Wild Rice (Manoomin) Abundance and Harvest in Northern Wisconsin in 2001

by
Peter F. David
Wildlife Biologist

Administrative Report 08-16
October 2008

Great Lakes Indian Fish & Wildlife Commission
Biological Services Division
P.O. Box 9
Odanah, WI 54861
(715) 682-6619
MANOOMIN (WILD RICE) ABUNDANCE AND HARVEST
IN NORTHERN WISCONSIN IN 2001

INTRODUCTION

As part of its wild rice management program, the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) conducts annual surveys of wild rice abundance on northern Wisconsin waters. These surveys provide a long term data base on wild rice abundance and annual variability in the ceded territory.

GLIFWC also conducts an annual survey to estimate the amount of wild rice harvested off-reservation in the Wisconsin ceded territory. The Wisconsin Department of Natural Resources (WDNR) cooperates with this survey by providing the names and addresses of state wild rice harvest license purchasers, so that both state and tribal harvest can be estimated. The 2001 survey was similar in design to a survey first conducted in 1987, and repeated each year since 1989, with minor modifications as described in the Methods section.

METHODS

Abundance Estimation

A select group of thirty lakes and 10 river or flowage sites have been ground surveyed most years since 1985; abundance information from these waters is used to derive a yearly index of rice abundance in the ceded territory. The index is derived by multiplying the number of acres of rice on each water surveyed by a factor ranging from 1 to 5 which relates to rice density (1=sparse, 5=dense) and then summing the values derived for each of the 40 waters. In addition to abundance information, ground surveys include information on habitat suitability (e.g. abundance of competing vegetation, presence of beaver, obvious development impacts). Ground surveys were conducted from mid-July through late August.

Aerial surveys of some of these waters, and additional waters not ground surveyed, were conducted on August 3rd and 4th. Aerial survey information is limited to an estimate of the size and approximate density of the rice beds. These surveys provide abundance information from waters not ground surveyed, help verify ground estimates of manoomin acreage, occasionally fill in survey gaps when ground crews are unable to access lakes, and help the Commission direct rice harvesters to the more productive stands.

Harvest Estimation

Slightly different techniques were used to estimate harvest by tribal and state rice harvesters. Tribal members who wished to harvest rice off-reservation were required to obtain an off-reservation harvesting permit validated for ricing. This permit was obtained by 884 individuals in 2001. When individuals obtained their 2001 permit, they were asked if they harvested rice the
previous year. Fifty-one percent (69/134) of the individuals who indicated they had riced in 2000 ("active" ricers) were surveyed by phone, as well as 12% (80/656) of those individuals who indicated they had not riced the previous year ("inactive" ricers). Since 94 permit holders failed to answer the question, these individuals were treated as a third group in this survey (unlike previous years); 59% (55/94) of these individuals were also surveyed ("non-responsive" ricers) (Table 1).

The number of tribal members actually harvesting off-reservation in 2001 was estimated by extrapolating the percent of active respondents in each group (Table 1). Due to differences in sampling and activity rates among groups, separate harvest estimates were made for each group, then combined to estimate total tribal harvest.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>TOTAL NUMBER</th>
<th># SURVEYED</th>
<th>% SAMPLED</th>
<th>% ACTIVE OFF-RESERVATION</th>
<th>EST. # ACTIVE OFF-RESERVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE¹</td>
<td>134</td>
<td>69</td>
<td>51%</td>
<td>47.8%</td>
<td>64</td>
</tr>
<tr>
<td>INACTIVE¹</td>
<td>656</td>
<td>80</td>
<td>12%</td>
<td>10.0%</td>
<td>66</td>
</tr>
<tr>
<td>NON-RESPONSIVE¹</td>
<td>94</td>
<td>55</td>
<td>59%</td>
<td>9.1%</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>884</td>
<td>204</td>
<td></td>
<td></td>
<td>139</td>
</tr>
</tbody>
</table>

¹ Based on activity the previous year; see discussion in text.

State ricers were required to obtain a state license. A mail questionnaire was mailed to each of the 488 individuals who obtained the state license. The number of active ricers was estimated by expanding the results reported by the 243 (50%) respondents to the state survey.

Among state respondents were two individuals who riced together (under two licenses) who reported a harvest that far exceeded that of other state ricers. Because of this, total state harvest was estimated by extrapolating the harvest reported by all other state respondents to the other 422 estimated active state ricers, then adding the harvest reported by these two individuals.

**RESULTS AND DISCUSSION**

**Abundance Estimation**

Ground survey results and abundance information for the 40 waters surveyed annually are reported in Figures 1 and 2, and Table 2. In addition, abundance estimates for 49 additional waters surveyed only from the air are listed in Table 3. A total of 2,370 acres of wild rice were estimated for these 89 surveyed waters. Andryk (1986) estimated that the Wisconsin ceded territories supported approximately 5,000 acres of rice in 1985, a year with an abundance index considerably higher than in 2001.
Figure 1. Manoomin acreage and abundance index from 40 Wisconsin rice waters surveyed annually from 1985-2001.

Figure 2. Manoomin abundance index from 40 Wisconsin rice waters surveyed annually from 1985-2001; northwestern versus north-central Wisconsin waters (Highway 13 used to separate northwestern from north-central waters).

(Data for 1985-1997 can be found in David, 2001.)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NORTHEASTERN CTYS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BARRON</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>SWEENEY CREEK</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>5</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>BAYFIELD</td>
<td>135</td>
<td>3</td>
<td>405</td>
<td>95</td>
<td>2</td>
<td>190</td>
<td>51</td>
<td>3</td>
</tr>
<tr>
<td>TOTOGATIC LAKE</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>7</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>BURNETT</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>BASHAW LAKE</td>
<td>210</td>
<td>3</td>
<td>630</td>
<td>180</td>
<td>4</td>
<td>720</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>BIG CLAM LAKE</td>
<td>25</td>
<td>3</td>
<td>75</td>
<td>18</td>
<td>2</td>
<td>36</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>BRIGGS LAKE</td>
<td>18</td>
<td>3</td>
<td>54</td>
<td>23</td>
<td>2</td>
<td>48</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>GASLYN LAKE</td>
<td>66</td>
<td>2</td>
<td>130</td>
<td>40</td>
<td>2</td>
<td>80</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>LONG LAKE</td>
<td>11</td>
<td>3</td>
<td>33</td>
<td>6</td>
<td>3</td>
<td>18</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>MUD LAKE (2)</td>
<td>12</td>
<td>4</td>
<td>46</td>
<td>16</td>
<td>3</td>
<td>48</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>WEBB CREEK</td>
<td>10</td>
<td>2</td>
<td>20</td>
<td>16</td>
<td>2</td>
<td>32</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>DOUGLAS</td>
<td>100</td>
<td>3</td>
<td>400</td>
<td>140</td>
<td>4</td>
<td>140</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>MULLELLA LAKE</td>
<td>8</td>
<td>4</td>
<td>32</td>
<td>6</td>
<td>3</td>
<td>18</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>POLK</td>
<td>15</td>
<td>3</td>
<td>15</td>
<td>15</td>
<td>2</td>
<td>30</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>WHITE ASH LAKE</td>
<td>14</td>
<td>3</td>
<td>42</td>
<td>10</td>
<td>4</td>
<td>40</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>SAWYER</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>BILLY BOY FLOW.</td>
<td>100</td>
<td>4</td>
<td>400</td>
<td>75</td>
<td>2</td>
<td>150</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>BLAISDELL LAKE</td>
<td>100</td>
<td>4</td>
<td>400</td>
<td>67</td>
<td>3</td>
<td>201</td>
<td>48</td>
<td>4</td>
</tr>
<tr>
<td>PACWA/WONG LAKE</td>
<td>35</td>
<td>4</td>
<td>140</td>
<td>24</td>
<td>4</td>
<td>96</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>PHIPPS FLOWAGE</td>
<td>24</td>
<td>3</td>
<td>72</td>
<td>30</td>
<td>4</td>
<td>120</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>WASHBURN</td>
<td>12</td>
<td>3</td>
<td>36</td>
<td>9</td>
<td>3</td>
<td>27</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>RICE LAKE</td>
<td>14</td>
<td>2</td>
<td>28</td>
<td>10</td>
<td>3</td>
<td>30</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>SPRING LAKE (1)</td>
<td>14</td>
<td>3</td>
<td>42</td>
<td>5</td>
<td>3</td>
<td>15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TRANSUS LAKE</td>
<td>8</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td>840</td>
<td>2648</td>
<td>657</td>
<td>1912</td>
<td>358</td>
<td>1120</td>
<td>665</td>
<td>1985</td>
</tr>
<tr>
<td><strong>NORTH-CENTRAL CTYS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOREST</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ATKINS LAKE</td>
<td>4</td>
<td>3</td>
<td>12</td>
<td>5</td>
<td>3</td>
<td>15</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>INDIAN/RILEY LAKE</td>
<td>100</td>
<td>1</td>
<td>100</td>
<td>60</td>
<td>2</td>
<td>120</td>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>PAT SHAY LAKE</td>
<td>24</td>
<td>4</td>
<td>96</td>
<td>21</td>
<td>4</td>
<td>84</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>RAT RIVER</td>
<td>80</td>
<td>3</td>
<td>240</td>
<td>30</td>
<td>2</td>
<td>60</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>WABION LAKE</td>
<td>50</td>
<td>1</td>
<td>50</td>
<td>20</td>
<td>3</td>
<td>60</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>ALICE LAKE</td>
<td>40</td>
<td>4</td>
<td>160</td>
<td>58</td>
<td>2</td>
<td>116</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>LITTLE RICE LAKE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>RICE LAKE</td>
<td>100</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>1</td>
<td>100</td>
<td>60</td>
<td>1</td>
</tr>
<tr>
<td>SPUR LAKE</td>
<td>95</td>
<td>4</td>
<td>380</td>
<td>56</td>
<td>3</td>
<td>168</td>
<td>25</td>
<td>1</td>
</tr>
<tr>
<td>WISCONSIN RIVER</td>
<td>150</td>
<td>3</td>
<td>450</td>
<td>180</td>
<td>3</td>
<td>540</td>
<td>165</td>
<td>4</td>
</tr>
<tr>
<td><strong>PRICE</strong></td>
<td>28</td>
<td>2</td>
<td>56</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>BLOCKHOUSE LAKE</td>
<td>80</td>
<td>3</td>
<td>240</td>
<td>60</td>
<td>3</td>
<td>160</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td>ALLEQUASH LAKE</td>
<td>20</td>
<td>3</td>
<td>60</td>
<td>16</td>
<td>3</td>
<td>48</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>LITTLE RICE LAKE</td>
<td>15</td>
<td>3</td>
<td>45</td>
<td>16</td>
<td>4</td>
<td>64</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>MANITOWISH RIVER</td>
<td>27</td>
<td>3</td>
<td>81</td>
<td>17</td>
<td>4</td>
<td>66</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>PARTRIDGE LAKE</td>
<td>25</td>
<td>3</td>
<td>75</td>
<td>20</td>
<td>4</td>
<td>80</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>RICE LAKE</td>
<td>14</td>
<td>2</td>
<td>28</td>
<td>20</td>
<td>2</td>
<td>40</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>WEST PLUM LAKE</td>
<td>852</td>
<td>2173</td>
<td>681</td>
<td>1747</td>
<td>439</td>
<td>1288</td>
<td>515</td>
<td>2044</td>
</tr>
<tr>
<td><strong>COUNT</strong></td>
<td>1692</td>
<td>4821</td>
<td>1338</td>
<td>3659</td>
<td>788</td>
<td>2408</td>
<td>1180</td>
<td>4029</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>39</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td>121</td>
<td>121</td>
<td>121</td>
<td>121</td>
<td>91</td>
<td>91</td>
<td>121</td>
<td>121</td>
</tr>
</tbody>
</table>
Table 3. Estimated manoomin acreage and density for waters aerially surveyed in 2001.

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>WATER</th>
<th>2001 EST. ACRES</th>
<th>2001 EST. DENSITY</th>
<th>2000 EST. ACRES</th>
<th>2000 EST. DENSITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barron</td>
<td>Bear Lake</td>
<td>4</td>
<td>sparse</td>
<td>12</td>
<td>medium</td>
</tr>
<tr>
<td>Bayfield</td>
<td>Chippewa Lake</td>
<td>35</td>
<td>medium-dense</td>
<td>20</td>
<td>sparse-dense</td>
</tr>
<tr>
<td>Burnett</td>
<td>Carter’s Bridge - Loon Lake</td>
<td>70</td>
<td>medium-dense</td>
<td>70</td>
<td>dense</td>
</tr>
<tr>
<td></td>
<td>- Gull Lake</td>
<td>20</td>
<td>medium-dense</td>
<td>35</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Clam River Flowage</td>
<td>45</td>
<td>medium-dense</td>
<td>42</td>
<td>dense</td>
</tr>
<tr>
<td></td>
<td>North Fork Flowage</td>
<td>42</td>
<td>dense</td>
<td>45</td>
<td>dense</td>
</tr>
<tr>
<td></td>
<td>North Lang Lake</td>
<td>4</td>
<td>medium-dense</td>
<td>3</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Phantom Flowage</td>
<td>8</td>
<td>medium</td>
<td>50</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Rice Lake 1</td>
<td>7</td>
<td>sparse-medium</td>
<td>7</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Rice Lake 2</td>
<td>12</td>
<td>medium</td>
<td>7</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Rice Lake 3</td>
<td>12</td>
<td>sparse-medium</td>
<td>2</td>
<td>sparse</td>
</tr>
<tr>
<td></td>
<td>Spencer Lake</td>
<td>4</td>
<td>sparse</td>
<td>2</td>
<td>sparse</td>
</tr>
<tr>
<td></td>
<td>Yellow Lake</td>
<td>20</td>
<td>sparse-medium</td>
<td>12</td>
<td>sparse-medium</td>
</tr>
<tr>
<td>Douglas</td>
<td>Lower Ox Lake</td>
<td>9</td>
<td>medium-dense</td>
<td>7</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Minong Flowage (Smiths Bridge)</td>
<td>30</td>
<td>medium-dense</td>
<td>6</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Radigan Flowage</td>
<td>42</td>
<td>dense</td>
<td>16</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>St.Croix River/Cutaway Dam</td>
<td>48</td>
<td>dense</td>
<td>4</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Upper Ox Lake</td>
<td>9</td>
<td>dense</td>
<td>7</td>
<td>dense</td>
</tr>
<tr>
<td>Forest</td>
<td>Hiles Millpond</td>
<td>25</td>
<td>medium</td>
<td>3</td>
<td>sparse-medium</td>
</tr>
<tr>
<td></td>
<td>Little Rice Flowage</td>
<td>120</td>
<td>medium-dense</td>
<td>20</td>
<td>medium</td>
</tr>
<tr>
<td>Iron</td>
<td>Gile Flowage</td>
<td>4</td>
<td>medium-dense</td>
<td>3</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Little Turtle Flowage</td>
<td>10</td>
<td>dense</td>
<td>8</td>
<td>dense</td>
</tr>
<tr>
<td>Oneida</td>
<td>Big Lake</td>
<td>12</td>
<td>medium-dense</td>
<td>11</td>
<td>dense</td>
</tr>
<tr>
<td></td>
<td>Cuemin Lake</td>
<td>20</td>
<td>medium-dense</td>
<td>12</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Scott Creek Impoundment</td>
<td>12</td>
<td>medium-dense</td>
<td>6</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>The Thoroughfare</td>
<td>75</td>
<td>medium-dense</td>
<td>90</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Wolf River 6</td>
<td>14</td>
<td>dense</td>
<td>14</td>
<td>dense</td>
</tr>
<tr>
<td>Polk</td>
<td>Joel Flowage</td>
<td>3</td>
<td>dense</td>
<td>16</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Little Butternut</td>
<td>3</td>
<td>medium</td>
<td>6</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Rice Lake 4</td>
<td>0</td>
<td>-</td>
<td>2</td>
<td>sparse</td>
</tr>
<tr>
<td>Sawyer</td>
<td>West Branch Chippewa River</td>
<td>18</td>
<td>dense</td>
<td>18</td>
<td>medium-dense</td>
</tr>
<tr>
<td>Vilas</td>
<td>Aurora Lake</td>
<td>85</td>
<td>medium-dense</td>
<td>62</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Devine Lake</td>
<td>20</td>
<td>sparse-medium</td>
<td>4</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Frost Lake</td>
<td>18</td>
<td>medium</td>
<td>13</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>Irving Lake</td>
<td>30</td>
<td>medium</td>
<td>40</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Island Lake</td>
<td>100</td>
<td>medium</td>
<td>40</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Lower Ninemile Lake</td>
<td>25</td>
<td>medium-dense</td>
<td>8</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Mickeys Mud Lake</td>
<td>1</td>
<td>sparse</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Mud Creek 6</td>
<td>28</td>
<td>medium-dense</td>
<td>22</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Nixon Lake / Creek</td>
<td>6</td>
<td>dense</td>
<td>4</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Rest Lake</td>
<td>4</td>
<td>medium</td>
<td>4</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Rice Creek 7</td>
<td>15</td>
<td>dense</td>
<td>10</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Rice Creek 8</td>
<td>10</td>
<td>dense</td>
<td>12</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Round Lake</td>
<td>6</td>
<td>medium-dense</td>
<td>4</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Upper Ninemile Lake</td>
<td>80</td>
<td>medium-dense</td>
<td>60</td>
<td>medium-dense</td>
</tr>
<tr>
<td>Washburn</td>
<td>Long, Mud, &amp; Little Mud Lakes</td>
<td>20</td>
<td>medium</td>
<td>30</td>
<td>medium-dense</td>
</tr>
<tr>
<td></td>
<td>Trego Flowage</td>
<td>5</td>
<td>dense</td>
<td>7</td>
<td>medium-dense</td>
</tr>
</tbody>
</table>

1 NE of Trade Lake, (T37N, R18W, S10); 2 NE of Hertel, (T39N, R14W, S15); 3 W of Frederic, (T37N, R18W, S36);
4 NW of Lennox; 5 NW of Frederic; 6 E of HWY 17; 7 N of Big Lake; 8 N of Island Lake
Survey results and field observations indicate that the 2001 rice crop showed some rebound from the exceptionally poor year experienced in 2000. The 2001 abundance index increased 67% from 2000, which had the lowest index since surveys were initiated (Table 2). Nevertheless, the 2001 index was 71% of the long-term index average (1985-2001). Marked increases from 2000 were recorded for both northwestern and north-central waters (Figure 2). For northwestern waters, 14 of the 21 waters surveyed both years (including Upper Clam Lake, which displayed an appreciable increase despite having a tornado cross its rice beds early in the growing season) showed an increase in abundance. Among the north-central waters, 14 of 18 waters showed an increase from the previous year. Overall, 28 of the 39 waters surveyed both years showed an increase from 2000, and of the remaining 11 only 2 had their index decline by more than 10 points.

It remains difficult to determine why rice changes in abundance on either the regional or local scale because the environmental factors that influence abundance are not well understood. Wild rice is affected by a variety of factors, and the relative impact of each varies by year. Some of these factors, such as spring temperatures and water levels, can affect rice regionally, and may account for instances where beds in the north-central counties display one trend in abundance while those in the northwestern region may show another. At the other extreme, a localized impact can cause a stand to fail while those around it flourish. Furthermore, those factors that might explain some of the variation in rice abundance are not being monitored systematically. Thus, explanations about changes in rice abundance remain largely a matter of conjecture.

Annual variability in rice abundance may be inversely related to the amount of water flow through the system. Relatively open systems such as rivers and flowages appear to vary less in rice abundance than relatively closed lake systems. Although open systems may still experience boom and bust years, the level of abundance tends to be closer to the average level most years. This may be because some environmental variables, such as nutrient availability or spring water temperatures, are more consistent in these systems from year to year.

Harvest Estimation

Responses were obtained from 204 tribal permit holders and 243 state licensees. Survey respondents were asked to report all harvest which occurred under their permit. For state licensees, this included on-and off-reservation harvest; for tribal members it included only off-reservation harvest, since no permit is required to harvest on-reservation. Forty-six of the tribal and 211 of the state licensees surveyed reported harvesting rice in 2001. The total number estimated active in each group was 139 tribal members and 424 state licensees (Table 4).

Tribal harvesters active off-reservation reported making from 1 to 14 ricing trips, averaging 3.1 trips. Tribal survey respondents made a total of 156 off-reservation harvesting trips, gathering 5,758 pounds of green rice (Appendix 1), with an extrapolated total harvest estimate of 17,098 pounds in 432 trips, an average of 40 pounds per trip (Table 4). The total off-reservation harvest per active license averaged 123 pounds.
Table 4. A comparison of tribal (off-reservation) and state manoomin harvest in 2001.

<table>
<thead>
<tr>
<th></th>
<th>NUMBER OF PERMIT HOLDERS</th>
<th>ESTIMATED NUMBER ACTIVE</th>
<th>AVERAGE NUMBER OF TRIPS</th>
<th>AVERAGE HARVEST/TRIP</th>
<th>AVE. HARVEST/ACTIVE LICENSE</th>
<th>TOTAL ESTIMATED HARVEST/TRIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIBAL</td>
<td>884</td>
<td>139</td>
<td>3.1</td>
<td>40</td>
<td>123</td>
<td>17,098 / 432</td>
</tr>
<tr>
<td>STATE</td>
<td>488</td>
<td>424</td>
<td>2.5</td>
<td>34</td>
<td>86</td>
<td>36,668 / 1,076</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,372</td>
<td>563</td>
<td>2.7</td>
<td>36</td>
<td>95</td>
<td>53,766 / 1,508</td>
</tr>
</tbody>
</table>

In comparison, active state licensees reported making from 1 to 30 ricing trips, averaging 2.5 trips. Collectively, state survey respondents made 567 trips and harvested a total of 20,677 pounds of green rice (Appendix 1), an average of 34 pounds per trip. The total harvest per active state license averaged 86 pounds.

The amount of rice harvested per individual varied greatly (Table 5). The two unique state ricers discussed in the methods section reported harvesting 5,000 pounds of rice together, while the most reported by one tribal ricer was 600 pounds.

Eighty-seven percent of the state-licensed respondents gathered rice in 2001, versus 16% for the tribes. Differences in permit systems between the two groups accounts for the different activity levels observed. The tribal ricing permit is a simple check-off category on a general natural resources harvesting permit available at no cost to tribal members. The category is frequently checked by individuals whose primary interest is one of the other harvest activities listed on the permit. The state permit is a unique license available for a fee, and thus is rarely obtained by individuals without a strong intention of ricing. The tribal activity rate is also lowered because members are asked to respond only if they harvested rice off-reservation. When on-reservation rice beds have good stands, many tribal ricers concentrate their efforts there.

The data collected in this survey can be used to estimate off-reservation harvest by tribal permit holders, and both total and off-reservation harvest by state licensees. It cannot be used to estimate on-reservation harvest by tribal members, who are not required to have a permit to harvest on-reservation.

Using the approach to estimate harvest described above in the Methods section, total off-reservation harvest for tribal permit holders was estimated at 17,098 pounds of green rice (Table 4). The total harvest for state permitees was estimated at 36,668 pounds, with all but 1,030 pounds of it coming from off-reservation waters. Thus, the total off-reservation harvest was estimated at 52,736 pounds, with tribal ricers accounting for 32% of the harvest.

This harvest estimate is 25% above the 2000 off-reservation harvest estimate of 42,333 pounds (David, 2008). While both state and tribal harvest increased from 2000, state harvest showed a 30% increase, while tribal harvest increased 15%. For both the state and tribes, the increase in harvest was attributable primarily to an increase in the number of active ricers rather than the amount harvested per license. Manoomin harvest tends to vary with abundance as well as other factors (Figure 3).
Table 5. Distribution of harvest among active respondents to the 2001 harvest survey.

<table>
<thead>
<tr>
<th>TRIBAL</th>
<th>POUNDS OF GREEN RICE HARVESTED</th>
<th>INDIVIDUALS</th>
<th>PERCENT OF TOTAL HARVEST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER</td>
<td>PERCENT</td>
<td></td>
</tr>
<tr>
<td>0 - 50</td>
<td>15</td>
<td>32.6</td>
<td>9.3</td>
</tr>
<tr>
<td>51 - 100</td>
<td>12</td>
<td>26.1</td>
<td>19.0</td>
</tr>
<tr>
<td>101 - 150</td>
<td>11</td>
<td>23.9</td>
<td>25.6</td>
</tr>
<tr>
<td>151 - 200</td>
<td>3</td>
<td>6.5</td>
<td>8.8</td>
</tr>
<tr>
<td>201 - 300</td>
<td>4</td>
<td>8.7</td>
<td>26.9</td>
</tr>
<tr>
<td>301 - 500</td>
<td>1</td>
<td>2.2</td>
<td>10.4</td>
</tr>
<tr>
<td>501 - 1000</td>
<td>1</td>
<td>0.5</td>
<td>3.6</td>
</tr>
<tr>
<td>1001 +</td>
<td>3</td>
<td>1.4</td>
<td>29.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATE</th>
<th>POUNDS OF GREEN RICE HARVESTED</th>
<th>INDIVIDUALS</th>
<th>PERCENT OF TOTAL HARVEST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER</td>
<td>PERCENT</td>
<td></td>
</tr>
<tr>
<td>0 - 50</td>
<td>118</td>
<td>55.9</td>
<td>14.6</td>
</tr>
<tr>
<td>51 - 100</td>
<td>55</td>
<td>26.1</td>
<td>19.3</td>
</tr>
<tr>
<td>101 - 150</td>
<td>17</td>
<td>8.1</td>
<td>10.1</td>
</tr>
<tr>
<td>151 - 200</td>
<td>5</td>
<td>2.4</td>
<td>4.1</td>
</tr>
<tr>
<td>201 - 300</td>
<td>6</td>
<td>2.8</td>
<td>7.2</td>
</tr>
<tr>
<td>301 - 500</td>
<td>6</td>
<td>2.8</td>
<td>11.5</td>
</tr>
<tr>
<td>501 - 1000</td>
<td>1</td>
<td>0.5</td>
<td>3.6</td>
</tr>
<tr>
<td>1001 +</td>
<td>3</td>
<td>1.4</td>
<td>29.6</td>
</tr>
</tbody>
</table>

The distribution of ricing effort and harvest has tended to reflect the distribution of rice waters in the state, and the abundance of rice on those waters (Figure 4). Seventy-seven waters were reported riced in 2001 (not including 8 unnamed locations), up by at least 10 waters from 2000, perhaps reflecting the improved crop. Nearly all (99%) of the harvest reported by surveyed state licensees came from waters within the ceded territory (Appendix 1). Approximately 12% of harvest reported from named locations came from sites planted by the WDNR, the U.S. Forest Service, GLIFWC, or other seeding cooperators. This was down from 32% in 2000, when many historic (non-seeded) sites had very poor crops.

Opinions of Respondents

Annual abundance: Individuals were asked if they felt the 2001 wild rice crop was better, the same, or worse than the 2000 crop. Among the 175 active respondents with an opinion, 55% felt 2001 was better than 2000, 29% felt both years were about the same, and 16% were of the opinion that 2001 was worse than 2000.

These opinions trended similarly with the results from the abundance surveys of 40 rice waters discussed above, which found increases in abundance of 10 points or more on 54% of the waters surveyed, a change of less than 10 points on 38% of the waters, and a decline of more than 10 points on 8%.
Figure 3. Harvest trends versus abundance index, 1987-2001 (* no harvest estimates for 1988).

Figure 4. Distribution of counties accounting for 5% or more of the manoomin harvest reported by respondents to the 2001 harvest survey, tribal and state harvesters combined.
Comments: Respondents offered a number of comments and opinions, although relatively few consistent themes surfaced.

The most frequent comment (5 individuals) was simply thanks for managing and/or protecting the resource. Three individuals indicated that the water level was dropped on the Clam River Flowage (Burnett) during the growing season, leaving rice plants laying down. Two people mentioned appreciating the air photos and other wild rice information on the GLIFWC web site; two felt that no lakes should be date-regulated, and two commented that there seemed to be more “ghost” rice than normal. No other comments were made by more than one individual.

Potential Waters for Seeding: Respondents suggested 35 different waters which might be candidates for seeding. Sites named are listed in Appendix 2.

LITERATURE CITED


## Appendix 1. Ricing trips and pounds of green manoomin harvested by respondents to the 2001 harvest survey.

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>WATER</th>
<th>TRIBAL TRIPS</th>
<th>TRIBAL POUNDS</th>
<th>STATE TRIPS</th>
<th>STATE POUNDS</th>
<th>COMBINED TOTAL TRIPS</th>
<th>COMBINED TOTAL POUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASHLAND</td>
<td>KAKAGON SLOUGHS</td>
<td>6</td>
<td>175</td>
<td>6</td>
<td>175</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNNAMED WATER</td>
<td>1</td>
<td>30</td>
<td>1</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>7</strong></td>
<td><strong>205</strong></td>
<td><strong>7</strong></td>
<td><strong>205</strong></td>
</tr>
<tr>
<td>BARRON</td>
<td>BEAR LAKE</td>
<td>3</td>
<td>68</td>
<td>3</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHETEK LAKE</td>
<td>2</td>
<td>25</td>
<td>2</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>2</strong></td>
<td><strong>25</strong></td>
<td><strong>3</strong></td>
<td><strong>68</strong></td>
<td><strong>5</strong></td>
<td><strong>93</strong></td>
</tr>
<tr>
<td>BAYFIELD</td>
<td>CHIPPEWA LAKE</td>
<td>3</td>
<td>70</td>
<td>3</td>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NAMEKAGON RIVER</td>
<td>3</td>
<td>60</td>
<td>3</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTOGATIC LAKE</td>
<td>3</td>
<td>80</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>3</strong></td>
<td><strong>80</strong></td>
<td><strong>7</strong></td>
<td><strong>140</strong></td>
<td><strong>10</strong></td>
<td><strong>220</strong></td>
</tr>
<tr>
<td>BURNETT</td>
<td>BLACK BROOK FLOWAGE</td>
<td>8</td>
<td>375</td>
<td>8</td>
<td>375</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BRIGGS LAKE</td>
<td>20</td>
<td>1,076</td>
<td>20</td>
<td>1,076</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BUFFALO LAKE</td>
<td>1</td>
<td>20</td>
<td>1</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CARTERS BRIDGE</td>
<td>12</td>
<td>480</td>
<td>12</td>
<td>480</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLAM LAKE</td>
<td>7</td>
<td>220</td>
<td>87</td>
<td>2,830</td>
<td>94</td>
<td>3,050</td>
</tr>
<tr>
<td></td>
<td>CLAM RIVER</td>
<td>1</td>
<td>18</td>
<td>1</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLAM RIVER FLOWAGE</td>
<td>3</td>
<td>20</td>
<td>3</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GASLYN LAKE</td>
<td>7</td>
<td>225</td>
<td>7</td>
<td>225</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LONG LAKE</td>
<td>4</td>
<td>97</td>
<td>4</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MUD LAKE (SWISS TWNSHP)</td>
<td>3</td>
<td>122</td>
<td>3</td>
<td>122</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NORTH FORK FLOWAGE</td>
<td>18</td>
<td>779</td>
<td>18</td>
<td>779</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NORTH LANG LAKE</td>
<td>5</td>
<td>226</td>
<td>5</td>
<td>226</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHANTOM FLOWAGE</td>
<td>36</td>
<td>1,304</td>
<td>36</td>
<td>1,304</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RICE LAKE</td>
<td>3</td>
<td>30</td>
<td>3</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNNAMED WATER</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WEBB CREEK</td>
<td>1</td>
<td>75</td>
<td>1</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WEST MARSHLAND</td>
<td>1</td>
<td>58</td>
<td>1</td>
<td>58</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>YELLOW LAKE</td>
<td>2</td>
<td>160</td>
<td>3</td>
<td>50</td>
<td>5</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>YELLOW RIVER</td>
<td>3</td>
<td>153</td>
<td>3</td>
<td>153</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>10</strong></td>
<td><strong>455</strong></td>
<td><strong>216</strong></td>
<td><strong>7,873</strong></td>
<td><strong>226</strong></td>
<td><strong>8,328</strong></td>
</tr>
<tr>
<td>DOUGLAS</td>
<td>BEAR LAKE</td>
<td>7</td>
<td>200</td>
<td>7</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOWER OX LAKE</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MINONG FLOWAGE</td>
<td>5</td>
<td>140</td>
<td>15</td>
<td>833</td>
<td>20</td>
<td>973</td>
</tr>
<tr>
<td></td>
<td>MULLGAN LAKE</td>
<td>1</td>
<td>70</td>
<td>6</td>
<td>165</td>
<td>7</td>
<td>235</td>
</tr>
<tr>
<td></td>
<td>RADIAGN FLOWAGE</td>
<td>5</td>
<td>420</td>
<td>5</td>
<td>420</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ST. CROIX RIVER</td>
<td>15</td>
<td>580</td>
<td>17</td>
<td>751</td>
<td>32</td>
<td>1,331</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>21</strong></td>
<td><strong>790</strong></td>
<td><strong>51</strong></td>
<td><strong>2,369</strong></td>
<td><strong>72</strong></td>
<td><strong>3,159</strong></td>
</tr>
<tr>
<td>FOREST</td>
<td>LITTLE RICE LAKE</td>
<td>12</td>
<td>580</td>
<td>37</td>
<td>3,020</td>
<td>49</td>
<td>3,600</td>
</tr>
<tr>
<td></td>
<td>RICE LAKE</td>
<td></td>
<td>5</td>
<td>335</td>
<td>5</td>
<td>335</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RILEY LAKE</td>
<td>1</td>
<td>15</td>
<td>1</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SWAMP CREEK</td>
<td>10</td>
<td>238</td>
<td>10</td>
<td>238</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WABIKON LAKE</td>
<td>3</td>
<td>45</td>
<td>1</td>
<td>50</td>
<td>4</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>26</strong></td>
<td><strong>878</strong></td>
<td><strong>43</strong></td>
<td><strong>3,405</strong></td>
<td><strong>69</strong></td>
<td><strong>4,283</strong></td>
</tr>
<tr>
<td>IRON</td>
<td>LITTLE TURTLE FLOWAGE</td>
<td>6</td>
<td>136</td>
<td>6</td>
<td>136</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TURTLE FLAMBEAU FLOWAGE</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>8</strong></td>
<td><strong>136</strong></td>
<td><strong>8</strong></td>
<td><strong>136</strong></td>
</tr>
<tr>
<td>LANGLADE</td>
<td>UNNAMED WATER</td>
<td></td>
<td></td>
<td>2</td>
<td>63</td>
<td>2</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>2</strong></td>
<td><strong>63</strong></td>
<td><strong>2</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>

(Appendix 1 continued on the next page.)
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>WATER</th>
<th>TRIBAL TRIPS</th>
<th>TRIBAL POUNDS</th>
<th>STATE TRIPS</th>
<th>STATE POUNDS</th>
<th>COMBINED TOTAL TRIPS</th>
<th>COMBINED TOTAL POUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINCOLN</td>
<td>ALICE LAKE</td>
<td>2</td>
<td>100</td>
<td>2</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WISCONSIN RIVER</td>
<td>3</td>
<td>18</td>
<td>3</td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>5</td>
<td>118</td>
<td>5</td>
<td>118</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARQUETTE</td>
<td>HARRISVILLE POND</td>
<td>1</td>
<td>38</td>
<td>1</td>
<td>38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NESHKORO MILL POND</td>
<td>8</td>
<td>120</td>
<td>8</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>9</td>
<td>158</td>
<td>9</td>
<td>158</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ONEIDA</td>
<td>CUENIN LAKE</td>
<td>3</td>
<td>150</td>
<td>3</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RICE LAKE</td>
<td>2</td>
<td>60</td>
<td>2</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPUR LAKE</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>THE THROUGHFARE</td>
<td>5</td>
<td>100</td>
<td>5</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WISCONSIN RIVER</td>
<td>1</td>
<td>45</td>
<td>13</td>
<td>162</td>
<td>14</td>
<td>207</td>
</tr>
<tr>
<td></td>
<td>WOLF RIVER</td>
<td>4</td>
<td>162</td>
<td>4</td>
<td>162</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>5</td>
<td>207</td>
<td>24</td>
<td>482</td>
<td>29</td>
<td>689</td>
</tr>
<tr>
<td>POLK</td>
<td>JOEL FLOWAGE</td>
<td>3</td>
<td>80</td>
<td>3</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RICE BED CREEK</td>
<td>1</td>
<td>20</td>
<td>1</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RICE LAKE</td>
<td>3</td>
<td>136</td>
<td>3</td>
<td>136</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNNAMED WATER</td>
<td>1</td>
<td>23</td>
<td>1</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>3</td>
<td>30</td>
<td>5</td>
<td>179</td>
<td>8</td>
<td>259</td>
</tr>
<tr>
<td>PRICE</td>
<td>SPRING CREEK WA</td>
<td>7</td>
<td>160</td>
<td>7</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WILSON FLOWAGE</td>
<td>2</td>
<td>30</td>
<td>2</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>190</td>
<td>9</td>
<td>190</td>
</tr>
<tr>
<td>RUSK</td>
<td>LEA FLOWAGE</td>
<td>2</td>
<td>85</td>
<td>2</td>
<td>50</td>
<td>4</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>2</td>
<td>85</td>
<td>2</td>
<td>50</td>
<td>4</td>
<td>135</td>
</tr>
<tr>
<td>SAUYER</td>
<td>HUNTER LAKE</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NAMEKAGON RIVER</td>
<td>1</td>
<td>10</td>
<td>1</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PACWAWONG FLOWAGE</td>
<td>19</td>
<td>756</td>
<td>61</td>
<td>1,678</td>
<td>80</td>
<td>2,434</td>
</tr>
<tr>
<td></td>
<td>PHIPPS FLOWAGE</td>
<td>7</td>
<td>195</td>
<td>9</td>
<td>117</td>
<td>16</td>
<td>312</td>
</tr>
<tr>
<td></td>
<td>UNNAMED WATER</td>
<td>1</td>
<td>11</td>
<td>1</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WEST FORK CHIPPEWA RIVER</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>26</td>
<td>951</td>
<td>74</td>
<td>1,818</td>
<td>100</td>
<td>2,769</td>
</tr>
<tr>
<td>TAYLOR</td>
<td>CHEQAMEGON WATERS FLOWAGE</td>
<td>8</td>
<td>166</td>
<td>8</td>
<td>166</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MONDEAUX FLOWAGE</td>
<td>2</td>
<td>80</td>
<td>2</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>246</td>
<td>10</td>
<td>246</td>
</tr>
<tr>
<td>UNNAMED</td>
<td>UNNAMED WATER</td>
<td>3</td>
<td>100</td>
<td>1</td>
<td>45</td>
<td>4</td>
<td>235</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>3</td>
<td>100</td>
<td>1</td>
<td>45</td>
<td>4</td>
<td>235</td>
</tr>
<tr>
<td>VILAS</td>
<td>ALLEQUASH LAKE</td>
<td>2</td>
<td>40</td>
<td>8</td>
<td>115</td>
<td>10</td>
<td>155</td>
</tr>
<tr>
<td></td>
<td>AURORA LAKE</td>
<td>3</td>
<td>98</td>
<td>12</td>
<td>252</td>
<td>15</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>BIG LAKE</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IRVING LAKE</td>
<td>9</td>
<td>312</td>
<td>5</td>
<td>60</td>
<td>14</td>
<td>372</td>
</tr>
<tr>
<td></td>
<td>ISLAND LAKE</td>
<td>7</td>
<td>285</td>
<td>4</td>
<td>90</td>
<td>7</td>
<td>285</td>
</tr>
<tr>
<td></td>
<td>LITTLE RICE LAKE</td>
<td>4</td>
<td>90</td>
<td>4</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MANITOWISH RIVER</td>
<td>7</td>
<td>180</td>
<td>7</td>
<td>180</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PARTRIDGE LAKE</td>
<td>1</td>
<td>15</td>
<td>1</td>
<td>50</td>
<td>2</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>RICE CREEK</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNNAMED WATER</td>
<td>1</td>
<td>40</td>
<td>1</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UPPER NINEMILE FLOWAGE</td>
<td>20</td>
<td>497</td>
<td>33</td>
<td>2,195</td>
<td>53</td>
<td>2,692</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>43</td>
<td>1,287</td>
<td>72</td>
<td>2,957</td>
<td>115</td>
<td>4,244</td>
</tr>
</tbody>
</table>

(Appendix 1 continued on the next page.)
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>WATER</th>
<th>TRIBAL TRIPS</th>
<th>TRIBAL POUNDS</th>
<th>TRIBAL TRIPS</th>
<th>TRIBAL POUNDS</th>
<th>STATE TRIPS</th>
<th>STATE POUNDS</th>
<th>STATE TRIPS</th>
<th>STATE POUNDS</th>
<th>COMBINED TOTAL TRIPS</th>
<th>COMBINED TOTAL POUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASHBURN</td>
<td>CRANBERRY CREEK</td>
<td>2</td>
<td>20</td>
<td>2</td>
<td>20</td>
<td>7</td>
<td>69</td>
<td>16</td>
<td>639</td>
<td>28</td>
<td>895</td>
</tr>
<tr>
<td></td>
<td>DILLY LAKE</td>
<td>9</td>
<td>570</td>
<td>7</td>
<td>69</td>
<td>16</td>
<td>639</td>
<td>2</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LONG LAKE</td>
<td>1</td>
<td>13</td>
<td>1</td>
<td>13</td>
<td>2</td>
<td>11</td>
<td>2</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>POTATO CREEK</td>
<td>2</td>
<td>40</td>
<td>2</td>
<td>40</td>
<td>3</td>
<td>160</td>
<td>1</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ST. CROIX RIVER</td>
<td>2</td>
<td>40</td>
<td>2</td>
<td>40</td>
<td>3</td>
<td>160</td>
<td>1</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNNAMED WATER</td>
<td>3</td>
<td>160</td>
<td>2</td>
<td>12</td>
<td>2</td>
<td>12</td>
<td>3</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WHALEN CREEK</td>
<td>2</td>
<td>12</td>
<td>2</td>
<td>12</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>12</td>
<td>730</td>
<td>16</td>
<td>165</td>
<td>28</td>
<td>895</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAUPACA</td>
<td>WHITE LAKE</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>10</td>
<td>3</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td></td>
<td>156</td>
<td>5,758</td>
<td>567</td>
<td>20,677</td>
<td>723</td>
<td>26,435</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COUNTY</td>
<td>WATER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barron</td>
<td>Bear Lake&lt;br&gt;LAke Montanis (at Mouth of Spring Creek)&lt;br&gt;Rice Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bayfield</td>
<td>Bark Bay/Slough&lt;br&gt;Garden Lake (NE end)&lt;br&gt;Namekagon River, above dam on Namekagon Lake&lt;br&gt;Narrows between Namekagon and Jackson Lake&lt;br&gt;Sand River Slough</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burnett</td>
<td>Doty Brook (east of South River Road)&lt;br&gt;Dueholm Flowage&lt;br&gt;Elbow Lake&lt;br&gt;Godfrey Lake&lt;br&gt;Little Yellow Lake (N end where it narrows into the Yellow River)&lt;br&gt;Upper North Fork Flowge&lt;br&gt;Yellow River</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douglas</td>
<td>Muskrat Lake&lt;br&gt;St. Louis River</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>Armstrong Creek (T36N R 16E, north half of S12)&lt;br&gt;Hay Meadow Flowage&lt;br&gt;Pat Shay Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lincoln</td>
<td>Wisconsin River (above Alexander Dam)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marathon</td>
<td>McMillian Marsh WA&lt;br&gt;Big Rib River, above Snake Bridge above Lake Wausau Dam</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polk</td>
<td>Clam Falls Flowage (suggested twice)&lt;br&gt;Lotus Lake (suggested twice)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rusk</td>
<td>Potato Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawyer</td>
<td>Chetac&lt;br&gt;Chippewa Flowage&lt;br&gt;Couderay River</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vilas</td>
<td>Nixon Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washburn</td>
<td>Alder Lake&lt;br&gt;Chippanzie Flowage (suggested twice)&lt;br&gt;Harmon Lake (shallow bay west side of lake beyond narrows)&lt;br&gt;Tranus Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waupaca</td>
<td>Little Wolf River (bayou’s between Manawa and Royalton)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>