



4-year PhD position available in environmental molecular microbiology (ULB, Belgium)

Taxonomic and functional traits of the fish microbiome in marine protected areas

Preserving marine ecosystem services is a key priority worldwide as they support the livelihood and well-being of millions of its citizens. For that purpose, Marine Protected Areas (MPAs) have been implemented all over the world and their positive effect on species diversity has been extensively documented. However, their impact on functional traits remains poorly characterized. The goal of the European project METRODIVER is to assess the effect of MPAs on trophic diversity and food web functioning, as well as ecosystem services (productivity), fish health and human health. One of the specific aims of this project is to understand the relationship between the the MPA / fish characteristics (size, age, protection level / diet, age, nutritional value, respectively) and the functional diversity of the fish gut microbiome.

For that purpose, we will characterize the intestinal microbiome (both at the taxonomic and functional level) of a model fish in ten MPAs in the Mediterranean Sea. The characterization of fish populations will be combined with gut microbiome analysis using metagenomics and metatranscriptomics, in order to assess (expressed) functional microbial gene (i) diversity (composition/richness/evenness) and (ii) overlap within and between fish individuals.

Financial support: BiodivERSA2018 European joint call – « Effects of biodiversity status and changes on animal, human and plant health » (2019-2023)

Academic research partners: Prof. Isabelle George (Ecology of Aquatic systems, ULB, Belgium), Dr Charlotte Sirot and Dr Joachim Claudet (coordinators, CRIOBE, CNRS, France), Drs. Deirdre Brophy and Conor Graham (Marine and Freshwater Research Centre, Galway-Mayo Institute of Technology, Ireland), Profs. Andreas Schramm and Ian Marshall (Center for Geomicrobiology, Dept. of Bioscience, Aarhus University, Denmark)

Candidate profile:

- Master in bioinformatics, bioengineering, or biology
- Good academic qualifications
- Solid training in bioinformatics and in molecular microbiology (next-generation sequencing, qPCR,...)
- Great adaptability to field work, *wet lab* work, and *in silico* work
- Research-minded, autonomous, rigorous, responsible, self-motivated
- Good scientific communication skills and good team spirit
- Fluent in English (written, spoken).

Duration of the PhD fellowship: 48 months (end of December 2019 - end of November 2023)

Location:

Laboratory of Ecology of Aquatic Systems, Université Libre de Bruxelles, Plaine Campus, 1050 Brussels, Belgium (<http://esa.ulb.ac.be/>).

Deadline for submission of an application: 25/11/2019

Please send your application (CV + motivation letter + contact details of 2 reference persons) to

Prof Isabelle George, igeorge@ulb.ac.be

For any additional information, you can contact Prof I. George, phone +32 (0)2 650 5924, igeorge@ulb.ac.be