Toward a better understanding of Lake Erie Walleye movements

Christopher S. Vandergoot – Ohio DNR
- WB stocks highly mobile
- Large (older) females more likely migrate
- Movement toward North and East

- Release to capture
- Little information timing
- Behavior in consecutive years?
Current Lake Erie Projects

- Maumee River- 2011 & 2012 (n=200)
- Toussaint Reef- 2013 (n=165)
- Detroit River- 2014 & 2015 (n=67)
- Sandusky River- 2014 & 2015 (n=200)
- Van Buren Bay- 2015 (n=70)
- Grand River (Ont)- 2015 (n=70)
Project Objectives

• spawning site fidelity rates
• inter and intra-lake movements
• habitat selection
• temporal structuring
• fishing and natural mortality rates

Temperature loggers
Implanting Acoustic Transmitter
Fine & Broad-scale Movement
Fine & Broad-scale Movement
- 200 walleye tagged in 2011 & 2012
- estimate outmigration of Lake Erie (Maumee River) walleye

2011-03-29
- 39 walleye tagged in 2014
- 28 walleye tagged in 2015
Detroit River: Movement into Lake Erie
ID: 32073001

April 22
21 May
27 May
10 June
24 June – 27 Nov.
15 May, 2014
Detroit River: Movement into Lake Erie
ID: 32650001

1 May – 8 May

11 July - 1 Nov.

24 April, 2014

April 22
where and when do different stocks migrate?
- each district has different constituent base
Stock Contribution - different demographic parameters
<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>HEC</th>
<th>Erie</th>
<th>Huron</th>
<th>HEC</th>
<th>Erie</th>
<th>Huron</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014&lt;sup&gt;a&lt;/sup&gt;</td>
<td>39</td>
<td>0</td>
<td>13</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>2015&lt;sup&gt;b&lt;/sup&gt;</td>
<td>28</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> 27 males, 12 females  
<sup>b</sup> 14 males, 14 females

Exploitation= 2014 Cohort: 33% in 2014, 31% in 2015  
2015 Cohort: 21%

* Conservative estimates
Lake Erie Walleye Abundance
- maintain ecologically and economically sustainable population
Future Analysis

• When do they begin staging (males, females)?
• How long do Walleye remain in Detroit River/HEC?
• How do their population characteristics compare to other Lake Erie stocks?
• What proportion of the Lake Erie harvest is comprised of Detroit River origin fish?
- Project administration
- Rewards