

The weatherfish, vanishing cultural heritage icon of Lowland Europe

Johan Auwerx & Jeroen Van Wichelen

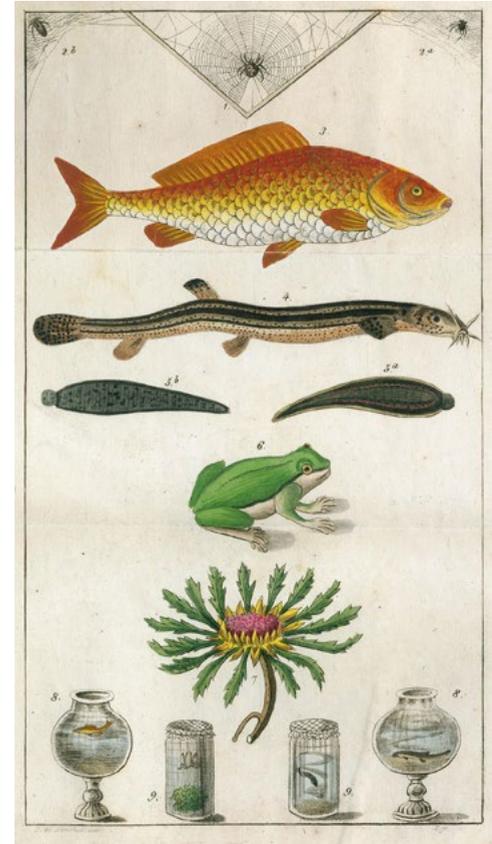
Animal creatures from old folktales and legends often posed a danger to humans or struck fear into their minds, such as in the well-known stories of the big bad wolf. Animals that were an important source of food, also formed part of oral history. Numerous stories about the mighty Atlantic salmon and the mysterious eel are now part of the cultural heritage of the Indigenous peoples of northern regions such as Canada and Scandinavia. In Lowland Europe, it is more difficult to find such storytelling, possibly because the stories have already faded with time. Except for one species: the weatherfish, which has many fascinating stories to tell and is therefore part of the regional cultural heritage.

The European weatherfish (*Misgurnus fossilis* L.) is found in nineteen different countries and is widely distributed across Europe. This species belongs to the Cobitidae family and is characterised by ten barbels and small eyes. These fish have yellow stripes along the entire length of their bodies. The species can live up to 20 years. These fish are highly specialised to the physical conditions of terrestrialised watercourses. Their primary habitat consists of densely vegetated waters in oxbows, ponds, and marshy environments of floodplains. With a snake-like body, they can swim and even crawl through dense vegetation. Specific characteristics such as the ability to survive low oxygen concentrations and even periodic desiccation by crawling deep into the mud and obtaining oxygen from intestinal and skin respiration have given weatherfish a mysterious aura.

The weatherfish as a cultural heritage: a mystical and scary organism

Over the past few centuries (1200–1850), the landscape in the Low Countries has been completely redesigned for agriculture. The marshes were drained and thousands of kilometres of canals and ditches were dug, creating a paradise for weatherfish, with channels full of water plants and lots of food. And despite their hidden, nocturnal lifestyle, these *striped eels*, as they were sometimes called, did not go unnoticed, as the fish lived in the immediate vicinity of the farmers who were working in their fields. They began to feature in all kinds of stories and practices, and sometimes being used as food.

One of the most remarkable uses was that these fish were caught and used as “*living barometers*”. Farmers always needed to be able to predict the weather, and these fish could help them forecast thunderstorms and stormy weather so that they could bring in their harvests in time. A distinctive feature of the weatherfish is that changes in atmospheric pressure can be detected by morphological adjustments to the inner ear and swim bladder. Its behaviour of reacting strongly to changes in air pressure earned it the nickname “*weather eel*” or “*thunder eel*”. The fish were kept in vials -*Weck pots*- and positioned on the mantelpiece in farmers houses or local pubs,



Wetterfische, Laubfrösche, Bluteigel und Spinnen, die sichersten Wetterverkündiger! (Gutmann, 1842)

but also showcased in pharmacies and shipping vessels. This custom is frequently described, particularly in north-western Europe, where there are many reports from the late 18th and early 19th centuries. We interviewed older farmers ourselves, and in Belgium and the Netherlands, this practice was still common until the nineteen sixties.

We found many clues in old books and newspapers about how people perceived or used the weatherfish as food. There are detailed descriptions from Hungary of targeted fishing for weatherfish, which were still found in the vast marshes there until late in the 19th century. In the western part of its range, the fish is generally

described as “bland, with an earthy taste”. Its slimy skin was also considered “unappealing” or worse, the fish was seen as “dog food” or “gypsies eat them”. There is also evidence of a somewhat medical recommendation to stimulate “good bowel movements”. Sometimes there are indications that the fish should be fried or marinated, which is reminiscent of the way Asian loaches are still prepared and consumed today. There are only a few references, such as in medieval Paris to dishes containing weatherfish receiving good reviews “in broth with a green sage sauce” or as a “surrogate for eel, both stewed and roasted, also excellent in jelly”. However, in general, people in the Lowlands preferred salmon, eel or marine species, given the proximity of the sea and the use of sea fish for salting or drying.

Superstition gave this fish species a bad name and made it less suitable for consumption. People believed that the “barbels were vicious, poisonous stings”, or that the “slime caused eczema”, and that it was dangerous because “the blood of these fish could cause insanity if it got into people’s eyes”. Due to its cryptic lifestyle, the fish also suffered from a bad reputation. The ten barbels looked like “tentacles and made people terrifying” and they were afraid of touching them. The larvae are adapted to extreme conditions and have external gills, which led people to believe that “they were tadpoles” or “salamander larvae”. Some described them as “viviparous” or “originate from mud”. Grown-up fish are capable of breathing through their intestines, so when they are taken out of the water, they let out this air, which makes it seem

like they are squealing. Their name for it was “rumbling gudgeon” or “whistling eel”. When they caught these “ugly fish”, they “voraciously clubbed it with a wooden stick and discarded it” or “fed it to the pigs”. Some people caught weatherfish “with horse skulls” and used them “as bait to catch more valuable fish (e.g. pike, bream, catfish). We even found a very bizarre story from the 18th century telling that the “so agile, smooth, and slippery fish not only escapes from the hands with great ease, but also squeezes through all openings with great dexterity. When stuffed down a goat’s throat for fun, it quickly passed through the intestines and came out cheerfully”. As such, weatherfish was also recommended to “unclog blocked water pipes”.

In the 19th century, weatherfish were packed in “cigar boxes filled with moist moss” and sent as pets to interested consumers

and even charlatans “who exhibited them as an attraction at fairs and ate them alive as if they were vipers”.

At the beginning of the 20th century, the folkloric use of the weatherfish shifted to scientific research. This fish was one of the first fish species in early cloning research and was increasingly used as a model organism for toxicity testing. Nowadays, this role is taken on by his Asian relative, the Oriental weatherfish (*Misgurnus anguillicaudatus* Cantor).

Once, former land use offered many opportunities for the weatherfish, but the current trend towards intensification has become a deadly threat. Since the end of World War II, the majority of the populations of the weatherfish in north-western Europe have suffered a significant population decline. This collapse is primarily associated with changes in land management, such as intensified human activities and urban development, and with decreasing water quality in their aquatic habitats. Several of the surviving populations of weatherfish are currently in poor conservation status. Decades of habitat fragmentation have led to reduced genetic diversity, increased inbreeding and the appearance of ghost populations – tiny, isolated groups that are demographically unstable and genetically non-viable in the long term. Although conventional approaches to freshwater restoration – such as habitat recovery, water quality improvement, and the removal of migration barriers – remain crucial and should be prioritised, they are often incomplete for the recovery of genetically depleted populations.

Conclusion

An extensive survey of old sources of information in the Lowlands revealed that the weatherfish featured very often in all kinds of folk tales. Many of these stories can be linked to the enigmatic, secretive behaviour of the species. However, with the disappearance of this fish from the landscape, the accompanying oral history also dies out. The vanishment of this species from our memories after just one or two generations forms a great tragedy. The gathering of such anecdotes from people’s minds is an important factor in the conservation of the species. Moreover, targeted breeding programmes are currently being

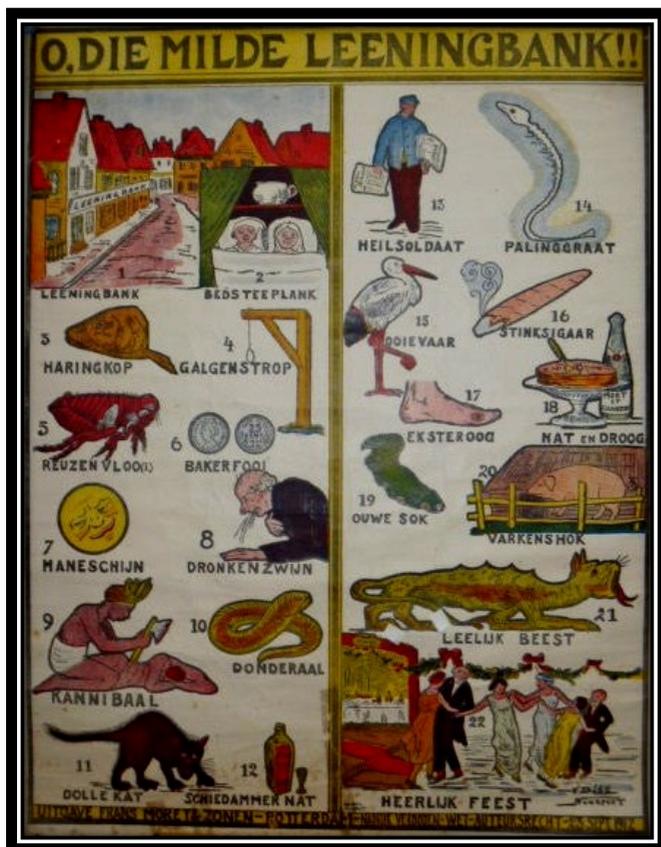
developed to save the species from extinction and, secondarily, to also protect our cultural heritage so the storytelling of this remarkable species can continue and inspire and amuse new generations.

Call for information!

Even though the UK is not part of the historical distribution area of the weatherfish, it is still possible that the weather-predicting properties of this fish were utilised and that there was an overseas trade. If such (documented) observations exist, we would be grateful to hear about them via jeroen.vanwichelen@inbo.be

We, the SWAMP working group, are currently trying to gain an overview of all possible aspects of the historical heritage of this species within Europe.

More information on the activities of our group: <https://www.ravon.nl/swamp>



Dutch Farce song