Session A8 - The Hudson River American Eel Project: low-cost fish passage through citizen science

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Hudson River Eel Project: low-cost fish passage through citizen science

Chris Bowser & Sarah Mount
Life Cycle of the American Eel (Anguilla rostrata)

1. American eels (Anguilla rostrata) are likely born here.
2. Larvae move north on Gulf Stream currents.
3. “Glass eels” arrive in estuaries.
4. Eels mature for many years in rivers and streams.
5. Adult “silver eels” return to ocean to spawn.

Dittman, USGS
Eel Conservation Through Citizen-Science
1. When and where are glass eels arriving?

• Each spring, nets are placed in the mouths of several Hudson River streams
• Teams of trained volunteers catch, count, and record environmental data, then release eels above dams
• Volunteers include high school students, college interns, watershed groups, retirees, and other interested citizens
• Project expands NY contribution to annual ASMFC data
Glass Eels, by the Numbers...

2010: 10,564
2011: 6,964
2012: 84,617

Catch Per Unit Effort

<table>
<thead>
<tr>
<th>Year</th>
<th>Glass eels caught/day</th>
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</thead>
<tbody>
<tr>
<td>2010</td>
<td>23</td>
</tr>
<tr>
<td>2011</td>
<td>17</td>
</tr>
<tr>
<td>2012</td>
<td>173</td>
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</tbody>
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2. How do dams affect eel numbers?

- Dams severely limit access to upstream habitats
- Electroshocking surveys provide a baseline of eel and other fish densities below and above dams
- Field crews include scientists, college students, and experienced volunteers
3. How can we get eels above dams?

- Low cost “eel ladders” can get older eels above dams and to better habitat
- From May through October, trained volunteers collect and measure eels twice per week, and release them upstream well above barriers
- In its first five months, this pilot ladder caught over 1400 eels
4. What are the ingredients for a good citizen-science project?

- #1: Partners
- The “ooh” factor
- Wide range of habitats
- Limited sampling season
- Frequent data points
- Straightforward protocols
- Diverse volunteers
- Communicate with volunteers
- Direct conservation need
5. How do we assure good data from volunteers?

- Thorough and repeated on-site training of all volunteers
- Straightforward protocols and data sheets
- Illustrated instruction sheets for more difficult protocols
- Contact with experts (us!) through phone, email, and Facebook
6. How do we keep volunteers engaged and happy?

• Media outreach and press events
• Regular updates on results from all partner sites
• Incentives like t-shirts, certificates, and food!
• Sense that data is useful and important
100,000 eels caught counted and released above barriers since 2009
450 volunteers at 12 sites in 2012
“There is life against all odds in places where you would think there is nothing. Interesting opportunities exist in the scientific community for amateur naturalists to make a contribution.”

--volunteer Eva Schadeck