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Northern Ireland
Executive
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Job Description

1. Job Details

Job Title:	PDRA Monitoring of Plankton using AI Technology	Job Family:	Science
Line Manager:	Associate Director/Principal Investigator	Grade and salary range:	Grade 5 £32,546 - £33,482
Full Time/Part Time: (no. of hrs for part time)	Full Time – 37 hours per week. Part-time options can be discussed, however post duration cannot exceed 2 years or the end of the funded period – 30/11/28	Duration of Appointment:	Appx 2 years – funding available until 30/11/28

2. Job Purpose

- The post is funded by the SEUPB Acclimatise project. A project supported by PEACEPLUS, a programme managed by the Special EU Programmes Body (SEUPB).
- The project seeks to study plankton-climate interaction in Irish shelf sea systems. SAMS currently operates two Imaging Flowcytobots (IFCBs) for the real time collection, enumeration and reporting of phytoplankton data. Within Acclimatise the lead partner (AFBI) is purchasing an IFCB for either or both of shore- and boat-based deployments.
- The postholder will be based at SAMS but be responsible for supporting AFBI in the commissioning of their IFCB.
- SAMS has developed an AI based classifier to allow the taxonomic identification of collected phytoplankton images. The postholder will maintain and develop this classifier and the existing software systems for data collection transfer and storage and the web-based dashboard used for data dissemination.
- The postholder will also contribute to the analysis of collected data and write up for project reports and scientific publication.

3. Main Responsibilities

<i>Responsibility Areas</i>	<i>Approx. % of time</i>
Provide support for commissioning and operation of the Acclimatise project IFCB based at AFBI	10
Maintain and develop image plankton classifiers	30
Maintain and develop IFCB data dashboard	25
Analyse trends in IFCB generated phytoplankton data in relation to associated environmental conditions	20
Provide training in IFCB hardware and software operation to other Acclimatise project staff	10
Contribute to project reports, deliverables and publications	5
Be proactive in the application of SAMS Health and Safety Procedures	Ongoing

4. Planning and Organising

- Working with project team, plan own research activity areas, managing tasks to completion and time. Assist project manager with activities related to project.
- Coordinate the operation of the IFCB alongside other scientific activities within Acclimatise
- Plan and execute the ongoing development of existing and new plankton image classifiers and dashboard.
- Plan for attendance at project meetings and conferences, presenting scientific work, where possible, and using such opportunities to develop networks.
- Plan write-up and submission of research outputs including reports, deliverables and publications by the end of the project cycle.
- Plan the development and delivery of training in IFCB hardware and software operation to other project staff. Prepare a toolkit designed for training.
- Planning for research vessel IFCB deployment

5. Problem-Solving

- Take responsibility for own area and work through problems/solutions independently, seeking help for more complex issues.
- Apply knowledge and experience and further research to identify and classify
- Apply scientific problem solving to the generation and analysis of plankton data sets
- Hardware and software trouble shooting.
- Research data/images, follow up on queries, trends, unusual patterns, areas of interest.

- Test whether AI automated outputs match biological realities – bridging marine ecology and computer vision.
- Develop/maintain models to detect, count and classify marine plankton from underwater or lab imagery.

6. Decision-Making

- Able to prioritize activities and make decisions within own area of work.
- Decide on best methodologies for further dashboard and classifier development.
- Make decisions on classification areas. Add notes on any unusual findings.
- Ensure models continue to support ecology analysis requirements.
- Work alongside taxonomists to improve knowledge to apply to model advancements.
- Decide on the appropriate methods to collect data to answer research questions.
- Continue to develop knowledge and application to transfer to future possible new areas of research aligning SAMS' research priorities.

7. Key Contacts/Relationships

- SAMS staff working on the Acclimatise project
- Liaise with scientists across a multi partner project
- AFBI the lead Acclimatise partner
- Other Acclimatise partners
- McLane (IFCB manufacturers)
- The European IFCB user group

8. Knowledge, Skills and Experience needed for the Job

- PhD in relevant marine / environmental science / computing topic.

Essential

- Experience with a web framework (e.g. Django, Flask, Laravel, Next.js) - this role specifically uses Django
- Familiarity with programming languages (e.g. Python, Bash)
- Linux systems administration - comfortable deploying and managing an application, setting up data pipelines

Desirable

- Knowledge of phytoplankton ecology
- Experience in the operation of marine instrumentation
- Experience with databases (e.g. PostgreSQL, MySQL)
- Hands-on machine learning/AI experience training or fine-tuning image classification models (e.g. using PyTorch or similar)

- Experience with HPC or GPU-accelerated workloads
- Version control e.g. Git/GitHub

9. Dimensions – Scope of role

- Development and maintained of the software-based systems related to IFCB data collection.
- Development of AI based classifiers for plankton enumeration.
- Maintenance and development dashboard(s) for data dissemination.
- Support of AFBI in the commissioning of their IFCB and seaboard deployment/operation of an IFB
- Analysis of the collected phytoplankton ton data in relation to environmental conditions to support the development of a plankton monitoring plan for Ireland.

10. Any other relevant information

The post holder may be required to perform duties other than those given in the job description for the post. The particular duties and responsibilities attached to posts may vary from time to time without changing the general character of the duties or the level of responsibilities entailed. The role is potentially suitable for remote working. The postholder will be required to work away from home/SAMS from time to time. The post may include periods of seagoing and the applicant must therefore be able to obtain the ENG1 medical certification and complete the STCW 95 Personal Survival Techniques training.