Cutting-edge Research for a Changing World

Postdoctoral researcher in ecosystem modeling

Reference code: 50153222_2
Commencement date: 01.01.2026 (with optional earlier start)
Work location: Geesthacht
Application deadline: 12.10.2025

The department Ecosystem Modeling identifies key mechanisms of the human-driven transformation of marine ecosystems (www.hereon.de/ecomod). Within the collaborative JPI-Ocean research project "Impacts of artificial light at night on pelagic ecosystems in European seas" (ALANIS), we examine how changing lightscapes through artificial light at night or coastal darkening (increases in light attenuation) impact marine food-webs and ecosystem functioning. By bringing together field observations and mechanistic models, the candidate should specifically investigate how changing lightscapes affect visual predation by fish and vertical mobility patterns of fish and plankton, and how the effects propagate down to the base of the food-web. Identified relationships should then be extrapolated to different ecosystems in European seas, also in support of management efforts.

Our team is internationally renowned in the field of trait-based marine modeling. Within our research institute and the project ALANIS, your work will be tightly embedded into an interdisciplinary and inter-institutional network. As a postdoctoral researcher in coupled hydrodynamic-ecological modeling (24 months, 100%), you will fill a central position to reach important objectives of the project.

Equal opportunity is an important part of our personnel policy. We would therefore strongly encourage qualified women to apply for the position. The position is full-time (39 hours/week).

Your tasks

Incorporate visual predation and vertical migration into an existing trait-based ecosystem model; Couple the model to a 1D physical model (GOTM) through the FABM framework; Validate the coupled model using published and newly gathered observational data; Conduct numerical experiments to understand responses to changing lightscapes and to unravel future pathways across European seas; Publish joint studies on the role of light in bottom-up and top-down control of ecosystem dynamics.

Content-related enquiries can be directed to Prof. Kai Wirtz (kai.wirtz@hereon.de).

Your profile

MSc and PhD in environmental sciences, physics or related disciplines with experience in programming languages (e.g., Fortran, R) in Linux environments; demonstrated experience in communicating scientific results in high-quality publications.

We offer you

- an exciting and varied job in a research centre with around 1,000 employees from more than 60 nations
- a well-connected research campus (public transport bus) and best networking opportunities
- individual opportunities for further training

Helmholtz-Zentrum hereon

Helmholtz-Zentrum Hereon
The Helmholtz-Zentrum Hereon conducts cutting-edge international research for a changing world: Around 1,000 employees contribute to the tackling of climate change, the sustainable use of the world's coastal systems and the resource-compatible enhancement of the quality of life. From fundamental research to practical applications, the interdisciplinary research spectrum covers a unique range.

Institute of Coastal Systems Analysis and Modeling
The Institute for Coastal Systems Analysis and Modeling studies the dynamics of coastal systems as part of the Earth system and develops prediction methods and future scenarios for coastal systems. One focus of our research is the study of coastal ecosystems, which are subject to increasing pressure to change due to climate change, use of coastal environments, and other human drivers.

Zertifikat seit 2008
audit berufundfamilie

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- social benefits according to the collective agreement of the public service and remuneration up to pay group 13 according to TV EntgO Bund
- an excellent technical infrastructure and modern workplace equipment
- 6 weeks holiday per year; company holidays between Christmas and New Year's Day
- very good compatibility private and professional life; offers of mobile and flexible work
- family-friendly company policy with childcare facilities, e. g. nursery close to the company
- free assistance program for employees (EAP)
- corporate benefits
- a varied offer in the canteen on campus

Interested?
Then we are looking forward to receiving your comprehensive application documents (cover letter, CV, transcripts, certificates etc.) indicating the reference number code no. 2025/KS 4 until 12.10.2025.

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Severely disabled persons and those equaling severely disabled persons who are equally suitable for the position will be considered preferentially within the framework of legal requirements.