of the lake (Indiana Division of Fish and Wildlife 2001). Submersed aquatic vegetation was sampled on May 22 and July 24, 2006 using LARE Tier II protocols and guidelines written by Pearson (2004). The emergent plant bed was mapped on July 24, 2006 according to Pearson (2004). A global positioning system (GPS) device was used to record the location of the limnological data collection site, aquatic vegetation sample sites, and fish collection sites.

Fish were collected by pulsed D.C. electrofishing the shoreline at night with two dippers for a total of 0.5 h (2 different locations, 15-minute stations). Two trap nets and two experimental-mesh gill nets were also fished overnight. All fish collected were measured to the nearest 0.1 in TL and weighed in the field to the nearest 0.01 lb.

Fish scale samples were taken from bluegill, largemouth bass, yellow perch, and black crappie for age and growth analysis. Proportional stock density (PSD) and relative stock density (RSD) was calculated for bluegill and largemouth bass captured during electrofishing (Anderson and Neumann 1996). Additionally, age-length keys and mean length-at-age were created and calculated for bluegill and largemouth bass captured during this general survey.

## RESULTS

Loon Lake was at normal pool. On June 26, dissolved oxygen concentrations were adequate for fish survival to 8 ft and Secchi depth was 4 ft, 7 in. The thermocline was located between 6 and 12 ft.

The Secchi disk reading was 7 ft on May 22 and 5 ft on July 24. Submersed vegetation was found to a maximum depth of 12 ft on May 22 and 6 ft on July 24 (Table 1). In 30 sites sampled, coontail *Ceratophyllum demersum* (40%) dominated the vegetation population on May 22 (Figure 2). Sago pondweed *Potamogeton pectinatus* (3.3%) and horned pondweed *Zannichellia palustris* (3.3%) were also present in the lake. In addition, filamentous algae were found at 27% of the sites sampled. During the July 24 vegetation survey, in 30 sampled sites, coontail *Ceratophyllum demersum* (30%) was the only submerged macrophyte found. Filamentous algae were found in July at 13% of the sampled sites. The total area occupied by emergent vegetation was 7.6 acres and the total length of shoreline with emergent vegetation was 2.2 miles (Figure 3). The most common emergent species observed were spatterdock, button bush, cattails, arrowhead, and pickerelweed.

During the survey, 441 fish, representing 17 species and 1 hybrid, was collected. Total weight of the fish sample was approximately 249 lbs. Species collected in past surveys, but not in this survey, include lake chubsucker, shortnose gar, golden shiner, channel catfish, golden redhorse, black bullhead, northern pike, and redbfin (grass) pickerel (Table 2). This difference in collected species may be the result of differences in sampling methods and not a change in the fish community. By number, bluegill ranked first, spotted gar ranked second, and largemouth bass ranked third in the survey sample. By weight, spotted gar ranked first followed by carp, bluegill, and largemouth bass.

A total of 291 bluegills were sampled that weighed 45.65 lbs. They ranged in length from 2.3 – 8.8 in TL. Relative abundance by number and weight were 66.0% and 18.3%, respectively. The electrofishing, gill net, and trap net catch rates were 186.0 fish/h, 1.0 fish/lift, and 98.0 fish/lift, respectively. The bluegill PSD was 51. The bluegill RSD-8 was 11. This indicates a balanced bluegill population, i.e., not too many small fish. Growth of bluegill collected during this survey appeared to be poor for ages 1 to 4 and very good for ages 5 and 6 relative to the natural lakes growth standards in Indiana. Overall mean length of bluegill was 5.5 in (Table 3). This mean is larger than the overall mean length of bluegill (4.4 in TL) in Beaver

Dam Lake, which is connected to Loon through a short channel (Benson 2006). However, growth between the two lake populations is similar. Mean length-at-age data from the age-length key indicated bluegill in Loon Lake reached 6 in (i.e. quality size) between their 3<sup>rd</sup> and 4<sup>th</sup> year of growth (Table 4).

A total of 40 largemouth bass was sampled that weighed 38.24 lbs. They ranged in length from 2.4 – 17.2 in TL. Relative abundance by number and weight were 9.1% and 15.4%, respectively. The electrofishing, gill net, and trap net catch rates were 76.0 fish/h, 1.0 fish/lift, 0 fish/lift, respectively. The largemouth bass PSD was 73 and RSD-14 was 40. This indicates that the largemouth bass fishery may not be balanced, but the quality of the fishery is great based on the high PSD and RSD-14, i.e., there are a lot more large fish in the lake than small fish. Growth of largemouth bass for all ages is very good and above average for Indiana's natural lakes. When compared to Beaver Dam Lake largemouth bass, growth is similar. Overall mean length of bass in Loon Lake was 11.5 in, which is slightly larger than the 11.0 in overall mean of bass in Beaver Dam Lake. (Table 3). Mean length-at-age data from the age-length key indicated bass in Loon Lake reached 14 in (i.e. harvestable size) between their 4<sup>th</sup> and 5<sup>th</sup> year of growth (Table 5).

A total of 13 yellow perch was sampled that weighed 8.15 lbs. They ranged in length from 9.5 to 12.5 in TL. Relative abundance by number and weight were 2.9% and 3.3%, respectively. The electrofishing, gill net, and trap net catch rates were 0 fish/h, 6.5 fish/lift, and 0 fish/lift, respectively. The yellow perch PSD was not calculated since none were captured during electrofishing. Back-calculated lengths indicated yellow perch reached 8 in (i.e. quality size) between their 3<sup>rd</sup> and 4<sup>th</sup> year of growth.

A total of 7 black crappie was sampled that weighed 3 lbs. They ranged in length from 4.4 to 10.0 in TL. Relative abundance by number and weight were 1.6% and 1.2%, respectively. The electrofishing, gill net, and trap net catch rates were 0 fish/h, 0.5 fish/lift, 3.0 fish/lift, respectively. The black crappie PSD was not calculated since none were captured during electrofishing. Crappie were ages 1 and 3. Back-calculated lengths indicated black crappie reached 8 in (i.e. quality size) between ages 2 and 3.

Gizzard shad (N = 5) and carp (N = 5) were also captured during the general survey. Shad and carp tied in rank by number at eighth place. Both the gizzard shad and carp abundance has decreased since the 1980 general survey (Braun 1981).



## DISCUSSION

Water quality in Loon Lake is not good and there is no recent data to show whether this is an abnormal year or a normal one. This lake was classified as eutrophic in 1998 based on the Indiana Trophic Status Index, but has not been sampled since to update the trophic status (IDEM 2004). Dissolved oxygen was only high enough to support fish up to a depth of 8 ft and then it swiftly declined below that depth.

Similar to the 1980 survey, spotted gar continue to comprise a large proportion of the fishery and as surmised in that previous survey, this may be the reason that the game fish populations are so balanced (Braun 1981). Large yellow perch are still present in the lake, similar to the 1980 survey, however, no small fish were collected and the number of large fish has greatly declined. It is hoped that a diagnostic study conducted on this lake and Beaver Dam Lake will be able to determine the reason behind the decline in not only fish abundance and diversity, but also the submerged aquatic vegetation community and water quality.

## RECOMMENDATIONS

- The DFW should maintain the 14-inch minimum size limit on largemouth bass at Loon Lake.
- The DFW recommends a diagnostic study be conducted on Loon and Beaver Dam Lakes to determine the cause of the decline in fish abundance and diversity, submerged aquatic vegetation abundance and diversity, and water quality.
- The DFW recommends that a public access site be attained for this lake. Currently, the only way to access the lake is through a county easement.

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Date: December 27, 2006

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Table 1. Loon Lake vegetation survey results by rake score on May 22 and July 24, 2006. A total of 30 sites was sampled during both surveys.

<b>Occurrence and abundance of submersed aquatic plants in Loon Lake</b>						
County: Kosciusko		Sites with plants: 14		Mean species/site: 0.47		
Date: 5/22/2006		Sites with native plants: 14		Standard error (ms/s): 0.09		
Secchi (ft): 7		Number of species: 3		Mean native species/site: 0.47		
Maximum plant depth (ft): 12		Number of native species: 3		Standard error (mns/s): 0.09		
Trophic status Eutrophic		Maximum species/site: 1		Species diversity: 0.26		
Total sites: 30				Native species diversity: 0.26		
<b>All depths (0 to 15 ft)</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
<b>Species</b>		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
Ceratophyllum demersum	40.0	60.0	16.7	13.3	10.0	21.3
Potamogeton pectinatus	3.3	96.7	0.0	3.3	0.0	2.0
Zannichellia palustris	3.3	96.7	3.3	0.0	0.0	0.7
Filamentous Algae	26.7	73.3	26.7			
<b>Depth: 0 to 5 ft</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
<b>Species</b>		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
Ceratophyllum demersum	60.0	40.0	20.0	20.0	20.0	36.0
Potamogeton pectinatus	10.0	90.0	0.0	10.0	0.0	6.0
Zannichellia palustris	10.0	90.0	10.0	0.0	0.0	2.0
Filamentous Algae	70.0	30.0	70.0			
<b>Depth: 5 to 10 ft</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
<b>Species</b>		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
Ceratophyllum demersum	40.0	60.0	10.0	20.0	10.0	24.0
Filamentous Algae	10.0	90.0	10.0			
<b>Depth: 10 to 15 ft</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
<b>Species</b>		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
Ceratophyllum demersum	20.0	80.0	20.0	0.0	0.0	4.0

**Occurrence and abundance of submersed aquatic plants in Loon Lake**

County:	Kosciusko	Sites with plants:	9	Mean species/site:	0.43
Date:	7/24/2006	Sites with native plants:	9	Standard error (ms/s):	0.13
Secchi (ft):	5	Number of species:	1	Mean native species/site:	0.43
Maximum plant depth (ft):	6	Number of native species:	1	Standard error (mns/s):	0.13
Trophic status	Eutrophic	Maximum species/site:	1	Species diversity:	0.00
Total sites:	30			Native species diversity:	0.00

<b>All depths (0 to 15 ft)</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
<b>Species</b>						
Ceratophyllum demersum	30.0	70.0	6.7	10.0	13.3	20.7
Filamentous Algae	13.3	86.7	13.3	0.0	0.0	

<b>Depth: 0 to 5 ft</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
<b>Species</b>						
Ceratophyllum demersum	80.0	20.0	20.0	20.0	40.0	56.0
Filamentous Algae	40.0	60.0	40.0	0.0	0.0	

<b>Depth: 5 to 10 ft</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
<b>Species</b>						
Ceratophyllum demersum	10.0	90.0	0.0	10.0	0.0	6.0

<b>Depth: 10 to 15 ft</b>	<b>Frequency of Occurrence</b>	<b>Rake score frequency per species</b>				<b>Plant Dominance</b>
		<b>0</b>	<b>1</b>	<b>3</b>	<b>5</b>	
<b>Species</b>						
No plants						

Table 2. Fish species and number of individuals captured in Loon Lake general surveys in 1965, 1980, and 2006.

Species	1965	1980	2006
Bluegill	320	337	291
Largemouth bass	58	100	40
Yellow perch	17	76	13
Gizzard shad	37	22	5
Warmouth	11	22	7
Golden shiner	6	96	
Yellow bullhead	10	7	9
Black crappie	9	256	7
Brown bullhead	1	6	3
Spotted gar	14	49	49
Pumpkinseed	9	33	1
Longear sunfish	9	19	1
Carp	2	12	5
Lake chubsucker	2	53	
Redear sunfish	25	3	4
Shortnose gar	4		
Bowfin	1		1
Golden redhorse	1		
White sucker		29	1
Spotted sucker	1	2	2
Channel catfish		3	
Black bullhead		12	
Redfin (grass) pickerel		2	
Northern pike		1	
Rock bass			1
Hybrid Sunfish			1
<b>Total</b>	<b>537</b>	<b>1,140</b>	<b>441</b>

1965 effort: gill net = 8 lifts, wire traps = 900 h; AC electrofishing: Night = 4 h

1980 effort: gill net = 8 lifts, trap net = 6 lifts, AC electrofishing: Night = 1 h; PSDs calculated using only electrofishing data

2006 effort: gill net = 2 lifts, trap net = 2 lifts, DC electrofishing = 0.5 h; PSDs calculated using only electrofishing data

Table 3. Mean length-at-age and its associated variance for largemouth bass and bluegill collected for the general survey on Loon Lake in June 2006. The NA denotes where standard error could not be calculated because the sample size was too small.

Bluegill			Largemouth bass		
Age	Mean length	SE	Age	Mean length	SE
1	3.1	0.06	1	6.5	0.707
2	4.4	0.04	2	9.0	1.14
3	6.2	0.10	3	12.2	0.26
4	7.2	0.07	4	13.1	0.291611
5	8.1	0.07	5	15.0	0.316323
6	8.6	0.10	6	16.0	0.57735
			7	15.5	NA
			8	16.5	NA

Table 4. Age-length key for bluegill captured on Loon Lake in June 2006.

Length group	# in sample	# (age) in subsample	age 1	age 2	age 3	age 4	age 5	age 6
2.5	3	3 (1)	3					
3.0	16	7 (1)	7					
3.5	18	2 (1), 4 (2)	6	12				
4.0	52	6 (2)		52				
4.5	41	6 (2)		41				
5.0	26	9 (2)		26				
5.5	10	4 (2), 2 (3)		7	3			
6.0	13	4 (3), 1 (4)			10	3		
6.5	18	2 (3), 5 (4)			5	13		
7.0	25	1 (3), 8 (4)			3	22		
7.5	25	3 (4), 1 (5)				19	6	
8.0	23	2 (4), 3 (5)				9	14	
8.5	20	1 (4), 3 (5), 1 (6)				4	12	4
9.0	1	1 (6)						1
Total	291		16	138	22	70	32	5

Table 5. Age-length key for largemouth bass captured during the general survey on Loon Lake in June 2006.

Length group	# in sample	# (age) in subsample	age 1	age 2	age 3	age 4	age 5	age 6	age 7	age 8
4.0	1	1 (1)	1							
6.0	1	1 (1)	1							
6.5	1	1 (2)		1						
7.0	1	1 (1)	1							
7.5	1	1 (1)	1							
8.0	1	1 (1)	1							
8.5	1	1 (2)		1						
9.0	1	1 (2)		1						
11.0	3	2(3)			2					
11.5	1	1 (3)			1					
12.0	5	1 (2), 3 (3), 1 (4)		1	3	1				
12.5	4	2 (3), 1 (4)			3	1				
13.0	2	2 (3)			2					
13.5	3	3 (4)				3				
14.0	4	1 (3), 1 (4), 1 (5)			1	1	1			
15.0	4	3 (5), 1 (6)					3	1		
15.5	1	1 (7)							1	
16.0	2	1 (5), 1 (6)					1	1		
16.5	1	1 (8)								1
17.0	1	1 (6)						1		
Total	39		5	4	12	6	5	3	1	1



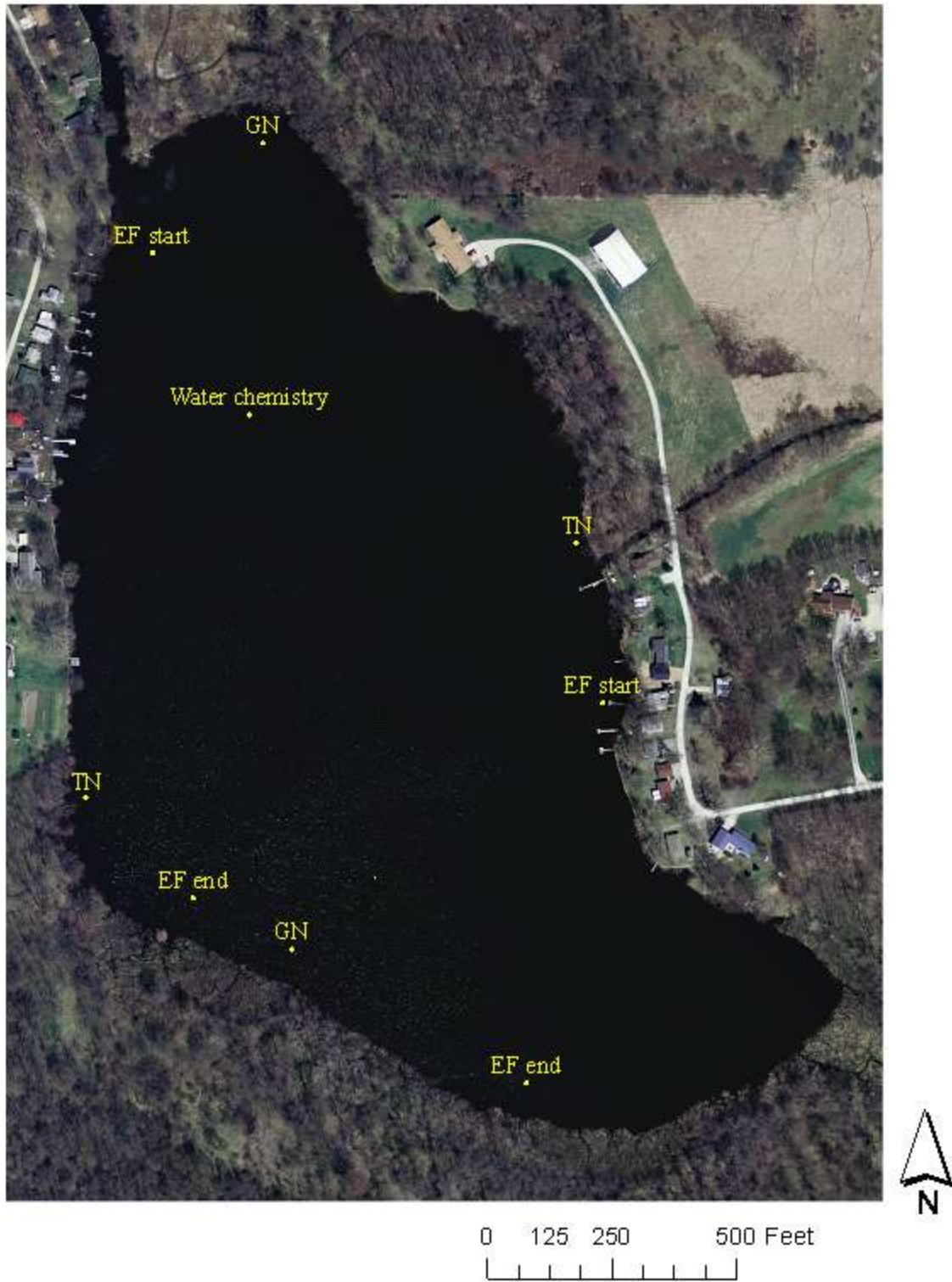


Figure 1. Loon Lake in Kosciusko County, Indiana, and the locations of the gears used during the general survey in June 2006, where EF is electrofishing, TN is trap net, GN is gill net, and water chemistry is taken at the deepest point in the lake.

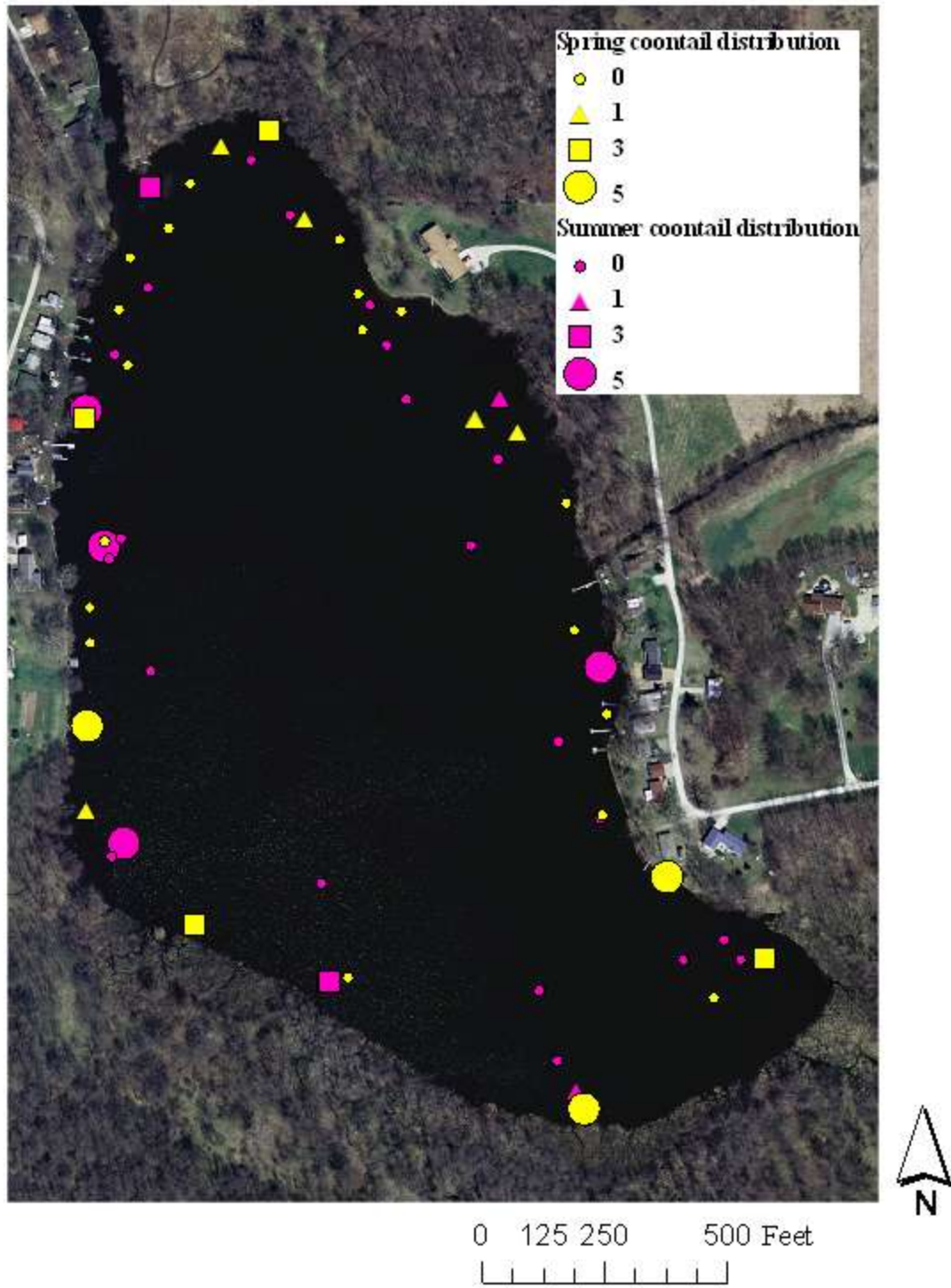
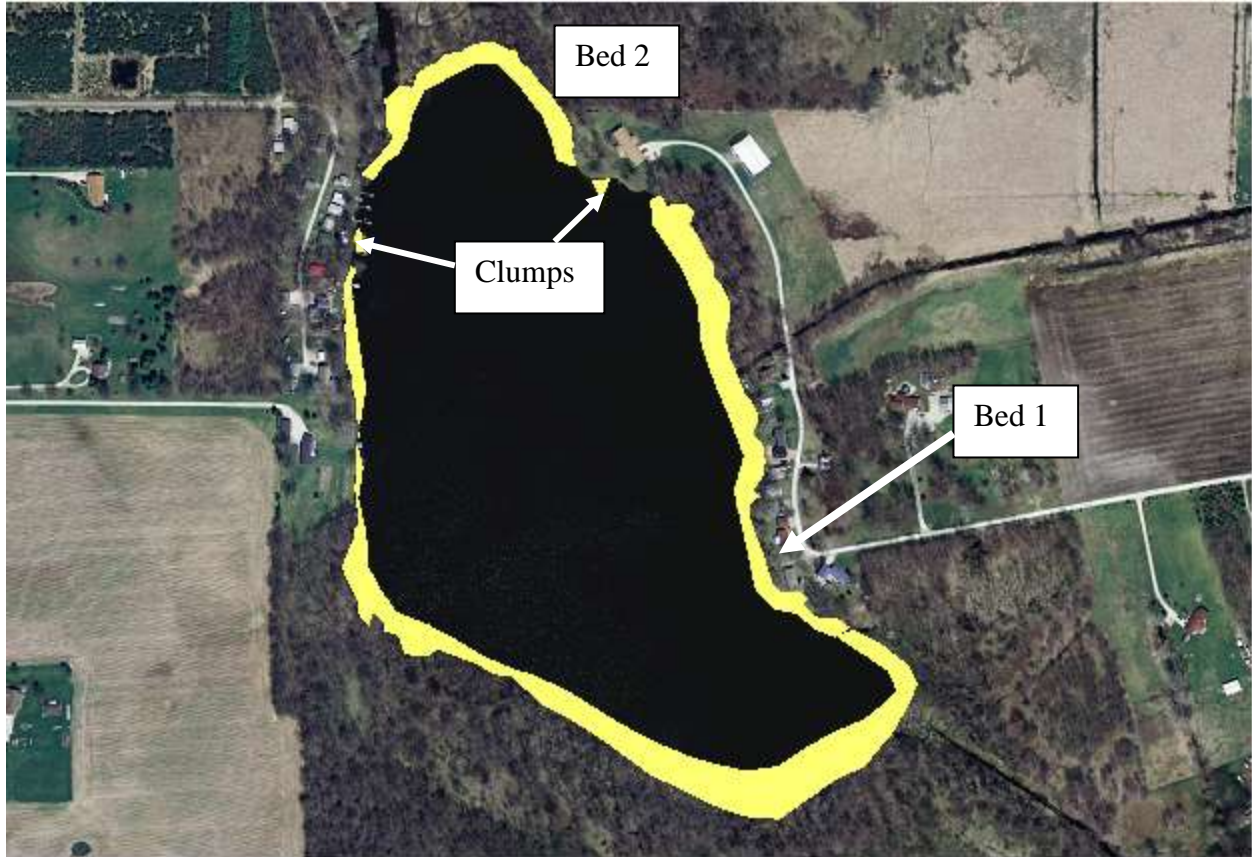


Figure 2. Submerged aquatic vegetation locations and the depths at which points were sampled in Loon Lake on May 22 (light gray) and July 24 (dark gray), 2006.



	Size (acres)	Species
Bed 1	6.3	Spatterdock, cattails, buttonbush, water willow, arrowhead, chairmaker's rush, pickerelweed, white water lily
Bed 2	1.2	Spatterdock, water willow, arrowhead, buttonbush, chairmaker's rush, pickerelweed
Clumps	0.09	White water lily, spatterdock, arrowhead, chairmaker's rush

Figure 3. Emergent plant bed map in Loon Lake on July 24, 2006.

APPENDIX

Lake Pages

# LAKE SURVEY REPORT

Type of Survey	<input type="checkbox"/> Initial Survey	<input checked="" type="checkbox"/> Re-Survey
----------------	-----------------------------------------	-----------------------------------------------

Lake Name Loon Lake	County Kosciusko	Date of survey (Month, day, year) 6/26-27/2006
Biologist's name Edward R. Braun		Date of survey (Month, day, year)

LOCATION		
Quadrangle Name Silver Lake	Range 5E	Section 4
Township Name 30N	Nearest Town Silver Lake	

ACCESSIBILITY					
State owned public access site		Privately owned public access site		Other access site	
				2 county easements on west shore	
Surface acres 40	Maximum depth 40 ft	Average depth 20 ft	Acres feet 806.6	Water level 865.74 MSL	Extreme fluctuations 1 ft
Location of benchmark At north end of lake, 200 ft west of the inlet.					

INLETS		
Name Unnamed	Location Northwest	Origin Beaver Dam Lake
Unnamed	Southeast	T30N, R5E, S30

OUTLETS			
Name Yellow Creek	Location East shore to Yellow Creek Lake		
Water level control None			
POOL	ELEVATION (Feet MSL)	ACRES	Bottom type <input type="checkbox"/> Boulder <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Muck <input type="checkbox"/> Clay <input type="checkbox"/> Marl
TOP OF DAM			
TOP OF FLOOD CONTROL POOL			
TOP OF CONSERVATION POOL			
TOP OF MINIMUM POOL			
STREAMBED			
Watershed use Agriculture, woodlots, residential			
Development of shoreline Approximately 50% of the shoreline is developed for residential use.			
Previous surveys and investigations Fisheries surveys: 1965 and 1980			

SAMPLING EFFORT					
ELECTROFISHING	Day hours		Night hours		Total hours
			0.5		0.5
TRAP NETS	Number of traps		Number of Lifts		Total effort
	2		2		2
GILL NETS	Number of nets		Number of Lifts		Total effort
	2		2		2
ROTENONE	Gallons	ppm	Acre Feet Treated	SHORELINE SEINING	Number of 100 Foot Seine Hauls

**LOON LAKE**

PHYSICAL AND CHEMICAL CHARACTERISTICS					
Color	Turbidity		Air temperature:		F
Green	4 Feet		7 Inches (SECCHI DISK)		
Water chemistry GPS coordinates:			N 41.08499408		W -85.9692032

WATER QUALITY PARAMETERS																
DEPTH (Feet)	Degrees ( F)	D.O.	SpC	pH	TDS	D.O. %	Turb.	DEPTH	Degrees ( F)	D.O.	SpC	pH	TDS	D.O. %	Turb.	
SURFACE	77.8	11.14	0.344	9.96	0.2	140	8.7	52								
2	77.7	10.8	0.344	9.94	0.2	135.5	8.9	54								
4	77.6	10.42	0.344	9.93	0.2	130.8	7.8	56								
6	76.6	9.94	0.347	9.82	0.2	123.4	9.4	58								
8	71.4	5.69	0.361	9.05	0.2	66.9	31.1	60								
10	65.2	0.51	0.375	8.37	0.2	5.6	25.3	62								
12	57.8	0.38	0.395	8.37	0.3	3.8	27.4	64								
14	54.9	0.29	0.406	8.35	0.3	2.9	28.6	66								
16	52.5	0.23	0.419	8.36	0.3	2.1	27.6	68								
18	50.1	0.18	0.438	8.29	0.3	1.7	27.5	70								
20	48.2	0.13	0.446	8.19	0.3	1.2	27.5	72								
22								74								
24	46.5	0.04	0.45	8.13	0.3	0.4	24.1	76								
26	46.1	0.01	0.451	8.11	0.3	0.1	23.1	78								
28	45.7	0	0.454	8.08	0.3	0	22.3	80								
30	45.6	0	0.456	8.07	0.3	0	21.3	82								
32	45.4	0	0.457	8.06	0.3	0	19.7	84								
34	45.2	0	0.462	8.03	0.3	0	18.8	86								
36	45.1	0	0.464	8.02	0.3	0	18	88								
38	44.9	0	0.476	7.75	0.3	0	5999	90								
40								92								
42								94								
44								96								
46								98								
48								100								
50																

SPECIES AND RELATIVE ABUNDANCE OF FISHES COLLECTED BY NUMBER AND WEIGHT					
*COMMON NAME OF FISH	NUMBER	PERCENT	LENGTH RANGE (inches)	WEIGHT (pounds)	PERCENT
Bluegill	291	66.0	2.3 - 8.8	45.65	18.3
Spotted gar	49	11.1	13.7 - 36.1	73.45	29.5
Largemouth bass	40	9.1	2.4 - 17.2	38.24	15.4
Yellow perch	13	2.9	9.5 - 12.5	8.15	3.3
Yellow bullhead	9	2.0	9.7 - 12.2	6.62	2.7
Black crappie	7	1.6	4.4 - 10.0	2.97	1.2
Warmouth	7	1.6	5.8 - 8.2	2.35	0.9
Gizzard shad	5	1.1	12.5 - 16.5	5.66	2.3
Carp	5	1.1	23.1 - 28.5	47.93	19.3
Redear sunfish	4	0.9	7.0 - 9.0	1.55	0.6
Brown bullhead	3	0.7	13.2 - 14.5	4.03	1.6
Spotted sucker	2	0.5	16.9 - 17.4	4.22	1.7
Longear sunfish	1	0.2	5.8	0.21	0.1
White sucker	1	0.2	18.6	2.22	0.9
Bowfin	1	0.2	24.4	4.55	1.8
Hybrid sunfish	1	0.2	8.9	0.51	0.2
Rock bass	1	0.2	9.1	0.57	0.2
Pumpkinseed	1	0.2	4.6	0.08	0.0
Total (17 species, 1 hybrid)	441	100.0		248.96	100.0

\*Common names of fishes recognized by the American Fisheries Society.

Body of water: Loon	Gear	Effort	CPE
Date: 6/26-27/2006	EF	0.5	186
Species: Bluegill	GN	2	1
PSD: 51	TN	2	98

	GN	EF	TN	Total	
SS <sup>a</sup>	2	88	192	282	<sup>a</sup> stock size
QS <sup>b</sup>	2	45	75	122	<sup>b</sup> quality size
PS <sup>c</sup>	0	7	28	35	<sup>c</sup> preferred size
MS <sup>d</sup>	0	0	0	0	<sup>d</sup> memorable size
TS <sup>e</sup>	0	0	0	0	<sup>e</sup> trophy size
HS <sup>f</sup>	2	46	77	125	<sup>f</sup> harvestable size
Total	2	93	196	291	

Length	GN	EF	TN	Total	Avg. Wt.	Age
2.5	0	2	1	3	0.00	1
3.0	0	9	7	16	0.02	1
3.5	0	6	12	18	0.03	1, 2
4.0	0	5	47	52	0.04	2
4.5	0	11	30	41	0.05	2
5.0	0	9	17	26	0.08	2
5.5	0	5	5	10	0.11	2, 3
6.0	0	6	7	13	0.16	3, 4
6.5	0	10	8	18	0.19	3, 4
7.0	2	14	9	25	0.25	3, 4
7.5	0	6	19	25	0.31	4, 5
8.0	0	7	16	23	0.37	4, 5
8.5	0	3	17	20	0.45	4, 5, 6
9.0	0	0	1	1	0.47	6



Body of water: Loon	Gear	Effort	CPE
Date: 6/26-27/2006	EF	0.5	76
Species: Largemouth bass	GN	2	1
PSD: 73	TN	2	0

	GN	EF	TN	Total	
SS <sup>a</sup>	1	33	0	34	<sup>a</sup> stock size
QS <sup>b</sup>	1	24	0	25	<sup>b</sup> quality size
PS <sup>c</sup>	1	6	0	7	<sup>c</sup> preferred size
MS <sup>d</sup>	0	0	0	0	<sup>d</sup> memorable size
TS <sup>e</sup>	0	0	0	0	<sup>e</sup> trophy size
HS <sup>f</sup>	1	13	0	14	<sup>f</sup> harvestable size
Total	2	38	0	40	

Length	GN	EF	TN	Total	Avg. Wt.	Age
2.5	0	1	0	1	0.00	1
4.0	0	1	0	1	0.03	1
6.0	0	1	0	1	0.10	1
6.5	0	1	0	1	0.12	2
7.0	0	1	0	1	0.15	1
7.5	1	0	0	1	0.20	1
8.0	0	1	0	1	0.26	1
8.5	0	1	0	1	0.28	2
9.0	0	1	0	1	0.34	2
11.0	0	3	0	3	0.72	3
11.5	0	1	0	1	0.63	3
12.0	0	4	0	4	0.79	2, 3, 4
12.5	0	4	0	4	0.89	3, 4
13.0	0	2	0	2	0.85	3
13.5	0	3	0	3	1.03	4
14.0	0	4	0	4	1.21	3, 4, 5
14.5	0	1	0	1	1.58	
15.0	0	4	0	4	1.58	5, 6
15.5	0	1	0	1	1.96	7
16.0	0	2	0	2	1.69	5, 6
16.5	1	0	0	1	2.08	8
17.0	0	1	0	1	2.30	6

Back-calculated lengths-at-age for bluegill, largemouth bass, and yellow perch in Loon Lake in June 2006.

Bluegill		Year	Number	Back Calculated Length (inches) at Each Age					
Intercept = 0.8		Class	Aged	I	II	III	IV	V	VI
		2005	12	1.9					
		2004	29	1.7	3.1				
		2003	9	1.9	3.3	4.9			
		2002	20	1.5	2.6	4.2	6.0		
		2001	7	1.5	2.6	4.4	6.1	7.7	
		2000	2	1.6	2.8	4.2	6.6	7.5	8.2
		Average Length		1.7	2.9	4.5	6.0	7.7	0.0
		Standard Deviation		0.20	0.36	0.34	0.07	0.00	0.00

Largemouth bass		Year	Number	Back Calculated Length (inches) at Each Age							
Intercept = 0.8		Class	Aged	I	II	III	IV	V	VI	VII	VIII
		2005	5	5.2							
		2004	4	2.8	7.8						
		2003	11	4.3	8.4	11.7					
		2002	6	4.1	8.5	11.8	12.8				
		2001	5	3.9	9.5	12.5	14.0	14.7			
		2000	3	4.9	10.0	13.4	14.2	15.3	16.0		
		1999	1	3.8	7.9	11.9	13.2	14.1	14.7	15.4	
		1998	1	3.8	8.7	10.4	13.3	14.1	14.9	15.7	16.2
		Average Length		4.2	8.8	12.4	13.7	15.0	16.0	0.0	0.0
		Standard Deviation		0.82	0.88	0.81	0.75	0.39	0.00	0.00	0.00

Yellow perch		Year	Number	Back Calculated Length (inches) at Each Age								
Intercept = 1.2		Class	Aged	I	II	III	IV	V	VI	VII	VIII	IX
		1999	4	2.9	4.8	6.6	7.8	8.8	9.4	10.0		
		1998	5	3.3	5.3	6.9	8.0	9.1	9.9	10.4	10.8	
		1997	3	3.3	5.3	7.0	8.4	9.2	10.1	10.7	11.1	11.5
		Average Length		3.2	5.1	6.8	8.1	9.0	9.8	10.4	10.9	11.5
		Standard Deviation		0.20	0.29	0.20	0.30	0.23	0.34	0.35	0.18	0.00

Locations of gear types in Loon Lake in June 2006 given in decimal degrees.

GILL NETS				TRAP NETS				ELECTROFISHING			
1	N	41.08649075	W -85.9691227	1	N	41.08429134	W -85.9668268	1	N	41.08588457	W -85.969922
2	N	41.08204901	W -85.9688867	2	N	41.08287513	W -85.9703941		N	41.08131409	W -85.9671755
								2	N	41.08341157	W -85.9666283
									N	41.08232796	W -85.9696055