



Heron Taking Flight Off a Trapnet in Little Comfort Lake, September 2016

Fish Survey for Little Comfort Lake, 2016

Fish Survey Conducted: September 14-16, 2016

Minnesota DNR Permit Number: 21639

Prepared for:
Comfort Lake/Forest Lake
Watershed District and
Minnesota DNR



Prepared by:
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January 2017

Fish Survey for Little Comfort Lake, 2016

Summary

Fish Surveys: A total of 12 fish species were sampled using 4 trapnets set over 2-nights in Little Comfort Lake on September 15-16, 2016. The fish catch was dominated by bluegill sunfish. The number of bluegills caught per net was high with the average haul of 84.4 bluegills per net (Table S1). This is higher than the normal range of 6.5-59.6 bluegill sunfish per lift for a lake like Little Comfort lake.

In the 2016 survey, 2 adult carp were sampled for an average of 0.3 carp/net. This represents a low to moderate carp abundance. Carp have been sampled in previous fish surveys as well also at low numbers (Table S1). Carp likely have a low to moderate impact on water quality in Little Comfort Lake. It is likely that carp can move back and forth from Comfort to Little Comfort through the Highway 8 culvert as well. The abundant bluegill population should limit successful in-lake carp spawning in Little Comfort Lake.

Table S1. Little Comfort Lake trapnet results for the fish survey conducted in 1980, 1985, 1990, and 2000 by the MNDNR and in 2016 by Blue Water Science. Fish data are shown as fish/trapnet.

	1980 June 20 (MnDNR)	1985 June 17 (MnDNR)	1990 June 18 (MnDNR)	2000 June 22 (MnDNR)	2016 September 15 and 16 (8 nets) (Blue Water Science)	DNR Range
Black bullhead	1.3	1.3	1.0	0.5	0.1	1.3 - 26
Black crappie	4.5	5.8	15.5	7.3	2.0	1.8 - 18.1
Bluegill	24.0	53.8	45.8	112.3	84.4	6.5 - 59.6
Bowfin (dogfish)	2.5	1.3	0.5	1.5	1.1	0.3 - 1.0
Brown bullhead	1.0	1.5	0.3	0.2		0.5 - 5.4
Carp	0.3		1.3		0.3	0.3 - 2.6
Golden shiner					0.8	
Green sunfish	5.3		0.5			0.3 - 2.0
Hybrid sunfish	2.3			0.8		NA
Largemouth bass			0.3	0.2	0.3	0.3 - 0.8
Northern pike	0.3	0.3	0.8	0.2	0.1	NA
Pumpkinseed	6.3	1.3	2.3	1.5	2.3	0.8 - 5.3
Walleye					0.1	
White crappie	0.8	7.5				0.4 - 4.6
White sucker		0.8			0.1	0.3-1.6
Yellow bullhead		1.0	0.3		1.0	0.8 - 5.0
Yellow perch			0.3			0.3 - 1.5

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Introduction

The potential adverse impacts of carp on lake water quality are suspected in Little Comfort Lake. To evaluate the potential fish impacts, trapnets in were used Little Comfort Lake. The fish survey was conducted in September of 2016 with the objective to determine if young carp were present as well as to supplement the fish community data base.

Lake characteristics are summarized in Table 1 and lake locations are shown in Figure 1.

Table 1. Characteristics of Little Comfort Lake.

	Minnesota Protected Water ID	Size (ac)	Maximum Depth (ft)	Last Fish Survey MnDNR
Little Comfort Lake	13-0054-00	36	56	2000

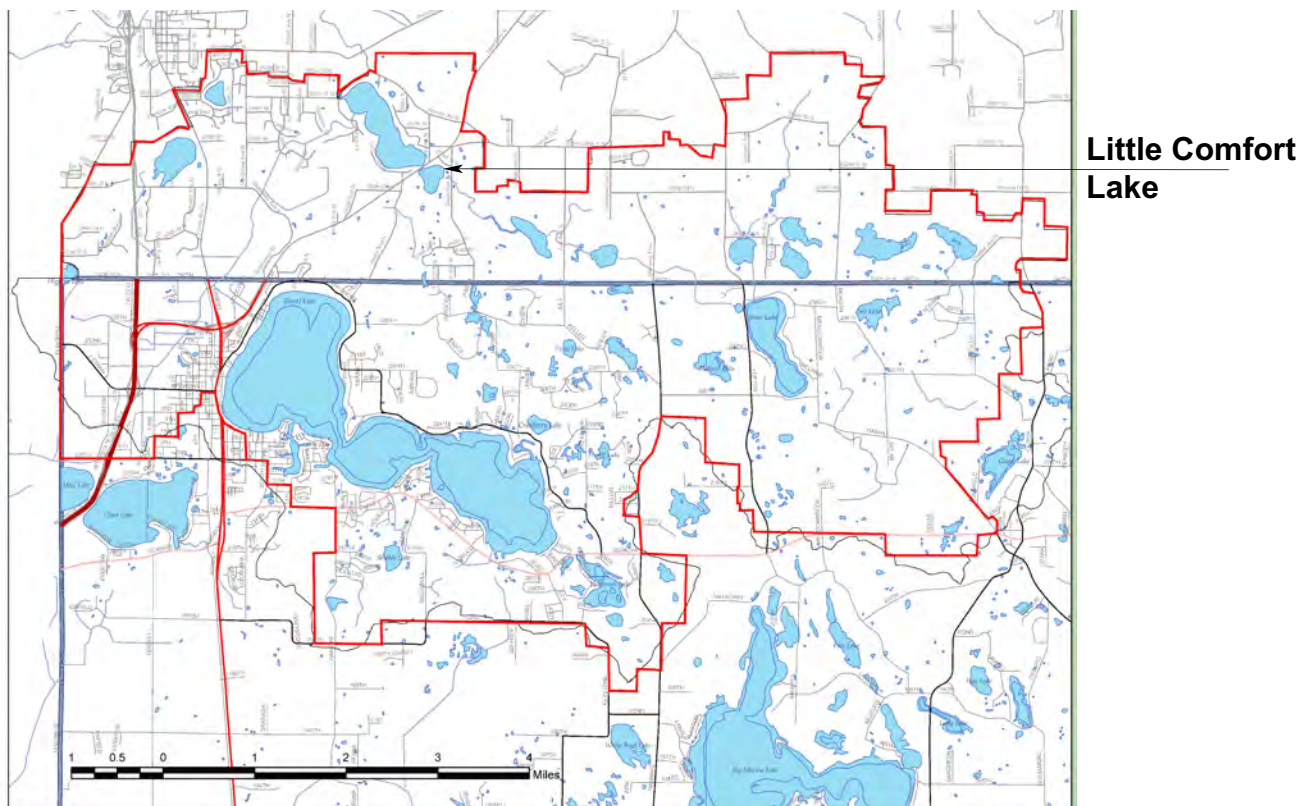


Figure 1. Lake locations within the Comfort Lake/Forest Lake Watershed.

Methods

Fish Survey: In 2016, a fish survey used a total of 4 trapnets set for 2 nights from September 14-15, 2016. The standard-sized trapnet was a MnDNR-style with a 4 x 6 foot square frame with five hoops, two throats and a 50-foot lead. The net mesh size was ½ inch (bar length). Locations of the trapnets in Little Comfort Lake are shown in Figure 2. All fish that were captured were recorded and released back into Little Comfort Lake.

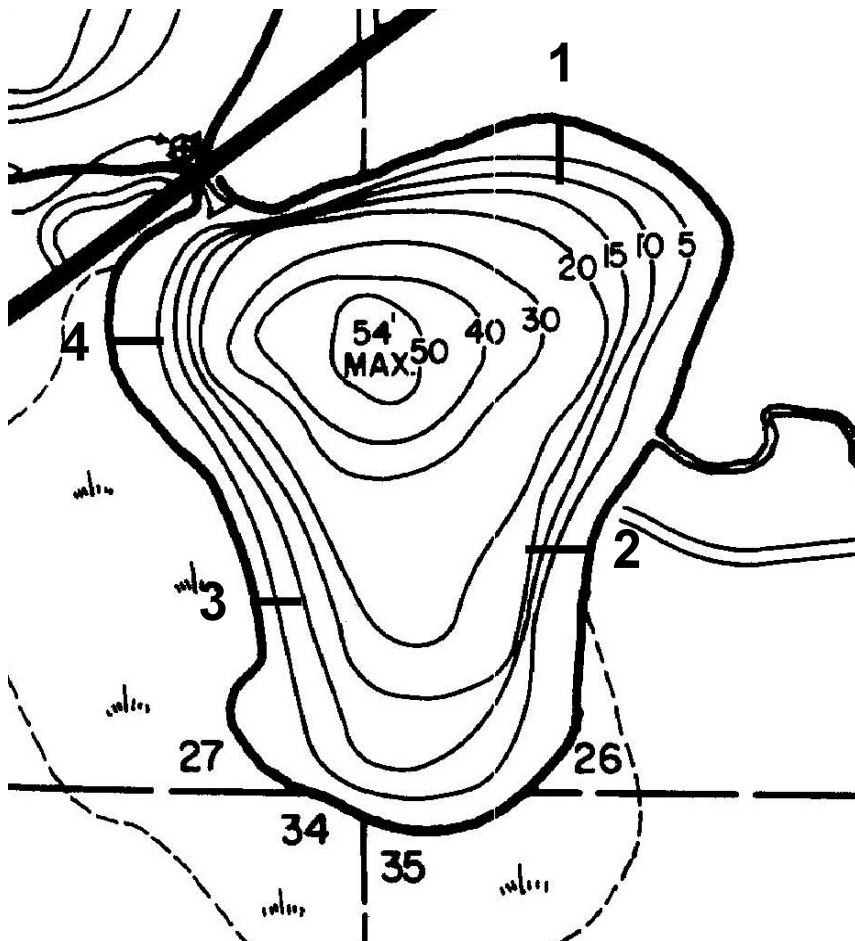


Figure 2. Net locations for the trapnet survey in Little Comfort Lake.

Methods - continued

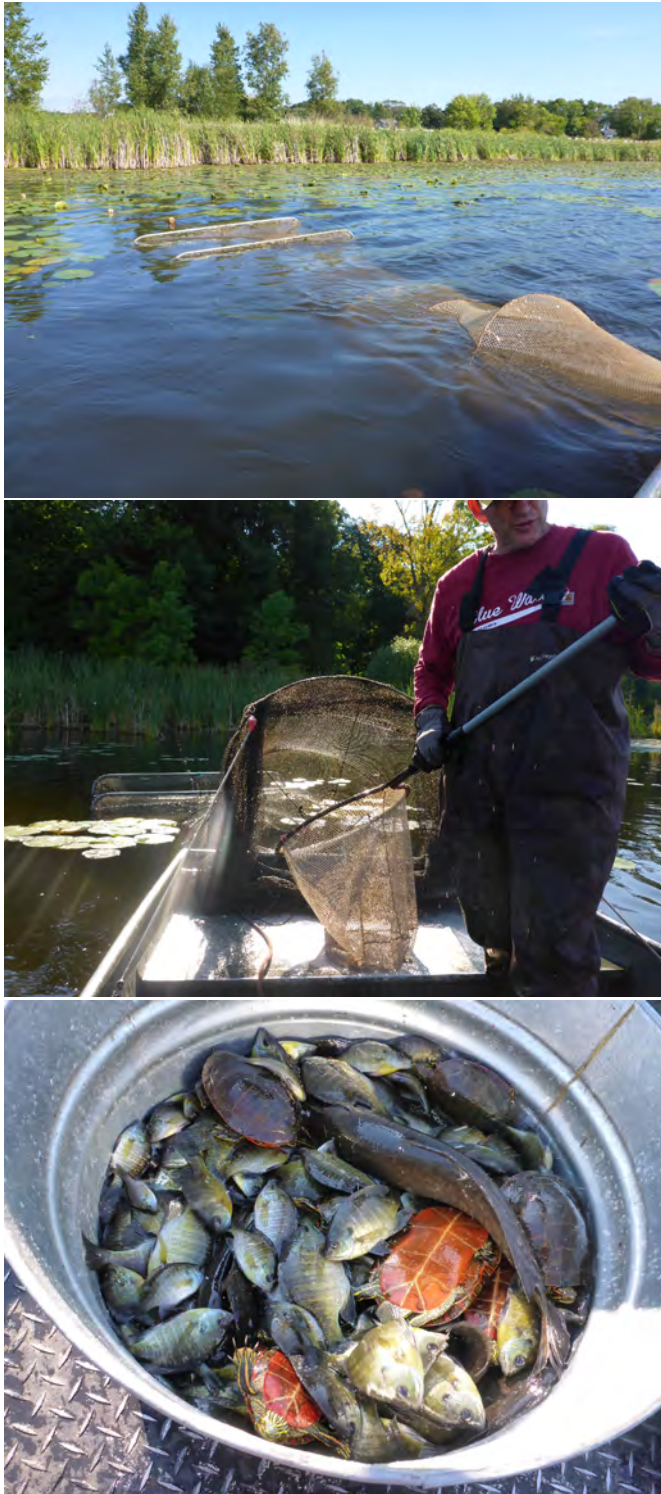


Figure 3. Fish sampling in the Little Comfort Lake fish survey. A trapnet is a live fish trap. The net is staked on the shoreline. From the shoreline and running perpendicular to shore is the 50-foot lead, which looks like a seine. The lead net is attached to a frame. Attached to the frame is a series of 5 hoops with 2 funnel mouths. Fish swim into the back hoop and are then removed from the back hoop with a landing net. Then they are placed to a tub to be measured and returned to the lake. A flag marks the end of the back hoop.

Little Comfort Lake Fish Survey Results

A total of 12 fish species were sampled in 4 trapnets over 2-days in Little Comfort Lake on September 15-16, 2016. The fish catch was dominated by bluegill sunfish. The number of bluegills caught per net was high with the average haul of 84.4 bluegills per net (Table 2). This is higher than the normal range of 6.5-59.6 bluegills per lift for a lake like Little Comfort Lake.

Table 2. Little Comfort Lake trapnet results for the fish survey conducted in September 2016.

	Fish Captured (September 15-16, 2016)								Total Catch	2016 Fish per Net (n=8)	Normal Range (MnDNR)
	Net 1		Net 2		Net 3		Net 4				
	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2			
Black bullhead (<i>Ameiurus melas</i>)		1							1	0.1	1.3-26.0
Black crappies (<i>Pomoxis nigromaculatus</i>)			5	4			4	3	16	2.0	1.8-18.1
Bluegill sunfish (<i>Lepomis macrochirus</i>)	42	23	262	126	63	20	94	45	675	84.4	6.5-59.6
Carp (<i>Cyprinus carpio</i>)	1	1							2	0.3	0.3-2.6
Dogfish (<i>Amia calva</i>)		1	2		2	2		2	9	1.1	0.3-1.0
Golden shiner (<i>Notemigonus crysoleucas</i>)				2	1		1	2	6	0.8	NA
Largemouth bass (<i>Micropterus salmoides</i>)				2					2	0.3	0.3-0.8
Northern pike (<i>Esox lucius</i>)						1			1	0.1	NA
Pumpkinseed (<i>Lepomis gibbosus</i>)			9	5		1	3		18	2.3	0.8-5.3
Walleye (<i>Sander vitreus</i>)						1			1	0.1	NA
White sucker (<i>Catostomus commersonii</i>)		1							1	0.1	0.3-1.6
Yellow bullhead (<i>Ameiurus natalis</i>)			2	2	1		3		8	1.0	0.8-5.0
TOTAL FISH	43	27	280	141	67	25	105	52	740	92.5	
Turtles											
Painted	7	9	19	10			1	2	48	6.0	NA
Snapping	1						1		2	0.3	NA

Fish Lengths: Fish lengths are shown in Table 3.

Table 3. Length frequency of fish species (as total length) for the Little Comfort Lake fish survey. Blue shading indicates bluegill young-of-the-year.

size (inches)	Black bullhead	Black crappie	Bluegill	Carp	Dogfish	Golden shiner	Large-mouth bass	Northern pike	Pumpkin-seed	Walleye	White sucker	Yellow bullhead
<3			1									
3			23									
3.5			65				1		7			
4			109			1			2			1
4.5			109			1			4			
5		1	70			2			1			
5.5		1	68						1			
6			46						1			
6.5		1	82			1			2			
7		3	83									
7.5		1	16									
8		3	2			1						1
8.5		1										
9		2	1									
9.5												
10		2										1
10.5												2
11												
11.5		1										
12												2
12.5												
13	1											
13.5												1
14												
14.5					1							
15					1							
15.5								1				
16							1					
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17.5												
18											1	
18.5												
19					2							
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20					1							
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21					2							
21.5												
22				1	1							
22.5												
23				1								
23.5												
24												
24.5												
25					1							
25.5												
26												
26.5												
27										1		
TOTALS	1	16	675	2	9	6	2	1	18	1	1	8

Little Comfort Lake - Trapnet Results

Examples of some of the fish species sampled are shown in Figure 4.

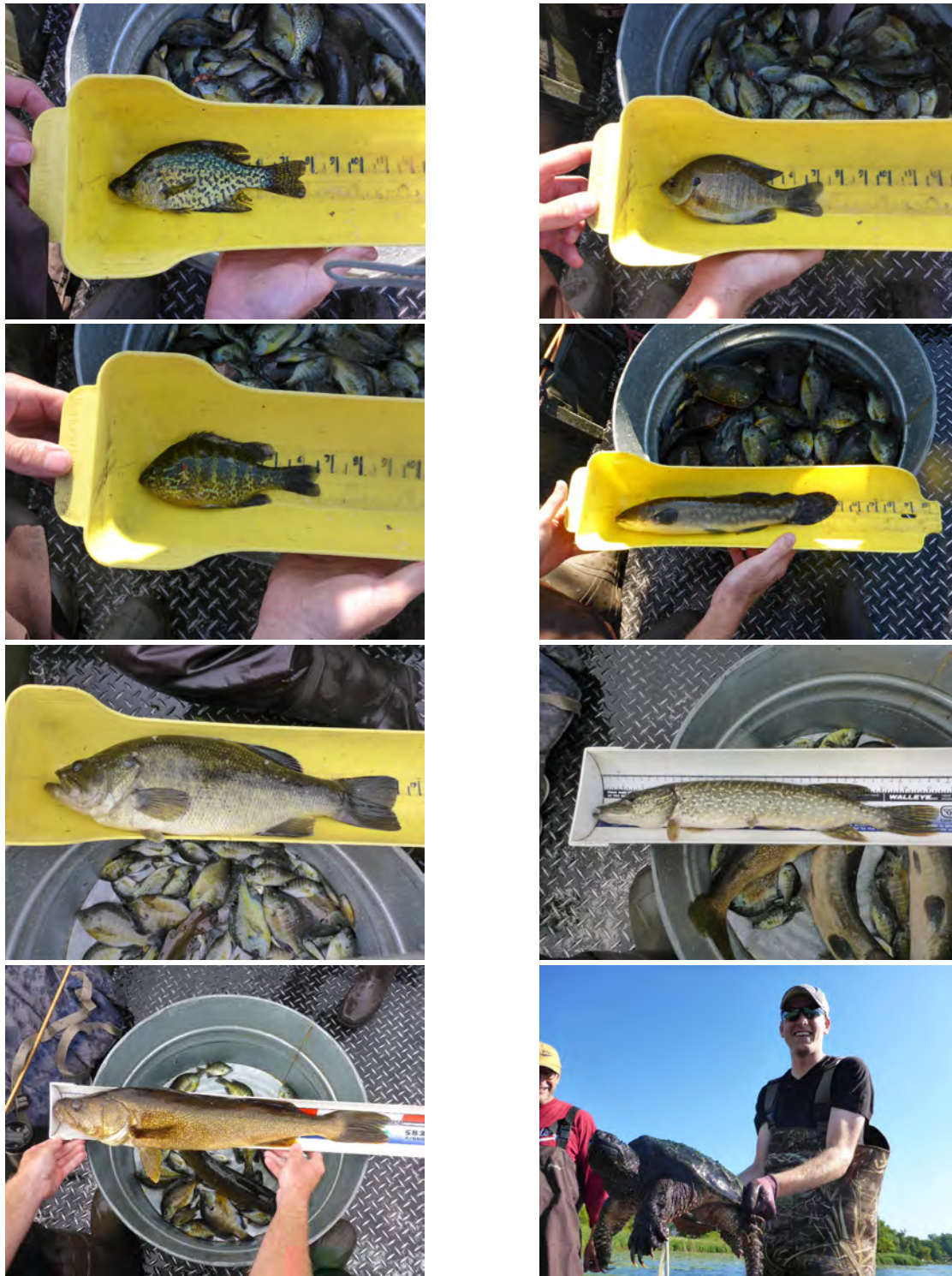


Figure 4. Little Comfort Lake had a number of fish species caught in the 2 days of sampling. [top-left] Black crappie. [top-right] Bluegill. [middle-top left] Pumpkinseed sunfish. [middle-top right] Bowfin. [middle-bottom left] Largemouth bass. [middle-bottom right] Northern pike. [bottom-left] Walleye. [bottom-right] Snapping turtle.

Previous Little Comfort Lake Fish Surveys: In 4 previous MnDNR fish surveys in Little Comfort Lake, bluegill sunfish have been the dominant fish. In 2016 the dominant fish was again bluegill sunfish (Table 4). Overall, the fish community in Little Comfort Lake has been fairly stable.

Table 4. Little Comfort Lake trapnet results for the fish survey conducted in 1980, 1985, 1990, and 2000 by the MNDNR and in 2016 by Blue Water Science. Fish data are shown as fish/trapnet.

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Golden shiner					0.8	
Green sunfish	5.3		0.5			0.3 - 2.0
Hybrid sunfish	2.3			0.8		NA
Largemouth bass			0.3	0.2	0.3	0.3 - 0.8
Northern pike	0.3	0.3	0.8	0.2	0.1	NA
Pumpkinseed	6.3	1.3	2.3	1.5	2.3	0.8 - 5.3
Walleye					0.1	
White crappie	0.8	7.5				0.4 - 4.6
White sucker		0.8			0.1	0.3-1.6
Yellow bullhead		1.0	0.3		1.0	0.8 - 5.0
Yellow perch			0.3			0.3 - 1.5
Number of fish species	11	10	12	9	12	--

Conclusions: A total of 12 fish species were sampled using 4 trapnets set over 2-nights in Little Comfort Lake on September 15-16, 2016. The fish catch was dominated by bluegill sunfish. The number of bluegills caught per net was high with the average haul of 84.4 bluegills per net (Table 4). This is higher than the normal range of 6.5-59.6 bluegill sunfish per lift for a lake like Little Comfort lake.

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Appendix - Notification

From: Steve McComas [mailto:mccomas@pdink.com]
Sent: Tuesday, September 13, 2016 8:45 AM
To: Leslie George (DNR); Capt. Jason Peterson
Cc: Michael Kinney
Subject: Fish survey notification for Little Comfort Lake, Chisago County

Hello all,

Blue Water Science will be conducting a fish survey in Little Comfort Lake (MN ID 13005400), Chisago County, starting on Wednesday, September 14, 2016. We will set 4 fyke nets on Wednesday. The nets will be monitored daily on Thursday and Friday and all fish will be weighed and measured and returned to the lake. The nets will be removed from the lake on Friday, September 16. The fish survey is sponsored by the Comfort Lake/Forest Lake Watershed District with the objectives of characterizing the existing fish community structure and assess potential impacts of fish on water quality.

This survey is being conducted under the permit number: 21639.

Thank you,
Steve McComas
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