Marine Institute Job Description

Position
Post-Doctoral Research Scientist – WATexR (Climate JPI) Project

Contract
34 month Specified Purpose contract

Service Group
Fisheries Ecosystems Advisory Services (FEAS)

Location
Marine Institute, Furnace, Newport, Co. Mayo

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 and Research Support Services and (6) Corporate Services.


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 http://www.ouroceanwealth.ie/
Description of appropriate Service Group:

**Fisheries Advisory Ecosystems Services (FEAS)**

The FEAS's mission is “to assess, research and advise on the sustainable exploitation of marine fisheries resources”. Currently, FEAS consists of over 70 scientists, technical, post graduate and administrative staff under the directorship of Dr. Paul Connolly. The Service group operates a significant part of their services from the headquarters in Oranmore, Co Galway with additional port based facilities and a major research facility at Newport, Co Mayo. FEAS staff spend a considerable amount of time at sea on commercial fishing vessels and on research vessel surveys carried out on the RV Celtic Explorer and RV Celtic Voyager. A key output of FEAS is the annual Stock Book and the annual Shellfisheries Stock Book. These provide the latest assessment and scientific advice for the resources exploited by Irish vessels and is a key reference for the Governments sustainability assessment presented annually to the Oireachas. A key element of FEAS work is the provision of scientific support for the Irish government (principally the Department of Agriculture, Food and the Marine – DAFM) on marine fisheries ecosystems related issues. FEAS also publish much of its work in peer reviewed scientific journals.

The 9 goals of FEAS are:

1) To maximise the benefits of the new EU Data Collection Framework (DCF);
2) To build a strong working relationship with the fishing industry and the environmental NGO’s;
3) To build an effective working relationship with key Government Departments (principally DAFM) and other partner agencies;
4) To use ICES, NASCO, ICCAT, OSPAR and the EU system to support the delivery of excellence in our fisheries and ecosystems science and advisory services;
5) To engage in a suite of research activity that supports the evolution of scientific advice and that is in line with MI/FEAS mission, HOOW, FH2020, Horizon 2020, the new RTDI strategy and the objectives of the CFP;
6) To progress and incorporate the ecosystem approach to Fisheries Management (EAFM) into all aspects of our work;
7) To increase public awareness of the importance of the Ocean;
8) To Ensure a common understanding of the "value chain" within the FEAS team and the MI;
9) To ensure FEAS is a rewarding place to work;

**The Work of FEAS**

FEAS work programmes are focused on;

- (1) Data Collection and Data Management;
- (2) Fisheries Resources Assessment and Advice;
- (3) Modelling, Simulations and Management Plans;
- (4) Fisheries - Ecosystems Interactions;
- (5) Stakeholder Engagement;
- (6) Research that supports ecosystem understanding;

FEAS staff actively participate at many meetings of the International Council for the Exploration of the Seas (ICES). ICES organises many Expert Groups, Study Groups and co-ordination Groups related to provision of scientific advice on marine ecosystems. The ICES Strategic Plan (2014 to 2018) is focused on advancing scientific understanding of marine ecosystems, providing information, knowledge and advice on the sustainable management of human activities affecting and affected by marine ecosystems. ICES is a key forum for scientific co-ordination of data collection and the provision of independent scientific advice.
FEAS also participate at other international fora including STECF (Scientific, Technical and Economic Committee for Fisheries), NEAFC (North East Atlantic Fisheries Commission) and NASCO (North Atlantic Salmon Commission). FEAS provide scientific support for the DCMNR at various EU meetings (e.g. the EU Norway Agreements and the EU Council of Fisheries Ministers). FEAS produce the annual Stock Book which provides the latest scientific advice on those stocks of interest to Ireland. In addition FEAS is responsible for the salmon National Coded Wire Tagging and Tag Recovery programme and work closely with IFI (Inland Fisheries Ireland) on the Standing Scientific Committees for salmon and eel.

The Marine Institute operates a research facility in the Burrishoole catchment, Co. Mayo, which is one of the few index sites for diadromous fish in the North Atlantic region. Burrishoole is a small (100 km²) upland catchment in the west of Ireland (53° 56' N, 9° 35' W) draining into the North-east Atlantic through Clew Bay. The region experiences a temperate, oceanic climate with frequent episodic events driven by Atlantic depressions. Declines of the Burrishoole’s native diadromous fish (Atlantic salmon *Salmo salar* L., anadromous brown trout *Salmo trutta* L. and European Eel *Anguilla anguilla*) have been noted in recent years, and evidence is mounting that part of these declines are linked with oceanic climate change. In Burrishoole, climate impacts on the freshwater stages of diadromous fish populations are also apparent. In order to supplement the fisheries data, the Burrishoole site has a well-established environmental monitoring programme to continuously monitor essential climate and aquatic variables. Much of this monitoring is carried out using high frequency automatic sensors, collecting high frequency data on a range of climatic and water quality variables. While several lake/watershed models have been used successfully in Burrishoole (GWLF, GLM), the Marine Institute, as a public research agency advising on diadromous fish populations, would like to develop models which link empirical fish survival and phenological data with catchment processes and future climate projections. This is an area which is crucial for the conservation of these stocks, and the management of the catchments and waterbodies which they populate.

http://burrishoole.marine.ie

Summary of the Role:

The Marine Institute, as partner in the WATexR Partnership, has been awarded funding through the ClimateJPI program ERA4CS which aims to boost the development of efficient Climate Services in Europe by supporting research for developing better tools, methods and standards on how to produce, transfer, communicate and use reliable climate information to cope with current and future climate variability (http://www.jpi-climate.eu/ERA4CS) The Marine Institute, in collaboration with Dundalk Institute of Technology, wishes to recruit a post-doctoral researcher (PDR) for a period of up to 34 months, who will have a central role in implementing the research project along with the project team. The researcher will be primarily based in the Marine Institute facility at Newport, Co. Mayo.

Background to Requirement:

Water resources are closely dependent on the services supplied by ecosystems that maintain both water quantity and quality. Climate extreme events, like heat waves, droughts and floods, stress ecosystems and compromise their capacity to provide key services related to water (e.g., decreasing streamflows, reduced capacity to process nutrients and organic matter, mobilization of pollutants, compromised fish stocks). This implies huge economic and social impacts, which are expected to be even more relevant in the future. However, despite the vulnerability of the water quality sector to climate change, there has been limited development of solution-oriented tools integrating Climate Services and ecosystem impacts modelling for efficient adaptation to
climate extreme events. WATExR aims to integrate state-of-the-art climate seasonal prediction and water quality simulation in an advanced solution to ensure efficient decision making and adaptation of water resources management to an increased frequency of climate extreme events. Our goal is to assess the potential of solution-oriented, innovative integrative advanced modelling tools implemented in QGIS for understanding and anticipating the impacts of climate extreme events, thus increasing the adoption of Climate Services in water resources management. This will be achieved by identifying end-user demands in 7 case studies in Europe and Australia relating to the impact of climate extreme events on water supply companies, fisheries, and water authorities implementing the Water Framework Directive (WFD). WATExR activities will be implemented in a co-development framework ensuring a solution-oriented approach tailored to user demands. Finally, WATExR will join the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP2), contributing a selected set of water quality impact models following the ISIMIP2 simulation protocol.

WATExR has 4 main objectives:

1. Integrate cutting-edge seasonal climate prediction and ecosystem impact models in co-developed advanced tools tailored to the different needs of end-users in the water quality management sector.

2. Implement the co-developed advanced tools in a standardized, user-friendly GIS environment to facilitate the adoption of climate services by the water quality management sector.

3. Demonstrate how CS (seasonal climate prediction) may help tackle CEE-related impacts on water quality, improving the efficiency of decision making and adaptation strategies in water quality management.

4. Link to the ISIMIP2 model intercomparison initiative by contributing a new sector of impact models (water quality) and a simulation round in a selected WATExR region.

Principal Tasks:

The PDR will be involved in all of the project’s 5 work packages:

- Participate in stakeholder workshops to identify their needs in terms of integrative tools.
- Work with fish biologists in Burrishoole to identify, parameterise and develop possible impact models (e.g. production, phenology) based on long term ecological data collected in Burrishoole.
- Determine the climate drivers needed to drive these impact models and work with the project team to collect, process and document the different climate data needed by the project.
- Develop a workflow (as a Q-GIS plug-in) specific to Burrishoole which utilises seasonal climate prediction to data to execute impact models.
- Work with the Australian partner on a workflow for Mount Bold reservoir (south Australia).
- Prepare reports, publications, and other relevant project outputs.
- Attend project meetings as required.
- Day to day coordination of the project to ensure the deliverables and milestones are achieved.

Reporting Structure:

The successful candidate will be based at the Marine Institute in Newport, Mayo and will directly report to the Marine Institute’s PI on WATExR, Dr. Elvira de Eyto.
Contacts:
The candidate will have close interactions with the MI based Project Team and Work Package Leader in Dundalk IT, Dr. Eleanor Jennings. The candidate will be based within the MI’s FEAS division and will interact with other staff working in Burrishoole and the wider MI. The candidate will also interact considerably with the WATexR project team including:

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<tr>
<th>Name</th>
<th>Position</th>
<th>Institute</th>
<th>Acronym</th>
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<tbody>
<tr>
<td>Rafael Marcé (Project Lead)</td>
<td>Research Scientist</td>
<td>Catalan Institute for Water Research</td>
<td>ICRA</td>
</tr>
<tr>
<td>María Dolores Frías Domínguez</td>
<td>Associate Professor</td>
<td>University of Cantabria</td>
<td>UC</td>
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<tr>
<td>Karsten Rinke</td>
<td>Department Head</td>
<td>Helmholtz Centre for Environmental Research</td>
<td>UFZ</td>
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<tr>
<td>Denis Trolle</td>
<td>Senior Scientist</td>
<td>Aarhus University</td>
<td>AU</td>
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<tr>
<td>Elvira de Eyto</td>
<td>Scientific Technical Officer</td>
<td>Marine Institute</td>
<td>MI</td>
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<tr>
<td>Eleanor Jennings</td>
<td>Centre Director</td>
<td>Dundalk Institute of Technology</td>
<td>DkIT</td>
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<tr>
<td>Raoul-Marie Couture</td>
<td>Senior Researcher</td>
<td>Norwegian Institute for Water Research</td>
<td>NIVA</td>
</tr>
<tr>
<td>Don Pierson</td>
<td>Research Scientist</td>
<td>Uppsala University</td>
<td>UU</td>
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Education, Professional or Technical Qualifications, Knowledge, Skills, Aptitudes, Experience, and Training

Essential:
- A PhD in either mathematics, environmental science, ecological modelling or similar related discipline.
- Previous relevant experience in ecological modelling and climate research.
- Excellent numerical and literacy skills.
- The ability to be well organised and work to deadlines identifying priorities and managing time effectively.
- A high level of computer literacy including computer programming (R, MATLAB, PYTHON, QGIS).
- Experience in the application of statistical modelling techniques to ecological data.
- Familiarity with collaborative programming tools (e.g. GITLAB).
- The ability to communicate effectively in English, both written and verbally.
- The ability to work unsupervised and to work well with others.
- Full clean driving licence.
Desirable:

- Experience in delivering related environmental research projects especially with focus on impact modelling
- Track record in preparing technical reports and scientific publications.

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.
- Self-starter, dynamic and reliable.
- Self-sufficiency, while being a good team player.
- Good interpersonal skills.
- Ability to effectively communicate results of teamwork in written and audio-visual formats.

Salary:

Remuneration is in accordance with the Irish Universities Association guidelines (Salary Scale) for Postdoctoral researchers, with a starting salary of €36,489 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 Post-Doctoral Research Scientist 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 Contract:

This temporary specified purpose contract of employment is funded under the Climate JPI programme and will run for a duration of up to 34 months. The successful candidate will be on probation for the first six months of this contract.

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 FEAS/PDR_WATexR/Nov 17

Closing date for applications

All applications for this post should be received by the Marine Institute in advance of 12:00 noon on Thursday 16th November 2017. Please note that late applications will not be accepted.