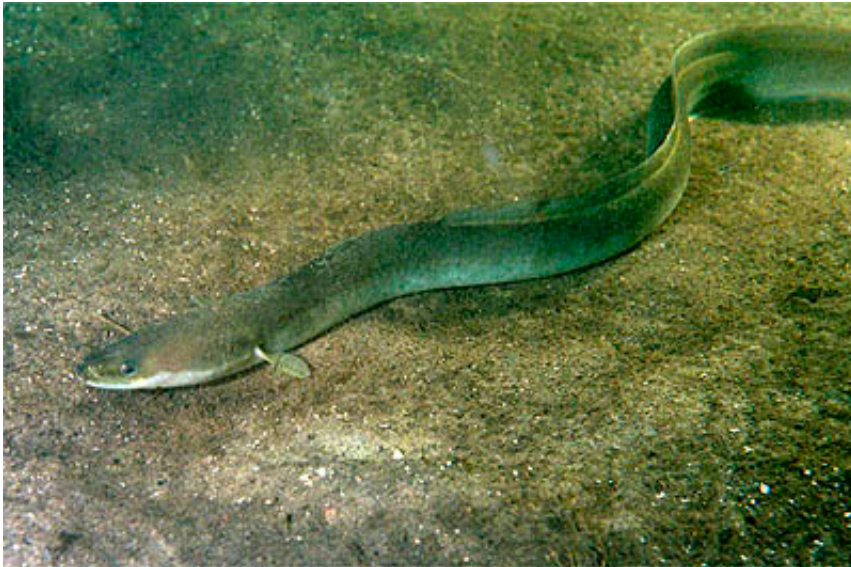


Study shows European eel migration not as uniform and simple as thought

October 10 2016, by Bob Yirka



European eel. Credit: Wikipedia/CC BY-SA 3.0

(Phys.org)—A team of researchers from across Europe has found that European eels do not spawn in the Sargasso Sea as a single reproductive cohort in the spring—instead, they found that some of the eels take much longer to reach their destination, and because of that, wait till the following year to spawn. In their paper published in the journal *Science Advances*, the team describes how they attached electronics tags to a large number of the eels to monitor their activity over the course of 10 years and what the data revealed.

For many years, Europeans have been curious regarding the [eels](#) that leave local rivers and streams and head out into the ocean every Autumn—a century ago, a team of researchers discovered they go to the Sargasso Sea—a gyre off the coast of North America in the North Atlantic, that led scientists to believe they all spawn and then die together and then their offspring return to Europe. But this new study suggests that is only part of the story.

To gain a better perspective on the migration of the eels, the researchers captured and tagged 707 of the adults (from multiple sites in Europe) with tiny transmitters that tracked their movements. Over the course of the study, they were able to receive data from 206 of the transmitters, 80 of which included the entire migration. In looking at the data, the researchers found that the eels did not all take the same path and varied widely in how long it took them to get to their destination—an 8,000 km swim. The average speed, they found, also varied widely, from 3 to 47 km per day. Those that swam the fastest, the researchers report, arrived in time to spawn in the spring—those that were slower arrived later, and because of that, spawned later (up until December) or put off spawning until the next year.

The researchers suggest that the different approaches taken to migration and spawning by the eels is likely an evolutionary adaptation that allows more of the eels to overcome the dangers they face in their journey, e.g., being eaten by sharks or infected with bacteria or parasites.

More information: D. Righton et al. Empirical observations of the spawning migration of European eels: The long and dangerous road to the Sargasso Sea, *Science Advances* (2016). [DOI: 10.1126/sciadv.1501694](https://doi.org/10.1126/sciadv.1501694)

Abstract

The spawning migration of the European eel (*Anguilla anguilla* L.) to the

Sargasso Sea is one of the greatest animal migrations. However, the duration and route of the migration remain uncertain. Using fishery data from 20 rivers across Europe, we show that most eels begin their oceanic migration between August and December. We used electronic tagging techniques to map the oceanic migration from eels released from four regions in Europe. Of 707 eels tagged, we received 206 data sets. Many migrations ended soon after release because of predation events, but we were able to reconstruct in detail the migration routes of >80 eels. The route extended from western mainland Europe to the Azores region, more than 5000 km toward the Sargasso Sea. All eels exhibited diel vertical migrations, moving from deeper water during the day into shallower water at night. The range of migration speeds was 3 to 47 km day⁻¹. Using data from larval surveys in the Sargasso Sea, we show that spawning likely begins in December and peaks in February. Synthesizing these results, we show that the timing of autumn escapement and the rate of migration are inconsistent with the century-long held assumption that eels spawn as a single reproductive cohort in the springtime following their escapement. Instead, we suggest that European eels adopt a mixed migratory strategy, with some individuals able to achieve a rapid migration, whereas others arrive only in time for the following spawning season. Our results have consequences for eel management.

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