

# 5th INTERNATIONAL OTOLITH SYMPOSIUM

**October 20-24, 2014**



**Casal de Peguera, Peguera (Calvià),  
Mallorca, Spain**

An



**Science Symposium**

## Theme I: Environmental Indicators

### Poster Session (IE)

Abstract reference: IE\_Labonne\_01

**Characterization of otolith microchemical signatures from 3 fish species along the Moroccan coast: link between anthropogenic vs. natural influences and trophic level**

**Labonne, M.**; Masski, H.; Tai, I.; Lae, R.; Bouthir, F.Z.; Bassoullet, C.; Tito de Morais, L.

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Abstract reference: IE\_Janowska\_02

**Chemical composition of fish otoliths from a lake subject to reclamation**

**Heese, T.**; Lampart-Kałużniacka, M.; Janowska, B.; Siebielska, I.

Contact e-mail: beata.janowska@tu.koszalin.pl

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Abstract reference: IE\_Reis-Santos\_03

**Effects of temperature and water composition on otolith chemistry across a salinity gradient**

**Reis-Santos, P.**; Tanner, S.E.; Cabral, H.N.; Gillanders, B.M.

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Abstract reference: IE\_Limburg\_04

**Fish Tales Through Fish Ears**

Limburg, K.

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Abstract reference: IE\_Agiadi\_05

**How did past environmental change control the distribution of small pelagic fish in the Mediterranean Sea? Examples from the fossil record**

**Agiadi, K.**; Karakitsios, V.

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Abstract reference: IE\_Songer\_06

**Investigating the distribution of crystalline otoliths**

Songer, S.

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Abstract reference: IE\_Górski\_07

**Migratory life-history patterns of *Galaxias maculatus* in the Southern Hemisphere rivers revealed by otolith microchemistry**

**Górski, K.**; Habit, E.M.; Manosalva, A.J.

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Abstract reference: IE\_Helser\_08

**Modelling Environmental Factors Affecting Assimilation of Bomb-produced  $\Delta^{14}\text{C}$  in the North Pacific Ocean: Implications for age validation studies**

**Helser, T.E.**, Kestelle, C.R.; Lai, H.

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Abstract reference: IE\_Limburg\_04

### **Fish Tales Through Fish Ears**

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Otoliths are valuable for scientific research. Yet they also possess a kind of beauty. Visualization of otolith chemistry via 2-D trace elemental mapping can also produce interesting and appealing images. This project, intended as an art book, will extend my science as art for a broad audience, whether scientists or not. Through focusing on a number of fish species from different parts of the world, with different life histories and ecology, I will let otoliths "speak" to reveal the "tales" of fishes.

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Abstract reference: IE\_Agiadi\_05

### **How did past environmental change control the distribution of small pelagic fish in the Mediterranean Sea? Examples from the fossil record**

**Konstantina Agiadi**<sup>1</sup>; Vasileios Karakitsios<sup>1</sup>

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Environmental variability determines fish distribution, migration and abundance both in the present as well as in the past. The close link between climate and fish populations has been observed in modern and historic times. The past distribution of small pelagic fish species, such as sardines and anchovies, is especially of interest since they have repeatedly been proven to respond rapidly to climatic variability. These fish generally have short life spans; their abundances are strongly driven by the annual recruitment of young fish, a process modulated by ocean climate. New data on Mediterranean fish paleobiogeography shows that naturally-occurring changes in the geological past have repeatedly modified the fish distribution in this area. Here, the geographic distributions of *Engraulis encrasicolus* and *Sardina pilchardus* are compiled and examined with regard to the global, regional and local paleoenvironmental conditions in order to draw conclusions as to the parameters affecting them. Anchovy remains have been found in coastal deposits from the Messinian (Kalamaki section, Zakynthos Island, Ionian Sea), the Gelasian and the Calabrian (Ypsenis section, Rhodes Island, southeastern Aegean Sea) and the Ionian stage (Fiumefreddo section, Italy; Kallithea section, Rhodes Island, southeastern Aegean Sea), where the presence of this species is often associated with a climatic optimum conditions. *Sardina pilchardus* is also known from the Messinian stage (Tanaro river, northern Italy), the Zanclean stage (Agia Triada section, Peloponnese, southern Greece) and the Calabrian stage (Gravina section, southern Italy). The fossil otolith record of anchovies and sardines in the Mediterranean realm reveals a consistent pattern of migrations and re-establishments of their populations from the Miocene until today. This research has been co-financed by the European Union (European Social Fund – ESF) and Greek national funds through the Operational Program "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF) - Research Funding Program: THALIS – UOA – MEDSALC.