

PhD POSITION TO APPLY TO THE SPANISH FPU PROGRAM

Research Project - **Disentangling the impact of climate change through a historical and paleoecological reconstruction of the Eastern Mediterranean marine food webs**

Reference: -

PhD Supervisors: Dr. Maria Bas, Dr. Marta Coll and Dr. Konstantina Agiadi

Centre: Institut de Ciències del Mar (ICM-CSIC)

Project description

Climate warming severely affects marine ecosystems, with food-web simplification and a general decline of marine animal biomass negatively affecting human societies worldwide. Yet, the mechanisms behind these changes remain unclear, mainly because most studies use modern data to form their initial baselines and hypotheses, which are already affected by post-industrial climate change and human activities, and lack future data to validate their predictive models. The geological past holds periods when the climate changed in ways similar to those taking place at present, which can be used as analogues, to predict the impact of climate warming on marine ecosystems. This project aims to evaluate and enhance our understanding of the long-term impact of climate change on the marine fauna of the Eastern Mediterranean Sea using paleo- and historical ecology perspectives. The Eastern Mediterranean Sea is one of the hotspot areas of the world exhibiting high increases in the sea surface temperature and extreme events. Present-day marine ecosystems are affected by multiple stressors, such as environmental changes and human impacts, which are difficult to disentangle. Human exploitation of marine resources has been documented in the Mediterranean since prehistoric times. Looking to the even deeper past, during the Early-Middle Pleistocene Transition, the climate system shifted to its modern state of 100-kyr glacial-interglacial cycles. During that time, modern humans did not exist, and the marine ecosystems were only affected by the natural variability of climatic oscillations, with warming periods that can be used as analogues of current and forecasted climate warming. Therefore, a comparative study of the modern and ancient marine ecosystems can allow us to isolate the relative contributions of the environmental stressors in the Eastern Mediterranean today and provide meaningful recommendations for the management and conservation of the marine resources in the region.

Requirements of the candidate

- Bachelor in Biology, Marine Sciences, Archaeology or Palaeontology, Master in Oceanography, Marine Sciences, Archaeology, Palaeoceanography, Palaeobiology or Statistics.
- Minimum Bachelor's grade 8.
- Other merits: skills in statistics, Ecopath and Ecosim knowledge and programming in R will be considered positive.

Hosting research team

The ICM-CSIC, as a Severo Ochoa Center of Excellence, offers institutional support to the ICM researchers throughout the life cycle of the project to ensure research viability and scientific excellence. The ICM-CSIC offers support for researchers such as scientific and economic follow-up of projects, training programs, and implementation of the project dissemination and communication. The PhD student will be supervised by Dr. Maria Bas (Juan de la Cierva postdoctoral researcher at ICM-CSIC with expertise in applied paleoecology), Dr. Konstantina Agiadi (Elise Richter Senior Postdoc at the Conservation Paleobiology and Historical Ecology group, University of Vienna) and Dr. Marta Coll (senior researcher at ICM-CSIC with food web modelling expertise). The PhD student will be primarily based at the Department of Renewable Marine Resources, but is also expected to interact with other researchers at the ICM-CSIC from the Department of Biology and Oceanography, and the Department of Marine Geosciences. The PhD student will join the “Integrated Marine Ecosystem Assessments (iMARES)” Research Group of Consolidated Quality (supported by the Autonomous Government of Catalunya). The principal aim of the Dr. Marta Coll research group is to explore the effects of stressors and forcing processes on marine ecosystems with particular attention to marine living resources and human activities. This group has grown steadily by training PhD students and holders of prestigious grants such as Ramon y Cajal, Marie Curie, and Juan de la Cierva. Today, the group is highly multidisciplinary in terms of research activities, but also in technical aspects, especially in food web ecology and marine ecosystem modelling, and publishes high-quality scientific papers and informative reports. The PhD student will visit the University of Vienna regularly to be trained by Dr. Agiadi, a palaeontologist with extensive expertise in ancient Eastern Mediterranean marine ecosystems.

How to apply

- At the first step, the applicant will be evaluated based on the university degree. If appropriate, selected candidates could be invited for an interview. In case you are interested, please contact ASAP the PI of the project attaching your CV and your transcript record.
- At the second step, selected applicants, together with the PhD project, will be evaluated for a final selection.
- Applications to the FPU scholarships must be submitted through [the following official link](#). The period of application is **from 17 January to 15 February 2024**.

Interested candidates, please contact the Principal Investigators:

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