

## **Cullen Scholarship: The economic analysis and development of long-term sustainable financial models for an Irish Ocean Observing System (PhD Award)**

### **Background**

While the Department of Agriculture, Food and the Marine is the Institute's lead department, the Institute also contributes to the work of other government departments to deliver specific advice, services, data and information. Our scientists are increasingly called upon to provide data and impartial scientific information to support all levels of governance and management, a challenge that requires more, and better, coordinated efforts in observing and understanding the ocean and coastal seas.

The Institute and other organisations operate national infrastructures that provide essential platforms for our government services, national and international research, and early technology development. The Marine Institute's Strategic Plan 2018-2022 has committed to significantly enhance and develop integrated ocean and climate observation and monitoring programmes. The systematic monitoring of ocean and climate change are important activities that support our scientific advice relating to many government policies and research initiatives.

In 2018, the Institute was awarded €2m by Science Foundation Ireland for the significant upgrading of various national ocean and climate observing platforms, with the creation of EirOOS: the Irish Ocean Observing System. EirOOS will soon become operational. Funding for implementation of EirOOS as it develops is a considerable challenge. The requirement for this research to be undertaken is to provide the economic evidence to guide the options for the long term sustainable operation and further development of the Irish Ocean Observing System, underpinned by the Institute's EirOOS infrastructure. The output from this research will contribute to enhancing and developing integrated ocean and climate observation & monitoring programmes, which is one of the strategic initiatives underpinning Strategic Focus Area 2 "Forecasting Ocean and Climate Change" in the Marine Institute's Strategic Plan 2018-2022

### **Proposal**

We propose a structured four-year PhD on a full-time basis to undertake economic analysis and modelling to provide evidence to guide options for the long term sustainable operation (and possible further development) of the Irish Ocean Observing System by exploring the potential costs and benefits, and potential efficiencies realized through alternative governance structures.

The project will aim to:

- determine the costs associated with running the Irish Ocean Observing System, including the capital expenditure on infrastructure required and operational expenditure on personnel, maintenance, ship time, etc.
- obtain and review detailed cost estimates from EU member states' national ocean observing systems and analyse the operational, management and governance structure of these systems delivering a best practice guide for EirOOS implementation.
- review existing studies on economic and societal benefits of ocean observing systems
- identify governance structures for more efficient usage of resources, through assessment of relevant issues in the selection, design and development of the best models of governance and organization to implement in a National Research Infrastructure. Provide analysis of ethical and legal issues that could influence governance and organisation structures and analysis of the many stakeholders (policy, scientific research, industry, general public).

- develop a financial framework that can guide the Irish Ocean Observing System through the application of basic concepts of financial analysis of investment projects, explanation of the concepts of fund, funders, and methods of funding (including PPPs).

A cost-benefit analysis will be conducted. This will involve quantifying the monetary value of the benefits derived from EirOOS, along with an assessment of the non-monetary benefits. The work will build upon the recent activities of OECD in relation to valuing ocean observations and other relevant projects. The emphasis is on the capacity to develop funding models, to evaluate investment projects and to develop a financial plan for EirOOS. A follow-on action from this work will include an EirOOS business plan that can be used to support future investment in ocean observations. This study will identify the most critical sources of information in order to provide an evaluation of the costs and benefits of the Irish Ocean Observing System.

### **Outcome**

The expected outcome from the project will be a robust financial and economic appraisal of the Irish Ocean Observing System, the benchmarking of costs against other international observing systems, modes of funding, funding models, and the creation of a sustainable financial model for the Irish Ocean Observing System.

### **Link to the MI Strategy**

The output from this research will contribute to enhancing and developing integrated ocean and climate observation & monitoring programmes, which is one of the strategic initiatives underpinning Strategic Focus Area 2 "Forecasting Ocean and Climate Change" in the Marine Institute's Strategic Plan.

### **Specific Requirements**

The scholar should have a primary degree in, or be near to completing a degree, in a relevant research area (e.g. Economics, Finance, Business, Business Management, etc). Other requirements include strong analytical skills and high numerate capability. Experience of manipulating in valuing non market goods and services would be beneficial.

### **Financial Details**

Scholarships will be up to €25,000 per annum (maximum funding of €100,000 over four years). This amount comprises a maintenance award of €16,000 (Irish Research Council rate) to the student as well as payment of fees to the host higher education institution (HEI). The maximum fees payable to the HEI will be €6,000 per annum. The scholarship award also includes a budget of up to €3,000 per annum for eligible research costs (travel & subsistence, publication costs, consumables and other costs e.g. laptop) for the sole use of the student, and are payable on a reimbursement basis direct to the host institution where the postgraduate student (scholar) is registered. There are no overheads payable on the scholarship. Publication costs are intended to cover publications on which the scholar is listed as first author and are published under Open Access.

### **Marine Institute Co-Supervisor(s)**

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