



PHD POSITION TO APPLY TO THE SPANISH FPU PROGRAM

Research Project - **ONE-BLUE** (<https://one-blue.eu/>)

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Centre: Institut de Ciències del Mar (ICM-CSIC). Dept. of Marine Biology and Oceanography

Project description

Marine ecosystems host complex microbial communities that play fundamental roles in global biogeochemical cycles, yet these environments are increasingly threatened by contaminants of emerging concern. Understanding how marine microbes respond and adapt to these chemical stressors is essential for predicting ecosystem health and informing environmental protection efforts.

This project investigates the spatial presence and abundance of genes associated with contaminants of emerging concern across both heavily polluted and pristine European marine ecosystems. Environmental water column and benthic sediment samples were gathered through systematic sampling campaigns within the framework of the European ONE-BLUE project. Additionally, sampling across Mediterranean coastal waters and sediments will be performed within the Spanish project MED-HEALTH. Through quantitative molecular and chemical analyses, detected genetic markers will be statistically correlated with measured environmental contaminant concentrations to assess the impact of pollution on microbial communities. To establish direct cause-and-effect mechanisms, controlled experiments will expose isolated microbial communities to specific emerging contaminants, enabling real-time monitoring of gene expression, and degradation dynamics under chemical stress. Ultimately, this comprehensive study aims to clarify the ecotoxicological footprint of emerging pollutants in aquatic environments, providing critical genomic data to support marine conservation policies and environmental risk assessment frameworks.



Key tasks:

- Collect water and sediment samples in three areas of the NW Mediterranean coast with contrasting pollution.
- Process and analyze metagenomic datasets from water and sediment samples.
- Perform statistical analyses to correlate microbial community shifts and metagenomic profiles with environmental parameters and concentrations of emerging contaminants.
- Perform lab experiments exposing marine microbial communities and bacterial isolates to selected contaminants to establish cause-and-effect relationships.
- Interpret ecological findings and contribute to scientific communication

Hosting research team

We are looking for a highly motivated candidate who would like to join our dynamic team of research scientists, postdocs, PhD students, and technicians.

The group has broad experience in marine microbial ecology, oceanography, and aquatic ecosystem dynamics. Combining computational bioinformatics with empirical biological research, our work focuses on understanding how marine microorganisms adapt, interact, and drive fundamental biogeochemical cycles in aquatic environments, especially in response to contaminants. Ramiro Logares contributes key expertise as a computational ecologist and evolutionary biologist, leveraging advanced multiomics datasets to investigate microbial diversity and community dynamics. Montse Sala brings deep scientific expertise in aquatic microbiology, studying the ecological roles, functional diversity, and nutrient processing mechanisms of marine microbes.

The candidate must meet the eligibility requirements to [apply for the FPU fellowship](#).

Interested candidates, please contact the Principal Investigators:

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