



OTOCAL

THE ROLE OF OTOLITHS, CALCAREOUS ACCRETIONS IN THE INNER EAR OF FISH

Otoliths – the calcareous accretions in the inner ear of fish – represent a biological and environmental archive. Their growth is physiologically controlled by the organism and is influenced by habitat conditions. Analysing otoliths potentially offers a unique opportunity to reconstitute environmental parameters and life histories of fish.

A major issue for improving fisheries assessment and management is the development of new, reliable tools for observing and characterising fish stocks. Otoliths are uniquely placed to help recreate the environmental parameters (such as temperature) and individual life histories (for example, age, growth and migration) of fish. Despite the potential operational applications, these biological archives remain broadly untapped and inaccessible, as the mechanisms controlling the formation of otolith accretions are poorly understood.

Spin-offs and future developments

This project, which came to an end in December 2008, provided a better understanding of the underlying mechanisms involved by characterising the physical and chemical properties of the otolith and by numerically modelling its morphogenesis. The approach put forward was deliberately multidisciplinary and incorporated skills ranging from physiology to numerical modelling and including analytical chemistry and signal processing.

- 9 articles accepted for peer-reviewed journals
- 14 international papers
- 5 papers in France

Partner

Research center

Ifremer, Brest [\[Project Developer\]](#)

Funder

- Agence Nationale de la Recherche

Labelisation

2005

Overall budget

150 K€