Job posting (OBS 02/2025)

The Leibniz Institute for Baltic Sea Research Warnemünde (IOW) has a temporary vacancy starting **01.07.2025** for a

Postdoctoral position with the topic "Seagrass Management and Changing Marine Lightscapes"

in the Department of Marine Observations for a period of 36 months and a percentage of 100% (40h/week), subject to the funding of the project(s).

Remuneration is paid in accordance with the Tarifvertrag für den öffentlichen Dienst der Länder (TV-L, Public Sector Collective Agreement on Länder) salary scale at level 13. The position can also be filled on a flexible part-time basis with at least 30h/week.

About the SEAGUARD and ISOLUME projects

This position is embedded within two concurrent, complementary projects, **SEAGUARD** and **ISOLUME**.

The **SEAGUARD** project (Seagrass Growth and Adaptation Using AI Research & Development), focuses on assessing the **CO_2 storage potential of seagrass meadows** and identifying **climate-resilient restoration sites** in the **Baltic Sea**. The project integrates regional climate modeling, AI-driven simulations, optical remote sensing and biogeochemical modeling to predict seagrass distribution under various climate and nutrient scenarios. SEAGUARD aims to provide science-based recommendations for nature-based climate mitigation and marine biodiversity conservation. SEAGUARD is a joint effort of the IOW, the informatics department of the University of Kiel, and the remote sensing company EOMAP GmbH & Co. KG.

The **ISOLUME** project (Indicators of Changing Lightscapes in Underwater Marine Ecosystems) focuses on assessing **how marine lightscapes have changed** across European sea basins over decadal timescales, due to coastal darkening (COD) and artificial light at night (ALAN), and will determine **drivers, sources and impacts of these changes** at both large and small scales. The scientific evidence-based knowledge developed in ISOLUME will be used to develop a **roadmap** for **implementing changing marine lightscapes** as an **indicator** in management policies, monitoring programmes and essential ocean (biodiversity) variables. ISOLUME is a collaborative effort between IOW and 10 European partners and is supported by the JPI Oceans Changing Marine Lightscapes initiative. ISOLUME has been endorsed by the Intergovernmental Oceanographic Commission (IOC) as part of the **UN Ocean Decade of Ocean Science for Sustainable Development 2021-2030**.

Who are we?

The IOW is an independent research institute of the Leibniz Association for which equal opportunities, family friendliness and work-life balance are very important. Our research focus is on the coastal and marginal seas, especially the Baltic Sea. The staff of the five departments Physical Oceanography, Marine Chemistry, Biological Oceanography, Marine Geology and Marine Observations work interdisciplinary within a joint research programme.

What will be your tasks?

You will be part of a pan-European scientific cohort that will quantify changes in the spectral quantity and quality of IOPs and AOPs on decadal time scales, and determine drivers, sources and impacts of these changes at large (~1000km) and medium spatial (~100km) scales. This includes quantifying the mechanisms underlying the land-ocean connection and its role in shaping underwater lightscapes in the southern Baltic Sea at intermediate spatial (~100 km) and temporal (interannual) scales. Working with scientists from the **Integrated Optical Remote Sensing Research Group** in the department of Marine Observations and the **Biogeochemical Modelling Research Group** in the department of Physical Oceanography at IOW, you will curate a time series of in situ, remotely sensed and modelled inherent and apparent optical properties (IOPs/AOPs) for the German Baltic Sea coastal region. This will serve as a training data set for AI-driven simulations in the **SEAGUARD** project and contribute to the analysis of drivers of change in marine lightscapes in the **ISOLUME** project. You will provide a detailed analysis and uncertainty assessment of remotely sensed estimates of turbidity and light attenuation from various ocean colour products using in situ measurements and modelled data. You will analyze simulation results from IOW's high resolution coupled hydrodynamic-biooptical model system, and explore the effects of selected eutrophication and climate change scenarios on the contribution of water constituents to seasonal and interannual variability in underwater lightscapes.

Your primary responsibilities will include:

- Curating a time series of turbidity, light attenuation, Secchi depth and photosynthetically active radiation (PAR) based on in situ, remotely sensed and modelled data.
- Conducting a statistical ensemble analysis of uncertainty in multi-processor ocean colour products.
- Supporting the analysis of drivers, sources and impacts of changing underwater lightscapes in European Seas.

In addition, your research will provide a **structured framework** to assess the effects of **changes in the quality of the underwater light** environment on **seagrass habitats** in German coastal waters and contribute to workflows for **sustainable water quality products** which support **seagrass habitats** and

environmental monitoring. You will be expected to publish your work in relevant peer-reviewed scientific journals.

What do we expect from you?

We seek a scientifically curious researcher who is passionate about understanding the environment. Applicants must have a university degree (master/diploma) and a PhD in meteorology, oceanography or a related natural or geoscientific discipline with pronounced physical-mathematical components. Evidence of very good English language skills is required. The ability to work scientifically independently in an interdisciplinary team and the willingness to carry out science related to the novel IOW research programme 2024-2033 are mandatory. In particular, you will work with Research Area 2.3, 2.4 and 3.1.

Important selection criteria:

- Compelling understanding of optical oceanography, bio-optical modelling or the application of ocean colour remote sensing to environmental monitoring.
- Processing, visualization and scientific analysis of in situ and remotely sensed marine optical data.
- Experience with advanced statistical methods for analyzing complex ecosystem and environmental datasets.
- Proficiency in spatial data analysis using geographic information systems (GIS) and programming languages (e.g. Matlab, Python, R) and working with large data sets and data formats, such as netCDF, HDF, including analysis tools such as NCO and CDO.
- Very good English language skills, including excellent written and oral expression skills in various formats.
- Ability and willingness to travel internationally, actively engage in interdisciplinary collaborations and work in a team.

Desirable criteria:

- A good international publication record (relative to the professional career) in relevant topics.
- Deep understanding of marine ecosystem processes, particularly within coastal regions.
- Good knowledge of the Baltic Sea region, its biogeochemical functioning and optical complexity.
- Familiarity with climate dynamics and drivers specific to the Baltic Sea region.
- Experience in running numerical ocean models and analyzing ecosystem model output.
- Experience using high-performance computing systems.
- Familiarity with operating systems such as Linux/Unix and proficiency in shell scripting.

The preferred starting date is July 1, 2025.

What does the IOW offer?

The IOW offers you a varied workplace in the immediate vicinity of the Baltic Sea (Work at sea) with flexible working arrangements, e.g. the possibility of working from home or remotely, and qualification opportunities for the English/German language. A very good infrastructure with modern laboratory and office equipment, including on our own research vessel, form the framework for the best working conditions.

How do we promote equal opportunities?

Our job offers are aimed at all people regardless of their gender. Research benefits from a diverse working environment, which is why we have signed the Diversity Charter. IOW aims to specifically promote women in areas where they are underrepresented. For this purpose, the institute has given itself a plan to promote equality (plan for the equal opportunities committee at the IOW) and has repeatedly been awarded the Total E-Quality award for its commitment (website TOTAL E-QUALITY e. V.) Female applicants are given preference in the case of equal qualifications and suitability, as the position belongs to a working group in which women are underrepresented. You can find an overview of our measures for equal opportunities and for improving the compatibility of work and family on our website.

We give preference to applications from disabled persons with equal professional and personal suitability. Please mention the disability or equality in your letter of application and enclose a copy of the relevant certificate.

How to apply?

Please send us your application documents including a cover letter, CV, copies of your certificates, description of relevant activities and experiences as well as references.

We look forward to receiving your application, quoting the keyword:

OBS 02/25 by **15 April 2025**

to:

bewerbung@io-warnemuende.de

or

Leibniz Institute for Baltic Sea Research Warnemünde
HR Department
Seestraße 15
18119 Rostock
Germany

The interviews are expected to take place on **28 April 2025.**

Unfortunately, we cannot cover your application and travel costs. Online participation in the job interview is possible.

For further information please contact:

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or visit our website: www.io-warnemuende.de.