Nurturing the eel

Inland fishers in The Netherlands participate in managing inland eel fisheries

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altje is a young woman professional inland fisher in The Netherlands. Her name means 'little eel' in Dutch. "I was born to become an eel fisher," she says. "Since I was a small kid I used to go fishing with my father and learnt the skill from him. When he stopped after 30 years of fishing, I took over." She was 24 years old then. Her two brothers had preferred other professions.

At first Aaltje's father had not expected her to take over from him, because she was trained as a primary school teacher and loved to work with children. Aaltje says: "For me there was only one opportunity to become a professional fisher. If I did not take over from my father, our area of fishing would have to be returned to our Union of Inland Fishers to be divided among other inland fishers of our region. I did not like this idea, because my family had been fishing this water for several generations. That is why I decided to take over my father's fishing enterprise." Aaltje now hopes

to combine fishing with educational activities for children about inland fisheries and the aquatic ecology.

Eel (Anguilla Anguilla) is the most important species for inland fishers in The Netherlands, and also for Aaltie, because of both its commercial cultural value. The eel is part of the identity of Dutch inland fishers, who call themselves eelfishers even though they also fish other Aaltie species. fishes alone and sometimes is assisted by her father. She sells her eel to the auction, but her father also smokes a part of

the eel catch and sells it from home. She is a member of the Frisian Union of Inland Fishers and actively participates in a pilot project for decentralized eel management, to secure healthy eel stocks for the future.

When Aaltje's father started fishing there were still 50 professional inland fishers in her region. Today she is one of only 14 left. This decline is a trend across the country. Inland waters constitute almost 20 per cent of the total surface of The Netherlands and the inland fishers are part of the landscape. Until the mid 20th century, professional inland fisheries had been a relatively large sector with a long history dating back to the early Middle Ages. Inland fisheries played an important role in the food supply of the big cities of The Netherlands as well as in the food security of the rural population. Unfortunately, there has been a rapid decline in the number of inland fishing enterprises in recent years—from around 2,300 in 1952 to just about 119 in 2015. The main causes were the reduction in eel stocks, and the many fishing restrictions for professional inland fishers. The emergence of recreational fisheries had also become a strong competition for professional fisheries.

The reasons for the decline in eel stocks are complex, and views differ widely. The European eel is found in habitats as diverse as the open ocean and sheltered coasts, large freshwater lakes and small ponds, main rivers and small streams. The eel constitutes the most widely distributed single fish stock in Europe, and is found also found across the continent and the Mediterranean parts of Africa and Asia. It is a mysterious species. It procreates in salt water and grows up in freshwater. The adult eels, also known as silver eels, swim thousands of kilometers from Europe to the Sargasso Sea (Bermuda triangle) to procreate and the baby eels, or glass eels, swim all the way back to the coast of Europe which takes about two years. (View https:// www.youtube.com/watch?v=WBRnNk_ uo9Y&feature=youtu.be to learn about the incredible life cycle of the European eel and their amazing migration.)

From the coast of Europe the baby eels try to reach freshwater systems where they can grow up. Many inland water sources in Europe have become unreachable for the eel because of the barriers created by large numbers of hydraulic engineering works such as dykes, weirs and pumping stations, constructed for coastal protection and reclamation of land. For many years, professional inland fishers

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practiced restocking of glass eel and elvers, and it is because of these traditional practices that the eel stocks were maintained in many inland waters. The fishers bought the glass eel from French or British glass eel fishers. However with the emergence of eel farming in Europe, and later also in South East Asia, mainly China, the price of glass eel and elvers in the world market increased significantly. This affected the capability of professional inland fishers to invest in restocking their fishing waters. Glass eel catches, however, appear set to recover in recent years.

Another problem is that many inland waters also have become unsuitable as habitat eel. the The maior causes industrialization and urbanization. These resulted in a reduction of inland water due to land reclamation, and also high levels of water pollution. In April 2011, a ban on eel fishing in the large rivers of The Netherlands was imposed as a result of the European standards for dioxins and polychlorinated biphenyls (PCBs). The fishing ban on the rivers forced several economically healthy enterprises, some that had existed for generations, to stop their fishing activities.

Fishing restrictions multiplied over the years as a result of regulations and directives coming from the European Union, in particular the Water Framework Directive, the Protection of Wildlife and Ecosystems Directive, and the Eel Management Regulation (2009). The latter also implied a ban on eel fishing in The Netherlands during the three most important eel fishing months when the adult eels start migrating. These restrictions also contributed to the decline of professional inland fisheries.

Finally, the emergence of recreational fisheries also contributed to the decline in professional fisheries. After World War II, angling became an important leisure activity, while professional inland fisheries lost economic importance. In The Netherlands, the number of recreational fishers increased from 60,000 in 1952 and to around a million in 2013-14. Through their organizations, they succeeded in accumulating fishing rights and expanding their fishing area at the cost of the professional inland fishers. Conflicts of interest between professional inland fishers and recreational fishers strongly influenced the Dutch government policy on inland fisheries, with priority given to recreational fisheries over the interests of professional inland fishers. Around 80 per cent of the country's inland waters is owned by the state, while the other 20 per cent is owned by provincial and local governments, who lease out fishing rights for these waters to professional and recreational fishers. As a result of a shift in priorities, the Dutch government decided to split the fishing rights, allocating it for eel to professional fishers, while allocating fishing rights for other species to recreational fishers. The professional inland fishers therefore became practically fully dependent on the capture of eel, and with the reduction of eel fisheries their livelihood came under serious threat.

The existing leasehold system also resulted in a process of fragmentation of inland fishing waters with most holdings becoming too small to provide sufficient livelihood to a professional fisher's household. The system changed further with the introduction of a new definition of professional inland fishers in the Dutch Fishery Act in 2008. The Act only recognized those fishers with a fishing area of a minimum of 250 hectares and a minimum yearly gross income of Euro 8,500 (USD 9,515.1) from fishing. Fishers who could not prove these requirements lost their fishing rights, and their fishing area was redistributed to other professional fishers or recreational fisheries.

Aaltje's father was one of the lucky professional eel fishers in The Netherlands who had survived these changes. It is now up to Aaltje to continue the generations old fishing enterprise. The inland waters of her region, the province of Friesland in the north of The Netherlands, are still a healthy habitat for the eel. The fishers of her region are well organized and have managed the fish stocks for generations. Thanks to the effort of their Frisian Union of Inland Fishers, founded in 1891, they are participants in a pilot project for decentralized eel management. While eel fishers in the rest of the country are confronted with a ban on eel fishing during the best fishing season, the eel fishers who are part of the pilot project are allowed to fish the whole year round. They have a yearly quota for eel which is controlled by their Union. The total quota for the region is fixed on the basis of data provided by the fishers and in collaboration with scientists, and then divided among the Union members on commonly agreed principles.

After pulling her fykes out of the water, Aaltje makes an estimation of her total catch of the day: "About two kilos", she says and sends the information over mobile telephone to NatuurNetwerk (www.natuurnetwerk.nl), the organization that collects the data and oversees the quota. The data is used to monitor the impact of the eel management measures. Back home, Aaltje measures all the eels she has harvested and kept alive in a corf. She finds

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about half of them are shorter than 40 cm, and releases them back in the water, and also reports this to NatuurNetwerk. The bigger eels she keeps for sale. As Aaljte remarks, "The bigger ones fetch a better price, so why should I not give the small ones a chance to grow big, and also a chance to migrate to their spawning grounds?" Aaltje also practises restocking of eels in her area of water, by releasing baby eels which she buys through the Union. She adds, "I am responsible for my own area where I have exclusive fishing rights and that is why I feel encouraged to also invest in it. We only have eel fishing rights—the fishing rights for other species are allocated to the recreational organizations. But because we collaborate with them in a fishery management plan, they allow us to keep some of the by-catch of commercial value, and this provides a welcome additional income. But it is sad that with the splitting of the fishing rights by the government, we have become dependent on the attitude of the leadership of the recreational fisheries organizations for a share of the fish stocks."

The Frisian Union of Inland fishers actively participates in various eel management projects with the recreational fisher organizations, eel farmers, the Water Management Board, scientists and the provincial government. These projects engage in data collection and eel stock monitoring;

eel restocking in healthy habitats; an eel reserve; and a catch, transfer and release project for silver, or adult, eels to help them migrate to their spawning grounds. "Only by collaboration can we really achieve some real impact," says Aaltje. "And in this way we also win respect from society. We inland fishers have become marginalized, and the people of our country hardly know of our existence and work. We have to defend propaganda ourselves against environmentalists who portray fishers as the biggest culprits of declining fish stocks. This could be the case in some areas, but here in Friesland we have fished for many generations in a sustainable way. Our Union has played an important role in this. We have built good ecological knowledge which has proven to be useful in the monitoring and management of fish stocks. Now we also are in contact with organizations like Slow Food and they are very interested in our artisanal fish products and traditional practices. Hopefully they will help us in educating the consumers and also the restaurants. Restaurants still often buy cheap, imported fish or illegally caught fish because they do not want to pay us a fair price. People need to understand that without paying a fair price to us small-scale producers, we will not be able to survive and take care of the inland waters' fish resources, and in particular of our eel."

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