POSTDOCTORAL RESEARCHER

The Ocean System Pathways (OSPs): a new scenario and simulation framework to investigate the future of the world fisheries

Location: FRB – CESAB, 5, rue de l'École de Médecine, 34000 Montpellier, France
Salary: Starting from 2822 € gross per month (according to the FRB salary scale), social security and paid leave according to French legislation
Contract: 24 months fixed term, full time, possibility of 1 year extension

Application deadline: December 31st 2025
Starting date: April 2026

Host structure

About FRB

The **Foundation for Biodiversity Research (FRB)** was launched in 2008 by the Ministries for Research and for Ecology. It was created by eight public research institutions (BRGM, CIRAD, CNRS, IFREMER, INRA, IRD, IRSTEA, MNHN), joined in 2014 by LVMH and in 2017 by the University of Montpellier. It gathers public research institutions, environmental NGOs, land and genetic resources managers and the private sector. It provides a forum where science meets society in order to address the current challenges related to biodiversity research.

About CESAB

The Centre for Synthesis and Analysis of Biodiversity (CESAB) is FRB's main programme and a leading research organization in Europe that is renowned internationally. It aims to implement innovative syntheses and analyses of existing data in the field of biodiversity. Advancing knowledge, developing culture and collaboration, facilitating links between scientific disciplines and stakeholders are the main objectives of the CESAB, which welcomes every year a large number of researchers from all continents. For more information about CESAB please check our website: *https://www.fondationbiodiversite.fr/en/about-the-foundation/le-cesab/*

Job information

Projecting the future trajectories of marine social-ecological systems is highly challenging, with many sources of uncertainty. Mirroring the approach of the Coupled Model Intercomparison Project (CMIP) for climate research, the international Fisheries and Marine Ecosystem Model Intercomparison Project (FishMIP; www.fishmip.org) produces multi-model ensemble projections of climate change impacts on marine ecosystems at global and regional scales. Since its inception in 2013, FishMIP has made substantial contributions to major science-policy processes, including the IPCC, the IPBES, and policy-oriented analyses for the FAO.

FishMIP is now launching the Ocean System Pathways (OSPs, see Maury et al., 2025, https://doi.org/10.1029/2024EF004851), a new scenario framework that extends the IPCC's Shared Socioeconomic Pathways (SSPs) into the domains of fisheries, marine biodiversity conservation, and aquaculture. The OSPs include qualitative storylines, quantitative model driver pathways, and a "plug-in-model" framework that allow diverse marine ecosystem models to simulate future fisheries dynamics in a standardized way. They will enable the heterogeneous and international suite of ecosystem models willing to contribute to FishMIP to simulate fisheries dynamics in a standardised way.

We are looking for a talented 24-month postdoctoral researcher (that can be extended to 36 months) to drive the analysis and publication of social-ecological simulation results from the FishMIP-OSP project, to evaluate the future of marine ecosystems and fisheries under various climate and socio-economic changes along these new socio-economic scenarios.

Specifically, the successful candidate will contribute to the FishMIP–OSP project by:

- Contributing to the analyses of the ensemble ecosystem model simulations to explore how ecosystems and fisheries might change in the future, focusing on key issues such as climate justice, food security, equitable fisheries management, and biodiversity conservation.
- Analysing and publishing collective simulation results to inform ongoing policy processes within the FAO and developing contributions with the goal of informing the synthesis work of the IPCC, IPBES, and the UN Convention on Biological Diversity (CBD).
- Helping to develop targeted scenarios and simulation protocols and working with marine ecosystem modellers to coordinate model runs of those scenarios.
- Participate in all FishMIP OSP meetings and workshops, and be involved in the collaborative teamwork and environment of the project.
- Contribute to the assessment of the historical simulations, including harmonising historical data to evaluate ecosystem models against observations using appropriate statistical methods.

The successful candidate will play a fundamental role in the project. He/she will have the opportunity to collaborate with an international network of marine ecosystem researchers and modellers across the FishMIP community, engage in high-impact, policy-relevant science at the science–policy interface, in a scientific field whose purpose and societal impact will give meaning to his/her efforts. He/she will work in at the CESAB, an international hub for biodiversity and climate research located in the beautiful city center of Montpellier.

Qualifications

We are looking for an independent and motivated researcher with expertise in one or more relevant disciplines, such as marine ecosystem modelling, fisheries science, economics, social-ecological systems, biodiversity science, and data analysis.

Required skills and experience:

- PhD in Fisheries Science/Ecology, Oceanography, Numerical Modelling, Economy, Statistics, Mathematics, Marine Ecology/Biology, or related scientific fields.
- Strong quantitative skills and proficiency in R and/or Python for data analysis and visualization of large data sets.

- Proven ability to write and lead peer-reviewed publications.
- Strong communication, collaboration, and project management skills.

Desirable skills and experience:

- Experience with modelling approaches and/or the use of ecosystem/ocean models.
- Familiarity with large-scale collaborative science projects.
- Interest in interdisciplinary and policy-relevant research, and/or experience in multiple relevant disciplines

Application instructions

Applications must be sent as soon as possible and no later than 31 December to: Olivier Maury (olivier.maury@ird.fr) and Derek Tittensor (Derek.Tittensor@Dal.Ca). They must include

- A cover letter motivating your interest for this position (nor more than 500 words)
- Your curriculum vitae with publication record
- The contact details of 2 references.
- University transcripts

References

J. L. Blanchard & C. Novaglio (Eds.), 2024. *Climate change risks to marine ecosystems and fisheries – Projections to 2100 from the fisheries and marine ecosystem model intercomparison project*. FAO Fisheries and Aquaculture Technical Paper, No. 707. FAO. https://doi.org/10.4060/cd1379en

Blanchard, J. L., Novaglio, C., Maury, O., Harrison, C. S., Petrik, C. M., Fierro-Arcos, L. D., et al., 2024. Detecting, attributing, and projecting global marine ecosystem and fisheries change: FishMIP 2.0. *Earth's Future*. https://doi.org/10.1029/2023EF004402

Maury, O., Tittensor, D. P., Eddy, T. D., Allison, E. H., Bari, T., Barrier, N., et al., 2025. The Ocean system pathways (OSPs): A new scenario and simulation framework to investigate the future of the world fisheries. *ESS Open Archive*. https://doi.org/10.22541/essoar.171587166.60970779/v1

Tittensor, D. P., Novaglio, C., Harrison, C. S., Heneghan, R. F., Barrier, N., Bianchi, D., et al., 2021. Next-generation ensemble projections reveal higher climate risks for marine ecosystems. *Nature Climate Change*, 11, 651–659. https://doi.org/10.1038/s41558-021-01173-9