

## A memory of fish

by Sophia Kochalski

Fish populations have decreased or even vanished from European rivers because of the actions of people, so it is also necessary to understand people in order to restore fish populations.

This realization has marked a change in thinking about conservation science and fisheries biology. In IMPRESS, two social science teams work with stakeholders and the general public to find out what they think about migratory fish and fisheries management.

One of the social science teams is based at the Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB) in Germany. The institute, located at Lake Müggelsee near Berlin, has a long history of integrating fish biology, aquatic ecology and human perceptions and behaviour. Fish, their habitats and the humans exploiting and managing them are all viewed as being part of the same system.

It is this complexity of these interconnected socio-ecological systems that drew IMPRESS researcher Sophia Kochalski to fisheries work.

“Understanding people and organizing society is complicated enough,” Sophia says. “When you add uncertainty about biological processes and unpredictable natural events, it becomes really difficult to achieve results that benefit nature and satisfy different groups of people with different needs and expectations.”



[Simpleshow video - https://vimeo.com/271434000](https://vimeo.com/271434000)

The young German studied political sciences and fisheries biology in Germany and Spain. She completed her PhD at the University of Liverpool in 2017 and developed and analysed large-scale surveys of the general public as part of the IMPRESS programme. Four thousand people in Germany, France, Norway and Sweden were questioned about their ecological knowledge, environmental values, river preferences and attitudes towards fisheries and conservation measures. A year later, a subsample of the initial respondents participated again in another survey.

The results indicate that stakeholders are right when they say they fear that the interest of the public ends at the water's surface. The survey indicates many people in central Europe are not familiar with native fish species. This is especially true with migratory fish species such as Atlantic salmon and sturgeon that have not only disappeared from many European rivers, but also from people's memory.

Germans associate salmon with Scandinavia but don't know that the fish used to be common as well in the Rhine, Weser and Elbe rivers. This knowledge is now stored by local angling clubs, who use their own resources or work together with government authorities to bring migratory fish back into German rivers.

The angling groups that Sophia and her colleague Hannah Harrison visited for IMPRESS made clear that their conservation projects were not about a single species: disappearing migratory fish are only the first indicator of rivers being in poor ecological shape. Once the fish are gone, people who don't interact with the river on a regular basis tend to accept the new, poorer state as its natural condition.

Therefore it is important to think bigger than just a single fish species. Efforts to restore migratory fish populations go hand in hand with improved water quality, free-flowing rivers and the maintenance of biodiversity. According to the surveys conducted at the Leibniz-Institute, these are also the characteristics of a river that members of the general public in Germany highly appreciate.

But how can a generally positive public attitude be translated into a successful conservation project? Sophia suspects that it takes both committed individuals on site and broad societal support, and that these different factors vary in importance over the life of a project.

“Fish, their habitats and the humans exploiting and managing them are one system,” Sophia says. “But this system is embedded into another system, our society.”

The loss and restoration of memory of salmon is one example for the interplay between local fisheries and larger societal processes. Sophia hopes that understanding both the motivation of actors on site and the beliefs and attitudes of the general public will not only help to protect endangered migratory fish species, but could also give valuable insights for other areas of conservation.