Shattering the Glass Eeling
Fish conservation through citizen science

long live Anguilla rostrata

Eels for Experiencing and Learning Science

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The next 15 minutes...

1. The W’s of the Eel Project
2. Data Discoveries
3. People Progress
When and where are glass eels arriving?

• Each spring, nets are placed in the mouths of streams
• Teams of trained volunteers catch, count, and release eels
• Project follows ASMFC protocols
How to build a citizen-science eel project

1. Site Selection & Partner Planning
2. Recruit Vols & Class programs
3. Organize Vols & Prepare Gear
4. Install Nets & Vol Training
5. Relay Results & Partner Consult
6. Data & Management
7. Eelebrate & Eelvaluate
8. SPRING EEL SEASON! & Communication & Check ups

The Eels Are Coming...
Site Selection & Partner Planning

Recruit Vols & Class programs

Organize Vols & Prepare Gear

Install Nets & Vol Training

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SPRING EEL SEASON!
& Communication & Check ups
How to ensure high quality data from volunteers

• Specialized gear
• Straightforward protocols
• Simple data sheets
• Graphic guides
• On-going training

Is it a Glass Eel or an Elver?

The fyke net can catch both glass eels: eels that are just entering the Hudson, and elvers: eels that have been in the stream for a year or two.

“Glass eels” and “elvers” are names for different ages of the same animal, the American eel.

GLASS EELS
• Glass eels are about two inches long.
• Early in the season, they can be almost entirely see-through. Later into the season, they get darker.
• Head is a little wider than their body

ELVERS
• Elvers are larger (3-6 inches long).
• Elvers are a dark green or brown, with a lighter colored belly
• Head is same width as their body

These photos show how glass eels get darker through the spring.

- Early in season (April)
- Mid-late season (late April, early May)
- End of season (May)

Glass eel
Elver
We’ve caught and released over 680,000 glass eels since 2008!
Average Glass Eels Caught Per Day Per Year

- 2008: 16.6
- 2009: 34.8
- 2010: 21.6
- 2011: 16.1
- 2012: 128.9
- 2013: 188.3
- 2014: 124.9
- 2015: 114.6
- 2016: 221.5
- 2017: 135.4
Average Eels/Day at Furnace Brook

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Eels/Day</th>
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<tbody>
<tr>
<td>2008</td>
<td>38</td>
</tr>
<tr>
<td>2009</td>
<td>58</td>
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<tr>
<td>2010</td>
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<td>2016</td>
<td>75</td>
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<td>2017</td>
<td>57</td>
</tr>
<tr>
<td>2018</td>
<td>59</td>
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Average Eels/Day at Fall Kill

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<td>125</td>
<td>311</td>
<td>184</td>
<td>428</td>
<td>67</td>
<td>108</td>
</tr>
</tbody>
</table>
Average Eels/Day at Fall Kill

Furnace Brook range: 38-75 glass eels/day
Predicting glass eel arrival

\[
y = -0.0746x + 39
\]

\[R^2 = 0.6353\]

P-value .006

<table>
<thead>
<tr>
<th>Date of Glass Eel Arrival in Fall Kill, Poughkeepsie</th>
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<tbody>
<tr>
<td>24-Feb</td>
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<tr>
<td>31.0</td>
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<table>
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<th>Average Jan. and Feb. Water Temp (F)</th>
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<tbody>
<tr>
<td>2010</td>
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<td>2018</td>
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</table>
Predicting glass eel arrival

Estimated arrival: March 25th
Actual arrival: March 20th

\[ y = -0.0746x + 39 \]
\[ R^2 = 0.6353 \]
\[ P-value = 0.006 \]
What makes eels ideal for citizen science?

• Charismatic subject
• Real conservation need
• Short migration season
• Likely to see an eel
• Diversity of habitats = diversity of audiences
Why do students participate in the eel project?

Why do you choose to learn and understand eel related topics?

- I want others to think I'm good at understanding eel related topics
- People I look up to think it's good to learn about eel related topics
- I am required to understand eel related topics
- For the recognition or respect I'll get from others
- The American eel lives in the same place as I do
- I like learning new things
- Will help me in some way
- It’s fun to learn about eel related topics
- Help me achieve things that are important to me
- I like learning about eel related topics

Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree
Eels in the Classroom

2,000 students and 400 adults attended eel programs in 2018 (so far)
How to continue to keep volunteers engaged

Project ownership

Volunteers count, weigh, and then release glass eels with the help of nets and traps.

That looks like my baby picture.

GLASS EEL TRAP

A lot of the volunteers are students, or humans who are in school. Does that mean they're fish?

However, the Eel Project does more than count glass eels. They also use eel ladders!

And no, not ladders MADE of eels.

As an example, presenting...
How to continue to keep volunteers engaged

Project expansion
Stepping Stones of Stewardship

Ashawna Abbott, Aidan Mabey, Martice Smith
THANK YOU

Questions and comments?

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