The Eel Project: Fish conservation through citizen science

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American eel
*Anguilla rostrata*

“*Freshwater eels*”-spend the majority of their lives in freshwater

**Catadromous**-migrate from rivers to spawn in the sea
Cultural Significance
American eels have been eaten for thousands of years in the Hudson River Valley
The American Eel Migration Story
All American eels hatch in the Sargasso Sea, along with 33 other species of eel. The exact spawning location is unknown, but scientists can make an estimate based on where the smallest larval eels (leptocephali) have been found. At this life stage they are known as **leptocephali**.
Migration story

Hudson River

Sargasso Sea

They hitch a ride on the Gulf Stream currents in search of freshwater along the east coast.

It takes about a year to reach the Hudson River.

Near the end of this journey they become glass eels.
Some of the eels enter small tributaries of the Hudson and slowly begin to gain pigment.

In the Hudson and its tributaries, they transition from glass eels to elvers.

Our project samples for glass eels, but occasionally a small elver will end up in our nets.
Elvers start feeding and growing exponentially in the estuary and its tributaries. They transition to the life stage known as yellow eels. They will live most of their adult life in the estuary system.
Once sexually mature, eels return to the Sargasso Sea to spawn. For males this takes 10-12 years, for females it can take 20+. Their backs darken in color, and bellies lighten and their eyes grow larger so they are better equipped for the ocean journey. At this life stage they are known as silver eels. Very little is known about this return journey to the Sargasso Sea.
“Direct observations of American eels migrating across the continental shelf to the Sargasso Sea”

Béguer-Pon et al. 2015

A group of scientists put location tags on 38 silver American eels who were migrating from Canada to their spawning ground.

The data from this study is the only information collected about the eels migration to spawn.

Of the 38 eels tagged, only one made it to the edge of the Sargasso Sea.
She travelled directly east, and then directly south. What could that tell us about how eels navigate for migration?
American Eel Is in Danger: Extinction

The IUCN put the American eel on its Red List as Maine fishermen saw a declining quota for the species.

The population of American eels is rapidly declining.

What factors could be causing this?
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)
How is the American eel population doing?

In the past 20 years American eel (*Anguilla rostrata*) populations seem to be on the rise. But looking big picture, this is only a small amount of growth after a much longer period of overwhelming global decline.

Dekker et al. 2003
The Hudson River Glass Eel Project

900,000+ eels caught & released above barriers since 2008
750 volunteers at 13 sites in 2019
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.
2019 was the 12th year of the eel project!
Want to join us?
Find the site closest to you and send us an email!

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<thead>
<tr>
<th>Stream</th>
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<td>Richmond Creek</td>
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