Minnesota Department of Natural Resources
Fisheries Management
LAKE SURVEY REPORT

Lake Name: Pike

DOW Number: 16-0252-00

Survey Type: Standard Survey

Survey ID Date: 08/24/2015

Lake Identification

Alternate Lake Name:	N/A	DNR Sounding Map Number:	B0354
Primary Lake Class ID:	1	Alternate Lake Class ID:	N/A

Lake Location

Primary County:	Cook	Nearest Town:	Grand Marais

Legal Descriptions

Lake Center: Township - 61N Range - 2W Section - 16

PLS Section Lake Center: 6100216

All Legal Descriptions:

Cook County: Township - 61N Range - 2W Sections - 9, 10, 15, 16, 17, 18, 19, 20

Area Office

Area Name:	Grand Marais	ORG Code:	F218
Region Name:	Northeast	Region Number:	2

Lake Access

Station ID	Ownership	Public Use	Type	Location / Comments
AC - 2	DNR	Open to Public use	Concrete	About mid-way down the south shore of the lake, at the end of a long, narrow, meandering road off County Road 45. Parking available for at least ten vehicles.

Lake Characteristics

Lake Area (planimetered acres):	810.00	GIS Shoreline Length (miles):	8.59
GIS Lake Area (acres):	814.43	Maximum Fetch (miles):	3.54
DOW Lake Area (acres):	850.00	Fetch Orientation (degrees):	N/A
Littoral Area (acres):	218.00	USGS Quad Map Number:	G27d
Area in MN (acres):	814.43	USGS Quad 24K GIS Index:	1354
Maximum Depth (feet):	45.0		
Mean Depth (feet):	N/A		

Watershed Characteristics

Major Watershed

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

Minor Watershed

Name: Caribou Cr
Watershed Number: 61
Watershed size (acres): 11,954

Surveys and Investigations

Initial Survey: 08/28/1950.
Re-Survey: 07/12/1999, 07/25/1989, 07/11/1977, 07/21/1956, 07/29/1955, 07/26/1954.
Population Assessment: 07/20/2009, 07/10/2006, 07/14/2003, 07/10/1995, 07/27/1992, 07/23/1986, 08/29/1983, 09/11/1978, 08/04/1969.
Special Assessment: 07/18/2008, 06/23/2006, 06/27/2003, 06/21/2002, 09/16/1998, 06/26/1995, 06/14/1988, 07/15/1957.
Standard Survey: 08/24/2015.

Dissolved Oxygen and Temperature Profile of Lake Water

Station ID	Sampling Date	Bottom Depth (Feet)	Sample Depth (Feet)	Water Temperature (°F)	Dissolved Oxygen (ppm)
WQ - 3	08/26/2015	N/A	Surface	65.3	8.4
			3.0	65.1	8.4
			6.0	65.1	8.3
			9.0	64.9	8.3
			12.0	64.9	8.3
			15.0	64.9	8.3
			18.0	64.9	8.3
			21.0	64.9	8.3
			24.0	64.8	8.2
			27.0	64.4	8.2
			30.0	64.0	8.3
			33.0	62.6	5.4
			36.0	61.7	2.0
			39.0	57.2	1.2
			41.0	55.4	0.4

Field Measurements of Water Quality

Station ID	Sampling Date	Sample Depth (Feet)	Secchi Depth (Feet)	Field pH	Alkalinity (ppm)	Water Color	Color Cause
WQ - 3	08/26/2015	Surface	13.0	N\A	N/A	Clear	N/A

Net Catch Summary by Numbers for GN

Standard gill net sets

Number of Sets: 12
First Set Date: 08/24/2015
Last Lift Date: 08/28/2015
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 1* 25%	50%	75%
LKW	Lake Whitefish	12	1.00	1.07	2.33	9.28
NOP	Northern Pike	8	0.67	0.27	0.71	1.02
SMB	Smallmouth Bass	42	3.50	0.25	0.71	2.19
WAE	Walleye	117	9.75	0.58	2.83	9.67
WTS	White Sucker	18	1.50	1.67	3.00	5.00
YEP	Yellow Perch	60	5.00	0.28	1.50	2.83
	Total Fish/Set:		21.42	* Quartiles for Number Per Set		

Net Catch Summary by Weight for GN

Standard gill net sets

Abbr	Species	Total Weight (Pounds)	Pounds Per Set	Mean Weight	Quartiles for Lake Class 1* 25%	50%	75%
LKW	Lake Whitefish	46.61	3.88	3.88	1.31	1.86	2.34
NOP	Northern Pike	39.91	3.33	4.99	2.73	3.83	5.34
SMB	Smallmouth Bass	66.32	5.53	1.58	0.65	0.97	1.35
WAE	Walleye	119.09	9.92	1.02	1.10	1.47	3.30
WTS	White Sucker	43.32	3.61	2.41	1.56	1.95	2.43
YEP	Yellow Perch	12.20	1.02	0.20	0.12	0.16	0.20
	Total Pounds Fish/Set:		27.29		* Quartiles for Mean Weight		

Net Catch Summary by Numbers for TN

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

Number of Sets: 12
First Set Date: 08/24/2015
Last Lift Date: 08/28/2015
Target Species: N/A

Abbr	Species	Total Fish	Number Per Set	Quartiles for Lake Class 1* 25%	50%	75%
NOP	Northern Pike	6	0.50	N/A	N/A	N/A
SMB	Smallmouth Bass	4	0.33	0.60	1.19	3.53
WAE	Walleye	7	0.58	0.75	0.86	2.90
	Total Fish/Set:		1.42	* 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 1* 25%	50%	75%
NOP	Northern Pike	6.11	0.51	1.02	N/A	N/A	N/A
SMB	Smallmouth Bass	0.43	0.04	0.11	0.23	0.35	0.55
WAE	Walleye	12.78	1.06	1.83	N/A	N/A	N/A
	Total Pounds Fish/Set:		1.61		* Quartiles for Mean Weight		

Length Frequency Distribution for GN (for fish < 36.00 inches)

Standard gill net sets

(Field work conducted between 08/24/2015 and 08/28/2015)

	LKW	NOP	SMB	WAE	WTS	YEP
< 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
6.00 - 6.49	-	-	-	-	-	6
6.50 - 6.99	-	-	-	-	-	10
7.00 - 7.49	-	-	-	1	-	8
7.50 - 7.99	-	-	-	4	-	12
8.00 - 8.49	-	-	2	6	-	7
8.50 - 8.99	-	-	1	2	2	6
9.00 - 9.49	-	-	-	1	-	4
9.50 - 9.99	-	-	4	7	-	1
10.00 - 10.49	-	-	1	6	-	1
10.50 - 10.99	-	-	1	2	2	-
11.00 - 11.49	-	-	-	-	-	-
11.50 - 11.99	-	-	1	4	-	-
12.00 - 12.99	-	-	4	23	1	-
13.00 - 13.99	-	-	10	15	-	-
14.00 - 14.99	-	-	7	19	1	-
15.00 - 15.99	-	-	3	8	-	-
16.00 - 16.99	3	-	4	3	1	-
17.00 - 17.99	-	-	2	1	3	-
18.00 - 18.99	-	-	1	4	1	-
19.00 - 19.99	1	-	-	5	3	-
20.00 - 20.99	3	1	-	1	2	-
21.00 - 21.99	1	1	-	1	2	-
22.00 - 22.99	3	-	-	-	-	-
23.00 - 23.99	1	-	-	1	-	-
24.00 - 24.99	-	2	-	1	-	-
25.00 - 25.99	-	2	-	1	-	-
26.00 - 26.99	-	-	-	-	-	-
27.00 - 27.99	-	-	-	-	-	-
28.00 - 28.99	-	1	-	1	-	-
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	-	1	-	-	-	-

	LKW	NOP	SMB	WAE	WTS	YEP
Total	12	8	41	117	18	61
Min. Length	16.61	20.28	8.07	7.32	8.90	5.55
Max. Length	23.62	38.98	18.43	28.07	21.77	10.16
Mean Length	20.32	26.11	13.39	13.73	17.00	7.56
# Measured	12	8	41	112	17	58
No Lengths for	0	0	1	5	1	2

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.

Length Frequency Distribution for GN (for fish > 36.00 inches)

Standard gill net sets

(Field work conducted between 08/24/2015 and 08/28/2015)

	LKW	NOP	SMB	WAE	WTS	YEP
< 36.00	12	7	41	117	18	60
36.00 - 36.99	-	-	-	-	-	-
37.00 - 37.99	-	-	-	-	-	-
38.00 - 38.99	-	1	-	-	-	-
39.00 - 39.99	-	-	-	-	-	-
40.00 - 40.99	-	-	-	-	-	-
41.00 - 41.99	-	-	-	-	-	-
42.00 - 42.99	-	-	-	-	-	-
43.00 - 43.99	-	-	-	-	-	-
44.00 - 44.99	-	-	-	-	-	-
45.00 - 45.99	-	-	-	-	-	-
46.00 - 46.99	-	-	-	-	-	-
47.00 - 47.99	-	-	-	-	-	-
48.00 - 48.99	-	-	-	-	-	-
49.00 - 49.99	-	-	-	-	-	-
50.00 - 50.99	-	-	-	-	-	-
51.00 - 51.99	-	-	-	-	-	-
52.00 - 52.99	-	-	-	-	-	-
53.00 - 53.99	-	-	-	-	-	-
54.00 - 54.99	-	-	-	-	-	-
55.00 - 55.99	-	-	-	-	-	-
56.00 - 56.99	-	-	-	-	-	-
57.00 - 57.99	-	-	-	-	-	-
58.00 - 58.99	-	-	-	-	-	-
59.00 - 59.99	-	-	-	-	-	-
60.00 - 60.99	-	-	-	-	-	-
61.00 - 61.99	-	-	-	-	-	-
62.00 - 62.99	-	-	-	-	-	-
63.00 - 63.99	-	-	-	-	-	-
64.00 - 64.99	-	-	-	-	-	-
65.00 - 65.99	-	-	-	-	-	-
66.00 - 66.99	-	-	-	-	-	-
67.00 - 67.99	-	-	-	-	-	-
68.00 - 68.99	-	-	-	-	-	-
69.00 - 69.99	-	-	-	-	-	-
70.00 - 70.99	-	-	-	-	-	-
71.00 - 71.99	-	-	-	-	-	-
72.00 - 72.99	-	-	-	-	-	-
73.00 - 73.99	-	-	-	-	-	-
74.00 - 74.99	-	-	-	-	-	-
75.00 - 75.99	-	-	-	-	-	-
76.00 - 76.99	-	-	-	-	-	-
77.00 - 77.99	-	-	-	-	-	-
= > 78.00	-	-	-	-	-	-

	LKW	NOP	SMB	WAE	WTS	YEP
Total	12	8	41	117	18	60
Min. Length	16.61	20.28	8.07	7.32	8.90	5.55
Max. Length	23.62	38.98	18.43	28.07	21.77	10.16
Mean Length	20.32	26.11	13.39	13.73	17.00	7.56
# Measured	12	8	41	112	17	58
No Lengths for	0	0	1	5	1	2

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.

Length Frequency Distribution for TN

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

(Field work conducted between 08/24/2015 and 08/28/2015)

	NOP	YNOP	SMB	WAE
< 3.00	-	-	-	-
3.00 - 3.49	-	-	-	-
3.50 - 3.99	-	-	-	-
4.00 - 4.49	-	-	-	-
4.50 - 4.99	-	-	-	-
5.00 - 5.49	-	-	3	-
5.50 - 5.99	-	-	-	-
6.00 - 6.49	-	-	-	-
6.50 - 6.99	-	-	-	-
7.00 - 7.49	-	-	-	-
7.50 - 7.99	-	-	1	-
8.00 - 8.49	-	1	-	1
8.50 - 8.99	-	1	-	1
9.00 - 9.49	-	-	-	1
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	-	-	-	-
14.00 - 14.99	-	-	-	-
15.00 - 15.99	-	-	-	1
16.00 - 16.99	-	-	-	-
17.00 - 17.99	-	-	-	-
18.00 - 18.99	-	-	-	-
19.00 - 19.99	-	-	-	-
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	-	-	-	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	-	-	-	-

	NOP	YNOP	SMB	WAE
Total	3	3	4	7
Min. Length	12.60	8.19	5.24	8.23
Max. Length	25.67	9.53	7.80	27.17
Mean Length	19.45	8.74	5.94	14.43
# Measured	3	3	4	7
No Lengths for	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.

Length At Capture with Last Incremental Length

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

Species: Northern Pike
Body-Scale Constant: 2.09
Total Sample Size: 14

Length at Capture in 2015 for Each Age Class, with Incremental Lengths for 2015

Year Class	Age	Sample Size	Length At Capture: Average Length	Length At Capture: Maximum Length	Length At Capture: Minimum Length	Length At Capture: Standard Error	Length Increments: Increment	Length Increments: Standard Error
2015	0	3	8.74	9.53	8.19	0.404	8.74	0.404
2014	1	1	12.60	12.60	12.60	N/A	6.22	N/A
2013	2	0	-	-	-	-	-	-
2012	3	3	20.54	21.26	20.08	0.365	2.81	0.721
2011	4	5	25.12	25.83	24.09	0.313	2.51	0.290
2010	5	0	-	-	-	-	-	-
2009	6	1	28.43	28.43	28.43	N/A	0.80	N/A
2008	7	0	-	-	-	-	-	-
2007	8	0	-	-	-	-	-	-
2006	9	1	38.98	38.98	38.98	N/A	0.50	N/A

Species: Smallmouth Bass
Body-Scale Constant: 1.42
Total Sample Size: 45

Length at Capture in 2015 for Each Age Class, with Incremental Lengths for 2015

Year Class	Age	Sample Size	Length At Capture: Average Length	Length At Capture: Maximum Length	Length At Capture: Minimum Length	Length At Capture: Standard Error	Length Increments: Increment	Length Increments: Standard Error
2014	1	3	5.33	5.39	5.24	0.047	2.69	0.155
2013	2	6	8.73	9.84	7.80	0.338	2.74	0.083
2012	3	4	10.14	10.63	9.72	0.195	3.25	0.300
2011	4	12	12.96	13.82	11.93	0.174	2.29	0.104
2010	5	11	14.32	15.28	13.86	0.123	2.03	0.079
2009	6	4	16.09	16.54	15.71	0.176	1.27	0.101
2008	7	3	16.72	17.32	16.30	0.309	1.22	0.084
2007	8	1	17.72	17.72	17.72	N/A	0.47	N/A
2006	9	1	18.43	18.43	18.43	N/A	0.41	N/A

Length At Capture with Last Incremental Length (*Continued*)

Species: Walleye
Body-Scale Constant: 1.10
Total Sample Size: 97

Length at Capture in 2015 for Each Age Class, with Incremental Lengths for 2015

Year Class	Age	Sample Size	Length At Capture: Average Length	Length At Capture: Maximum Length	Length At Capture: Minimum Length	Length At Capture: Standard Error	Length Increments: Increment	Length Increments: Standard Error
2014	1	16	8.40	9.65	7.32	0.153	3.61	0.103
2013	2	14	10.56	12.36	9.61	0.244	2.78	0.047
2012	3	32	13.20	15.20	11.57	0.164	2.05	0.069
2011	4	13	15.05	15.83	13.58	0.185	1.68	0.093
2010	5	5	16.79	18.19	15.67	0.451	1.20	0.048
2009	6	4	18.64	19.84	16.73	0.697	1.01	0.114
2008	7	3	18.69	19.09	18.27	0.239	0.54	0.059
2007	8	6	20.78	23.27	19.02	0.682	0.55	0.103
2006	9	0	-	-	-	-	-	-
2005	10	0	-	-	-	-	-	-
2004	11	1	27.17	27.17	27.17	N/A	0.22	N/A
2003	12	1	25.83	25.83	25.83	N/A	0.33	N/A
2002	13	1	24.49	24.49	24.49	N/A	0.15	N/A
2001	14	0	-	-	-	-	-	-
2000	15	0	-	-	-	-	-	-
1999	16	0	-	-	-	-	-	-
1998	17	1	28.07	28.07	28.07	N/A	0.20	N/A

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

Species: Northern Pike
Gear Type: Combined Gear Types (GN and TN)

Class	Age	N	1	2	3	4	5	6	7	8	9
2014	1	1	6.38	-	-	-	-	-	-	-	-
			6.38	-	-	-	-	-	-	-	-
2012	3	3	7.75	13.07	17.73	-	-	-	-	-	-
			7.75	5.32	4.66	-	-	-	-	-	-
2011	4	5	7.87	13.43	18.69	22.60	-	-	-	-	-
			7.87	5.57	5.25	3.92	-	-	-	-	-
2009	6	1	9.51	16.13	21.54	24.66	26.41	27.63	-	-	-
			9.51	6.62	5.41	3.12	1.75	1.22	-	-	-
2006	9	1	9.71	16.44	23.93	30.67	33.12	34.51	36.14	37.85	38.48
			9.71	6.73	7.49	6.74	2.45	1.39	1.63	1.71	0.63
Mean Length			8.02	13.89	19.21	24.05	29.77	31.07	36.14	37.85	38.48
Mean Increment			8.02	5.71	5.32	4.21	2.10	1.31	1.63	1.71	0.63
Total N			11	10	10	7	2	2	1	1	1

Species: Smallmouth Bass
Gear Type: Combined Gear Types (GN and TN)

Class	Age	N	1	2	3	4	5	6	7	8	9
2014	1	3	2.64	-	-	-	-	-	-	-	-
			2.64	-	-	-	-	-	-	-	-
2013	2	6	3.35	5.99	-	-	-	-	-	-	-
			3.35	2.64	-	-	-	-	-	-	-
2012	3	4	2.91	4.76	6.89	-	-	-	-	-	-
			2.91	1.85	2.13	-	-	-	-	-	-
2011	4	12	3.25	5.80	8.07	10.66	-	-	-	-	-
			3.25	2.55	2.27	2.59	-	-	-	-	-
2010	5	11	3.06	5.19	7.50	9.90	12.29	-	-	-	-
			3.06	2.13	2.31	2.40	2.39	-	-	-	-
2009	6	4	2.84	5.64	8.30	10.91	12.99	14.83	-	-	-
			2.84	2.81	2.66	2.62	2.08	1.84	-	-	-
2008	7	3	3.41	5.41	7.39	9.58	11.96	13.98	15.50	-	-
			3.41	1.99	1.98	2.19	2.37	2.03	1.52	-	-
2007	8	1	3.78	5.96	8.56	10.75	12.61	14.47	16.33	17.24	-
			3.78	2.18	2.60	2.19	1.86	1.86	1.86	0.91	-
2006	9	1	4.07	6.77	9.11	11.45	13.33	14.44	15.85	17.19	18.01
			4.07	2.70	2.34	2.34	1.88	1.11	1.41	1.34	0.82
Mean Length			3.15	5.55	7.78	10.36	12.45	14.46	15.74	17.22	18.01
Mean Increment			3.15	2.37	2.30	2.47	2.28	1.82	1.57	1.13	0.82
Total N			45	42	36	32	20	9	5	2	1

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

Species: Walleye
Gear Type: Combined Gear Types (GN and TN)

Class	Age	N	1	2	3	4	5	6	7	8	9	10	11	12
2014	1	16	4.79	-	-	-	-	-	-	-	-	-	-	-
			4.79	-	-	-	-	-	-	-	-	-	-	-
2013	2	14	3.33	7.78	-	-	-	-	-	-	-	-	-	-
			3.33	4.45	-	-	-	-	-	-	-	-	-	-
2012	3	32	3.99	7.74	11.15	-	-	-	-	-	-	-	-	-
			3.99	3.75	3.41	-	-	-	-	-	-	-	-	-
2011	4	13	3.87	8.41	10.81	13.36	-	-	-	-	-	-	-	-
			3.87	4.54	2.41	2.55	-	-	-	-	-	-	-	-
2010	5	5	3.34	7.47	10.72	13.08	15.58	-	-	-	-	-	-	-
			3.34	4.13	3.25	2.36	2.50	-	-	-	-	-	-	-
2009	6	4	3.65	6.99	10.04	12.66	15.52	17.63	-	-	-	-	-	-
			3.65	3.34	3.05	2.62	2.86	2.12	-	-	-	-	-	-
2008	7	3	4.00	8.16	11.45	14.11	15.94	17.13	18.15	-	-	-	-	-
			4.00	4.17	3.29	2.66	1.83	1.19	1.02	-	-	-	-	-
2007	8	6	3.65	7.79	11.23	14.06	16.14	17.93	19.21	20.23	-	-	-	-
			3.65	4.15	3.44	2.84	2.08	1.78	1.28	1.03	-	-	-	-
2004	11	1	4.50	9.56	14.21	16.86	19.85	21.52	23.25	25.06	26.02	26.65	26.94	-
			4.50	5.06	4.65	2.65	2.99	1.67	1.73	1.81	0.96	0.63	0.29	-
2003	12	1	3.15	7.17	12.18	15.59	18.66	20.27	21.84	23.16	23.78	24.40	24.95	25.50
			3.15	4.02	5.01	3.41	3.07	1.61	1.57	1.32	0.62	0.62	0.55	0.55
2002	13	1	4.05	7.90	11.00	14.25	17.17	19.59	21.09	21.91	22.77	23.29	23.70	24.04
			4.05	3.85	3.10	3.25	2.92	2.42	1.50	0.82	0.86	0.52	0.41	0.34
1998	17	1	3.84	7.48	10.92	14.49	17.89	19.79	21.58	23.28	24.27	25.10	25.77	26.21
			3.84	3.64	3.44	3.57	3.40	1.90	1.79	1.70	0.99	0.83	0.67	0.44
Mean Length			3.94	7.83	11.06	13.65	16.28	18.27	19.80	21.48	24.21	24.86	25.34	25.25
Mean Increment			3.94	4.06	3.22	2.67	2.47	1.78	1.33	1.18	0.86	0.65	0.48	0.44
Total N			97	81	67	35	22	17	13	10	4	4	4	3

(*Continued from above table*)

Class	Age	N	13	14	15	16	17
2002	13	1	24.34	-	-	-	-
			0.30	-	-	-	-
1998	17	1	26.45	26.88	27.08	27.56	27.87
			0.24	0.43	0.20	0.48	0.31
Mean Length			25.40	26.88	27.08	27.56	27.87
Mean Increment			0.27	0.43	0.20	0.48	0.31
Total N			2	1	1	1	1

Age Class Frequency Distribution

Species & SS Type (1)	Number of Fish (2)			Number of Fish in Year Class ('yy) and Age Class														
				'15	'14	'13	'12	'11	'10	'09	'08	'07	'06	'05	'04	'03	'02	'01	<'01
	Aged	Keyed	Unaged	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15+
Northern Pike																			
GN	8	0	0	0	0	0	2	4	0	1	0	0	1	0	0	0	0	0	0
TN	6	0	0	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Totals:	14	0	0	3	1	0	3	5	0	1	0	0	1	0	0	0	0	0	0
Smallmouth Bass																			
GN	41	0	1	0	0	5	4	12	11	4	3	1	1	0	0	0	0	0	0
TN	4	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals:	45	0	1	0	3	6	4	12	11	4	3	1	1	0	0	0	0	0	0
Walleye																			
GN	90	27	0	0	15	17	48	17	5	4	3	5	0	0	0	1	1	0	1
TN	7	0	0	0	3	1	0	1	0	0	0	1	0	0	1	0	0	0	0
Totals:	97	27	0	0	18	18	48	18	5	4	3	6	0	0	1	1	1	0	1

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

GN = Standard gill net sets

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

(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.

Survey Crew Notes

null

Region Signed by user 'jomix' on 04/14/2016

Field Notes - General Field

No fish have been stocked in Pike Lake since 1977.

Discussion

This was to have been the third of three surveys scheduled in the 2008 lake management plan (LMP) to determine a size goal for walleye, and to determine the effects of allowing the smallmouth bass regulation on the lake to expire. Only this survey and the 2009 survey were completed; a planned 2012 survey was canceled due to a lack of staff and funding.

The 2015 walleye gill net catch met the long range goal from the 2008 LMP (a minimum gill net catch of 9.7 fish/set), and was similar to other catches seen in this lake since 1986. Although the mean weight for walleye taken in gill nets was low for a lake of this class, it was similar to means seen in this lake since 1986, and may have continued a slight trend towards increased size of walleye in this lake. Several fish over 20 inches were included in the catch. It appeared that the lake was capable of producing some larger walleye, given the opportunity, and a high walleye size goal might be attainable if supported by anglers.

All walleye collected in 2015 had been produced naturally, with a strong 2012 year class accounting for nearly half the total catch. Moderately strong year classes had also been produced in 2011, 2013, and 2014. Growth of younger walleye had been slightly slower than average. Age-4 fish reached a mean length of 13.4 in at last annulus formation, compared to an area mean of 14.4 in for Class 1 lakes (data through 2014). It took five or six years for walleye to reach a length of 17 inches. Walleye as old as age 17 were collected.

Gill and trap net catches in 2015 yielded conflicting information on the smallmouth bass population. The 2015 smallmouth bass trap net catch was low, falling short of the first quartile for the lake class and failing to meet the 2008 long range goal for this lake (a minimum catch of 1.0 fish/trap net set). However, the gill net catch exceeded the third quartile for the lake class, and was one of the higher catches seen in this lake since 1986. The long range PSD goal for smallmouth bass (a minimum of 25 for the combined gill and trap net catch; stock = 8 in, quality = 12 in) was exceeded by a wide margin; the PSD for the 2015 catch was 76, the highest ever measured in this lake. A similarly high PSD was seen in the 2009 catch, suggesting that dropping the smallmouth bass experimental regulation (an 11-in maximum size limit) in 2005 had little or no effect on the quality of the lake's bass population. Smallmouth bass growth had been relatively fast; age-4 fish reached a mean length of 10.7 in at last annulus formation, compared to an area mean of 9.1 in for Class 1 lakes (data through 2014).

The northern pike gill net catch was similar to catches seen in this lake since 1978, and was close to the lake class median. Pike Lake has typically supported some larger northern pike, and that again appeared to have been the case in 2015. Six year classes contributed to the catch, although none were apparently strong. Northern pike as old as age 9 were taken. Growth of younger fish had been about average. Across all age classes, fish reached a mean length of 19.2 in at age-3 annulus formation, compared to an area mean of 19.9 in for Class 1 lakes (data througth 2014).

The yellow perch gill net catch exceeded the third quartile for the lake class. However, it was one of the lower catches seen in Pike Lake in the last 20 years, and continued a decline in perch catches evident since 1989. Although their numbers may have been down, far lower yellow perch catches were seen in surveys of this lake done in the 1950s. Yellow perch continued to provide an excellent forage base for walleye and northern pike, and were large enough to offer some angling opportunity as well.

Pike Lake continued to support a modest lake whitefish population. Most of the fish taken in 2015 appeared (based on length) to have been mature adults, and recruitment may have been low. White sucker were also collected in 2015, but their numbers appeared to have been low.

Status Of The Fishery

Walleye were fairly abundant in Pike Lake in 2015. Although their average size was low it was similar to past results in this lake. Some larger fish were present, with several fish over 20 inches included in the catch. All walleye collected in 2015 had been produced naturally, with a strong 2012 year class accounting for nearly half the total catch. Moderately strong year classes had also been produced in 2011, 2013, and 2014. Growth of younger walleye had been slightly slower than average; fish reached a mean length of 13.4 inches by the end of their fourth year. Walleye as old as 17 years were collected.

Gill and trap net catches in 2015 gave conflicting information on the smallmouth bass population. The trap net catch was low, but the gill net catch was high. It seemed most likely that smallmouth bass remained abundant in Pike Lake in 2015, and may have just moved off-shore (out of reach of trap nets) at the time this survey was done. The lake supported a high-quality bass populatiuon in 2015, with most of the fish taken in gill nets larger than 12 inches, and some as large as 18 inches seen. It appeared that dropping the smallmouth bass experimental regulation on this lake in 2005 had little or no effect on the quality of the bass population. Growth of young smallmouth bass collected in 2015 had been relatively fast; they reached a mean length of 10.7 inches by the end of their fourth year, compared to an area average of 9.1 inches.

As has usually been the case in this lake, northern pike were present in fair numbers and above-average sizes. Growth of younger fish had been about average, with fish reaching a length of 19.2 inches by the end of their third year. Larger fish were the result of good long-term survival, with fish as old as nine years taken. Pike Lake offers high-quality coldwater forage (lake whitefish) and deep cool-water refuge areas needed to produce large northern pike in this area.

The yellow perch gill net catch was high for a lake of this type, but was still one of the lower catches seen in Pike Lake in the last 20 years, continuing a decline in perch catches evident since 1989. Although their numbers may have been down, yellow perch continued to provide an excellent forage base for walleye and northern pike, and many were large enough to offer some angling opportunity as well.

Pike Lake continued to support a modest lake whitefish population. Most of the fish taken in 2015 appeared (based on length) to have been mature adults. White sucker were also collected in 2015, but their numbers appeared to have been low.

Approval Dates And Notices

Date Approved By Grand Marais Area Fisheries Supervisor: **02/08/2016**

Date Approved By Northeast Region Fisheries Manager: **04/14/2016**