

## Senior Post-Doctoral Fellowship - Proposal Outline

<b>Topic</b>	Ocean Ecosystems and Climate
<b>Research Theme(s)</b>	<ol style="list-style-type: none"> <li>1) Climate Change</li> <li>2) Biodiversity, Ecosystems and Food Webs</li> </ol>
<b>Background and Rationale</b>	<p>Climate change is one of the greatest societal challenges of our time, and a key priority outlined in national/international strategies and policies.</p> <p>As outlined in the <a href="#">National Marine Research &amp; Innovation Strategy 2017-2021</a> our oceans play a pivotal role in regulating climate. Ocean acidification is impacting directly on ecosystems and food-webs; while changing ocean temperatures are driving changes in atmospheric dynamics and impacting on the terrestrial environment through extreme weather events. Sea level rise is also likely to impact widely on many activities in Ireland in the coming years.</p> <p>Under the Marine Research Programme, the Marine Institute has published calls and invested in research projects in order to meet the objectives of <a href="#">Harnessing Our Ocean Wealth</a> and the National Marine R&amp;I Strategy under the research themes of the <i>Healthy Marine Ecosystems</i> goal. Some of these key investments are as follows:</p> <ul style="list-style-type: none"> <li>• 2016 Call – Project Award to NUI Galway “Ocean acidification and biogeochemistry: variability, trends and vulnerability (VOCAB)”</li> <li>• 2016 Call – Two Projects Awards to consortia led by Dundalk Institute of Technology “Burrishoole Ecosystem Observatory Network 2020 (BEYOND 2020)”, and Galway-Mayo Institute of Technology “Unlocking the archive: using scale and otolith chronologies to resolve climate impacts”</li> <li>• 2018 Call - Project Award to consortium led by Maynooth University “A4: Aigéin, Aeráid, agus Athrú Atlantaigh (Oceans, Climate, and Atlantic Change)”</li> <li>• 2019 Call - Three Post-Doctoral Fellowships awarded; two awards to NUI Galway on ocean modelling and tracking essential climate variables, and one award to Galway-Mayo Institute of Technology on the impacts of climate change on commercial fish stocks in Irish waters</li> </ul>



The Marine Institute's Strategic Plan 2018-2022 *Building Ocean Knowledge. Delivering Ocean Services* under Strategic Focus Area 2 – Forecasting Ocean and Climate has set out an ambitious goal:

*“To provide world-leading regional and localised forecasting outputs and services that support Ireland’s challenge in responding and adapting to changes in our oceans and climate. This will support Ireland’s effort to meet EU and international climate action targets. We will strengthen our partnerships in climate action, mitigation and adaptation to deliver integrated earth and ocean science, technical solutions, predictive capabilities and expert advice.”*

The Marine Institute is currently involved in a number of climate-related research projects funded under EU Horizon 2020/INTERREG (EuroSea, BLUEFISH, COMPASS, etc.), JPI Climate (CE2COAST, WATExR, CoCliME) and from national funding (EPA, SFI, MI ClimFish) which will assist in achieving this goal.

This call seeks to address the gap identified, which is to assess the research and data collection currently undertaken nationally (including within the Marine Institute) in this area of science, identify further research needs and assist in the provision of advice for policy support to stakeholders, such as the Department of Agriculture, Food and the Marine (DAFM), Irish Government, European Commission and international organisations (e.g. EuroGOOS, ICES, OSPAR, UN Decade of Ocean Science).

This call is designed to provide the link between current climate change research, on international and national scales, with the need to provide operational advice and support to stakeholders including the Department of Agriculture, Food and the Marine (DAFM), Irish Government, European Commission and international organisations (e.g. EuroGOOS, ICES, OSPAR).

**Scope of Research (Scientific/ Technical Challenge)**

A key element of this fellowship will be to:  
Mine existing Marine Institute datasets to develop meaningful links between physical effects of climate change (e.g. temperature and water movements) and biological management issues (e.g. fishery yields or harmful algal blooms) or chemical issues such as eutrophication.

Identify and integrate other national data sets that may be pertinent to providing the evidence base for marine climate policy.

Assess the utility of international open access data sources and how to integrate into national data holdings to guide assessments of Ireland’s marine climate and to inform policy.



	<p>Assist in the development of tools and indicators to guide sectoral adaptation planning.</p> <p>A key task of this fellowship will be to assist with the publication of the updated report on Climate and Oceanography (update of Nolan <i>et al.</i> 2009) and to input to marine climate foresight activity undertaken by the Marine Institute.</p> <p>In close collaboration with the Chair of the Marine Institute Climate Services Matrix Team, the fellow will work across teams within the Institute in an advisory capacity and enable research results to support policy advice for DAFM/other Irish Government Departments and the European Commission/other international organisations.</p>
<p><b>Candidate Expertise/ Key Skills</b></p>	<p>Experienced Post-Doctoral Researcher (6+ years) with an established publication record. The fellow should ideally have a primary degree in marine biology, chemistry, ecology, oceanography or a closely related discipline with PhD and post-doctoral experience in one of the above disciplines or in predictive modelling. The fellow should have carried out independent research, published in quality science journals and is skilled in delivering research results that can be used in policy advice.</p> <p>The fellow is expected to have experience enough to interpret climate change and oceanographic information to apply to specific problems, e.g. they would need to be able to interpret the various <a href="#">IPCC scenarios in terms of Ecological Risk Assessment</a>.</p> <p>The fellow should have the ability to generate, prioritise and implement research specifically on issues in Irish waters in line with policy, i.e. focus on the impacts of climate change within the remit of the Marine Institute (i.e. marine sectoral activities). In particular, the Fellow will support MI advice to DAFM on the climate change adaptation strategy that is intended to help marine industry sectors become more resilient to climate change.</p>
<p><b>Expected Impact</b></p>	<p>Fellowship will:</p> <ul style="list-style-type: none"> <li>• Provide forecasts for fisheries and aquaculture and other marine based sectors under various climate change scenarios.</li> <li>• Input to and assess climate change adaptation strategies for fisheries and aquaculture under various climate change scenarios.</li> <li>• Explore the scope to input to adaptation plans in other sectors identified in the <a href="#">Climate Action Plan 2019</a>.</li> <li>• Provide input to delivery of elements of Strategic Focal areas 1,2 &amp; 3 of the Marine Institute Strategy, namely Scientific Advice and Services, Forecasting and Ocean Climate Change and, Research and Innovation.</li> </ul>



	<ul style="list-style-type: none"> <li>• Input to Marine Spatial Planning decision support services.</li> <li>• Investigate the social-ecological systems perspective on the impacts of climate change, i.e., an ecological goods and services perspective, and collaborate on Marine Institute projects in this area.</li> </ul> <p>The fellow is expected to leverage opportunities for funding under the EU Horizon Europe framework programme and future opportunities under National research calls, leveraging the assets of, and in collaboration with, the Marine Institute.</p> <p>Through the Marine Institute Climate Services Matrix Team, the fellow will inform and contribute to the production of policy support advice for stakeholders including DAFM, and publish their research findings as widely as possible through peer-reviewed papers, conference presentations, articles, etc.</p>
<p><b>Specific Collaboration</b></p>	<p>The fellow will be based in Ocean Climate and Information Services, Marine Institute and located in Galway, but, will also collaborate with Fisheries Ecosystems Advisory Services in Galway and Newport and with the Marine Environment and Food Safety Services Group in Galway.</p> <p>The fellowship is expected to forge partnerships with other national and international research organisations.</p>
<p><b>Location of Fellow</b></p>	<p>Senior Post-Doctoral Fellow will be based full-time in the Marine Institute, primarily in the MI HQ in Rinvilla, Oranmore, Co Galway, but will also spend some time in the MI Newport Research Facility, Co Mayo. HEI requirements to lecture students will be facilitated if necessary.</p>
<p><b>Access to Facilities</b></p>	<p>The fellow will have access to equipment and infrastructure including the national research vessels (Celtic Explorer and Celtic Voyager), Holland 1 ROV, Laochra na Mara Glider/Aisling na Mara and SmartBay Galway Bay Observatory.</p> <p>The fellow will also have access to historical environmental, fisheries and oceanographic datasets to assist in their research, including datasets from the Burrishoole catchment from 1970 to date.</p>
<p><b>Duration and Funding Available</b></p>	<p>5 years</p> <p>€120,000 per annum maximum (€600,000 in total)</p> <p><b>Note:</b> A reduced overhead rate of 15% applies as the role is based in the Marine Institute</p>



## References

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Carter, T.R., R.N. Jones, X. Lu, S. Bhadwal, C. Conde, L.O. Mearns, B.C. O'Neill, M.D.A. Rounsevell and M.B. Zurek, 2007: New Assessment Methods and the Characterisation of Future Conditions. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 133-171.

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[Harnessing Our Ocean Wealth \(2012\)](#)

[National Marine Research & Innovation Strategy 2017-2021](#)

[Marine Institute Strategic Plan 2018-2022](#)

[Climate Action Plan 2019](#)