WISCONSIN DEPARTMENT OF NATURAL RESOURCES
CREEL SURVEY REPORT

LILY LAKE
FOREST COUNTY

2017-18

Treaty Fisheries Publication

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Treaty Fisheries Technicians
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Fish Graphics: Virgil Beck, Stevens Point, WI
INTRODUCTION

Fish populations can fluctuate due to natural forces like weather, predation or competition; management actions like stocking, regulations or habitat improvement; habitat loss and harvest impacts. Wisconsin Department of Natural Resources fisheries crews regularly conduct fishery surveys on lakes and reservoirs to gather the information needed to monitor changes, identify concerns, evaluate past management actions, and to prescribe fishery management strategies. Netting and electrofishing surveys are used to gather data on the status of fish populations and communities, measuring such parameters as species composition, population size, reproductive success, size or age distribution and growth rates. The other key component of the fishery that we often need to measure is harvest.

On many lakes in the Ceded Territory of northern Wisconsin, harvest of fish is divided between sport anglers and the six Chippewa tribes who harvest fish under rights granted by federal treaties. The tribes harvest fish mostly using a highly efficient method, spearing, during a relatively short time period in the spring. Every fish in the spear harvest is counted – a complete “census” of the harvest.

We also measure the sport angler harvest to assess its impact on the fishery. However, it would be highly impractical and very costly to conduct a complete census of every angler who fishes on a lake. Therefore, we conduct creel surveys.

A creel survey is an assessment tool used to sample the fishing activities of anglers on a body of water and make projections, or estimates, of harvest and other fishery parameters. Creel survey clerks work on randomly-selected days and shifts, forty hours per week. The survey is conducted during the open season for gamefish from the first Saturday in May through the first Sunday in March. Creel surveys are not conducted in November when fishing effort is low and ice conditions are often unsafe. The survey is run during daylight hours, and shift times change from month to month as day length changes.

Creel survey clerks travel their lakes using a boat or snowmobile to count the number of anglers at predetermined times, and to interview anglers who have completed their fishing trip. Data is collected on what species they fished for, catch, harvest, lengths of fish harvested, marks (fin clips or tags), and hours of fishing effort. Collecting completed-trip data provides the most accurate assessment of angling activities, and it avoids the need to disturb anglers while they are fishing.

A computer program is used to estimate catch and harvest of each species, catch and harvest rates, and fishing effort by month, as well as for the year in total. Keep in mind that these are estimates based on the best information available, and not a complete accounting of effort, catch, and harvest. Accurate estimates require that we sample a sufficient and representative portion of the angling activity on a lake. The accuracy of creel survey results depends on good cooperation and truthful responses by anglers when a creel clerk interviews them.

You may have encountered a DNR creel survey clerk on a recent fishing trip. We appreciate your cooperation during an interview. The survey only takes a few minutes of your time, and it gives the Department valuable information needed for management of the fishery.
This report provides estimates of:
1. Overall fishing effort (pressure)
2. Fishing effort directed at each species
3. Numbers of fish caught and harvested
4. Catch and harvest rates

Also included are a physical description of Lily Lake; discussion of results of the survey; and detailed summaries by species of fishing effort, catch and harvest.

GENERAL LAKE INFORMATION

Location
Lily Lake is located in Forest County near the town of Nashville.

Physical Characteristics
Lily Lake is a 213-acre drainage lake with a maximum depth of 24 feet. Littoral substrate consists of sand, muck, gravel, and rubble. Lily Lake contains hard, slightly acidic, clear water of moderate transparency.

Seasons Surveyed
The period referred to in this report as the 2017-18 fishing season which ran from May 6, 2017 through March 4, 2018. The open-water creel survey ran from May 6 through October 31, 2017, and the ice fishing creel survey ran from December 1, 2017 through March 4, 2018.

Weather
Ice-out on Lily Lake was around April 8, 2017. Fishable-ice formed on Lily Lake in mid-December.

Fishing Regulations
The following seasons, daily bag limits, and length limits were in place on Lily Lake during the 2017-18 fishing season:

<table>
<thead>
<tr>
<th>Species</th>
<th>Season</th>
<th>Bag Limit</th>
<th>Min. Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Largemouth Bass</td>
<td>5/6-3/4</td>
<td>5</td>
<td>14&quot;</td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>5/6-6/16</td>
<td>Catch&amp;Release</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/17-3/4</td>
<td>5</td>
<td>14&quot;</td>
</tr>
<tr>
<td>Musky</td>
<td>5/27-11/30</td>
<td>1</td>
<td>40&quot;</td>
</tr>
<tr>
<td>Northern Pike</td>
<td>5/6-3/4</td>
<td>5</td>
<td>none</td>
</tr>
<tr>
<td>Walleye</td>
<td>5/6-3/4</td>
<td>3</td>
<td>15&quot;</td>
</tr>
<tr>
<td></td>
<td>20&quot;-24&quot; Protected Slot, 1&gt;24&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panfish</td>
<td>year round</td>
<td>25</td>
<td>none</td>
</tr>
<tr>
<td>Rock Bass</td>
<td>year round</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

SPECIES CATCH AND HARVEST INFORMATION

Angling effort, catch, and harvest information is summarized for each species in Table 2 and Figures 1-9. Table 2 also includes a comparison of these statistics with the previous creel survey. Information presented about species whose fishing season extends beyond March 4 should be considered minimum estimates. Each species page has up to five graphs depicting the following:

1. ESTIMATED FISHING EFFORT
   Total calculated number of hours during each month that anglers spent fishing for a species.

2. ESTIMATED CATCH AND HARVEST
   Calculated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.
3. ESTIMATED SPECIFIC CATCH AND HARVEST RATES
Calculated number of hours it takes an angler to catch or harvest a fish of the indicated species. Only information from anglers who were specifically targeting that species is reported.

4. LENGTH DISTRIBUTION OF HARVESTED FISH
All fish of a species that were measured by the clerk during the entire creel survey season.

5. LARGEST AND AVERAGE LENGTH OF HARVESTED FISH
Monthly largest and average length of harvested fish of a species. Only fish measured by the creel survey clerk are reported.

CREEL SURVEY RESULTS AND DISCUSSION

Survey Logistics
We encountered no unusual problems conducting the survey or calculating the projections contained in the report. The Lily Lake creel survey was combined with a creel survey on Roberts Lake. This was the first time the Department conducted a creel survey on Lily Lake.

General Angler Information
Anglers spent 6,593 hours, or 31.0 hours per acre, fishing Lily Lake during the 2017-18 season (Table 1). That was more than the Forest County average of 27.1 hours per acre. June was the most heavily fished month (8.1 hours), and fishing effort was lightest in October (0.5 hours). The creel clerks were able to conduct 134 interviews throughout the survey.

RESULTS BY SPECIES

Walleye (Table 2, Figure 1)
Walleye received the most fishing effort of any gamefish species during the season. Anglers spent 3,745 hours targeting Walleye. The greatest fishing effort for Walleye was in June (944 hours). January and March had no documented Walleye fishing effort.

Total catch of Walleye was 848 fish, with a harvest of 110. Highest catch (504 fish) occurred in June, and highest harvest (40 fish) occurred in September. Anglers fished an average of 4.5 hours to catch, and 34.1 hours to harvest, a Walleye during the survey. The mean length of harvested Walleye was 16.8 inches, and the largest measured was a 19.1-inch fish.

Northern Pike (Table 2, Figure 2)
Fishing effort directed at Northern Pike was 575 hours during the season. Northern Pike fishing effort was greatest in February (215 hours). Total catch of Northern Pike was 116 fish, with a harvest of 28. Anglers fished an average of 9.8 hours to catch a Northern Pike during the survey. The mean length of harvested Northern Pike was 24.0 inches, and the largest measured was a 29.5-inch fish.

Muskellunge (Table 2, Figure 3)
Anglers spent 1,298 hours targeting Muskellunge during the season. Muskellunge fishing effort was greatest in June (411 hours). Total catch of Muskellunge was 17 fish, all of which occurred in June. Anglers fished 75.2 hours to catch a Muskellunge, and there was no documented harvest during the survey.
**Smallmouth Bass** (Table 2, Figure 4)
Fishing effort targeted at Smallmouth Bass was 1,937 hours during the season. Smallmouth Bass fishing effort was greatest in July (667 hours). Total catch of Smallmouth Bass was 1,448 fish, with 21 harvested. Highest catch (675 fish) occurred in June. Anglers fished an average of 1.6 hours to catch a Smallmouth Bass during the survey.

**Largemouth Bass** (Table 2, Figure 5)
Fishing effort directed at Largemouth Bass was 529 hours during the season. Largemouth Bass fishing effort was greatest in June (255 hours). Total catch of largemouth bass was 20 fish, with no documented harvest. Highest catch (16 fish) occurred in July. Anglers fished an average of 131.6 hours to catch a Largemouth Bass during the survey.

**Panfish** (Table 2, Figures 6-9)

**Yellow Perch** received 1,820 hours of directed fishing effort. Total catch of Yellow Perch was 1,260 fish, with 370 harvested. The mean length of Yellow Perch harvested was 8.9 inches.

**Bluegill** were the most sought after panfish species during the survey. Fishing effort directed at Bluegill was 2,017 hours. Total catch of Bluegill was 1,164 fish, with 140 harvested. The mean length of Bluegill harvested was 6.7 inches.

**Black Crappie** received 690 hours of directed fishing effort. Anglers caught and harvested 9 fish. The mean length of Black Crappie harvested was 10.5 inches.

**Rock Bass** received 564 hours of directed fishing effort. Anglers caught 1,310 Rock Bass and harvested 106. The mean length of Rock Bass harvested was 6.2 inches.

**ACKNOWLEDGMENTS**

The Department would like to thank all the anglers who took the time to offer information about their fishing trip to the survey clerk. Without their cooperation, the survey would not have been possible.

We also thank our cooperators, Mike and Amy Wall of Frog Alley Inn and Campground, who generously allowed the Department to keep a boat on their property during this survey.

Completion of this survey was possible because of the efforts of the following fisheries management and treaty fisheries staff: Lawrence Eslinger, Jeff Blonski, Joelle Underwood, Jason Halverson, John Kubisiak, Tyler Sikora, and Greg Matzke. Creel clerks on Lily Lake during the survey period were Angelica Komarek, Shae Flood, Steve Timler, and Shannon Morrell.

This creel report was reviewed by John Kubisiak, Lawrence Eslinger, and Greg Matzke of the Wisconsin Department of Natural Resources, Woodruff, Wisconsin.

Additional copies of this report, and those covering other local lakes, can be obtained from the Woodruff DNR or online at:
http://dnr.wi.gov/topic/Fishing/north/trtycrlsrvys.html
Table 1. Sportfishing effort summary, Lily Lake, 2017-18 season compared with Forest County and Ceded Territory averages.

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of Angler Party Interviews</th>
<th>Total Angler Hours</th>
<th>Total Angler Hours/Acre</th>
<th>Forest County Average Hours/Acre</th>
<th>Ceded Territory Average Hours/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>9</td>
<td>891</td>
<td>4.2</td>
<td>3.7</td>
<td>4.9</td>
</tr>
<tr>
<td>June</td>
<td>34</td>
<td>1716</td>
<td>8.1</td>
<td>4.7</td>
<td>6.3</td>
</tr>
<tr>
<td>July</td>
<td>33</td>
<td>1387</td>
<td>6.5</td>
<td>5.4</td>
<td>6.7</td>
</tr>
<tr>
<td>August</td>
<td>17</td>
<td>704</td>
<td>3.3</td>
<td>4.5</td>
<td>5.3</td>
</tr>
<tr>
<td>September</td>
<td>22</td>
<td>611</td>
<td>2.9</td>
<td>2.4</td>
<td>3.3</td>
</tr>
<tr>
<td>October</td>
<td>6</td>
<td>103</td>
<td>0.5</td>
<td>0.8</td>
<td>1.5</td>
</tr>
<tr>
<td>December</td>
<td>3</td>
<td>130</td>
<td>0.6</td>
<td>1.3</td>
<td>1.1</td>
</tr>
<tr>
<td>January</td>
<td>2</td>
<td>477</td>
<td>2.2</td>
<td>2.3</td>
<td>1.7</td>
</tr>
<tr>
<td>February</td>
<td>7</td>
<td>476</td>
<td>2.2</td>
<td>1.8</td>
<td>1.6</td>
</tr>
<tr>
<td>March</td>
<td>1</td>
<td>98</td>
<td>0.5</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>*Summer Total</td>
<td>121</td>
<td>5411</td>
<td>25.4</td>
<td>21.5</td>
<td>28.0</td>
</tr>
<tr>
<td>*Winter Total</td>
<td>13</td>
<td>1181</td>
<td>5.5</td>
<td>5.6</td>
<td>4.6</td>
</tr>
<tr>
<td>Grand Total</td>
<td>134</td>
<td>6593</td>
<td>31.0</td>
<td>27.1</td>
<td>32.6</td>
</tr>
</tbody>
</table>

*"Summer" is May-October; "Winter" is December-March

**Number of Angler Party Interviews** is the number of groups of anglers interviewed by the creel clerk. A party is considered the members of a group who fish together in the same boat, ice shanty, or from shore. The clerk fills out one interview form for each group of anglers. The number of individual anglers actually contacted by the clerk is usually much greater than the number of groups listed in this table since most groups consist of more than one angler.

**Total Angler Hours** is the estimated total number of hours that anglers spent fishing on Lily Lake during each month surveyed.

**Total Angler Hours/Acre** is the total angler hours divided by the area of the lake in acres. This is useful in order to compare effort on Lily Lake to other lakes.

**County Average Hours/Acre** is the average angler effort in hours per acre for county lakes that have been surveyed since 1990. This value is useful for fishing pressure comparisons with other waters.

**Ceded Territory Average Hours/Acre** is the average angler effort in hours per acre for inland lakes in the Ceded Territory that have been surveyed since 1990. This value can be used to compare Lily Lake to other lakes in northern Wisconsin.
Table 2. Creel survey synopses, Lily Lake, 2017-18 fishing seasons.

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>DIRECTED EFFORT (Hours)</th>
<th>PERCENT OF TOTAL</th>
<th>TOTAL CATCH</th>
<th>SPECIFIC CATCH RATE (Hrs/Fish) *</th>
<th>TOTAL HARVEST</th>
<th>SPECIFIC HARVEST RATE (Hrs/Fish) **</th>
<th>MEAN LENGTH OF HARVESTED FISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walleye</td>
<td>3745</td>
<td>28.4%</td>
<td>848</td>
<td>4.5</td>
<td>110</td>
<td>34.1</td>
<td>16.8</td>
</tr>
<tr>
<td>Northern Pike</td>
<td>575</td>
<td>4.4%</td>
<td>116</td>
<td>9.8</td>
<td>28</td>
<td>29.5</td>
<td>24.0</td>
</tr>
<tr>
<td>Muskellunge</td>
<td>1298</td>
<td>9.9%</td>
<td>17</td>
<td>75.2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>1937</td>
<td>14.7%</td>
<td>1448</td>
<td>1.6</td>
<td>21</td>
<td>149.3</td>
<td>13.9</td>
</tr>
<tr>
<td>Largemouth Bass</td>
<td>529</td>
<td>4.0%</td>
<td>20</td>
<td>131.6</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Perch</td>
<td>1820</td>
<td>13.8%</td>
<td>1260</td>
<td>1.5</td>
<td>370</td>
<td>5.0</td>
<td>8.9</td>
</tr>
<tr>
<td>Bluegill</td>
<td>2017</td>
<td>15.3%</td>
<td>1164</td>
<td>1.7</td>
<td>140</td>
<td>14.4</td>
<td>6.7</td>
</tr>
<tr>
<td>Black Crappie</td>
<td>690</td>
<td>5.2%</td>
<td>9</td>
<td>73.0</td>
<td>9</td>
<td>73.0</td>
<td>10.5</td>
</tr>
<tr>
<td>Rock Bass</td>
<td>564</td>
<td>4.3%</td>
<td>1310</td>
<td>2.0</td>
<td>106</td>
<td>7.2</td>
<td>6.2</td>
</tr>
</tbody>
</table>

* A blank cell in this column indicates that no fish of a given species were caught by anglers who specifically targeted that species.

** A blank cell in this column indicates that no fish of a given species were harvested by anglers who specifically targeted that species.
Figure 1. Walleye sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
Figure 2. Northern Pike sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
Figure 3. Muskellunge sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
SMALLMOUTH BASS

Figure 4. Smallmouth Bass sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
Figure 5. Largemouth Bass sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
Figure 6. Yellow Perch sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
Figure 7. Bluegill sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
Figure 8. Black Crappie sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.
Figure 9. Rock Bass sportfishing effort, catch, harvest, and length distribution, Lily Lake, during 2017-18 season.