

Post-doctoral research associate

## Marine Ecosystem Modelling

IFREMER, IRD, MARBEC laboratory, Montpellier, France

### DESCRIPTION

Applications are invited for a postdoctoral research associate position in marine ecosystem modelling.

The successful applicant will join MARBEC (<https://umr-marbec.fr/en/>), one of the largest French laboratories in marine biodiversity, gathering research teams from IFREMER, IRD, CNRS, University of Montpellier, and INRAE research organizations. The position will be funded by the MEDIATION project (2022-2027) of the French Priority Research Program Oceans and Climate (Mediation project, <https://www.ocean-climat.fr/Les-actions-et-projets/Les-projets-de-recherche/MEDIATION>) and hosted by Ifremer, a world-renowned institute in marine science and technology at the forefront of sustainable development and open science.

The MEDIATION project aims to revolutionize marine ecosystem modeling to address global change. The project develops innovative methodologies to predict how global change impacts marine ecosystems and assess conservation measures' effectiveness. One of its main tasks is to integrate low (plankton) and high (fish) trophic levels in coupled models to represent the entire ecosystem dynamics more realistically.

The postdoctoral fellows will specifically work on the development and application of **the two-way coupling of low (biogeochemical) and high trophic level models to investigate the eco-evolutionary feedback loop between planktonic and fish communities and its impact on ecosystem dynamics**.

The research work will use the biogeochemical model Eco3M (Baklouti et al., 2006) developed by MIO (<https://www.mio.osupytheas.fr/en/>, Aix-Marseille University) and the multispecies high-trophic level model OSMOSE (<https://osmose-model.org>) developed by MARBEC, with an application to the Mediterranean Sea.

Key responsibilities of the postdoctoral researcher will include to

- Conduct a literature review to identify and prioritize processes linking low (phyto- and zooplankton) and high (fish) trophic levels;
- Define and implement mathematical representations of these processes in the Eco3M and OSMOSE models;
- Perform technical coupling of the models, addressing challenges such as depth representation in Osmose (currently in 2D), spatial/temporal resolution mismatches and biomass and energy flux conversion between trophic levels;
- Apply and calibrate the coupled model for the Mediterranean case study of the MEDIATION project;
- Compare eco-evolutionary dynamics of plankton and fish communities between unidirectional and bidirectional coupling scenarios.

## QUALIFICATIONS

Applicants with various backgrounds are encouraged to apply. They **should have less than three years of experience after their PhD and must not have been previously employed as a PhD student or a postdoctoral researcher in an Ifremer research unit or in a joint research unit involving Ifremer**. Specifically, we are looking for young researchers with the following qualifications:

- PhD in marine or evolutionary ecology, fisheries science, biogeochemistry or any related field
- Demonstrated proficiency and experience in at least one of the following: ecosystem models, hydrodynamic-biogeochemical models, fish and fisheries models, or eco-evolutionary models
- Strong programming and numerical skills
- Excellent verbal and written communication skills

## PRACTICAL INFORMATION

### Work place:

**Université de Montpellier**  
UMR MARBEC  
Place Eugène Bataillon, CC093  
34095 Montpellier, France

**Start date:** as soon as possible – **Duration:** 18 months

### Salary and benefits:

Gross salary is approximately 34K€/year, depending on professional experience. Employment contracts include 10 weeks of vacation per year, healthcare benefits (both state and private supplementary coverage), unemployment benefits, and pension benefits (both state and supplementary fund).

## HOW TO APPLY

Applicants should send (i) a curriculum vitae of no more than 3 pages, including names and email addresses of 2-3 references, (ii) a short letter (~1 page) summarizing previous research and the motivations for joining the postdoctoral modelling program. Letters of recommendation are welcome.

Review of applications will begin immediately and continue until the position is filled. Interviews of relevant applicants will be organized on a continuous basis. We encourage potential applicants to inquire informally by email whether the position is still open before submitting a full application.

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