



Fish from Pomerleau Lake, October 2012

Fish Survey of Pomerleau Lake (ID #27-0100), Hennepin County, Minnesota in 2012

Survey Dates: October 4-5, 2012

MnDNR Permit Number: 18557

Prepared for:
City of Plymouth and
MnDNR



Prepared by:
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St. Paul, MN

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Introduction

Pomerleau Lake (ID: 27-0100) is a 29.5-acre shallow lake, located in Hennepin County, Minnesota. In October 2012, the City of Plymouth sponsored a fish survey conducted by Blue Water Science under permit number 18557 granted from the MnDNR. The objectives were to characterize the fish community in Pomerleau Lake and compare results to the previous survey from 1994.

Methods

Four standard trapnets were sampled for two days for a total of eight lifts to survey fish in Pomerleau Lake. The trapnet was a MnDNR-style with a 4 x 6 feet square frame with two funnel mouth openings and 50-foot lead. Net mesh size was 3/8 inch. Four standard trap nets were set on October 3, 2012. Four nets were fished for the following 2 days (October 4, 5). Trapnet locations are shown in Figure 1 and pictures of a typical trapnet operation are shown in Figure 2.



Figure 1. Map of trapnet sets in Pomerleau Lake.



A trapnet is a live fish trap. Fish run into the 50-foot lead net and follow it back through a series of hoops with funnel mouths. Fish end up in the back hoop. The flag marks the end of the back hoop



A dip net is used to remove the fish from the back of the trapnet.



Fish are transferred to tubs, then they are counted, measured, and released.

Figure 2. Trapnet set and fish sampling in the Pomerleau Lake fish survey.

Results

Fish Results: A total of four fish species were sampled in Pomerleau Lake on October 4 and 5, 2012. Black Bullheads were the most abundant species followed by black crappies. Nets 2 and 4, were the most productive (Table 1).

The average number of black bullheads caught per net was 23.1 which was on the high end of the MnDNR normal range (Table 1). Black crappies also were found at the high end of the normal DNR range at 15.8 fish/net. Bluegill sunfish abundance was low based on standard ranges compiled by the MnDNR. Northern pike abundance was about average, but their average length was on the small side.

Table 1. Pomerleau Lake trapnet results for the fish survey conducted in October 2012.

	October 4-5, 2012								Total Catch	Number 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 bullheads (<i>Ameiurus melas</i>)	0	0	91	31	0	0	55	8	185	23.1	1.3 - 26.0
Bluegill sunfish (<i>Lepomis macrochirus</i>)	0	0	0	0	1	0	0	0	1	0.13	6.5 - 59.6
Black crappies (<i>Pomoxis nigromaculatus</i>)	5		58	11	5	0	46	1	126	15.8	1.8 - 18.1
Northern pike (<i>Esox lucius</i>)	1	2	0	1	0	0	0	1	5	0.6	NA
TOTAL FISH	6	2	149	43	6	0	101	10	317	-	--

Other notes: average weight of black bullheads: 0.21 lb/fish
 average weight of black crappies: 0.12 lb/fish
 average weight of northern pike: 1 lb/fish



Figure 3. A total of nine painted turtles were captured with the eight net lifts.

Fish Lengths: Fish lengths are shown in Figure 4 and Table 2. Northern pike were present with lengths from 14 to 20.5 inches. At these lengths, the northern pike population has the potential to capture and ingest small to medium-sized fish and could keep sunfish from becoming overpopulated and producing stunted growth conditions (Table 2).

Black bullheads ranged in size from 4 to 11 inches and the 8-inch length was the dominant size class.

Black crappies ranged in size from 3 to 11.5 inches, but tended to be small with the 3 to 4 inch size class dominating (Figure 4 and Table 2).

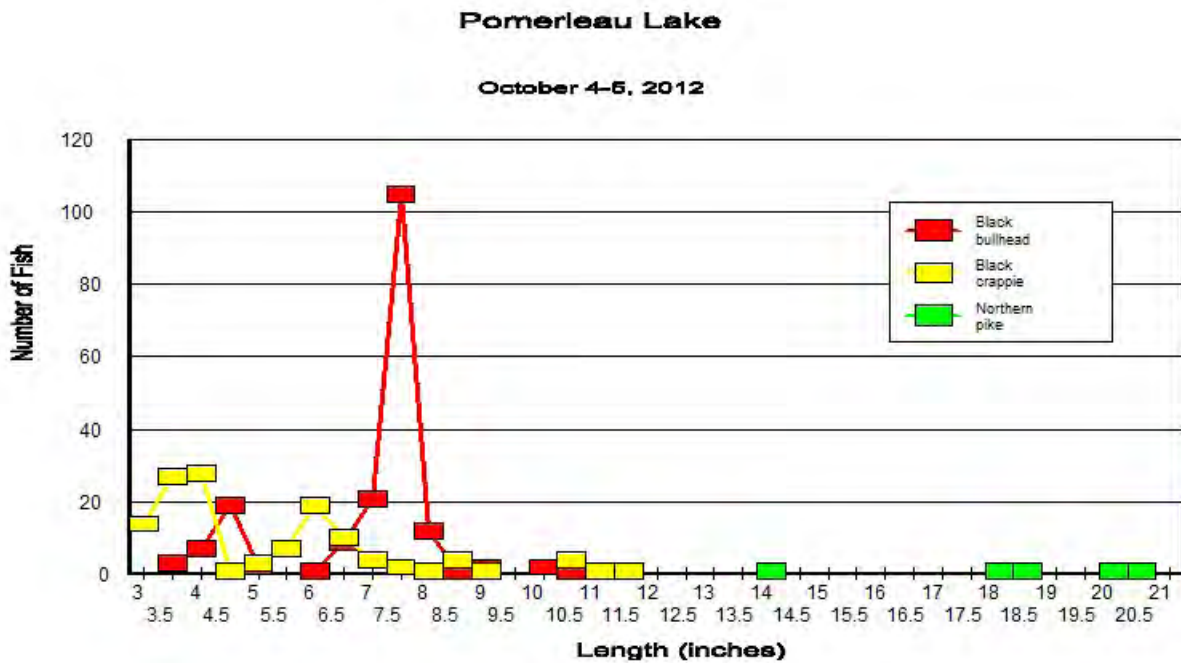
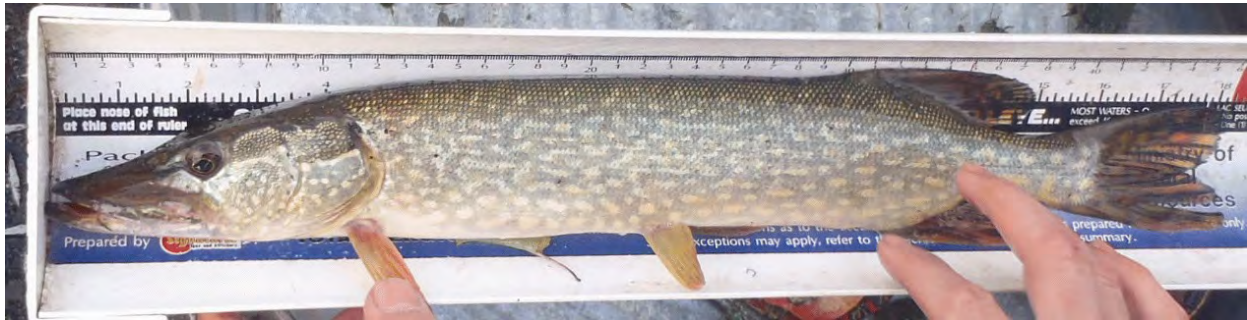


Figure 4. Length distribution of fish from the October 2012 survey in Pomerleau Lake.

Table 2. Length frequency of fish species (as total length) for the Pomerleau Lake fish survey.

Length (inches)	Black Bullhead	Bluegill Sunfish	Black Crappies	Hybrid Sunfish	Northern Pike	Pumpkinseed Sunfish
1.5						
2						
2.5						
3			14 (11%)			
3.5			27 (21%)			
4	3 (1.6%)		28 (22%)			
4.5	7 (3.8%)	1 (100%)	1 (0.8%)			
5	19 (10%)		3 (2.4%)			
5.5	2 (1.1%)		7 (5.5%)			
6			19 (15%)			
6.5	1 (0.5%)		10 (7.9%)			
7	9 (4.9%)		4 (3.1%)			
7.5	21 (11%)		2 (1.6%)			
8	105 (57%)		1 (0.8%)			
8.5	12 (6.5%)		4 (3.1%)			
9	1 (0.5%)		1 (0.8%)			
9.5	2 (1.1%)					
10						
10.5	2 (1.1%)		4 (3.1%)			
11	1 (0.5%)		1 (0.8%)			
11.5			1 (0.8%)			
12						
12.5						
13						
13.5						
14					1 (20%)	
14.5						
15						
15.5						
16						
16.5						
17						
17.5						
18					1 (20%)	
18.5					1 (20%)	
19						
19.5						
20					1 (20%)	
20.5					1 (20%)	
21						
Number of fish caught	185	1	127		5	

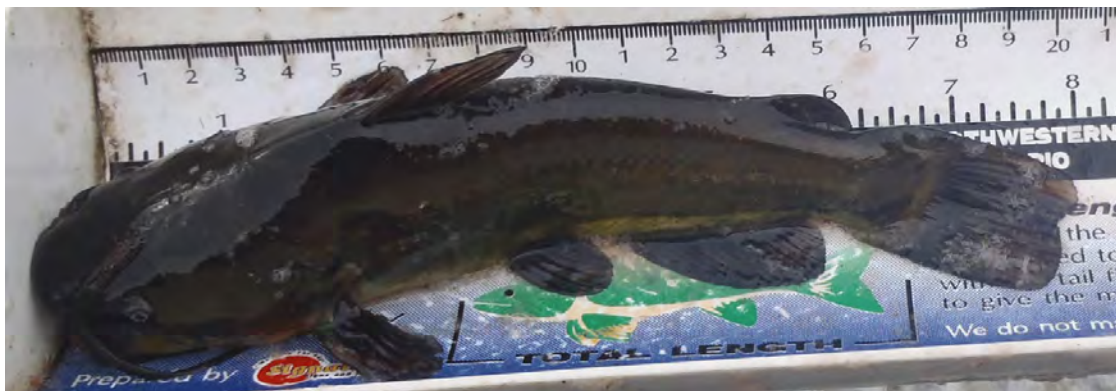
Representative Fish Species of Pomerleau Lake



Typical northern pike



Black crappie



Black bullhead

Historical Trapnet Fish Survey Records for Pomerleau Lake

The last fish survey conducted on Pomerleau Lake was in 1994 (Table 3). The fish community has changed considerably since 1994. In 1994, small green sunfish were the dominant fish and in 2012 they were not observed. Also small-sized largemouth bass were plentiful in 1994 and were not observed in 2012 (Table 3).

Black bullheads and small crappies were the dominant fish in 2012. It appears partial winterkills likely occur which could account for the change in the fish community from 1994 to 2012.

A contour map (Figure 5) indicates about 10 acres of the lake has depths of 15 feet or greater of the 30 acre lake. This is about 33% of the lake area and normally a lake like this shouldn't winterkill because there is enough volume of water to sustain oxygen levels through the winter. Still, it appears there could have been a partial winterkill in the past.

Table 3. Historical trapnet fish survey records.

	Trapnet Results		
	Fish per Net 1994	Fish per Net (n=8) 2012	Normal Range (MnDNR)
Black bullheads	2.5	23.1	1.3 - 26
Bluegills	1.8	0.13	6.5 - 59.6
Crappies	4.3	15.8	1.8 - 18.1
Largemouth bass	19.8	0	0.3 - 0.8
Northern pike	0	0.6	NA
Green Sunfish	480.7	0	0.3 - 2.0
TOTAL FISH/NET	509	40	--

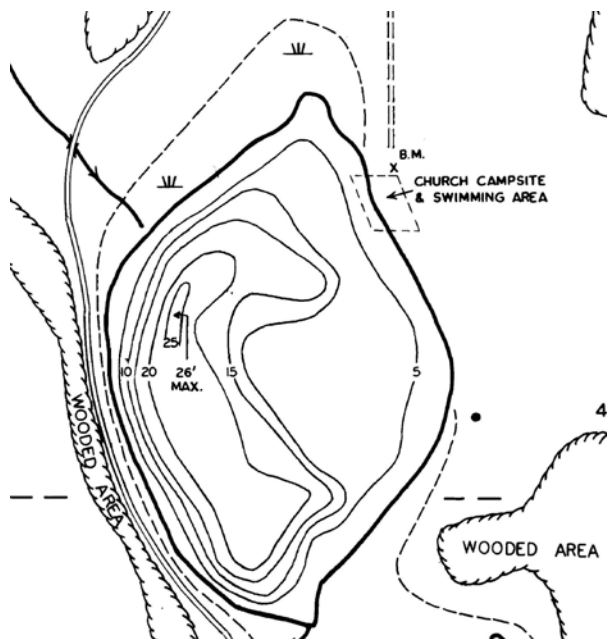


Figure 5. MnDNR lake map.

Discussion

General Findings In This Survey: The catch per net was relatively high for black bullheads and crappies, but low for bluegills and moderate for northern pike. The crappie population was dominated by small sizes and bullheads were dominated by an 8-inch size class.

Pomerleau Lake offers fair fishing opportunities based on the size of crappies and northern pike found in this survey. Fishing could get better in future years if the crappies grow into larger size classes.



Figure 6. Cattails and waterlilies ringed the majority of the shoreline of Pomerleau Lake.

Gamefish Predation to Control Stunted Panfish: The existing fish community in Pomerleau Lake has fair piscivore pressure (piscivores in Pomerleau Lake are primarily pike) which may help to control stunted sunfish and, possibly, bullhead populations. Based on theoretical piscivore lengths and converting their length to mouth gape width (Figure 7) it is apparent that the piscivore lengths in Pomerleau Lake, when converted to gape widths, would exert some predation pressure to prevent stunted bluegill (typical around 4-inches) from getting too abundant. However, northern pike may not be very effective at controlling black bullhead populations.



Figure 6. Gamefish (piscivores) usually select prey that can be swallowed, which is a function of the piscivore gape versus the prey body depth. This 24-inch northern pike from White Bear Lake made a mistake. It attempted to ingest a seven inch bluegill. The 24-inch pike has a 2.0 inch gape, but a 7-inch bluegill has a body depth of 2.3 inches. This pike was found floating and basically choked on the bluegill.

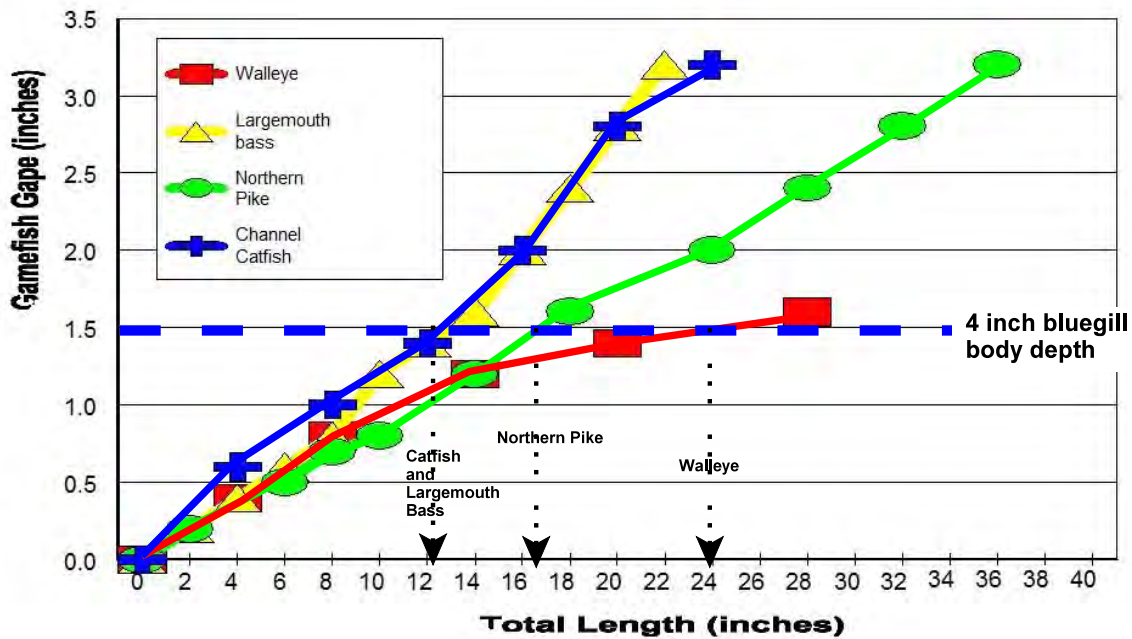


Figure 7. Gamefish gape increases as a function of its total length. The gape determines the size of the prey fish that can be swallowed. For example, a 4-inch bluegill has a body depth of 1.5 inches. To ingest a 4-inch bluegill it would take a 12-inch bass that has a gape of 1.5 inches. There are northern pike in Pomerleau Lake that should be able to ingest 4-inch bluegills or smaller.

Conclusions and Recommendations

The trapnet survey in 2012 found the fish community was composed of four species. Crappies were somewhat abundant but were small-sized. The bluegill sunfish abundance was below average for trapnet catches in 2012, but could improve in the future. The northern pike population has a size range of 14 to 21 inches and several year classes indicate reproduction may be occurring.

Recommendations and future considerations include the following:

- In Pomerleau Lake, northern pike currently are the only gamefish.
- Partial winterkills may occur occasionally. Although winter aeration could keep fish alive over winter, it is not a critical need. The fish community is somewhat kept in check with an occasional winterkill. It would be informative to collect dissolved oxygen and temperature profiles in February to check for potential winterkill conditions.
- Water quality could benefit from harvesting black bullheads by commercial fishermen for 2 to 3 years while stocking largemouth bass.
- In three to four years another fish survey should be conducted to evaluate conditions and re-evaluate recommendations.



Figure 8. The main inflow tributary was dry in October, 2012.

Appendix A

Minnesota DNR Fish Survey Notification and 1994 Minnesota DNR Fish Survey

From: Steve McComas [mailto:mccomas@pdink.com]
Sent: Tuesday, October 02, 2012 8:13 AM
To: Daryl Ellison ; Greg Salo
Cc: Kevin Springob
Subject: Fish survey on Pomerleau Lake, Hennepin County

Hello all,

Blue Water Science will be conducting a fish survey in Pomerleau Lake (27-100), Hennepin County, starting on Wednesday, October 3, 2012. We will set 4 standard fyke nets on Wednesday in the lake. The nets will be monitored daily and all fish will be weighed, measured, and returned to the lake. The nets will be removed from the lake on Friday, October 5, 2012. The fish survey is sponsored by the City of Plymouth District with the objectives to characterize the existing fish community structure, assess potential impacts of fish on water quality, and update the fish community from the last survey.

This survey is being conducted under the permit number: 18557

Cordially,

Steve McComas
BLUE WATER SCIENCE
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St. Paul, MN 55116
651 690 9602
mccomas@pdink.com

Name: POMERLEAU

Nearest Town: CRYSTAL
Primary County: Hennepin

Survey Date: 07/05/1994
Inventory Number: 27-0100-00

Lake Characteristics

Lake Area (acres): 29.50
[Littoral Area](#) (acres): 19.80
Maximum Depth (ft): 26.00
[Water Clarity](#) (ft): 5.00

[Dominant Bottom Substrate](#): muck, sand, marl
[Abundance of Aquatic Plants](#): abundant
Maximum Depth of Plant Growth (ft): 12.00

Fish Sampled up to the 1994 Survey Year

Species	Gear Used	Number of fish per net		Average Fish Weight (lbs)	Normal Range (lbs)
		Caught	Normal Range		
Black Bullhead	Trap net	2.5	1.3 - 26.0	0.38	0.2 - 0.5
Black Crappie	Trap net	4.3	1.8 - 18.1	0.14	0.2 - 0.3
Bluegill	Trap net	1.8	6.5 - 59.6	0.36	0.1 - 0.2
Green Sunfish	Trap net	480.7	0.3 - 2.0	0.11	0.1 - 0.1
Largemouth Bass	Trap net	19.8	0.3 - 0.8	0.05	0.2 - 1.1

Normal Ranges represent typical catches for lakes with similar physical and chemical characteristics.

Length of Selected Species Sampled for All Gear for the 1994 Survey Year

Species	Number of fish caught in each category (inches)								Total
	0-5	6-8	9-11	12-14	15-19	20-24	25-29	30+	
Black Bullhead	0	10	5	0	0	0	0	0	15
Black Crappie	17	7	2	0	0	0	0	0	26
Bluegill	1	10	0	0	0	0	0	0	11
Green Sunfish	135	17	0	0	0	0	0	0	152
Largemouth Bass	118	1	0	0	0	0	0	0	119

Fish Consumption Guidelines

No fish consumption guidelines are available for this lake. For more information, see the "[Fish Consumption Advice](#)" pages at the [Minnesota Department of Health](#).

Status of the Fishery (as of 07/05/1994)

Green sunfish are by far the most abundant in this lake. They were netted at over 125 times the average when compared to similar lakes. Largemouth bass were also sampled at high levels. However they only averaged 4.9 inches in length. Black crappies and black bullheads were sampled in average numbers. The mean length of the black crappies was only 5.7 inches. The bluegill population was found to be low. Of those bluegills sampled, the average weight per fish was nearly one half of a pound. Their mean length was 7.7 inches. All of the land around Pomerleau Lake is privately owned.

For more information on this lake, contact:

Area Fisheries Supervisor
7050 E Hwy 101, Suite 100
Shakopee, MN 55379
Phone: (952) 496-4141
E-Mail: MetroWest.Fisheries@state.mn.us

For general DNR Information, contact:

DNR Information Center
500 Lafayette Road
St. Paul, MN 55155-4040
TDD: (651) 296-6157 or (888) MINNDNR
Internet: www.dnr.state.mn.us
E-Mail: info.dnr@state.mn.us

Lake maps can be obtained from:

Minnesota Bookstore
660 Olive Street
St. Paul, MN 55155
(651) 297-3000 or (800) 657-3757
To order, use [C1346](#) for the map-id.



Turn in Poachers (TIP):

Toll-free: (800) 652-9093