Treaty Fisheries Publication

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CONTENTS

INTRODUCTION.................................................................................................................. 1
GENERAL LAKE INFORMATION.......................................................................................... 2
  Location .............................................................................................................................. 2
  Physical Characteristics ................................................................................................. 2
  Seasons Surveyed ............................................................................................................. 2
  Weather ............................................................................................................................. 2
  Fishing Regulations ......................................................................................................... 2
SPECIES CATCH AND HARVEST INFORMATION ......................................................... 2
CREEL SURVEY RESULTS AND DISCUSSION .............................................................. 3
  Survey Logistics ............................................................................................................... 3
  General Angler Information ............................................................................................. 3
RESULTS BY SPECIES ....................................................................................................... 3
ACKNOWLEDGMENTS ....................................................................................................... 4

SUMMARY TABLES

Table 1. Sportfishing effort summary .............................................................................. 5
Table 2. Creel survey synopsis ......................................................................................... 6

SPECIES CATCH AND HARVEST INFORMATION

Gamefish
  Figure 1. Walleye ............................................................................................................ 7
  Figure 2. Muskellunge .................................................................................................... 8
  Figure 3. Smallmouth Bass ......................................................................................... 9
  Figure 4. Largemouth Bass .......................................................................................... 10
Panfish
  Figure 5. Yellow Perch ................................................................................................ 11
  Figure 6. Bluegill ........................................................................................................... 12
  Figure 7. Black Crappie ............................................................................................... 13
  Figure 8. Pumpkinseed ............................................................................................... 14
  Figure 9. Rock Bass ..................................................................................................... 15

Cover Art: Steve Hilt, Portland, OR
Fish Graphics: Virgil Beck, Stevens Point, WI
INTRODUCTION

Fish populations can fluctuate due to natural forces (weather, predation, competition), management actions (stocking, regulations, habitat improvement), inappropriate development (habitat degradation), and harvest impacts. Wisconsin Department of Natural Resources fisheries crews regularly conduct fishery surveys on area 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 (species composition, population size, reproductive success, size/age distribution, and growth rates). The other key component of the fishery that we often need to measure is the 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, 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 make estimates of total catch and harvest of each species, catch and harvest rates, and total fishing effort by month, as well as for the year in total. Keep in mind that these are only 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, therefore, 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 moment 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. Catch and harvest rates
4. Numbers of fish caught and harvested

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

**GENERAL LAKE INFORMATION**

![Big Carr Lake Map](image)

**Location**
Big Carr Lake is located in Oneida County near the town of Lake Tomahawk.

**Physical Characteristics**
Big Carr Lake is a 213-acre seepage lake with a maximum depth of 71 feet. Littoral substrate consists primarily of sand and rubble, with lesser amounts of muck and gravel. Big Carr Lake contains soft, slightly alkaline, clear water of very high transparency.

**Seasons Surveyed**
The period referred to in this report as the 2016 fishing season ran from May 7, 2016 through October 31, 2016. This creel survey was only conducted during the open water period due to expected low fishing pressure during winter months.

**Weather**
Ice-out on Big Carr Lake was around April 18, 2016.

**Fishing Regulations**
The following seasons, daily bag limits, and length limits were in place on Big Carr Lake during the 2016-17 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>5/7-3/5</td>
<td>5</td>
<td>14&quot;</td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>5/7-6/17</td>
<td>Catch&amp;Release</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/18-3/5</td>
<td>5</td>
<td>14&quot;</td>
</tr>
<tr>
<td>Musky</td>
<td>5/7-11/30</td>
<td>1</td>
<td>40&quot;</td>
</tr>
<tr>
<td>Northern Pike</td>
<td>5/7-3/5</td>
<td>5</td>
<td>none</td>
</tr>
<tr>
<td>Walleye</td>
<td>5/7-3/5</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. 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 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.
3. **ESTIMATED CATCH AND HARVEST**
   Calculated number of fish of the indicated species caught or harvested by all anglers, regardless of targeted species.

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 those fish measured by the creel survey clerk are reported.

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**CREEL SURVEY RESULTS AND DISCUSSION**

**Survey Logistics**

The creel survey went well. We encountered no unusual problems conducting the survey or calculating the projections contained in the report. This was the first time the Department conducted a creel survey on Big Carr Lake.

**General Angler Information**

Anglers spent 3,504 hours, or 16.4 hours per acre, fishing Big Carr Lake during the 2016 open water season (Table 1). That was less than the Oneida County open water average of 28.8 hours per acre. July was the most heavily fished month (1,085 hours). Fishing effort was lightest in October (36 hours). The creel clerks were able to conduct 233 interviews throughout the survey (Table 1).

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**RESULTS BY SPECIES**

**Walleye** (Table 2, Figure 1)

Anglers spent 564 hours targeting walleye. The greatest fishing effort for walleyes was in June (193 hours).

Total catch of walleyes was 4 fish (all caught in May), with no fish being harvested. Anglers fished an average of 149.3 hours to catch a walleye during the survey.

**Northern Pike** (Table 2)

Fishing effort directed at northern pike was 14 hours. There was no documented catch or harvest of northern pike.

**Muskellunge** (Table 2, Figure 2)

Anglers spent 206 hours targeting muskellunge. Muskellunge fishing effort was greatest in June (59 hours). There was no documented catch or harvest of muskellunge.

**Smallmouth Bass** (Table 2, Figure 3)

Smallmouth bass received the most fishing effort of any gamefish species. Fishing effort targeted at smallmouth bass was 1,937 hours. Smallmouth bass fishing effort was greatest in July (717 hours). Total catch of smallmouth bass was 3,676 fish, with 34 harvested. Highest catch (1,275 fish) occurred in July. Anglers fished an average of 0.7 hours to catch a smallmouth bass during the survey. The mean length of harvested smallmouth bass was 12.9 inches, and the largest fish measured was 16.7 inches.
Largemouth Bass (Table 2, Figure 4)
Fishing effort directed at largemouth bass was 1,028 hours during the 2016 season. Largemouth bass fishing effort was greatest in July (259 hours). Total catch of largemouth bass was 703 fish, with a harvest of 15 fish. Highest catch (232 fish) occurred in May. Anglers fished an average of 1.7 hours to catch a largemouth bass during the survey. The mean length of harvested largemouth bass was 13.5 inches, and the largest fish measured was 14.0 inches.

Lake Trout (Table 2) received 68 hours of directed fishing effort. There was no documented catch or harvest of lake trout.

Panfish (Table 2, Figures 5-9)

Yellow Perch received 296 hours of directed fishing effort. Total catch of yellow perch was 306 fish, with 31 being harvested. The mean length of yellow perch harvested was 10.2 inches.

Bluegills were the most sought after panfish species during the survey. Fishing effort directed at bluegills was 1,190 hours. Total catch of bluegills was 2,533 fish, with 595 harvested. The mean length of bluegills harvested was 7.0 inches.

Black Crappies received 110 hours of directed fishing effort. Anglers caught 15 black crappies and harvested 12 fish. The mean length of black crappies harvested was 9.5 inches.

Pumpkinseeds received 74 hours of directed fishing effort. Anglers caught 72 pumpkinseed and harvested 11 fish.

Rock bass received 136 hours of directed fishing effort. Anglers caught 1,161 rock bass and harvested 150 fish. The mean length of rock bass harvested was 7.5 inches.

ACKNOWLEDGMENTS

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, and Steve Timler. Lauren Radtke, Gerald Streeter, Marty Kiepke, Tim Sleaper, and April Mikul were the creel clerks on Big Carr Lake during the survey period.

We 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.

The Department thanks our cooperator, Camp American Legion; Specifically, Director Kevin Moshea and all other Camp personnel, who generously allowed the Department to keep a boat on their property during this survey.

This creel report was reviewed by John Kubisiak and Lawrence Eslinger 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/trtycrlsrvs.html
Table 1. Sportfishing effort summary, Big Carr Lake, 2016 open water season.

<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>Oneida County Average Hours/Acre</th>
<th>Ceded Territory Average Hours/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>28</td>
<td>429</td>
<td>2.0</td>
<td>4.8</td>
<td>5.0</td>
</tr>
<tr>
<td>June</td>
<td>58</td>
<td>884</td>
<td>4.2</td>
<td>6.3</td>
<td>6.3</td>
</tr>
<tr>
<td>July</td>
<td>78</td>
<td>1085</td>
<td>5.1</td>
<td>7.2</td>
<td>6.8</td>
</tr>
<tr>
<td>August</td>
<td>43</td>
<td>730</td>
<td>3.4</td>
<td>5.6</td>
<td>5.4</td>
</tr>
<tr>
<td>September</td>
<td>15</td>
<td>339</td>
<td>1.6</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>October</td>
<td>11</td>
<td>36</td>
<td>0.2</td>
<td>1.6</td>
<td>1.5</td>
</tr>
<tr>
<td>*Summer Total</td>
<td>233</td>
<td>3504</td>
<td>16.4</td>
<td>28.8</td>
<td>28.3</td>
</tr>
<tr>
<td>**Grand Total</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>33.5</td>
<td>32.6</td>
</tr>
</tbody>
</table>

*"Summer" is May-October  
**Big Carr was not surveyed the entire 2016-17 season; the Oneida Co. and Ceded Territory averages include entire season values (summer and winter combined)

**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 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 Big Carr 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 Big Carr 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 Big Carr Lake to other lakes in northern Wisconsin.
Table 2. Summary of creel survey synopsis, Big Carr Lake, 2016.

<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>564</td>
<td>10.0%</td>
<td>4</td>
<td>149.3</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Northern Pike</td>
<td>14</td>
<td>0.2%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Muskellunge</td>
<td>206</td>
<td>3.7%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td>1937</td>
<td>34.4%</td>
<td>3676</td>
<td>0.7</td>
<td>34</td>
<td>147.1</td>
<td>12.9</td>
</tr>
<tr>
<td>Largemouth Bass</td>
<td>1028</td>
<td>18.3%</td>
<td>703</td>
<td>1.7</td>
<td>15</td>
<td>96.2</td>
<td>13.5</td>
</tr>
<tr>
<td>Lake Trout</td>
<td>68</td>
<td>1.2%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Yellow Perch</td>
<td>296</td>
<td>5.3%</td>
<td>306</td>
<td>1.1</td>
<td>31</td>
<td>10.9</td>
<td>10.2</td>
</tr>
<tr>
<td>Bluegill</td>
<td>1190</td>
<td>21.2%</td>
<td>2533</td>
<td>0.5</td>
<td>595</td>
<td>2.2</td>
<td>7.0</td>
</tr>
<tr>
<td>Black Crappie</td>
<td>110</td>
<td>2.0%</td>
<td>15</td>
<td>28.5</td>
<td>12</td>
<td>28.5</td>
<td>9.5</td>
</tr>
<tr>
<td>Pumpkinseed</td>
<td>74</td>
<td>1.3%</td>
<td>72</td>
<td>1.2</td>
<td>11</td>
<td>12.4</td>
<td>6.8</td>
</tr>
<tr>
<td>Rock Bass</td>
<td>136</td>
<td>2.4%</td>
<td>1161</td>
<td>0.8</td>
<td>150</td>
<td>1.3</td>
<td>7.5</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, Big Carr Lake, during 2016 season.
Figure 2. Muskellunge sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.
Figure 3. Smallmouth bass sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.
Figure 4. Largemouth bass sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.
Figure 5. Yellow perch sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.
Figure 6. Bluegill sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.
Figure 7. Black crappie sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.
Figure 8. Pumpkinseed sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.
Figure 9. Rock bass sportfishing effort, catch, harvest, and length distribution, Big Carr Lake, during 2016 season.