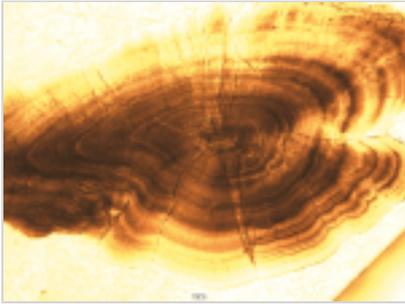


A “bug” in the ears of fish



Researcher at the IPREM, Gilles Bareille, along with some of his colleagues from UPPA, is studying the otoliths situated in the inner ear of fish to find out everything about them.

For the police, geolocation of somebody’s cell phone can be decisive for tracking his/her comings and goings. Under the expert eye of Gilles Bareille, the otolith is an even more formidable tool, especially if the suspect is wearing scales.

The otolith is a tiny crystal formed by the daily deposition of a concentric layer of calcium carbonate and protein found in the inner ear of non-cartilaginous fish. “Because each new layer incorporates chemical elements that are representative of the fish’s natural habitat, all we have to do is to analyze certain tracers and compare results with the characteristics of the habitats mapped beforehand in order to chronologically determine the history of the fish, where it was born, the rivers it crossed, etc.” reveals the researcher, an recognized expert in this field. Elementary, my dear Watson? Not quite.

The otolith micro chemical analysis tool developed by the IPREM is based on cutting-edge technologies in analytical chemistry. Thanks to his expertise in using this innovative tool, Gilles Bareille is able to carry out long-term investigations like the CARPOMIBA project which ran from 2013 to 2016. After analyzing the otoliths of 732 fish using a femtosecond laser coupled with a mass spectrometer, CARPOMIBA proved the efficiency of fish rearing for encouraging migrating fish to return to the Adour and Nivelle basin.

Many people are now interested in the work of the IPREM owing to its many potential applications: determining the water quality of a river, measuring the impact of equipment on rivers, etc. Provided we prick up our ears, fish still have many things to tell us.

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