CAN WE RECONSTRUCT RIVER $^{87/86}$SR VARIATIONS USING FRESHWATER MUSSEL GEOCHEMISTRY? FIRST INSIGHT USING FEMTO-LASER MC-ICP-MS ANALYSES

Lazareth, C.E.[1], Pecheyran, C.[2], Bérail, S.[2], Santos, R.V.[3], Freitas, C.E.C.[4], Gaillard, B.[1], Pouilly, M.[1]

[1] *Biologie des Organismes et Ecosystèmes Aquatiques (BOREA), Muséum National d'Histoire Naturelle, Sorbonne Université, Université de Caen Normandie, Université des Antilles, CNRS, IRD, 61 rue Buffon, CP 53, 75231 Paris, France*
[2] *LCABIE-IPREM - UMR 5254, Université de Pau et des Pays de l'Adour/CNRS, F-64053 Pau Cedex*
[3] *Instituto de Geociências, Universidade de Brasilia, Laboratório de Geocronologia, Campus Darcy Ribeiro, 70910-900 Brasilia, DF, Brazil*
[4] *Departamento de Ciências Pesqueiras, Universidade Federal do Amazonas (UFAM), Av. General Rodrigo Otávio, 3000, 69077-000 Manaus, AM, Brazil*
claire.lazareth@ird.fr

In the Amazon basin, it has been shown that the river $^{87/86}$Sr depends on the surrounding geology, with 4 main sub-basins showing major contrast, but varies also at a smaller spatial resolution and temporally. Nevertheless, the large size of the Amazon basin and the complexity to reach remote areas lead to a very incomplete vision of water $^{87/86}$Sr values and temporal variations. However, such data are of high importance for many geological and ecological studies. Freshwater mussel shell geochemistry might provide records of $^{87/86}$Sr variations on a seasonal scale for 4-5 consecutive years. We used Femto-second laser ablation coupled to a multi-collector ICP-MS (LA-MC-ICP-MS) to analyze freshwater mussel shells $^{87/86}$Sr ratio. This was done in two parts of shells (hinge and ventral margin) collected in a floodplain lake close to Manaus (Brazil) where they grew for one year in a home-made cage. We observed a clear seasonal-related $^{87/86}$Sr signal with enriched values during the high-water level and conversely. In addition, $^{87/86}$Sr shell values correspond globally to those measured in the water monitored during the one-year of shell growth. Thus, freshwater mussel $^{87/86}$Sr signature, that can be measured using LA-MC-ICP-MS, might be a powerful tool to obtain invaluable $^{87/86}$Sr river data.

II WORKSHOP LATINOAMERICANO DE OTOLITOS

Y OTRAS ESTRUCTURAS CALCIFICADAS

28, 29 y 30 de agosto de 2019
Buenos Aires, Argentina

Facultad de Ciencias Veterinarias Universidad de Buenos Aires

INPA CONICET UBA

Biologie des Organismes et Ecosystèmes Aquatiques BOREA

CETA

Institut de Recherche pour le Développement FRANCE
Instituto francés de Investigación para el Desarrollo

AGENCIA NACIONAL DE PROMOCIÓN CIENTÍFICA Y TECNOLÓGICA

FundaVet

Libro de resúmenes - Livro de resumos – Abstract book

II Workshop Latinoamericano de otolitos y otras estructuras calcificadas

28, 29 y 30 de agosto de 2019

Buenos Aires, Argentina

ISBN: 978-987-86-1584-4

Comité Organizador Internacional

Alejandra Volpedo. UBA, CONICET (Argentina)

Esteban Avigliano. UBA, CONICET (Argentina)

Nidia Fabré. UFAL, ICBS (Brasil)

Vandick Batista UFAL (Brasil)

Cristiano Queiroz de Albuquerque. UFERSA (Brasil)

Marc Pouilly. UMR BOREA (Francia)

Comité Organizador Local

Presidente: Alejandra V. Volpedo

Vicepresidente: Esteban Avigliano

Secretario: Gustavo A. Thompson

Roberta G. Callicó Fortunato

Sabina Llamazares Vegh

Fernanda Biolé

María Eugenia Rolón

Claudia Vargas

Ana Harrington

Karina Lemos

Pablo Fernández

Melisa Rodríguez

Fernando García Massini

Sponsors