Foras na Mara
Marine Institute

Marine Institute Job Description

Position(s)	**Temporary Postdoctoral Researchers (PDR) – Ocean Modelling** (x3)
Number of positions	**Three temporary specified purpose positions**
Contracts	**Three contracts will be issued on a temporary specified purpose basis for the following maximum durations:- up to 24 months;up to 33 months and up to 47 months (Funded via Horizon 2020 TAPAS & Interreg Atlantic Area iFADO, MyCOAST and CleanAtlantic)**
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 990,000 km^2 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 has 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 and Research Support 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. A new Marine Institute five-year strategy is currently in preparation and will be launched in early 2018.

Ocean Wealth (HOOW) is Ireland's Integrated Maritime Plan (see www.ouroceanwealth.ie). HOOW sets out a roadmap for the Government's vision, high level goals and integrated actions to enable Ireland's marine potential to be realised. As part of the implementation of HOOW, the Government published in 2017 the National Marine Research & Innovation Strategy 2017-2021

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 candidates will work within the Oceanographic Services team as Postdoctoral Researchers, with the main responsibility for delivering modelling products and services under the following projects:

- Horizon 2020 project TAPAS (Tools for Assessment and Planning of Aquaculture Sustainability)
- Interreg Atlantic Area iFADO (Innovation in the Framework of the Atlantic Deep Ocean)
- Interreg Atlantic Area MyCOAST (Coordinated Atlantic Coastal Operational Oceanographic Observatory)
- Interreg Atlantic Area CleanAtlantic (Tackling marine litter in the Atlantic Area)

The successful candidates will be responsible for providing numerical modelling for the above projects and will work closely with international partners. Specifically, the candidates will contribute to the development of the most appropriate near field modelling procedures for marine aquaculture sustainability, based on hydrodynamic, biogeochemical and shellfish modelling. The candidates will develop regional and coastal scale hydrodynamic models for the purpose of supporting the delivery of Marine Strategy Framework Directive descriptors. The candidates will develop coastal scale models and model-based tools, such as lagrangian tools for search and rescue application and other. The candidates will develop lagrangian tools for marine litter tracking. Preparation of the reports and relevant documentation following strict deadlines and formats will also be part of the role. The candidates will also be expected to carry out other modelling duties within the modelling team as required.

Background to the Requirement

TAPAS

TAPAS will evaluate existing tools for economic assessment of aquaculture sustainability affecting sectoral growth. TAPAS will critically evaluate the capabilities and verification level of existing ecosystem planning tools and will develop new approaches for evaluation of carrying capacities, environmental impact and future risk. TAPAS will improve existing and develop new models for far- and near-field environmental assessment providing better monitoring, observation, forecasting and early warning technologies. The innovative methodologies and components emerging from TAPAS will be integrated in an Aquaculture Sustainability Toolbox complemented by a decision support system to support the development and implementation of coastal and marine spatial planning enabling less costly, more transparent and more efficient licensing.

iFADO

This project aims to downscale CMEMS products and to combine the conventional monitoring programmes with emerging technologies such as gliders, ocean buoys and satellite data, to develop tailor-made and innovative products. The latter should 1) assist the MSFD competent authorities; 2) provide services at regional/local scales necessary to enhance the blue economy development; 3) contribute to the challenges posed by climate change; 4) provide tools for the optimisation of observing strategies for better forecasting; and 5) capitalise on individual partner initiatives and historical data based on an EAR perspective.

CleanAtlantic

CleanAtlantic addresses the issue of marine litter pollution and aims to protect biodiversity and ecosystem services in the Atlantic Area by improving capabilities to monitor, prevent and remove (macro) marine litter. A picture of current situation, existing knowledge, data and initiatives in the Atlantic regions will be drawn and gaps will be defined. Current systems to monitor and record marine will be reviewed, and protocols, tools and indicators will be delivered to fill monitoring needs. Modelling tools to predict the origin, circulation and fate of marine litter will be developed, and regional maps of hotspots of accumulation will be elaborated using models and innovative technologies for space, aerial, surface and underwater unmanned systems.

MyCoast

The aim of MyCoast is to enhance the capability of risk management systems in the Atlantic region by improving co-operation between, observational and forecasting systems, and end users. MyCoast aims to build a coordinated Atlantic Coastal Operational Observatory in the Atlantic area joining capabilities from all the 5 countries and from existing cross-border cooperation activities, all targeted towards the improvement of coastal monitoring and forecasting tools to support threat and emergency response. Finally MyCoast will improve the awareness of these risks in the Atlantic Area, and identify and promote opportunities for the private sector.

The Institute now requires three scientists with a good understanding of ocean modelling to assist in the development of models for the aforementioned projects.

Principal Tasks:

- Expand the Marine Institute's ocean modelling services in line with TAPAS, iFADO, MyCOAST and CleanAtlantic project requirements.
- Liaise closely with international project partners developing models and tools.
- Develop modelling procedures and carry out model simulations for aquaculture sustainability studies to include biogeochemical and shellfish models.
- Develop hydrodynamic models and carry out simulations in support of MSFD implementation.
- Develop coastal scale models and tools that address coastal risks, such as storm surges, pollution, search and rescue.
- Test coastal risk tools developed by other project partners.

- Develop in liaison with international project partners lagrangian particle tracking models to include behaviour of marine litter.
- Carry out validation of models against observational data and cross-validation with other partners' models in the overlapping regions.
- Participate in research activities that support projects milestones and related objectives and publish in the scientific literature.
- Attend relevant meetings or working groups.
- As necessary, carry out other modelling duties in the MI ocean modelling team.
- Any other duties as relevant to the position and grade.

Reporting Structure:

The successful candidates will be based at the Marine Institute HQ in Oranmore, Co. Galway 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 Sections Managers, Team Leaders, STOs,PDRs and staff across MI Service Groups

Externally: Regular liaison with project partners and collaborators across the EU.

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

Essential:

- PhD in Physical or Biological Oceanography, numerical modelling or a related discipline with a sound numerical background.
- Experience in running or maintaining numerical hydrodynamic and/or biogeochemical models in a high performance computing environment.
- Proven track record in programming in Fortran.
- Proven track record in using one or more scripting language, 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, 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.

Foras na Mara
Marine Institute

Desirable:

- Experience as user of ROMS model.
- Statistical analysis of oceanographic data.
- Experience with shellfish growth models.
- 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 Postdoctoral Researchers with a starting salary of €36,854 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 Postdoctoral Researcher is 24 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 Contracts:

Three individual contracts will be issued on a temporary specified purpose basis for maximum durations of up to 24 months for PDR1, 33 months for PDR2 and 47 months for PDR3. Each position is subject to ongoing funding and a 6 month probationary period will apply to each role.

How to Apply:

A C.V. and letter of application, summarising experience and skill set applicable to the positions should be emailed to recruitment@marine.ie or posted to Human Resources at the Marine Institute, Rinville, Oranmore, Galway. All correspondence for these posts should quote reference **OSIS/PDR_Ocean_Modelling/Jan. 2018**

Any application information will only be used for the specific purpose of this recruitment competition, will be dealt with confidentially and destroyed following the campaign in line with our Data and Document Retention policy.

Closing date for applications. All applications for these posts should be received by the Marine Institute in advance of **12 noon on Tuesday 27th February 2018**. Please note that late applications will not be accepted.

The Marine Institute is an equal opportunities employer