The Eel Project: Fish conservation through citizen science
American eel
*Anguilla rostrata*
Migratory
“Freshwater eels”
Mmm...tasty!
1. American eels (Anguilla rostrata) are likely born here.

2. Larvae move north on Gulf Stream currents.


4. Eels mature for many years in rivers and streams.*

5. Adult "silver eels" return to ocean to spawn.

*Saltwater eels are called "silver eels" when they are ready to go back to the ocean to spawn.
1. American eels (*Anguilla rostrata*) are likely born here.

2. Larvae move north on Gulf Stream currents.


4. Eels mature for many years in rivers and streams.

5. Adult "silver eels" return to ocean to spawn.
American Eel Harvest Regions

1. Southern States
2. Central States
3. Northern States
4. Scotia–Fundy Region
5. Gulf Region
6. Newfoundland Region
7. Lower St. Lawrence River
8. Upper St. Lawrence River and Lake Ontario
### Mean Harvest (x 1000 kg) 1980-1984

<table>
<thead>
<tr>
<th>Region</th>
<th>Mean Harvest (x 1000 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern States</td>
<td>79.0</td>
</tr>
<tr>
<td>Central States</td>
<td>876.7</td>
</tr>
<tr>
<td>Northern States</td>
<td>202.3</td>
</tr>
<tr>
<td>Newfoundland Region</td>
<td>40.8</td>
</tr>
<tr>
<td>Gulf Region</td>
<td>318.2</td>
</tr>
<tr>
<td>Scotia–Fundy Region</td>
<td>31.8</td>
</tr>
<tr>
<td>Lower St. Lawrence River</td>
<td>461.9</td>
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<tr>
<td>Upper St. Lawrence River and Lake Ontario</td>
<td>117.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,128.2</strong></td>
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</table>
Mean Harvest (x 1000 kg)
1990-1994

<table>
<thead>
<tr>
<th>Region</th>
<th>Harvest (x 1000 kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern States</td>
<td>70.4</td>
</tr>
<tr>
<td>Central States</td>
<td>589.9</td>
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<tr>
<td>Northern States</td>
<td>51.4</td>
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<tr>
<td>Newfoundland Region</td>
<td>119.6</td>
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<tr>
<td>Gulf Region</td>
<td>244.8</td>
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<tr>
<td>Scotia–Fundy Region</td>
<td>153.8</td>
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<tr>
<td>Lower St. Lawrence River</td>
<td>347.7</td>
</tr>
<tr>
<td>Upper St. Lawrence River and Lake Ontario</td>
<td>109.2</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1,686.8</strong></td>
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### Mean Harvest (x 1000 kg)

**2000-2004**

<table>
<thead>
<tr>
<th>Region</th>
<th>Harvest (x 1000 kg)</th>
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</thead>
<tbody>
<tr>
<td>Southern States</td>
<td>4.2</td>
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<tr>
<td>Central States</td>
<td>369.9</td>
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<tr>
<td>Northern States</td>
<td>11.0</td>
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<tr>
<td>Newfoundland Region</td>
<td>56.0</td>
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<tr>
<td>Gulf Region</td>
<td>180.0</td>
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<tr>
<td>Scotia–Fundy Region</td>
<td>111.8</td>
</tr>
<tr>
<td>Lower St. Lawrence River</td>
<td>168.4</td>
</tr>
<tr>
<td>Upper St. Lawrence River and Lake Ontario</td>
<td>20.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>922.1</strong></td>
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</tbody>
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Possible Factors Causing Recent Eel Declines

*Historic order of impact:*

(adapted from John Casselman, Queens College)
Possible Factors Causing Recent Eel Declines

**Historic order of impact:**

1. Habitat loss
2. Dams and barriers
3. Water pollution
4. Overfishing
5. Hydroelectric turbines
6. Climate change
7. Food web changes
8. Parasites

(adapted from John Casselman, Queens College)
Mélanie Béguer-Pon et al. October, 2015

- 3 year study
- 38 eels tagged with PSATs
- Released offshore Nova Scotia
The next two months will bring sleepless nights and high anxiety — and quite possibly an extraordinary windfall — for a small universe of people in Maine. They are the lucky few with licenses to catch elvers — young, tiny eels that look like cellophane noodles and by some accounts are fetching up to $2,200 per pound this spring.
What *is* the eel project?

Fyke nets are set in tributaries of the Hudson. Each day in the spring volunteers and students check the nets, count the eels, record the data, and release the eels above the next barrier to migration.
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.

**HERRING**
Choose a spot not interrupted by the eel net and watch for herring for 15 minutes. Polarized glasses will help. Herring are usually about a foot long, are swimming upstream, and have a blue-gray color.

Start Time: ___________  End Time: ___________

First observer, number of herring: ___________  Second observer, number of herring: ___________

**OTHER NOTES AND OBSERVATIONS**: including fishermen, animals, and things you see.
450,000+ eels caught & released above barriers since 2008
500 volunteers at 12 sites in 2015
Totals for 2015: over 49,000

Total Glass Eels Caught

- Richmond: 4795
- Saw Mill: 1503
- Minisceongo: 3832
- Furnace Brook: 2542
- Quassaick: 20918
- Fall Kill: 11143
- Black Creek: 4061
- Saw Kill: 437
- Hannacroix: 180

Locations:
- Richmond
- Saw Mill
- Minisceongo
- Furnace Brook
- Quassaick
- Fall Kill
- Black Creek
- Saw Kill
- Hannacroix
Date stories:
Moon Correlations in 2013

Minisceongo Creek, West Haverstraw

Quassaick Creek, Newburgh

Why does the moon have this effect?
Land use in the surrounding watershed

How does land use impact eel counts here?
Working with students and volunteers!
The Eel Project: Fish conservation through citizen science

Eels for Experiencing and Learning Science

long live Anguilla rostrata

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