

Marine Institute Job Description

Position	Post-Doctoral Research Scientist - Marine Biogeochemistry Essential Climate Variables
Grade & Contract	Post-Doctoral Research Scientist - Temporary Specified Purpose Contract of Employment up to 31 st December 2027 - EMFAF Funded
Service Group	Marine Environment and Food Safety Services
Location	Rinville, Oranmore, Co. Galway (noting that we are piloting our blended working policy across 2023/4 which may apply to this role)

Who will you Work With and What Will The Role Involve?

This important role supports our organisation in delivery of its essential work programmes. This role provides candidates with the opportunity to work in a diverse organisation which invests in and celebrates its people.

Working within the Marine Chemistry section, the successful candidate will contribute to developing capabilities in the Marine Institute for collecting and assessing ocean biogeochemistry data as part of an integrated Irish ocean climate observing system. This involves delivering high-quality measurements of biogeochemical *Essential Climate Variables* (ECVs), including measurement of the Ocean Carbon System to meet policy requirements, including Ireland's reporting obligations (for example, UN Sustainable Development Goal 14.3), and supporting ongoing research. The role will support the expansion of the national capability for accurate measurement of a wider range of biogeochemical parameters in water samples collected on research surveys and from other sampling platforms, and extending collection of *in situ* measurements using a variety of sensors deployed on various platforms. It includes laboratory and field/at sea analysis and will adhere to the quality systems currently in operation in the Institute and in particular conform to INAB (ISO 17025) accreditation as relevant.

The successful candidate will also help develop Data Management plans and undertake data processing and QC screening of ECV data from various platforms (ship based, fixed station) as well as reporting of relevant data to various international data centres. They will contribute to national and international assessments of ocean climate and other relevant scientific outputs. Working with the Chemical Oceanography team, the candidate will be expected to contribute to and further develop research outputs in the field, for example quantifying greenhouse gas (GHG) fluxes/sources/sinks; understanding the variability, trends and drivers of biogeochemical changes in coastal marine ecosystems; carbon system in deep waters, etc.

What will you be doing every day?

Working as part of a team, the successful candidate will be responsible for carrying out a range of duties consistent with the work described above. This may include the following tasks:

1. Contribute to the development of an enhanced observing system for biogeochemical ECVs and in particular the carbon system.
2. Develop and implement *Data Management Plans* within the MI's *Data Management Quality Management Framework* for biogeochemical ECV observing programmes (ship-based pCO₂, fixed sentinel stations and ship-based surveys and laboratory analysis).
3. Set up and validate methods for the climate-quality analysis of ECVs. In the first instance, this will involve carbonate parameters in seawater, i.e. dissolved inorganic carbon (DIC), total alkalinity (TA) and spectrophotometric pH. It may also require establishing methods for accurate determination of additional marine biogeochemistry parameters (e.g. total nitrogen (TN), total phosphorous (TP), other greenhouse gases, transient tracers, particulate and dissolved organic carbon, and particulate inorganic carbon).
4. Carry out high quality analysis of biogeochemical parameters, particularly carbonate system parameters (DIC, TA), but also dissolved nutrients, oxygen, salinity and other parameters from seawater samples collected on surveys and from other platforms, and ensure the data collection (sampling/analysis) are fit for purpose.
5. Ensure all sampling, analysis and data management activities conform to best practices (e.g. GOSHIP and other guidelines), and develop operating procedures integrated into the MI ISO17025 Quality System.
6. Contribute to the ongoing operation, maintenance and development of the Marine Institute's biogeochemical ECV observing network, including the coastal observatory at Mace Head, Co. Galway. This role may involve field sampling and analysis, support for sensor calibration, data processing and QC and data management and assessment.
7. Provide technical support for underway pCO₂ observing systems on the national research fleet (data reduction and QC, reporting, analysis).
8. Participate in biogeochemical sampling, analysis and data collection activities on the annual Winter Environmental Survey, annual Rockall Ocean Climate Survey and other surveys on board research vessels (as may be relevant).
9. Undertake data analysis and prepare technical assessments, reports and scientific publications on biogeochemical processes, GHG flux and such topics relevant to the MI work priorities.
10. Assist with scoping, developing and implementing research activities - including grant applications where relevant.
11. Ensure data are properly managed, publicly available and reported to key data centres (e.g. UN SDG 14.3.1, ICES, GLODAP).
12. Contribute to the Marine Institute's Quality System and develop and implement ISO17025 procedures including participating in proficiency testing schemes and inter-calibration exercises for ECVs, e.g. QUASIMEME.
13. Participate in internal MI meetings and other meetings as appropriate.
14. Liaise and collaborate with relevant organisations and research institutes.
15. Any other duties as may be required from time to time.

What do You Need to Have Done to Apply for This role?
(Education, Professional or Technical Qualifications, Knowledge, Skills, Aptitudes,
Experience and Training)

Essential / Important:

- A B.Sc. (Hons) and PhD in chemistry, marine or environmental science, oceanography, environmental engineering or similar related discipline
- Significant post-graduate experience in a role with a strong analytical focus (which may be PhD), ideally with familiarity in the chemical analysis of environmental matrices such as seawater
- An excellent knowledge of marine biogeochemistry
- Experience with modern analytical instrumentation and in setting up analytical methods in a laboratory
- Experience in handling/analysing oceanographic and/or environmental data
- Willingness to complete both field-based and sea-based work on board research vessels
- Experience in the use of standard Microsoft Office software packages
- Proven experience in preparing scientific and technical reports and publications

Ideally Nice to Have / Desirable:

- At least three years' relevant analytical experience, preferably using automated advanced analytical instrumentation (e.g. continuous flow analysis), for the analysis of chemical parameters in environmental samples
- Experience in environmental chemical analysis for key seawater parameters such as nutrients and carbon chemistry
- An excellent knowledge of marine biogeochemical cycles and processes, including ocean acidification and marine carbonate chemistry
- Skilled in analytical troubleshooting and experienced in method development
- Experience of implementing and maintaining quality standards in a laboratory environment to ensure results are fit for purpose. Experience working to a formal quality system, e.g. ISO17025 would be an asset
- Experience using field sensors for measuring biogeochemical parameters and knowledge of new technology for marine observations
- Experience in field sampling for environmental monitoring programmes/projects
- Experience with data analysis software and/or laboratory software packages (for example R, MATLAB, Python, ODV) for analysing, presenting and/or mapping oceanographic and/or environmental data, including experience in handling large datasets
- A track record in conducting relevant research and publishing outputs
- Experience in managing scientific projects, involving managing staff and budgets
- A full driving licence

What else do you need to know?

(Special personal attributes required for the role)

- Strong interpersonal skills and the ability to communicate effectively at all levels
- Need to be industrious, decisive and self-sufficient with a proven ability to use his/her own initiative while at the same time working well as a team player
- Able to manage time effectively and to deliver agreed outputs to deadlines and maintain focus under the pressure of multiple deadlines and deliverables
- Experienced in collaborating with scientists and members of a technical team
- Analytical approach to problem solving

- Strong leadership qualities, a constructive approach, and willingness to take responsibility for decisions
- Possess a diplomatic manner, with the ability to resolve issues before conflict occurs with stakeholders
- Attention to detail and commitment to delivering accurate and high quality outputs

Description of Service Group: Marine Environment and Food Safety Services – The Wider Team

Marine Environment & Food Safety Services (MEFSS) is a service area of the Marine Institute that plays a pivotal role in ensuring the safety of sea-food, preserving environmental health, providing a variety of policy supports and safeguarding fish health. Operating as an integral part of the Institute, MEFSS undertakes multifaceted responsibilities primarily through the execution of scientific monitoring and research programs, coupled with offering expert scientific interpretation and regulatory guidance to government.

Marine Environmental Chemistry

Marine Environmental Chemistry in MEFSS focuses on analysing and assessing the chemical composition of marine environments, playing a critical role in monitoring and understanding the impact of human activities on water quality. Through specialised research and testing, the Marine Environmental Chemistry section contributes essential data and recommendations for the sustainable management of marine ecosystems, supporting the institute's broader mission in environmental and food safety services. MEFSS is instrumental in monitoring marine environmental health in accordance with international conventions like OSPAR and the Marine Strategy Framework Directive.

Who Will You Report to / Who will Manage and Support You?:

The successful candidate will report to the MSFD Marine Biogeochemistry Team Leader.

What we offer

We value our staff, and we value their contribution to the work of the Marine Institute. In return for this, we provide benefits that promote a healthy work-life balance and which we hope will help them to develop professionally. These include personal and career development, work-life balance policies, an employee assistance programme, "Bike to Work" Scheme, staff medicals and annual flu vaccination.

Contacts:

Within the Marine Institute:

MSFD Marine Biogeochemistry Team Leader, Senior Chemist, Senior Laboratory Analyst, Chemistry Section and Management Team & Director MEFS, Staff of MEFS, Staff of Ocean Climate and Information Service Group (OCIS).

External:

Regular liaison with Government Departments including the Department of Agriculture, Food and the Marine; Department of Environment, Climate and Communications and Department of Housing, Local Government and Heritage; scientists and officials from other government organisations such as the Environmental Protection Agency (EPA) and third level institutions.

Salary:

Remuneration is in accordance with the Public Sector, Department of Finance approved Salary Scale for Post-Doctoral Research Scientists with a salary of €42,783 - €49,177 per annum pro-rated with time worked. You will become a member of the Single Public Service Pension Scheme.

Annual Leave:

Annual leave entitlement for a Post Doctorate Research Scientist is 24 days per annum. Annual leave entitlements are exclusive of Public Holidays and are managed using the Time & Leave Management System in Place in the organisation. All leave must be approved by your manager or their authorised representative; in advance of being taken and in line with Marine Institute leave policies.

Duration of Contract:

The contract will be issued on a temporary specified purpose basis for a duration up to 31st December 2027, subject to continued funding. Successful candidates will be on probation for the first 6 months of this contract.

Who is the Marine Institute?

The Marine Institute is a non-commercial semi-state body, which was formally established by statute (Marine Institute Act, 1991) in October 1992.

Under the Act, the Marine Institute was given the responsibility:

“to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Institute will promote economic development and create employment and protect the marine environment”.

The Marine Institute is Ireland’s scientific agency responsible for supporting the sustainable development of the state’s maritime area and resources. We do this through conducting applied research and providing scientific knowledge, advice and services to government, industry and other stakeholders and users. This policy advice capacity, our broad mandate, and the research programmes we fund and undertake, give us a unique insight into the science-policy interface and make us an exemplar in the provision of integrated ocean knowledge.

The Marine Institute provides a broad range of essential scientific support to its parent department, the Department of Agriculture, Food and the Marine (DAFM). There is an increasing demand from Government for the data and evidence that are essential to inform national policy and to underpin the state’s governance of our maritime area. Through laboratory, field and seagoing work, the Institute carries out statutory environmental, fisheries and aquaculture surveys, seafood testing and other monitoring programmes assigned by government. The Institute plays an important role in supporting the state’s response to the impacts of our changing seas and oceans, through working with the national and international scientific community to observe, study and understand our changing oceans. This essential scientific advice supports industry, protects consumers and underpins legislative and other obligations aimed at the protection and management of the marine environment.

Our vision - *The Marine Institute is a national and international leader in ocean knowledge that benefits people, policy and planet.*

Our Mission - *The Marine Institute provides scientific, research and development services to government, agencies, industry and society that support the sustainable use of our maritime area, the protection and restoration of marine ecosystems, and promote a shared understanding of the ocean.*

There are 6 broad service areas within the Marine Institute; (1) Ocean, Climate and Information Services, (2) Marine Environment & Fish Health Services, (3) Fisheries Ecosystems Advisory Services, (4) Irish Maritime Development Office, (5) Policy, Information and Research Services and (6) Corporate Services.

The Marine Institute 5 Year Strategic Plan (2023 to 2027) is available [Here](#)

How to Apply:

A C.V. and letter of application, summarising experience and skill set applicable to the position should be emailed to recruitment@marine.ie or posted to Human Resources at the Marine Institute, Rinville, Oranmore, Galway, H91 R673. All correspondence for this post should quote reference **MEFS/PDRS/BGC/JAN24**

Closing date for Applications:

All applications for this post should be received by the Marine Institute in advance of **12 noon Tuesday 23rd January 2024**. Unfortunately, late applications cannot be accepted.

Use of Data - all personal data and the information submitted for this application will be used solely for the purpose of this campaign, after which it will be deleted in line with our General Data Protection Regulation (GDPR) Policy and data retention schedule. All information will be treated with the strictest confidence and accessed only by those involved directly in the campaign.

The Marine Institute is an organisation that champions Diversity, Inclusion & Equality for all. We encourage and welcome applications from anyone interested in this role.

Please do advise if there are any special accommodations required for the recruitment process. We are here to help you access opportunities with us.