

Examensarbete i miljövetenskap vid institutionen för akvatiska resurser, SLU, 30 hp - Thesis project in environmental science at the Department of Aquatic Resources, 30 ECTS credits

Giant eels in dusty newspaper archives

historical research in support of a modern protection plan

Background on eel: The population of the European eel *Anguilla anguilla* (L.) is distributed from the North Cape to the Nile Delta, and in all waters in-between – in a panmictic population. That whole stock is derived from a single spawning location, in the far Sargasso Sea (Bermuda) – youngsters drift to our continent and migrate into inland waters; maturing eels leave our rivers and swim back to the Sargasso. Throughout the whole distribution area, small-scaled fisheries occur, targeting different life stages and using a wide variety of techniques. During the 20th century, the population has gradually declined to ~10% of its former abundance; since 1980, recruitment of youngsters from the ocean rapidly declined too. In 2007, the EU adopted the Eel Regulation for the protection and recovery of the stock. In this context, knowledge on the history of the stock and fishery may contribute to the effective protection, and the recovery of this remarkable fish.

Problem description: Circumstantial evidence indicates that the eel stock might have been in decline since the early-1800s, mostly due to habitat loss (draining of swamps) and migration barriers (dams). In the early 1900s, technical innovation and better marketing enabled the development of commercial fisheries, primarily in mainland Europe, mostly for export to Germany (steam trains!), for smoking (Dekker 2019aⁱ). These commercial fisheries (500 to 5000 kg per fisher per year, thousands of fishers) replaced the former subsistence/artisanal fisheries (5 to 500 kg per fisher per year, millions of fishers). Historical sources documenting the subsistence/artisanal fisheries are almost absent, while the documentation of the commercial fisheries is incomplete until ~1950 (Dekker 2019bⁱⁱ). The research question now is: did the replacement of subsistence/artisanal, by commercial fisheries intensify the exploitation pressure, or not? And did this exploitation contribute to the decline of the stock? This requires the comparison of undocumented decades, to little documented decades. In the absence of the regular type of information (catches, efforts, prices, ...), it was noted that newspapers regularly publish short articles about the catch of a giant eel. These stories usually indicate date, location, and size of the eel (quantified information!) If exploitation pressure increased, one would expect the size of these giants to diminish, or the number of

Figure 1 (below) shows preliminary results for the Netherlands. In Dutch, the conger (sea-eel) and the river-eel share common names, so species identity is a problem. Splitting up results by habitat-type, however, solved that. Note that not many giant river-eels were reported before 1900, and that their size diminished almost consistently over time, since 1900. This intriguing result needs confirmation from other countries; and other countries might improve our insight in the how and why. Any other country (in Western Europe) will be of value, especially since you as a native speaker will be much more able to understand historical stories than I am.

Job description: Newspaper archives are often available [on-lineⁱⁱⁱ](#), and most archives offer a search engine. The student will explore these archives, master the data retrieval procedures, extract the data and compile a database. Though the Dutch results set a clear example, unknown problems might occur, for which creative solutions must be found. Aiming at a consistent data set, a large amount of time will go into the rigorous extraction procedures. However, in my experience, more time was lost on intriguing stories about eel distracting my attention, than on the extraction itself (e.g. a butcher's wife, calling her eight eels to assemble for their feeding hour). Creativity and ingenuity will be required, to deal with historical complexities and unforeseen problems. Analysis of the compiled data, and reporting. Joint publication in a popular article (national), and potentially a contribution to the final scientific article (international).

Study load: Since all data are in on-line archives, this project is not time-bound, nor location specific (visits to the physical archives?). Estimated time: three - six months? Time load will depend strongly on the complexity of the archives, the national tradition and culture around eels, and your own focus. This job might fit students in history or socio-ecology as well.

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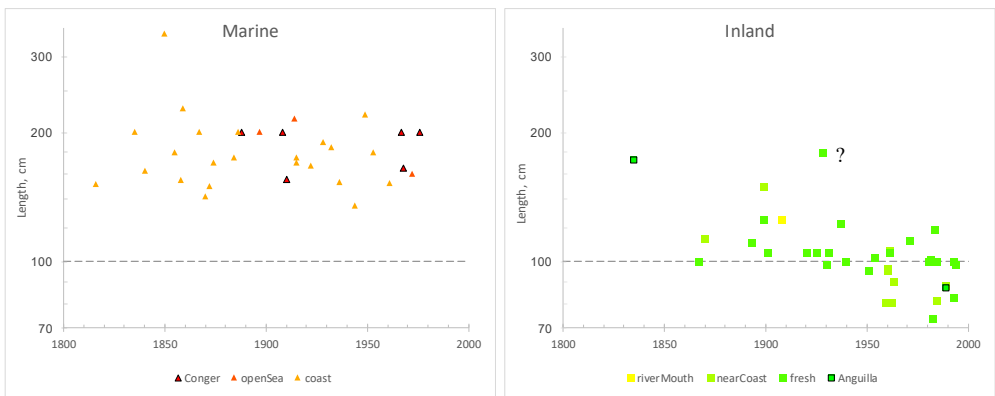


Figure 1 Time trend in the size of giant eels, as reported in Newspaper stories in the Netherlands. Left: marine habitats, marine or brackish, with connection to the sea. Right: inland habitats, freshwater and no direct connection. Data: www.delpher.nl, preliminary analysis. One dubious case (was it a Conger in fresh water?) is marked with a question mark.



Conger

Anguilla

1928 Conger in freshwater?

ⁱ <http://www.dropbox.com/s/ex3jozfwiw5frob/Dekker%202019%20Smoked%20eel%20was%20not%20a%20delicacy.%20The%20history%20of%20smoked%20eel%20in%20Amsterdam%20and%20the%20rest%20of%20the%20world.pdf>

ⁱⁱ <https://doi.org/10.1111/fme.12302>

ⁱⁱⁱ http://www.wikipedia.org/wiki/Wikipedia:List_of_online_newspaper_archives