

Fisheries Management
Lake Name: Poplar
Survey Type: Standard Survey
DOW Number: 16-0239-00
Survey ID Date: 07/25/2016
Lake Identification

 Alternate Lake Name: N/A
 Primary Lake Class ID: 3

 DNR Sounding Map Number: B0092
 Alternate Lake Class ID: N/A

Lake Location

Primary County: Cook

Nearest Town: Grand Marais

Legal Descriptions

 Lake Center: Township - 64N Range - 1W Section - 7
 PLS Section Lake Center: 6400107

All Legal Descriptions:

 Cook County: Township - 64N Range - 1W Sections - 5, 6, 7, 8
 Township - 64N Range - 2W Sections - 1, 2, 11, 12

Area Office

 Area Name: Grand Marais
 Region Name: Northeast

 ORG Code: F218
 Region Number: 2

Lake Access

(Information based on Re-Survey dated 07/24/2006)

<u>Station ID</u>	<u>Ownership</u>	<u>Public Use</u>	<u>Type</u>	<u>Location / Comments</u>
AC - 1	US Forest Service	Open to Public use	Concrete	New concrete access at the west end of the lake is reached from a road the Gunflint Trail (Co. Rd. 12). Parking for many vehicles.
AC - 2	Private Property	Landowner's permission needed	Earthen	Accesses at various resorts.

Lake Characteristics

Lake Area (planimetered acres):	728.00	GIS Shoreline Length (miles):	23.22
GIS Lake Area (acres):	764.00	Maximum Fetch (miles):	3.30
DOW Lake Area (acres):	950.00	Fetch Orientation (degrees):	315
Littoral Area (acres):	290.00	USGS Quad Map Number:	F27d
Area in MN (acres):	764.00	USGS Quad 24K GIS Index:	1154
Maximum Depth (feet):	73.0		
Mean Depth (feet):	N/A		

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Watershed Characteristics

Major Watershed

Name: Lake Superior - North
 Watershed Number: 1
 Watershed size (acres): 1,015,865

Minor Watershed

Name: Poplar Cr
 Watershed Number: 43
 Watershed size (acres): 11,015

Surveys and Investigations

Initial Survey: 08/05/1948.

Re-Survey: 07/24/2006, 08/12/1991, 07/15/1980, 08/31/1955.

Population Assessment: 07/09/2012, 08/03/2009, 08/04/2003, 07/26/1999, 07/28/1997, 07/31/1995, 07/12/1993, 08/08/1988, 08/07/1987, 07/28/1986, 08/07/1984, 07/15/1982, 09/03/1981, 08/07/1979, 09/05/1978, 07/25/1977, 08/07/1972, 07/26/1971, 08/20/1969, 07/22/1963, 08/24/1959.

Special Assessment: 08/04/2008, 07/16/2007.

Standard Survey: 07/25/2016.

Targeted Survey: 06/16/2016.

Current Water Level

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 3	07/25/2016	Normal	-4.86	Above or below Benchmark

Benchmark and Gauge Descriptions / Locations

Station ID	Location Description
BM - 3	20 yards east of public access- 10ft long x 6ft tall boulder- reading taken on the highest point of the second level of the south side of boulder (2006).

Water Level History - Readings

Station ID	Date	Level	Reading (feet)	Reading Type
BM - 1	08/08/2006	Low	-3.70	Above or below Benchmark
BM - 2	08/09/2006	Low	-5.00	Above or below Benchmark
BM - 3	07/25/2016	Normal	-4.86	Above or below Benchmark
	07/09/2012	Normal	-4.75	Above or below Benchmark
	07/31/2006	Low	-2.75	Above or below Benchmark
BM - 5	09/18/1979	N/A	-3.10	Above or below Benchmark
BM - 6	09/22/1977	High	-2.60	Above or below Benchmark
	10/19/1976	Low	-3.90	Above or below Benchmark

Water Level History - Station Summary

Station ID	Minimum Level		Maximum Level		Range (feet)	Average Level (feet)	Reading Type (and number of readings)
	Feet	Date	Feet	Date			
BM - 1	-3.70	08/08/2006	-3.70	08/08/2006	0.00	-3.70	Above or below Benchmark (1)
BM - 2	-5.00	08/09/2006	-5.00	08/09/2006	0.00	-5.00	Above or below Benchmark (1)
BM - 3	-4.86	07/25/2016	-2.75	07/31/2006	2.11	-4.12	Above or below Benchmark (3)
BM - 5	-3.10	09/18/1979	-3.10	09/18/1979	0.00	-3.10	Above or below Benchmark (1)
BM - 6	-3.90	10/19/1976	-2.60	09/22/1977	1.30	-3.25	Above or below Benchmark (2)

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Dissolved Oxygen and Temperature Profile of Lake Water

<u>Station ID</u>	<u>Sampling Date</u>	<u>Bottom Depth (Feet)</u>	<u>Sample Depth (Feet)</u>	<u>Water Temperature (°F)</u>	<u>Dissolved Oxygen (ppm)</u>
WQ - 2	07/25/2016	61.0	Surface	73.0	8.1
			3.0	72.7	8.2
			6.0	72.5	8.2
			9.0	72.3	8.2
			12.0	72.3	8.2
			15.0	72.1	8.2
			18.0	71.6	8.0
			20.0	64.8	6.6
			21.0	64.0	6.5
			22.0	61.9	6.1
			23.0	61.2	6.1
			24.0	59.7	6.0
			25.0	58.3	5.9
			26.0	57.6	5.9
			27.0	57.0	5.9
			28.0	55.0	5.9
			29.0	54.5	6.0
			30.0	52.5	6.0
			33.0	50.5	5.9
			36.0	48.7	5.9
			39.0	47.8	5.8
42.0	46.8	5.3			
45.0	45.7	4.3			
48.0	45.3	3.7			
51.0	44.8	2.8			
55.0	44.4	0.9			
60.0	44.2	0.3			

Field Measurements of Water Quality

<u>Station ID</u>	<u>Sampling Date</u>	<u>Sample Depth (Feet)</u>	<u>Secchi Depth (Feet)</u>	<u>Field pH</u>	<u>Alkalinity (ppm)</u>	<u>Water Color</u>	<u>Color Cause</u>
WQ - 2	07/25/2016	Surface	10.0	N/A	N/A	Brown	Bog-stain

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Net Catch Summary by Numbers for GSH

Standard gill nets, set shallow in stratified assessment

Number of Sets: 10
 First Set Date: 07/25/2016
 Last Lift Date: 08/02/2016
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 3*		
				25%	50%	75%
BUB	Burbot	3	0.30	N/A	N/A	N/A
LKW	Lake Whitefish	6	0.60	N/A	N/A	N/A
NOP	Northern Pike	12	1.20	N/A	N/A	N/A
SMB	Smallmouth Bass	1	0.10	N/A	N/A	N/A
WAE	Walleye	10	1.00	N/A	N/A	N/A
WTS	White Sucker	16	1.60	N/A	N/A	N/A
YEP	Yellow Perch	4	0.40	N/A	N/A	N/A
Total Fish/Set:			5.20	* Quartiles for Number Per Set		

Net Catch Summary by Weight for GSH

Standard gill nets, set shallow in stratified assessment

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 3*		
					25%	50%	75%
BUB	Burbot	1.29	0.13	0.43	N/A	N/A	N/A
LKW	Lake Whitefish	5.77	0.58	0.96	N/A	N/A	N/A
NOP	Northern Pike	17.64	1.76	1.47	N/A	N/A	N/A
SMB	Smallmouth Bass	0.56	0.06	0.56	N/A	N/A	N/A
WAE	Walleye	14.63	1.46	1.46	N/A	N/A	N/A
WTS	White Sucker	33.90	3.39	2.12	N/A	N/A	N/A
YEP	Yellow Perch	0.52	0.05	0.13	N/A	N/A	N/A
Total Pounds Fish/Set:			7.43	* Quartiles for Mean Weight			

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Net Catch Summary by Numbers for GDE

Standard gill nets, set deep in stratified assessment

Number of Sets: 8
 First Set Date: 07/25/2016
 Last Lift Date: 08/03/2016
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 3*		
				25%	50%	75%
BUB	Burbot	3	0.38	N/A	N/A	N/A
LKW	Lake Whitefish	14	1.75	N/A	N/A	N/A
Total Fish/Set:			2.13	* Quartiles for Number Per Set		

Net Catch Summary by Weight for GDE

Standard gill nets, set deep in stratified assessment

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 3*		
					25%	50%	75%
BUB	Burbot	2.73	0.34	0.91	N/A	N/A	N/A
LKW	Lake Whitefish	16.87	2.11	1.21	N/A	N/A	N/A
Total Pounds Fish/Set:			2.45	* Quartiles for Mean Weight			

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Net Catch Summary by Numbers for TN

Standard 3/4-in mesh, double frame trap net sets

Number of Sets: 12
 First Set Date: 07/25/2016
 Last Lift Date: 08/03/2016
 Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 3*		
				25%	50%	75%
BLC	Black Crappie	1	0.08	0.13	0.20	0.44
NOP	Northern Pike	8	0.67	N/A	N/A	N/A
SMB	Smallmouth Bass	3	0.25	0.14	0.61	1.26
WAE	Walleye	2	0.17	0.20	0.31	0.79
WTS	White Sucker	4	0.33	0.13	0.20	1.01
YEP	Yellow Perch	1	0.08	0.37	0.74	1.25
Total Fish/Set:			1.58	* Quartiles for Number Per Set		

Net Catch Summary by Weight for TN

Standard 3/4-in mesh, double frame trap net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 3*		
					25%	50%	75%
BLC	Black Crappie	0.71	0.06	0.71	0.35	0.69	1.13
NOP	Northern Pike	11.89	0.99	1.49	N/A	N/A	N/A
SMB	Smallmouth Bass	5.73	0.48	1.91	0.16	0.29	0.41
WAE	Walleye	0.83	0.07	0.42	0.50	0.82	1.46
WTS	White Sucker	4.54	0.38	1.14	1.13	1.94	3.63
YEP	Yellow Perch	0.08	0.01	0.08	0.13	0.20	0.40
Total Pounds Fish/Set:			1.98	* Quartiles for Mean Weight			

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Natural Reproduction Catch Summary for TQU

1/4-in trap nets

Number of Sets: 12
First Set Date: 07/25/2016
Last Lift Date: 08/03/2016
Target Species: N/A

Abbr	Species	Age	Total Number	Number Measured	Mean Length (inches)	Length Range (inches)		CPUE (num/ set)
						Minimum	Maximum	
BLC	Black Crappie	YOY	68	47	1.21	0.79	1.54	5.67
BLC	Black Crappie	≥ 1	2	2	7.78	3.90	11.65	0.17
BST	Brook Stickleback	All	1	0	N/A	N/A	N/A	0.08
NOP	Northern Pike	YOY	1	1	5.79	5.79	5.79	0.08
NOP	Northern Pike	≥ 1	2	2	14.88	12.56	17.20	0.17
SMB	Smallmouth Bass	YOY	48	46	1.48	1.02	2.20	4.00
SMB	Smallmouth Bass	≥ 1	5	5	7.79	3.82	12.56	0.42
WAE	Walleye	YOY	1	1	2.99	2.99	2.99	0.08
WTS	White Sucker	All	1	1	8.27	8.27	8.27	0.08
YEP	Yellow Perch	YOY	291	78	1.60	0.91	2.05	24.25
YEP	Yellow Perch	≥ 1	9	4	3.41	2.68	4.84	0.75

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Length Frequency Distribution for GSH

Standard gill nets, set shallow in stratified assessment

(Field work conducted between 07/25/2016 and 08/02/2016)

	<u>BUB</u>	<u>LKW</u>	<u>NOP</u>	<u>SMB</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-	-
4.00 - 4.49	-	-	-	-	-	-	-
4.50 - 4.99	-	-	-	-	-	-	-
5.00 - 5.49	-	-	-	-	-	-	-
5.50 - 5.99	-	-	-	-	-	-	1
6.00 - 6.49	-	-	-	-	-	-	2
6.50 - 6.99	-	-	-	-	-	-	-
7.00 - 7.49	-	-	-	-	-	-	-
7.50 - 7.99	-	-	-	-	1	-	1
8.00 - 8.49	-	-	-	-	-	-	-
8.50 - 8.99	-	1	-	-	-	-	-
9.00 - 9.49	-	-	-	-	-	1	-
9.50 - 9.99	-	-	-	-	-	2	-
10.00 - 10.49	1	-	-	-	-	1	-
10.50 - 10.99	-	-	-	1	1	-	-
11.00 - 11.49	-	-	-	-	1	-	-
11.50 - 11.99	-	-	-	-	1	-	-
12.00 - 12.99	1	2	-	-	1	-	-
13.00 - 13.99	-	-	-	-	2	-	-
14.00 - 14.99	1	-	-	-	-	1	-
15.00 - 15.99	-	1	2	-	1	-	-
16.00 - 16.99	-	2	1	-	-	-	-
17.00 - 17.99	-	-	3	-	1	4	-
18.00 - 18.99	-	-	2	-	-	5	-
19.00 - 19.99	-	-	1	-	-	-	-
20.00 - 20.99	-	-	-	-	-	2	-
21.00 - 21.99	-	-	1	-	-	-	-
22.00 - 22.99	-	-	1	-	-	-	-
23.00 - 23.99	-	-	-	-	-	-	-
24.00 - 24.99	-	-	1	-	-	-	-
25.00 - 25.99	-	-	-	-	-	-	-
26.00 - 26.99	-	-	-	-	-	-	-
27.00 - 27.99	-	-	-	-	1	-	-
28.00 - 28.99	-	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	-	-
30.00 - 30.99	-	-	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-

	<u>BUB</u>	<u>LKW</u>	<u>NOP</u>	<u>SMB</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
Total	3	6	12	1	10	16	4
Min. Length	10.24	8.62	15.79	10.63	7.60	9.06	5.91
Max. Length	14.17	16.93	24.02	10.63	27.56	20.71	7.91
Mean Length	12.20	13.87	18.71	10.63	14.19	16.12	6.60
# Measured	3	6	12	1	10	16	4
No Lengths for	0	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Length Frequency Distribution for GDE

Standard gill nets, set deep in stratified assessment

(Field work conducted between 07/25/2016 and 08/03/2016)

	<u>BUB</u>	<u>LKW</u>
< 3.00	-	-
3.00 - 3.49	-	-
3.50 - 3.99	-	-
4.00 - 4.49	-	-
4.50 - 4.99	-	-
5.00 - 5.49	-	-
5.50 - 5.99	-	-
6.00 - 6.49	-	-
6.50 - 6.99	-	-
7.00 - 7.49	-	-
7.50 - 7.99	-	-
8.00 - 8.49	-	-
8.50 - 8.99	-	1
9.00 - 9.49	-	-
9.50 - 9.99	-	-
10.00 - 10.49	-	-
10.50 - 10.99	-	-
11.00 - 11.49	-	-
11.50 - 11.99	-	-
12.00 - 12.99	-	1
13.00 - 13.99	-	4
14.00 - 14.99	1	-
15.00 - 15.99	1	-
16.00 - 16.99	1	4
17.00 - 17.99	-	3
18.00 - 18.99	-	1
19.00 - 19.99	-	-
20.00 - 20.99	-	-
21.00 - 21.99	-	-
22.00 - 22.99	-	-
23.00 - 23.99	-	-
24.00 - 24.99	-	-
25.00 - 25.99	-	-
26.00 - 26.99	-	-
27.00 - 27.99	-	-
28.00 - 28.99	-	-
29.00 - 29.99	-	-
30.00 - 30.99	-	-
31.00 - 31.99	-	-
32.00 - 32.99	-	-
33.00 - 33.99	-	-
34.00 - 34.99	-	-
35.00 - 35.99	-	-
= > 36.00	-	-

	<u>BUB</u>	<u>LKW</u>
Total	3	14
Min. Length	14.37	8.94
Max. Length	16.97	18.11
Mean Length	15.59	15.13
# Measured	3	14
No Lengths for	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Length Frequency Distribution for TN

Standard 3/4-in mesh, double frame trap net sets

(Field work conducted between 07/25/2016 and 08/03/2016)

	<u>BLC</u>	<u>NOP</u>	<u>SMB</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
< 3.00	-	-	-	-	-	-
3.00 - 3.49	-	-	-	-	-	-
3.50 - 3.99	-	-	-	-	-	-
4.00 - 4.49	-	-	-	-	-	-
4.50 - 4.99	-	-	-	-	-	-
5.00 - 5.49	-	-	-	-	-	-
5.50 - 5.99	-	-	-	-	-	1
6.00 - 6.49	-	-	-	-	-	-
6.50 - 6.99	-	-	-	-	-	-
7.00 - 7.49	-	-	-	1	1	-
7.50 - 7.99	-	-	-	-	-	-
8.00 - 8.49	-	-	-	-	-	-
8.50 - 8.99	-	-	-	-	-	-
9.00 - 9.49	-	-	-	-	-	-
9.50 - 9.99	-	-	1	-	-	-
10.00 - 10.49	-	-	-	-	-	-
10.50 - 10.99	1	-	-	-	-	-
11.00 - 11.49	-	-	-	-	-	-
11.50 - 11.99	-	-	-	-	-	-
12.00 - 12.99	-	-	-	1	-	-
13.00 - 13.99	-	3	-	-	1	-
14.00 - 14.99	-	-	-	-	1	-
15.00 - 15.99	-	-	1	-	-	-
16.00 - 16.99	-	-	-	-	1	-
17.00 - 17.99	-	-	1	-	-	-
18.00 - 18.99	-	-	-	-	-	-
19.00 - 19.99	-	2	-	-	-	-
20.00 - 20.99	-	1	-	-	-	-
21.00 - 21.99	-	1	-	-	-	-
22.00 - 22.99	-	-	-	-	-	-
23.00 - 23.99	-	-	-	-	-	-
24.00 - 24.99	-	-	-	-	-	-
25.00 - 25.99	-	1	-	-	-	-
26.00 - 26.99	-	-	-	-	-	-
27.00 - 27.99	-	-	-	-	-	-
28.00 - 28.99	-	-	-	-	-	-
29.00 - 29.99	-	-	-	-	-	-
30.00 - 30.99	-	-	-	-	-	-
31.00 - 31.99	-	-	-	-	-	-
32.00 - 32.99	-	-	-	-	-	-
33.00 - 33.99	-	-	-	-	-	-
34.00 - 34.99	-	-	-	-	-	-
35.00 - 35.99	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-

	<u>BLC</u>	<u>NOP</u>	<u>SMB</u>	<u>WAE</u>	<u>WTS</u>	<u>YEP</u>
Total	1	8	3	2	4	1
Min. Length	10.79	13.11	9.61	7.40	7.05	5.63
Max. Length	10.79	25.63	17.72	12.99	16.81	5.63
Mean Length	10.79	18.28	14.40	10.20	13.10	5.63
# Measured	1	8	3	2	4	1
No Lengths for	0	0	0	0	0	0

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Length Frequency Distribution for TQU (for fish < 16.00 inches)

1/4-in trap nets

(Field work conducted between 07/25/2016 and 08/03/2016)

	<u>BLC</u>	<u>YBLC</u>	<u>NOP</u>	<u>YNOP</u>	<u>SMB</u>	<u>YSMB</u>	<u>YWAE</u>	<u>WTS</u>	<u>YEP</u>	<u>YYEP</u>
< 0.50	-	-	-	-	-	-	-	-	-	-
0.50 - 0.99	-	3	-	-	-	-	-	-	-	5
1.00 - 1.49	-	64	-	-	-	26	-	-	-	49
1.50 - 1.99	-	1	-	-	-	20	-	-	-	236
2.00 - 2.49	-	-	-	-	-	2	-	-	-	1
2.50 - 2.99	-	-	-	-	-	-	1	-	5	-
3.00 - 3.49	-	-	-	-	-	-	-	-	3	-
3.50 - 3.99	1	-	-	-	1	-	-	-	-	-
4.00 - 4.49	-	-	-	-	1	-	-	-	-	-
4.50 - 4.99	-	-	-	-	-	-	-	-	1	-
5.00 - 5.49	-	-	-	-	-	-	-	-	-	-
5.50 - 5.99	-	-	-	1	-	-	-	-	-	-
6.00 - 6.49	-	-	-	-	-	-	-	-	-	-
6.50 - 6.99	-	-	-	-	-	-	-	-	-	-
7.00 - 7.49	-	-	-	-	-	-	-	-	-	-
7.50 - 7.99	-	-	-	-	-	-	-	-	-	-
8.00 - 8.49	-	-	-	-	-	-	-	1	-	-
8.50 - 8.99	-	-	-	-	1	-	-	-	-	-
9.00 - 9.49	-	-	-	-	-	-	-	-	-	-
9.50 - 9.99	-	-	-	-	1	-	-	-	-	-
10.00 - 10.49	-	-	-	-	-	-	-	-	-	-
10.50 - 10.99	-	-	-	-	-	-	-	-	-	-
11.00 - 11.49	-	-	-	-	-	-	-	-	-	-
11.50 - 11.99	1	-	-	-	-	-	-	-	-	-
12.00 - 12.49	-	-	-	-	-	-	-	-	-	-
12.50 - 12.99	-	-	1	-	1	-	-	-	-	-
13.00 - 13.49	-	-	-	-	-	-	-	-	-	-
13.50 - 13.99	-	-	-	-	-	-	-	-	-	-
14.00 - 14.49	-	-	-	-	-	-	-	-	-	-
14.50 - 14.99	-	-	-	-	-	-	-	-	-	-
15.00 - 15.49	-	-	-	-	-	-	-	-	-	-
15.50 - 15.99	-	-	-	-	-	-	-	-	-	-
= > 16.00	-	-	1	-	-	-	-	-	-	-

	<u>BLC</u>	<u>YBLC</u>	<u>NOP</u>	<u>YNOP</u>	<u>SMB</u>	<u>YSMB</u>	<u>YWAE</u>	<u>WTS</u>	<u>YEP</u>	<u>YYEP</u>
Total	2	68	2	1	5	48	1	1	9	291
Min. Length	3.90	0.79	12.56	5.79	3.82	1.02	2.99	8.27	2.68	0.91
Max. Length	11.65	1.54	17.20	5.79	12.56	2.20	2.99	8.27	4.84	2.05
Mean Length	7.78	1.21	14.88	5.79	7.79	1.48	2.99	8.27	3.41	1.60
# Measured	2	47	2	1	5	46	1	1	4	78
No Lengths for	0	21	0	0	0	2	0	0	5	213

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Length Frequency Distribution for TQU (for fish \geq 16.00 inches)

1/4-in trap nets

(Field work conducted between 07/25/2016 and 08/03/2016)

	<u>BLC</u>	<u>YBLC</u>	<u>NOP</u>	<u>YNOP</u>	<u>SMB</u>	<u>YSMB</u>	<u>YWAE</u>	<u>WTS</u>	<u>YEP</u>	<u>YYEP</u>
< 16.00	2	68	1	1	5	48	1	1	9	291
16.00 - 16.49	-	-	-	-	-	-	-	-	-	-
16.50 - 16.99	-	-	-	-	-	-	-	-	-	-
17.00 - 17.49	-	-	1	-	-	-	-	-	-	-
17.50 - 17.99	-	-	-	-	-	-	-	-	-	-
18.00 - 18.49	-	-	-	-	-	-	-	-	-	-
18.50 - 18.99	-	-	-	-	-	-	-	-	-	-
19.00 - 19.49	-	-	-	-	-	-	-	-	-	-
19.50 - 19.99	-	-	-	-	-	-	-	-	-	-
20.00 - 20.49	-	-	-	-	-	-	-	-	-	-
20.50 - 20.99	-	-	-	-	-	-	-	-	-	-
21.00 - 21.49	-	-	-	-	-	-	-	-	-	-
21.50 - 21.99	-	-	-	-	-	-	-	-	-	-
22.00 - 22.49	-	-	-	-	-	-	-	-	-	-
22.50 - 22.99	-	-	-	-	-	-	-	-	-	-
23.00 - 23.49	-	-	-	-	-	-	-	-	-	-
23.50 - 23.99	-	-	-	-	-	-	-	-	-	-
24.00 - 24.49	-	-	-	-	-	-	-	-	-	-
24.50 - 24.99	-	-	-	-	-	-	-	-	-	-
25.00 - 25.49	-	-	-	-	-	-	-	-	-	-
25.50 - 25.99	-	-	-	-	-	-	-	-	-	-
26.00 - 26.49	-	-	-	-	-	-	-	-	-	-
26.50 - 26.99	-	-	-	-	-	-	-	-	-	-
27.00 - 27.49	-	-	-	-	-	-	-	-	-	-
27.50 - 27.99	-	-	-	-	-	-	-	-	-	-
28.00 - 28.49	-	-	-	-	-	-	-	-	-	-
28.50 - 28.99	-	-	-	-	-	-	-	-	-	-
29.00 - 29.49	-	-	-	-	-	-	-	-	-	-
29.50 - 29.99	-	-	-	-	-	-	-	-	-	-
30.00 - 30.49	-	-	-	-	-	-	-	-	-	-
30.50 - 30.99	-	-	-	-	-	-	-	-	-	-
31.00 - 31.49	-	-	-	-	-	-	-	-	-	-
31.50 - 31.99	-	-	-	-	-	-	-	-	-	-
32.00 - 32.49	-	-	-	-	-	-	-	-	-	-
32.50 - 32.99	-	-	-	-	-	-	-	-	-	-
33.00 - 33.49	-	-	-	-	-	-	-	-	-	-
33.50 - 33.99	-	-	-	-	-	-	-	-	-	-
34.00 - 34.49	-	-	-	-	-	-	-	-	-	-
34.50 - 34.99	-	-	-	-	-	-	-	-	-	-
35.00 - 35.49	-	-	-	-	-	-	-	-	-	-
35.50 - 35.99	-	-	-	-	-	-	-	-	-	-
= > 36.00	-	-	-	-	-	-	-	-	-	-
Total	2	68	2	1	5	48	1	1	9	291
Min. Length	3.90	0.79	12.56	5.79	3.82	1.02	2.99	8.27	2.68	0.91
Max. Length	11.65	1.54	17.20	5.79	12.56	2.20	2.99	8.27	4.84	2.05
Mean Length	7.78	1.21	14.88	5.79	7.79	1.48	2.99	8.27	3.41	1.60
# Measured	2	47	2	1	5	46	1	1	4	78
No Lengths for	0	21	0	0	0	2	0	0	5	213

Note: Unless all fish were measured in the catch, totals shown for some length-frequency distributions may differ from the total number of fish in the catch, due to rounding of fractions used in the estimation of length frequency from a subsample of measured fish

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Length At Capture with Last Incremental Length

(Body-Scale constant, all lengths, and all length increments in inches)

Species: Black Crappie
Body-Scale Constant: 0.79
Total Sample Size: 1

Length at Capture in 2016 for Each Age Class, with Incremental Lengths for 2016

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2009	7	1	10.79	10.79	10.79	N/A	0.57	N/A

Species: Northern Pike
Body-Scale Constant: 2.09
Total Sample Size: 20

Length at Capture in 2016 for Each Age Class, with Incremental Lengths for 2016

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2014	2	3	13.24	13.43	13.11	0.095	2.31	0.147
2013	3	5	16.80	18.11	15.79	0.483	1.57	0.123
2012	4	6	18.60	19.69	17.52	0.364	1.44	0.146
2011	5	3	21.33	22.44	20.28	0.626	1.58	0.258
2010	6	3	23.83	25.63	21.85	1.095	1.28	0.233

Species: Smallmouth Bass
Body-Scale Constant: 1.42
Total Sample Size: 3

Length at Capture in 2016 for Each Age Class, with Incremental Lengths for 2016

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2012	4	1	9.61	9.61	9.61	N/A	1.35	N/A
2011	5	0	-	-	-	-	-	-
2010	6	0	-	-	-	-	-	-
2009	7	0	-	-	-	-	-	-
2008	8	0	-	-	-	-	-	-
2007	9	1	15.87	15.87	15.87	N/A	0.67	N/A
2006	10	0	-	-	-	-	-	-
2005	11	1	17.72	17.72	17.72	N/A	0.67	N/A

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Length At Capture with Last Incremental Length (Continued)

Species: Walleye

Body-Scale Constant: 1.10

Total Sample Size: 12

Length at Capture in 2016 for Each Age Class, with Incremental Lengths for 2016

Year Class	Age	Sample Size	Length At Capture			Standard Error	Length Increments	
			Average Length	Maximum Length	Minimum Length		Increment	Standard Error
2015	1	2	7.50	7.60	7.40	0.098	0.85	0.087
2014	2	0	-	-	-	-	-	-
2013	3	5	11.83	12.99	10.83	0.416	1.38	0.068
2012	4	1	13.74	13.74	13.74	N/A	0.54	N/A
2011	5	2	15.45	17.13	13.78	1.673	1.00	0.387
2010	6	1	15.94	15.94	15.94	N/A	0.56	N/A
2009	7	0	-	-	-	-	-	-
2008	8	0	-	-	-	-	-	-
2007	9	0	-	-	-	-	-	-
2006	10	0	-	-	-	-	-	-
2005	11	0	-	-	-	-	-	-
2004	12	0	-	-	-	-	-	-
2003	13	1	27.56	27.56	27.56	N/A	0.68	N/A

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Back-Calculated Lengths for Each Age Class and Average Annual Increments of Back-Calculated Lengths

Species: Black Crappie

Gear Type: Combined Gear Types (TN)

Class	Age	N	1	2	3	4	5	6	7
2009	7	1	1.45	2.26	3.63	4.85	7.03	9.23	10.22
			1.45	0.81	1.37	1.22	2.18	2.20	0.99
Mean Length			1.45	2.26	3.63	4.85	7.03	9.23	10.22
Mean Increment			1.45	0.81	1.37	1.22	2.18	2.20	0.99
Total N			1	1	1	1	1	1	1

Species: Northern Pike

Gear Type: Combined Gear Types (GSH and TN)

Class	Age	N	1	2	3	4	5	6
2014	2	3	6.42	10.94	-	-	-	-
			6.42	4.51	-	-	-	-
2013	3	5	5.85	10.61	15.23	-	-	-
			5.85	4.76	4.63	-	-	-
2012	4	6	6.51	10.29	14.83	17.16	-	-
			6.51	3.78	4.55	2.32	-	-
2011	5	3	5.98	10.42	13.40	17.09	19.74	-
			5.98	4.44	2.98	3.69	2.66	-
2010	6	3	6.38	11.63	15.66	18.90	20.96	22.55
			6.38	5.26	4.02	3.25	2.06	1.59
Mean Length			6.23	10.69	14.84	17.58	20.35	22.55
Mean Increment			6.23	4.45	4.20	2.90	2.36	1.59
Total N			20	20	17	12	6	3

Species: Smallmouth Bass

Gear Type: Combined Gear Types (TN)

Class	Age	N	1	2	3	4	5	6	7	8	9	10	11
2012	4	1	2.85	4.21	6.01	8.26	-	-	-	-	-	-	-
			2.85	1.36	1.80	2.25	-	-	-	-	-	-	
2007	9	1	2.70	3.52	5.26	7.18	9.40	11.78	13.40	14.28	15.20	-	-
			2.70	0.82	1.74	1.92	2.22	2.38	1.62	0.88	0.92	-	-
2005	11	1	2.35	3.45	5.11	7.63	9.87	11.51	12.82	14.02	15.52	16.19	17.05
			2.35	1.10	1.66	2.52	2.24	1.64	1.31	1.20	1.50	0.67	0.86
Mean Length			2.63	3.73	5.46	7.69	9.64	11.65	13.11	14.15	15.36	16.19	17.05
Mean Increment			2.63	1.09	1.73	2.23	2.23	2.01	1.47	1.04	1.21	0.67	0.86
Total N			3	3	3	3	2	2	2	2	2	1	1

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Back-Calculated Lengths for Each Age Class and Average Annual Increments of Back-Calculated Lengths (Continued)

Species: Walleye

Gear Type: Combined Gear Types (GSH and TN)

Class	Age	N	1	2	3	4	5	6	7	8	9	10	11	12
2015	1	2	6.65	-	-	-	-	-	-	-	-	-	-	-
			6.65	-	-	-	-	-	-	-	-	-	-	-
2013	3	5	4.49	7.06	10.44	-	-	-	-	-	-	-	-	-
			4.49	2.57	3.38	-	-	-	-	-	-	-	-	-
2012	4	1	4.35	7.38	11.70	13.20	-	-	-	-	-	-	-	-
			4.35	3.03	4.32	1.50	-	-	-	-	-	-	-	-
2011	5	2	4.57	7.98	10.54	12.32	14.45	-	-	-	-	-	-	-
			4.57	3.41	2.56	1.78	2.14	-	-	-	-	-	-	-
2010	6	1	4.65	8.46	10.92	12.70	14.08	15.38	-	-	-	-	-	-
			4.65	3.81	2.46	1.78	1.38	1.30	-	-	-	-	-	-
2003	13	1	5.21	8.85	11.70	13.70	15.84	17.44	18.97	21.11	22.60	23.52	24.81	26.10
			5.21	3.64	2.85	2.00	2.14	1.60	1.53	2.14	1.49	0.92	1.29	1.29
Mean Length			4.93	7.59	10.76	12.85	14.71	16.41	18.97	21.11	22.60	23.52	24.81	26.10
Mean Increment			4.93	3.01	3.17	1.77	1.95	1.45	1.53	2.14	1.49	0.92	1.29	1.29
Total N			12	10	10	5	4	2	1	1	1	1	1	1

(Continued from above table)

Class	Age	N	13
2003	13	1	26.88
			0.78
Mean Length			26.88
Mean Increment			0.78
Total N			1

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Age Class Frequency Distribution

Species & SS Type (1)	Number of Fish (2)			Number of Fish in Year Class ('yy) and Age Class															
	Aged	Keyed	Unaged	'16 0	'15 1	'14 2	'13 3	'12 4	'11 5	'10 6	'09 7	'08 8	'07 9	'06 10	'05 11	'04 12	'03 13	'02 14	<'02 15+
Black Crappie																			
TN	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
TQU	47	21	2	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	48	21	2	68	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Northern Pike																			
GSH	12	0	0	0	0	0	5	4	2	1	0	0	0	0	0	0	0	0	0
TN	8	0	0	0	0	3	0	2	1	2	0	0	0	0	0	0	0	0	0
TQU	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	21	0	2	1	0	3	5	6	3	3	0	0	0	0	0	0	0	0	0
Smallmouth Bass																			
TN	3	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0
TQU	46	2	5	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	49	2	5	48	0	0	0	1	0	0	0	0	1	0	1	0	0	0	0
Walleye																			
GSH	10	0	0	0	1	0	4	1	2	1	0	0	0	0	0	0	1	0	0
TN	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
TQU	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	13	0	0	1	2	0	5	1	2	1	0	0	0	0	0	0	1	0	0
Yellow Perch																			
TQU	78	213	9	291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(1) Key to Sampling Station (SS) Type abbreviations:

- TN = Standard 3/4-in mesh, double frame trap net sets
- TQU = 1/4-in trap nets
- GSH = Standard gill nets, set shallow in stratified assessment

(2) Notes:

- Number of Fish Aged: Fish that were aged from bony parts.
- Number of Fish Keyed: Fish assigned an age with an age-length key or by expansion of mesh or station age distributions.
- Number of Fish Unaged: Fish that were not aged and were not assigned an age.

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Survey Crew Notes

null

Region Signed by user 'jomix' on 02/13/2017

Field Notes - General Field

Recent Stocking of Poplar Lake:

Year - Species - Strain - Size - Number - Pounds - Clip

2015 - WAE - PR - Fgl - 10,428 - 579.3
2013 - WAE - PR - Fgl - 16,351 - 578.4
2011 - WAE - PR - Fgl - 10,138 - 580.0
2008 - WAE - PR - Fgl - 14,404 - 232.5
2007 - WAE - PR - Fry - 300,000 - 3.0
2006 - WAE - SLR - Fry - 300,000 - 3.0
2005 - LAT - MTN - Yrl - 3,598 - 313.2 - LR
2005 - LAT - GIL - Yrl - 3,621 - 362.9 - RR
2004 - no stocking
2003 - WAE - SLR - Fgl - 10,776 - 305.2
2003 - LAT - GIL - Yrl - 7,407 - 720.2
2002 - no stocking
2001 - WAE - SLR - Fry - 300,000 - ND
2000 - no stocking
1999 - LAT - GIL - Yrl - 5,540 - 454.1

Poplar Lake has been regularly stocked with walleye at various life stages since at least 1926.

Discussion

Poplar Lake is managed primarily for Walleye and Northern Pike. The long range goal for Walleye, from the 2011 lake management plan (LMP), is to improve their abundance to achieve a minimum gill net catch of 3.0 fish/set, with some fish over 20 inches present. The goal for the Northern Pike population is to maintain a minimum gill net catch of 0.6 fish/set. This was the second of three surveys scheduled in the 2011 LMP to monitor the fish community and determine whether a new Walleye fingerling stocking program, started in 2011, would be effective. Since 1980 all attempts to increase Walleye abundance by stocking have failed in this lake.

In 2016 the Section of Fisheries began an initiative aimed at evaluating all current Walleye fingerling stocking programs, on a lake-by-lake basis. Poplar Lake was part of that initiative; however, the current stocking program in Poplar Lake has only been in place since 2011, and evaluation of that program, as outlined in the 2011 LMP, just started in 2012.

Assessments of Poplar Lake have used a combination of deep and shallow gill net sets since 1993. Deep sets target coldwater species, while shallow sets target warm and cool-water species. In this discussion, all references to gill net catches will be to the combined catch in deep and shallow sets unless otherwise noted. In addition, 0.75-in and 0.25-in-mesh trap nets were used to sample the nearshore fish community in 2016. A targeted survey, using open-water angling, was done in mid-June to better assess the Smallmouth Bass population in this lake. Results of that survey will be reported separately. A creel survey was completed on Poplar Lake in 2016, covering most of the open-water fishing season (May 14 - September 18). Those results have also been reported separately.

Walleye gill net catches in this lake have not exceeded 3.0 fish/set since 1982, despite periods of heavy stocking (Table 1). The 2016 gill net catch (0.56 fish/set) was typical of catches seen in this lake since 1984; it fell far short of the long range goal for the species, and was well below the first quartile for the lake class (1.17 fish/set). One Walleye 20 inches or larger was taken in 2016, but most were under 16 inches. Of the 12 Walleye taken in gill nets and 0.75-in-mesh trap nets, 10 were from year classes supplemented by fingerling stocking (2003, 2011, 2013, or 2015). Weak natural year classes were apparently produced in 2010, 2012, and 2016 (a single YOY taken in 0.25-in-mesh trap nets). Although

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Discussion (Continued)

the sample size was small, growth of Walleye at early ages appeared to have been slow. Across all year classes, fish reached a mean length of 10.8 inches at age-3 annulus formation, compared to an area mean of 11.7 inches in Class 3 lakes. Similarly slow growth had been observed among Walleye sampled in 2012. Slow Walleye growth was probably due to limited forage (low Yellow Perch abundance) and competition for forage from Smallmouth Bass, Northern Pike, Lake Whitefish, and Black Crappie. Limited forage and slow Walleye growth suggests that increasing Walleye stocking in an attempt to meet the current catch goal is almost certainly not a viable option.

Evaluation of the current Walleye fingerling stocking program in Poplar Lake is in its early stages, and yielded mixed results in 2016. Goals for Walleye abundance have not been met, and in fact there was little evidence that there had been any increase in Walleye numbers since the latest round of stocking began. On the other hand, stocked year classes had accounted for most of the 2016 (and 2012) Walleye survey catch, suggesting Walleye numbers would have been even lower without any stocking. Despite the low survey catch in 2016, results of the 2016 creel survey indicated some anglers on Poplar Lake were able to find and catch Walleye, and of the four lakes included in that survey, anglers on Poplar Lake appeared to have experienced the highest Walleye catch rate (0.049 fish/angler-hour). Forty-nine percent of parties interviewed on Poplar Lake sought Walleye, illustrating the importance of maintaining a Walleye fishery in this lake. Because the original evaluation has not yet been completed, and early results have been mixed, we will not be changing current Walleye stocking recommendations for Poplar Lake. Instead we will let the evaluation run its course before considering a change.

The 2016 Northern Pike gill net catch (0.67 fish/set) just met the long range goal for the species, and was similar to past catches seen in this lake. Most of the Northern Pike collected were small (under 20 inches), but a few fish up to 25 inches in length were present. Five year classes (up to age 6) contributed to the 2016 catch. All had been produced naturally, although none appeared to have been particularly strong. Growth rates at early ages had been slow; across all year classes fish reached a mean length of 14.8 inches at age-3 annulus formation, compared to an area mean of 18.8 inches in Class 3 lakes. In the 2016 creel survey, about 10% of parties interviewed reported targeting Northern Pike, and those anglers experienced an estimated catch rate of 0.313 fish/angler-hour. Of the total estimated Northern Pike catch (647 fish), 98% were released, probably because most were small (17.1 inches on average for released fish).

The 2016 Smallmouth Bass gill net catch was low for a Class 3 lake, but was similar to past catches seen in Poplar Lake (Table 1). Too few fish were sampled to allow their size or age distributions, or their growth rates, to be described with any confidence. The net catch (all gears) included fish up to 17 inches in length. Angling by DNR Fisheries crews on June 16 and 17 yielded a catch of 14 Smallmouth Bass. Those fish ranged in length from 8.9 to 17.9 inches, with most in the 10-13-inch range. In the 2016 creel survey, 26% of parties interviewed reported targeting Smallmouth Bass, with an estimated catch rate for those parties of 0.326 fish/angler-hour. Anglers on Poplar Lake reported releasing about 91% of the Smallmouth Bass they caught, including about 88% of fish 12 inches or larger caught.

Poplar Lake has supported a modest Black Crappie population since at least the 1970s. The 2016 catch in 0.75-in-mesh trap nets was low for the lake historically, and for the lake class; however, relatively high numbers of YOY Black Crappie were taken in 0.25-in-mesh trap nets. In general, and as has been the case in this lake in the past, Black Crappie were not abundant enough, or large enough, to provide a very satisfactory fishery. None of the parties interviewed in the 2016 creel survey reported targeting the species, and no Black Crappie were reported to have been caught by those interviewed.

Poplar Lake has been open for fall netting of Lake Whitefish for many years, and netters have reported good success. Although the netting harvest is unknown, it appears to have been sustainable. The 2016 Lake Whitefish gill net catch (1.11 fish/set), and the mean weight for fish taken in gill nets (1.13 lb/fish) were similar to past catches seen in this lake (Table 2). Lake Whitefish collected in 2016 ranged in length from 8.6 to 18.1 inches. From the length frequency distribution it appeared that at least three year classes were represented in the catch. A few Lake Whitefish were reported to have been caught by anglers interviewed in the 2016 creel survey.

Forage for Walleye and Northern Pike appeared to have been limited. The Yellow Perch gill net catch (0.22 fish/set) was relatively low, both for Poplar Lake historically, and for a lake of this class (Table 1). Other than a single Brook Stickleback, no minnows were taken during nearshore fish sampling. Some of the Lake Whitefish and White Sucker collected would have been small enough to have provided some forage for larger Northern Pike, but most would have

Discussion (*Continued*)

been too large for any but the largest Walleye.

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Status Of The Fishery

Poplar Lake is managed primarily for Walleye and Northern Pike. The long range goal for Walleye, from the 2011 lake management plan (LMP), is to improve their abundance to achieve a minimum gill net catch of 3.0 fish/set, with some fish over 20 inches present. The goal for the Northern Pike population is to maintain a minimum gill net catch of 0.6 fish/set. This was the second of three surveys scheduled in the 2011 LMP to monitor the fish community and determine whether a new Walleye fingerling stocking program, started in 2011, would be effective. Since 1980 all attempts to increase Walleye abundance by stocking have failed in this lake.

In 2016 the Section of Fisheries began an initiative aimed at evaluating all current Walleye fingerling stocking programs, on a lake-by-lake basis. Poplar Lake was part of that initiative; however, the current stocking program in Poplar Lake has only been in place since 2011, and evaluation of that program, as outlined in the 2011 LMP, had started in 2012.

Assessments of Poplar Lake have used a combination of deep and shallow gill net sets since 1993. Deep sets target coldwater species, while shallow sets target warm and cool-water species. In this discussion, all references to gill net catches will be to the combined catch in deep and shallow sets unless otherwise noted. In addition, 0.75-in and 0.25-in-mesh trap nets were used to sample the nearshore fish community in 2016. A targeted survey, using open-water angling, was done in mid-June to better assess the Smallmouth Bass population in this lake. Results of that survey will be reported separately. A creel survey was also completed on Poplar Lake in 2016, covering most of the open-water fishing season (May 14 - September 18). Those results have also been reported separately, although a few have been referenced here.

Walleye abundance in Poplar Lake was low in 2016, as it has been in this lake since the mid-1980s. Walleye gill net catches have not exceeded 3.0 fish/set since 1982, despite periods of heavy stocking. The 2016 gill net catch (0.56 fish/set) was typical of catches seen in this lake since 1984; it fell far short of the long range goal for the species, and was well below the normal range for this type of lake. One Walleye 20 inches or larger was taken in 2016, but most were under 16 inches. Of the 12 Walleye taken in gill nets and 0.75-in-mesh trap nets, 10 were from year classes supplemented by fingerling stocking (2003, 2011, 2013, or 2015). Weak natural year classes were apparently produced in 2010, 2012, and 2016. Growth of Walleye at early ages appeared to have been slow. Fish reached an average length of just 10.8 inches by the end of their third year, compared to an area average of 11.7 inches. Similarly slow growth had been observed among Walleye sampled in 2012. Slow Walleye growth was probably due to limited forage (low Yellow Perch abundance) and competition for forage from Smallmouth Bass, Northern Pike, Lake Whitefish, and Black Crappie.

Evaluation of the current Walleye fingerling stocking program in Poplar Lake is in its early stages, and yielded mixed results in 2016. Goals for Walleye abundance were not met, and in fact there was little evidence that there had been any increase in Walleye numbers at all since the latest round of stocking began. On the other hand, stocked year classes had accounted for most of the 2016 (and 2012) Walleye survey catch, suggesting Walleye numbers would have been even lower without any stocking. Despite the low survey catch in 2016, results of the 2016 creel survey indicated some anglers on Poplar Lake were able to find and catch Walleye, and of the four lakes included in that survey, anglers on Poplar Lake appeared to have experienced the highest Walleye catch rate (0.05 fish/angler-hour). Forty-nine percent of parties interviewed on Poplar Lake sought Walleye, illustrating the importance of maintaining a Walleye fishery in this lake. Because the original evaluation has not yet been completed, and early results have been mixed, we will not be changing current Walleye stocking recommendations for Poplar Lake. Instead we will continue stocking and let the evaluation run its course before considering a change.

The 2016 Northern Pike gill net catch (0.67 fish/set) just met the long range goal for the species, and was similar to past catches seen in this lake. Most of the Northern Pike collected were small (under 20 inches), but a few fish up to 25 inches in length were present. Five year classes (up to six years of age) contributed to the 2016 catch. All had been produced naturally, although none appeared to have been particularly strong. Growth rates at early ages had been slow; fish reached a mean length of 14.8 inches at the end of their third year, compared to an area average of 18.8 inches. In the 2016 creel survey, about 10% of parties interviewed reported targeting Northern Pike, and those anglers experienced an estimated catch rate of 0.31 fish/angler-hour. Of the total estimated Northern Pike catch (647 fish), 98% were released, probably because most were small (17.1 inches on average for released fish).

The 2016 Smallmouth Bass gill net catch (0.06 fish/net) was low for a lake of this type, but was similar to past catches seen in Poplar Lake. Too few fish were sampled to allow their size or age distributions, or their growth rates, to be

LAKE SURVEY REPORT
STANDARD SURVEY DATED 07/25/2016 FOR DOW NUMBER 16-0239-00

Status Of The Fishery (*Continued*)

described with any confidence. The net catch (all gears) included fish up to 17 inches in length. Angling by DNR Fisheries crews on June 16 and 17 yielded a catch of 14 Smallmouth Bass. Those fish ranged in length from 8.9 to 17.9 inches, with most in the 10-13-inch range. In the 2016 creel survey, 26% of parties interviewed reported targeting Smallmouth Bass, with an estimated catch rate for those parties of 0.33 fish/angler-hour. Anglers on Poplar Lake reported releasing about 91% of the Smallmouth Bass they caught, including about 88% of the fish 12 inches or larger they caught.

Poplar Lake has supported a modest Black Crappie population since at least the 1970s. The 2016 catch in 0.75-in-mesh trap nets was low for the lake historically, and for this type of lake; however, relatively high numbers of young-of-year Black Crappie were taken in 0.25-in-mesh trap nets. In general, and as has been the case in this lake in the past, Black Crappie were not abundant enough, or large enough, to provide a very satisfactory fishery. None of the parties interviewed in the 2016 creel survey reported targeting the species, and no Black Crappie were reported to have been caught by those interviewed.

Poplar Lake has been open for fall netting of Lake Whitefish for many years, and netters have reported good success. Although the netting harvest is unknown, it appears to have been sustainable. The 2016 Lake Whitefish gill net catch (1.11 fish/set), and the mean weight for fish taken in gill nets (1.13 lb/fish) were similar to past catches seen in this lake. Lake Whitefish collected in 2016 ranged in length from 8.6 to 18.1 inches. A few Lake Whitefish were reported to have been caught by anglers interviewed in the 2016 creel survey.

Forage for Walleye and Northern Pike appeared to have been limited. The Yellow Perch gill net catch (0.22 fish/set) was relatively low, both for Poplar Lake historically, and for a lake of this type. Other than a single Brook Stickleback, no minnows were taken during nearshore fish sampling using 0.25-in-mesh trap nets. Some of the Lake Whitefish and White Sucker collected would have been small enough to have provided some forage for larger Northern Pike, but most would have been too large for any but the largest Walleye.

Approval Dates And Notices

Date Approved By Grand Marais Area Fisheries Supervisor: 02/08/2017

Date Approved By Northeast Region Fisheries Manager: 02/13/2017



©Copyright 2017, Minnesota Department of Natural Resources

By accepting the data in this report, the user agrees the data will be used for personal benefit and not for profit. Any other uses or publication of the data needs the consent of the Department. The Minnesota Department of Natural Resources assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on the data.

Lake Survey Report revision: 20170426-RJE. Data Date: 05/22/2017 at 3:29 pm .

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais	16-0239	Cook	Poplar	728	

Table 1. Number of fish per set, and mean weight (pounds/fish) for Northern Pike, Yellow Perch, Walleye, and Smallmouth Bass taken in graduated-mesh gill net sets (deep and shallow combined) in surveys of Poplar Lake, Cook County, Minnesota, 1948-2016. Number of deep gill net sets in parentheses.

Survey Date	No. Sets	Northern Pike		Yellow Perch		Walleye		Smallmouth Bass	
		Number	Weight	Number	Weight	Number	Weight	Number	Weight
8/5/48	23	0.26	1.00	1.91	0.12	4.00	0.34		
8/31/55	15	0.47	0.79	0.93	0.21	7.00	0.75	0.07	
8/24/59	15	0.33	0.75	0.80	0.39	7.47	1.06	1.33	1.46
7/22/63	10	0.20		1.30		0.80		0.20	
8/20/69	7			1.14	0.13	3.29	0.65		
7/29/71	9	1.67	1.25	0.44	0.33	3.89	1.09		
7/28/77	9	1.22	1.47	6.11	0.10	7.67	0.81	0.22	
9/8/78	9	0.89	1.38	0.22		0.22		0.11	
8/9/79	8	2.38	1.33	0.13		3.00	0.72	0.25	
7/19/80	9	0.56	1.64	0.78	0.13	1.67	0.51		
9/3/81	6	0.67	1.10	4.17	0.24	5.00	0.61		
7/16/82	6	1.83	1.55	1.83	0.12	5.33	0.66		
8/8/84	12	1.00	1.06	1.42	0.17	1.00	0.65	0.75	0.83
8/1/86	12	1.00	2.13	1.75	0.15	1.17	0.69	0.08	
8/7/87	12	1.33	0.81	0.42	0.15	1.25	0.66	0.25	1.12
8/12/88	12	0.33	1.13	0.08		0.83	0.85	0.17	
8/16/91	12	0.67	1.19	0.92	0.20	0.50	0.50		
7/12/93	12 (4)	0.33	1.27	0.42	0.23	0.67	0.93	0.17	
7/31/95	16 (4)	1.25	2.15	0.42	0.26	0.58	1.28	0.33	1.16
7/28/97	16 (8)	0.75	2.70	0.13		0.06			
7/26/99	16 (8)	1.00	1.69	0.38	0.08	0.50	0.49	0.06	
8/4/03	16 (8)	0.63	1.03	0.06		1.00	0.70	0.06	
7/24/06	16 (8)	0.56	1.26	0.44	0.11	0.56	1.31	0.13	
8/3/09	16 (6)	1.06	1.34	0.69	0.11	0.69	1.12	0.06	
7/9/12	16 (5)	1.00	1.23	0.13		0.31	1.00		
7/25/16	18 (8)	0.67	1.47	0.22	0.13	0.56	1.46	0.06	
Class 3									
Medians		1.33	3.23	1.19	0.15	3.00	1.44	0.67	0.87
1 st Q		0.56	2.10	0.39	0.10	1.17	0.96	0.31	0.56
3 rd Q		2.38	4.95	3.69	0.23	5.18	1.96	1.36	1.50

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0239	Cook	Poplar	728

Table 2. Number of fish per set, and mean weight (pounds/fish) for Lake Whitefish, Burbot, Black Crappie, and White Sucker taken in graduated-mesh gill net sets (deep and shallow combined) in surveys of Poplar Lake, Cook County, Minnesota, 1948-2016. Number of deep gill net sets in parentheses.

Survey Date	No. Sets	Lake Whitefish		Burbot		Black Crappie		White Sucker	
		Number	Weight	Number	Weight	Number	Weight	Number	Weight
8/5/48	23							1.70	1.94
8/31/55	15	0.27	0.90	0.13				1.93	2.31
8/24/59	15	0.07		0.20				1.53	2.71
7/22/63	10			0.20				1.80	
8/20/69	7	0.14		0.14				0.57	2.75
7/29/71	9	0.56	2.56	0.33	2.57			5.22	2.89
7/28/77	9	0.89	1.98	0.11		0.11		4.44	2.09
9/8/78	9	0.89	1.94	0.89	1.04			0.56	2.56
8/9/79	8	0.38	1.83	0.38	0.40			2.50	2.78
7/19/80	9	0.33	0.73	0.11				1.00	2.23
9/3/81	6			0.17		0.17		3.17	2.18
7/16/82	6	1.17	1.36					3.33	2.65
8/8/84	12	1.08	0.71	0.17				2.58	2.47
8/1/86	12	0.50	1.92	0.25	0.57	0.08		2.08	2.31
8/7/87	12	0.92	1.43	0.25	1.33			1.17	2.45
8/12/88	12	1.17	1.25	0.42	0.88			1.25	1.59
8/16/91	12	0.83	1.93	0.67	1.06			1.00	1.83
7/12/93	12 (4)	1.58	1.08	0.08				1.42	2.35
7/31/95	16 (4)	0.67	1.32	0.17				1.08	2.19
7/28/97	16 (8)	0.63	1.60	1.00	0.66			0.81	2.35
7/26/99	16 (8)	1.44	1.10	0.38	0.97	0.06		1.56	2.19
8/4/03	16 (8)	1.00	1.45	0.50	1.11			1.63	2.31
7/24/06	16 (8)	0.31	1.12	0.63	1.21			1.06	2.81
8/3/09	16 (6)	1.38	1.33			0.13		2.38	2.06
7/9/12	16 (5)	2.06	0.84	0.69	1.23	0.13		2.06	2.00
7/25/16	18 (8)	1.11	1.13	0.33	0.67			0.89	2.12
Class 3									
Medians		7.42	1.54	0.42	1.00	0.33	0.20	2.38	1.85
1 st Q		1.58	1.02	0.20	0.64	0.13	0.14	0.83	1.07
3 rd Q		15.54	2.11	1.00	1.50	1.06	0.63	5.31	2.54

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0239	Cook	Poplar	728

Table 3. Catch (fish/set) of young-of-year (YOY) Walleye, Yellow Perch, Smallmouth Bass, Black Crappie, and Northern Pike in 0.25-in-mesh trap nets, with the number of sets used and the number of Walleye fry stocked in each assessment year in Poplar lake, Cook County, Minnesota, 1972-2012.

Survey Date	No. Sets	No. of Walleye Fry Stocked	Catch (number of YOY/set)				
			Walleye	Yellow Perch	Smallmouth Bass	Black Crappie	Northern Pike
8/8/72	6		0.17	15.67	0.83		
8/2/73	6	500,000	25.00	49.83	4.00		
7/30/74	6		0.17	16.50	0.50	0.50	
7/31/75	6	200,000	2.17	75.50	0.50	8.33	0.33
7/29/76	6	300,000	0.67	30.33	1.33	13.67	0.17
7/28/77	6	200,000		9.33	0.33	0.33	
7/26/78	12	500,000	2.08	26.08	0.50	0.50	0.08
8/8/79	12	800,000	0.83	32.75	0.58	1.25	
7/15/80	18			22.17	0.67	0.56	0.11
7/9/81	12	2,000,000	4.50	25.42	0.08		
7/15/82	13		0.15	21.23			
7/27/83	12	1,500,000	12.92	6.58	7.00		0.08
8/7/84	18			47.33	1.00		0.06
7/31/85	16	1,000,000	1.75	22.63	0.81		0.06
8/1/86	18		0.17	270.56	13.61	0.89	
8/4/87	23	800,000	1.22	42.57	1.83		
7/12/93	8						
7/31/95	12			46.42	5.92	0.17	
7/28/97	12			83.42	1.08	0.08	0.17
7/26/99	12			44.67	2.00	2.92	0.17
7/24/06	16	300,000		6.25		0.63	0.19
7/16/07	16	300,000		0.13	3.94		
8/4/08	16			47.94	8.31	1.81	
6/11/12	12				N/A	N/A	
7/25/16	12		0.08	24.25	4.00	5.67	0.08
Class 3 Medians*			0.91	22.40	0.78	0.63	0.14
1 st Q			0.17	4.19	0.50	0.42	0.08
3 rd Q			2.25	47.64	2.00	2.36	0.18

* Grand Marais area data, 1969-2014

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0239	Cook	Poplar	728

Table 4. Number of fish per set, and mean weight (pounds/fish) for Black Crappie, Yellow Perch, Walleye, and Smallmouth Bass taken in 0.75-inch-mesh trap nets in surveys of Poplar Lake, Cook County, Minnesota, 1971-2016.

Survey Date	No. Sets	Black Crappie		Yellow Perch		Walleye		Smallmouth Bass	
		Number	Weight	Number	Weight	Number	Weight	Number	Weight
7/29/71	12					0.33	1.35		
8/8/72	6					1.17	0.90		
9/3/81	7	0.14		0.14		0.29		0.14	
8/8/84	12					0.33		0.17	
8/12/88	20			0.15	0.13	0.80	0.64	0.20	0.17
8/16/91	20	0.55	0.63	0.30	0.13	0.50	0.79	0.20	0.25
7/12/93	12	0.17		0.17		0.08		0.17	
7/31/95	12	0.08		0.08		0.92	0.82		
7/24/06	16	0.81	0.27	0.19	0.33	0.50	0.72	0.13	
7/9/12	12	0.75	0.14	0.08		0.50	0.67	0.17	
7/25/16	12	0.08		0.08		0.17		0.25	1.91
Class 3									
Medians		0.20	0.69	0.74	0.20	0.31	0.82	0.61	0.29
1 st Q		0.13	0.35	0.37	0.13	0.20	0.50	0.14	0.16
3 rd Q		0.44	1.13	1.25	0.40	0.79	1.46	1.26	0.41

Region	Area	240	D.O.W. Number	County	D.O.W. Lake Name	Acreage
II	Grand Marais		16-0239	Cook	Poplar	728

Table 5. Number of fish per set, and mean weight (pounds/fish) for Northern Pike and Walleye taken in shallow gill net sets (GSH), and Lake Whitefish and Burbot taken in deep gill net sets (GDE), in surveys of Poplar Lake, Cook County, Minnesota, 1994-2012.

Survey Date	No. GSH Sets	No. GDE Sets	Shallow Gill Net Sets				Deep Gill Net Sets			
			Northern Pike		Walleye		Lake Whitefish		Burbot	
			Number	Weight	Number	Weight	Number	Weight	Number	Weight
7/12/93	8	4	0.50	1.30	0.88	0.90	2.00	1.02	0.25	
7/31/95	8	4	1.88	2.15	0.88	1.28	0.25		0.25	
7/28/97	8	8	1.50	2.70	0.13		0.13		2.00	0.66
7/26/99	7	9	1.86	1.61	1.14	0.49	1.56	1.28	0.67	0.97
8/4/03	8	8	1.25	1.03	1.75	0.75	1.13	1.45	0.50	0.89
7/24/06	8	8	1.13	1.26	0.75	1.23	0.38	0.63	1.25	1.21
8/3/09	10	6	1.50	1.33	1.00	1.10	2.67	1.25	0.33	
7/9/12	11	5	1.45	1.23	0.27	1.00	3.40	1.17	1.80	1.30
7/25/16	10	8	1.20	1.47	1.00	1.46	1.75	1.21	0.38	0.91
Local Medians ¹			1.13	3.20	2.33	1.54	4.50	2.14	1.00	1.15
1 st Q			0.60	2.22	0.81	1.14	1.47	1.30	0.42	0.93
3 rd Q			1.75	4.98	4.19	2.81	8.54	2.61	1.50	1.57

¹ Grand Marais area data, 1993-2014.