

JOB DESCRIPTION

JOB ROLE: Postdoctoral Research Scientist (PDRS)

JOB HOLDER: Tba

JOB PURPOSE:

To become part of the vibrant Marine Research Plymouth Alliance working in the FRONTLINE project, operating at the cutting edge of oceanography, remote sensing, autonomous technologies, and ecosystem dynamics. FRONTLINE is a £3.5M initiative funded by UKRI-NERC and The Crown Estate through the ECOFLOW programme and focuses on the development of floating offshore wind (FLOW) in the Celtic Sea.

To play a central role in FRONTLINE, integrating high-resolution autonomous underwater vehicle (AUV) observations with satellite remote sensing and operational models to understand FLOW consequences on ocean processes, with a focus on ocean fronts (tidal mixing fronts) and knock-on effects on biodiversity, from plankton to predators.

To help steer multiple deployments (starting in 2026) of NERC's Autosub Long Range 1500 equipped with cutting-edge plankton imaging technology and a suite of oceanographic instrumentation (turbulence profiler, Acoustic Doppler current profilers, oxygen & nutrient sensors, etc).

Key responsibilities include processing and analysing AUV-mounted sensor data, integrating it with data products from remote sensing and operational models, and thereby contributing to the interpretation of ocean dynamics. This position is thus ideal for a highly quantitative researcher with expertise in big-data analysis, programming, and/or AI-driven ocean monitoring. The PDRS will be expected to publish high-impact research, contribute to predictive models shaping offshore renewable energy policies, and present findings at national and international conferences. This is a chance to work on a globally significant challenge at the intersection of ocean science, climate action, and sustainable energy development—a truly exciting career-defining opportunity.

ACCOUNTABILITY Reporting to: Dr Lilian Lieber, Research Fellow

The PDRS will be predominantly based at the MBA at Citadel Hill, Plymouth. Hot desks will be provided at PML and UoP to facilitate collaboration across institutions working alongside the relevant project work package partners at Plymouth Marine Laboratory (Dr Peter Miller) and the University of Plymouth (Prof. Alex Nimmo-Smith), who will also be responsible for task management.

Essential experience/skills/qualifications:

- PhD in Oceanography, Marine Science, Environmental Science, Computer Science or a related field or equivalent professional experience in a relevant area.
- Strong data analysis skills, including proven experience with programming languages such as Python, R, or MATLAB.
- Experience with GitHub and version control
- Experience with physical oceanography, marine biogeochemistry, and/or plankton dynamics.

- Familiarity with *in situ*, multi-parameter datasets and/or satellite remote sensing.
- Expertise in processing and interpreting multi-modal datasets.
- Proven ability to work both independently and collaboratively within a multidisciplinary team.
- Strong scientific communication skills, including peer-reviewed publications.

Desirable experience/skills/qualifications:

- Proficiency in physical oceanographic data analysis.
- Proficiency in Python workflows and experience with scientific computing libraries (e.g., NumPy, SciPy, Pandas, Xarray) for processing and analysing.
- Experience with AI coding tools (e.g., cursor code development tool, O1 model from OpenAI, copilot).
- Experience in machine learning or AI applications for environmental data, such as deep learning for image recognition, predictive modelling, or automated classification of plankton and fish distributions.
- Expertise in handling and analysing large, multi-modal datasets, including oceanographic sensor and autonomous vehicle data (e.g., AUVs, gliders), remote sensing products, and ocean model outputs.
- Familiarity with cloud-based data processing.
- Proficiency with GitHub version control and shared development practices in coding.
- Knowledge of fisheries acoustics and/or plankton imaging techniques.
- Experience working with stakeholders in marine renewable energy or conservation.

Key responsibilities and skills

- Process and analyse high-resolution AUV-derived data on ocean physics, biogeochemistry, and ecosystem drivers/lower trophic dynamics.
- Integrate AUV observations with satellite remote sensing and operational model outputs to investigate frontal dynamics and potential FLOW impacts.
- Contribute to the development of novel methodologies for assessing ecosystem-level responses to offshore wind energy infrastructure.
- Proactive engagement and collaboration with project partners and stakeholders.
- Lead and contribute to peer-reviewed publications, conference dissemination, project reports, and broader communication efforts, including outreach and stakeholder engagement, to share findings with both academic and non-academic audiences.
- Ensure data management, storage, and sharing of project data in compliance with relevant standards and protocols.
- Carry out tasks in compliance with Health and Safety and other relevant regulations in line with MBA policies.
- Assist in supervising PhD and MRes students involved in the project.
- Undertake any other tasks identified as being within the job holder's capabilities.