

Marine Institute Job Description

Position	Scientific & Technical Officer (STO) – Ocean Modelling
Contract	Specified purpose contract for a maximum duration of 3 years (Funded via Copernicus (CMEMS) Programme)
Service Group	Ocean Science and Information Services (OSIS)
Location	Oranmore, Galway

Brief Description of 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 the national agency responsible for marine research, technology, development and innovation (RTDI). The Marine Institute seeks to assess and realise the economic potential of Ireland’s 220 million acre marine resource; promote the sustainable development of marine industry through strategic funding programmes and scientific services; and safeguard the marine environment through research and environmental monitoring. The Institute works in conjunction with the Department of Agriculture, Food and Marine (DAFM) and a network of other Government Departments, semi-state agencies, national and international marine partners.

The vision of the Marine Institute is

“ a thriving maritime economy in harmony with the ecosystem and supported by the delivery of excellence in our services “

In order to achieve this vision, the MI have six service areas; (1) Ocean Science and Information Services, (2) Marine Environment & Food Safety Services, (3) Fisheries Ecosystems Advisory Services, (4) Irish Maritime Development Office, (5) Policy, Innovation & Research Services and (6) Corporate Services.

The Marine Institute 3 Year Strategic Plan (2015 to 2018) is available on;

http://www.marine.ie/Home/sites/default/files/MIFiles/Docs_Comms/MI%20Strategic%20Business%20Plan%20-%202015%20-%202018.pdf

Harnessing our Ocean Wealth (HOOW) is an Integrated Maritime Plan (IMP) for Ireland. HOOW sets out a roadmap for the Irish Government’s vision, high level goals and integrated actions across policy, governance

and business to enable our marine potential to be realised. Goal 2 of HOOW focuses on healthy marine ecosystems and specifically; to protect and conserve our rich marine biodiversity and ecosystems; manage our living and non-living resources in harmony with the ecosystem; implement and comply with environmental legislation (see www.ouroceanwealth.ie).

Brief Description of Service Group:

The mission of OSIS is *“To provide scientific, operational and analytical support and services to strategic RTDI and statutory monitoring programmes (at national and international level) to promote and support the sustainable development of Ireland’s marine resources”*

Ocean Science and Information Services incorporates:

- Information Services & Development
- Advanced Mapping Services
- Research Vessel Operations
- Oceanographic Services
- Research Infrastructures
- Operational elements of Discovery R&D Programmes including
 - Advanced Technology including SMARTBAY
 - Ocean Energy

Summary of the Role:

The successful candidate will work within the Oceanographic Services team as a Scientific and Technical Officer, with main responsibility for delivering modelling products and services for the Copernicus Marine Environment Monitoring Service (CMEMS) for Ireland-Biscay-Iberia region.

The successful candidate will be responsible for providing biogeochemical modelling for CMEMS and will work closely with international partners, Mercator Ocean, France, Puertos del Estado, Spain and others. Specifically, the candidate will contribute to the development of the reanalysis and forecasting operational biogeochemical model, define the model products, define and prepare observational data for validation, carry out calibration and validation of the models and contribute to the development of the online validation tool. Preparation of the reports and relevant documentation following strict deadlines and formats will also be part of the role. The candidate will also be expected to carry out other modelling duties within the modelling team as required.

Background to the Requirement

After 15 years of definition and research and development activities, CMEMS has been implemented in 2015 with the purpose to provide fully open access to a regular, coherent and consistent stream of information products on the state of the marine environment for both the global ocean and the European regional seas. The Ocean Monitoring and Forecasting component of this service has been progressively developed and implemented through the MyOcean series of projects, in which the Marine Institute were partners.

CMEMS structure is based on a distributed network of production centres that make use of best regional capabilities within Europe. The Ireland-Biscay-Iberia Marine Forecasting Centre (IBI-MFC) is responsible for generating operationally daily ocean prediction for the IBI Regional Ocean Observing System (IBIROOS) area, covering the whole European Atlantic façade and providing service from the Canary Islands to Ireland.

Since 2004, the Marine Institute has developed a capability in modelling and forecasting the ocean for a variety of customers and end users. Physical circulation and wave models have been developed initially and

forecasts are now routinely produced. These models are used to underpin development in a variety of marine sectors including ocean energy, fisheries, aquaculture and oil spill response. Through various EC projects, the Institute has also developed a strong capability in biogeochemical modelling with applications focused on carrying capacity for shellfish aquaculture, pathogen distribution, harmful algal bloom forecasting and site selection for offshore aquaculture.

The Institute now requires a scientist with good understanding of biogeochemical modelling and operational modelling framework to assist in the implementation and evolution of biogeochemical model service component of IBI-MFC.

Principal Tasks:

- Develop biogeochemical modelling capability based on NEMO-PISCES modelling system for Ireland-Biscay-Iberia region as part of IBI-MFC and in close collaboration with international partners.
- Liaise closely with Mercator Ocean on continuous evolution of the biogeochemical model to include e.g. re-parameterization, revision and inclusion of new processes, data assimilation, etc.
- Lead the annual review processes of both the reanalysis and forecasting biogeochemical model service in adherence to strict deadlines and leading to annual releases of revised versions of the system.
- Define the biogeochemical model products served to the end users of the service and produce associated documentation, e.g. the product user manual
- Define and prepare observational datasets used for model validation.
- Carry out calibration and validation of the models prior to the releases and produce associated technical documentation, e.g. the quality information document
- Produce and contribute to any further technical and administrative reports and documentation for IBI-MFC service.
- Liaise closely with Puertos del Estado on the development of an online biogeochemical model validation tool.
- Contribute to the communication and training activities associated with IBI-MFC.
- Engage with the MI staff and external stakeholders to ensure that IBI-MFC addresses the end-users requirements.
- Preparation of scientific papers emerging from the Copernicus service.
- As necessary, carry out other relevant modelling duties in the MI ocean modelling team.
- Any other duties as relevant to the position and grade.

Reporting Structure:

The successful candidate will be based at the Marine Institute HQ in Oranmore and will report directly to the Ocean Modelling Team Leader.

Contacts:

Marine Institute: Ocean Modelling team members within OSIS. Section Manager Oceanographic Services. Director OSIS. Data services Team. Other Section Managers, Team Leaders and STOs across MI Service Groups

Externally: Regular liaison with IBI-MFC service partners, from France: Mercator Ocean (ocean monitoring and forecasting centre) and MétéoFrance (French meteorological service), from Spain: Puertos del Estado (Spanish ports authority), AEMET (Spanish meteorological service) and CESGA (high performance computing centre). Ireland's state agencies and government departments. External research groups both in Ireland and overseas.

Education, Professional or Technical Qualifications, Knowledge, Skills, Aptitudes, Experience, and Training

Essential:

- Third level degree in Physical or Biological Oceanography or related discipline with sound numerical background.
- Experience in running or maintaining numerical hydrodynamic and biogeochemical models in a high performance computing environment.
- Experience in programming in Fortran.
- Proven track record in using one or more scripting languages, e.g. Matlab, Python or similar.
- Proven experience in working with NetCDF file format.
- Competence in a Linux environment.
- Effective numerical and literacy skills including report writing skills.
- Numerical skills to include handling large volumes of observational and model oceanographic data.
- A high level of computer literacy (Word, Excel, PowerPoint, Internet/Email).
- The ability to be well organised and work to deadlines identifying priorities and managing time effectively.
- Excellent interpersonal skills and the ability to communicate effectively at all levels both in writing and verbally with technical and scientific and non-technical groups.
- The ability to work unsupervised and to work well with others.
- Sea going experience or sufficiently fit to pass an ENG II Medical.
- A full clean Driving License.

Desirable:

- PhD in oceanography or related discipline.
- Experience as user of NEMO and PISCES models.
- Statistical analysis of oceanographic data.
- Record of publishing in peer-reviewed scientific journals.

Special personal attributes required for the position:

- An analytical approach to problem solving.
- An ability to work in an organised manner and progress work independently.
- Dynamic and reliable.
- Self-sufficiency, while being a good team player.
- Good interpersonal skills.
- Ability to effectively communicate results of teamwork in written and audiovisual formats.

Salary:

Remuneration is in accordance with the Public Sector, Department of Finance approved Salary Scale for Scientific and Technical Officers, with a starting salary of €29,085 per annum pro-rated with time worked. You will become a member of the Single Public Service Pension Scheme.

Annual Leave:

The annual leave entitlement for a Scientific and Technical Officer is 25 working days per annum prorated to reflect time worked. Annual leave entitlements are exclusive of Public Holidays. 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 specified purpose basis for up to a maximum duration of three years, subject to funding with a 6 month probationary period.

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. All correspondence for this post should quote reference **OSIS/STO/MOD/Nov-2015**

Closing date for applications. All applications for this post should be received by the Marine Institute in advance of **17:00 on Wednesday 25th November**. Please note that late applications will not be accepted.

The Marine Institute is an equal opportunities employer