

ANNUAL REPORT // 2014 »



Foras na Mara
Marine Institute

Serving Science and the Sea

To the Minister for Agriculture, Food and Marine

In accordance with the requirements of the Marine Institute Act, 1991, I have the honour of presenting the Annual Report and Statement of Accounts of the Marine Institute for the year ended 31st December 2014.

Dr John Killeen, Chairman

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The Marine Institute is the national agency which has the following general functions:

‘to undertake, to coordinate, 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 Marine Institute will promote economic development, and create employment and protect the marine environment.’

Marine Institute Act 1991

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Our Vision:

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

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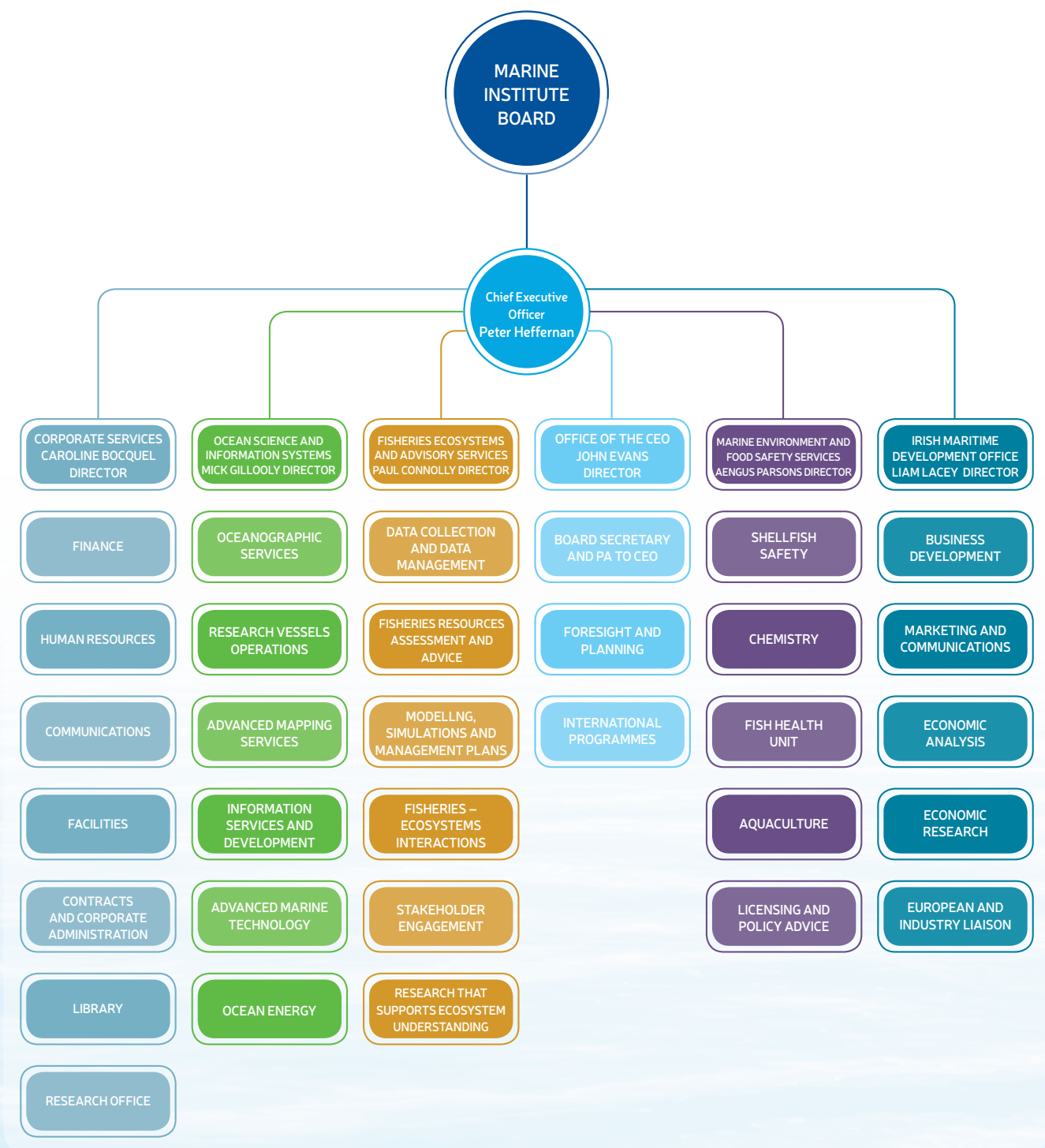
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The Marine Institute Annual Report is available in Irish and can be downloaded from www.marine.ie.



Foras na Mara
Marine Institute

Marine Institute Organisational Structure





Introduction and Organisational Structure

The Marine Institute is the national agency for marine research, technology, development and innovation. We seek to assess and realise the economic potential of Ireland's marine resource, promote sustainable development of marine industry through strategic funding programmes and essential scientific services, as well as safeguard Ireland's natural marine resource through research and environmental monitoring.

Ireland has a marine resource of approx 880,000 km² under the sea, which is over ten times its land area. The Marine Institute promotes the sustainable development of this vast marine resource through research, the application of new technologies and by providing management advice to industry, the Government and the EU.

The Institute provides essential marine research services including:

- National research and development funding programmes
- Fish stock assessment and management advice
- Fish health services
- Marine food safety monitoring
- Environmental monitoring
- Research vessel operations
- Seabed mapping
- Data management
- Maritime development services

The Marine Institute has five service areas and the Office of the CEO. The service areas include:

- Corporate Services
- Ocean Science and Information Services
- Marine Environment and Food Safety Services
- Fisheries Ecosystems Advisory Services
- Irish Maritime Development Office

The organisation is supported by a strong focus on corporate governance with an emphasis on prudent financial management, which was an important contributor to the success of the Institute during the challenging economic period during 2014. This report highlights the key deliverables and progress made towards our vision during 2014.

Board Members

Dr John Killeen (2014 – 2019)



Dr John Killeen is an engineer and a native of County Roscommon who became an Honorary Freeman of Galway City in 2012. His career spans working with Local Government with a multi-national construction company (which built the Grand Canal Tunnel in Dublin in 1973) and seven years with Shell International subsidiary. Dr Killeen was President of Engineers Ireland 1995-1996 and founding President of the Academy of Engineering in Ireland in 1996-1998. He is a retired CEO of Colas Group in Ireland and a retired managing director of Cold Chon Galway Ltd. Dr Killeen was appointed

to the West Northwest Hospital Group Board in 2013 and is currently acting as the Interim Chair. In 2009 he was chairman of the Volvo Ocean Race event in Galway and in 2012 was president of the Volvo Ocean Race finale and festival. It broke all attendance records for a sporting event in Ireland and was worth about €80m in tourism and business income to the city. Dr Killeen is President of the Timoney Leadership Institute - a charity which promotes International leadership training for Irish CEO's.

Prof Patricia Barker (2013 – 2018)



Prof Patricia Barker is a Fellow of the Institute of Chartered Accountants in Ireland, having qualified in 1973. Prof Barker completed an MPhil in Gender Studies in Trinity College. Her PhD developed a paradigm of disclosure of financial information to employees in organisations. She served her articles with Stokes Bros. and Pim in Dublin and worked in Peat, Marwick Mitchell in Manchester. Prof Barker then became a partner in an accounting practice in Manchester for six years and worked in Manchester University as a principal lecturer.

Prof Barker was appointed lecturer in Dublin City University (DCU) in 1980 and progressed through senior lecturer, Associate Dean (Business School) and University Vice-President (Academic) of DCU. She has worked as a visiting professor in universities in New York, Boston, Angers, Malawi, Dares Salaam, Sydney and Cape Town and has been an external examiner for universities and professional bodies. She served as Chairman of the Institute of Chartered Accountant's Accounting Committee for eight years and on the Council of the Institute of Chartered Accountants for four years in the 1990's. She is currently a member of the Council. She represented

Ireland on the Accounting Standards Board in London for nine years. She chaired the expert group reporting to the European Union on the role, structure and functions of the European Court of Auditors. She had several tours of duty as Election Supervisor for the OSCE in Bosnia-Herzegovina, Republica Serpska, South Africa, Kosovo, Kazakhstan and Belarus.

Prof Barker worked as a Human Rights Monitor in Israel and Palestine. She has been a member of the boards including: Women's Aid, Sonas Housing Association, the National Chamber Choir and the Higher Education Authority (chairing the Audit Committee). She was also the Chairman of the Irish Blood Transfusion Service for three years.

Prof Barker is currently a Director of Dublin Bus Ltd. and Veritas Ltd (chairing the Audit Committees in both). She is currently a voluntary counsellor and trainer for the Dublin Rape Crisis Centre. She has written books on Group Accounting, Flexible Working in the Profession and more recently on women who have succeeded in the Accountancy profession and on Corporate Governance and Professional Ethics.

Mr David Owens (2012 - 2017)



Mr David Owens (F.C.A) is currently Senior Vice President, of Finance and Operations for SolarWinds (NYSE: SWI). Prior to joining SolarWinds, Mr Owens worked for Red Hat, Inc., an enterprise software company, for over seven years, where

he served initially as Director of Global Logistics and Production and then as Senior Director of Finance - EMEA. Mr Owens qualified as a chartered accountant with Ernst and Young and is a member of the Institute of Chartered Accountants in Ireland.

Mr Francis Coyle (2010 – 2015)



Mr Francis Coyle had a long career with Donegal County Council serving in various posts from 1974 to 2010. From 2001 he was Director of Services for Planning and Economic Development. He worked with Letterkenny Town Council and was also Manager of Ballyshannon Town Council from 2005 to 2010. He was the Council's European Liaison Officer with the Conference of Peripheral Maritime Regions for 16 years.

During the period 1995 to 1999 he managed the Council's multi million pound Peace and

Reconciliation funding and was Secretary to the Donegal Task Force for Peace and Reconciliation. Mr Coyle has also worked closely with the International Fund for Ireland and other funding mechanisms such as the EU Inter-Regional Cooperation Programme (INTERREG), and Peace III to develop multi-faceted community and recreation regeneration projects designed to enhance towns and villages, both in Donegal and on a cross border basis. He is a past Director of Donegal Airport Company Ltd and is currently engaged in project management and coordination.

Mr Paul Hyde (2012 – April 2014)



Mr Paul Hyde (BSc Arch, MA, MPlan, MRIAI, RIBA) is the managing partner in the Hyde Partnership Architects and Town Planners, a multi-disciplinary design and planning practice. He holds degrees in both Architecture and Planning and Sustainable Development and is a member of the Royal Institute of Architects of Ireland (RIAI), the Royal Institute of British Architects (RIBA) and the Irish Planning Institute (IPI).

Mr Hyde has over 16 years of professional experience relating to the building environment including both terrestrial and coastal development and spatial planning. In addition to his role in the Hyde Partnership he holds a number of committee memberships including: The Irish Planning Institute, Southern Branch; The Royal Institute of Architects in Ireland, Southern Branch; and the Cork Chamber of Commerce.

Mr Lorcán Ó Cinnéide (2010 - February 2015)



Mr Lorcán Ó Cinnéide (BA) is a former Chief Executive of the Irish Fish Producers Organisation, a leading fishing industry representative body. Mr Ó Cinnéide is a graduate in Economics and Politics from Trinity College Dublin. He is also a former fishing vessel owner.

Mr Ó Cinnéide was an active member of the EU Northwestern Waters Regional Advisory Council and a wide range of other fisheries management

and advisory bodies in Ireland and at EU level. He has been an expert advisor to the EU on the evaluation of marine research programmes and has been involved in fishing industry development and representation for the past 20 years.

Mr Ó Cinnéide is currently a member of the Aquaculture Licences Appeals Board, Chairman of Comhairle Raidió na Gaeltachta and Secretary of the Blasket Island Foundation.

Mr Donal Kelly (2013 – 2018)



Mr Donal Kelly is Managing Director of Fast Fish Ltd, a successful fish sales and oil supply business based in Castletownbere. Mr Kelly served on the Celtic Sea Herring Management Committee for 10 years and on the West Pelagic Committee for three years. Mr Kelly has served on a number of Boards both in the

private and voluntary sector. He has been a Cork County Community and voluntary fora, Cork County Development Board and has acted as Chairman of Castletownbere GAA, Management Committee of Berehaven Golf Club and Castletownbere Community Development Association.

Chairman's Statement



The Board of the Marine Institute maintained a strong focus on corporate governance throughout 2014 and had good engagement with the executive management team in the annual review of the Strategic Business Plan, to be revised and updated by the end of Quarter 1 2015.

We were pleased to welcome John Evans back to the management team to join the Office of the CEO following a period of leave.

We saw progress on the implementation of the *Galway Statement* signed here at the marine Institute, 24th May 2013, with the successful Marine Institute BG14 project submission, which was awarded in November, subject to contract. The Institute also supported a European Commission Workshop on Atlantic Seabed Mapping, held at Dublin Castle 2nd December 2014, another important step towards implementing the Galway Statement.

The Institute provided key support for the work of the Marine Coordination Group,

participating in the group's Bureau activities, including the preparation of the Annual Report on progress of *Harnessing Our Ocean Wealth*. The Institute also played a central role in organising the first Annual Harnessing Our Ocean Wealth Conference which took place in Dublin Castle 18th June 2014 attended by over 400 delegates. The team at the Institute also provided significant support to help drive the Development Task Force, co-chaired by Dr Peter Heffernan.

The Marine Institute was active and influential across a range of international fora and research bodies relevant to our national remit, for example, the International Council for the Exploration of the Seas (ICES), OSPAR, The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans), and the European Marine Board.

The 12th edition of the benchmark Irish Maritime Transport Economist, published by our Irish Maritime Development Office, found evidence to support the growing



Simon Coveney, T.D., Minister for Agriculture, Food and the Marine, Peter Heffernan, CEO Marine Institute, Taoiseach, Enda Kenny, Miguel Marques, PricewaterhouseCoopers and John Killeen, Chairman, Marine Institute at the Our Ocean Wealth Conference held at the Printworks, Dublin Castle, June 2014.



Craig McClean, NOAA, Peter Heffernan, CEO Marine Institute, Stephen Locke, Geological Survey of Canada, John Bell, Director Bioeconomy, DG Research and Innovation at the Atlantic Seabed Mapping Workshop, December 2014.

optimism about the recovery of the Irish economy. We made significant progress in deepening the strategic partnership with the IDA and our embassies in key target markets for shipping services, e.g. Germany, China, and Singapore, throughout 2014. The IMDO also played a key role in the engine room provided by the Marine Institute to support the work of the Marine Coordination Group's Development Task Force.

We re-launched our website www.marine.ie in December 2014 to enhance the delivery of online information and services to our customers.

Our internal audit committee and the executive carried out an intensive range of internal audits which reported maximum levels of assurance on a broad range of controls to the Marine Institute Board.

The CEO and I engaged with senior management at the Department of Agriculture Food and the Marine on critical workforce planning issues, examining reduced staffing levels against the backdrop of substantially increased service demands.

The Institute achieved Excellence Through People (ETP) Accreditation under the NSAI Standard - ETP 1000:2012, for the 10th consecutive year since 2005, showing our commitment to staff development.

Such achievements are possible because of the commitment of the Chief Executive, management and staff of the Institute, who maintain an admirable focus and commitment to the shared vision of "a thriving maritime economy in harmony with the ecosystem and supported by the delivery of excellence in our services."

On behalf of the Marine Institute Board, I look forward to sharing that focus and working alongside the executive management team to ensure that we have an 'eye on the ball' at all times.

A handwritten signature in black ink that reads "John Killeen."

John Killeen
Chairman, Marine Institute



Randy Gillespie, Director, Centre for Applied Ocean Technology, Memorial University Newfoundland, Alan Stevenson, Marine Geology Team Leader, British Geological Survey, Dr Peter Heffernan, CEO Marine Institute, Pål Buhl-Mortensen, Senior Research Scientist, Institute of Marine Research, Norway, Andy Armstrong, Co-Director, Joint Hydrographic Centre, University of New Hampshire, USA and Professor Phil Weaver, Seascope Consultant, EMODNET UK at the Atlantic Seabed Mapping Workshop, Dublin Castle, December 2014.

Chief Executive's Report



We worked hard this year to build on the 2013 Irish Presidency achievements of the 'Galway Statement' and reform of the Central Fisheries Policy (CFP), and played a central role in their implementation. We joined colleagues in Europe, Canada and the USA to assist with developing work programmes to implement the Galway Statement and submitted a successful proposal for Horizon 2020 (BG14) funding with a project called the Atlantic Ocean Research Alliance Coordination and Support Action (AORAC-SA). The project aims to provide scientific, technical and logistical support to the European Commission in developing and implementing trans-Atlantic Marine Research Cooperation between the European Union, the United States of America and Canada. As project co-ordinator we look forward to playing a central role once contracts are in place in 2015.

We worked with the Department of Agriculture, Food and the Marine (DAFM) to support CFP reform on key areas such as the introduction of the ban on discards and the preparation of the new European and Maritime Fisheries Fund (EMFF).

Ireland's marine researchers won €5.5m in Horizon 2020 competitive funding in the areas of Blue Growth and Sustainable Food and Security in 2014 showing the high standard of marine science being carried out across the State, third-level and SME sectors. Our own Marine Research Programme invested €4.4m in competitive research funding in 2014.

Marine Environment and Food Safety Services continued to deliver a critical suite of monitoring, advisory & technical support and research services to Government departments including DAFM, DEC&LG, DAH&G, and DCENR. These services are essential for the operation of national licensing schemes (Aquaculture and Fisheries; Foreshore) and compliance with a range of EU Directives such as MSFD and the Habitats Directive.

Our researchers secured competitive food research funding through DAFM's FIRM programme to carry out three significant research projects that address the needs of the aquaculture and seafood industry in the areas of shellfish health and seafood safety,



Orange Brisingids were one of the many species sampled by scientists aboard the Research Vessel Celtic Explorer. The ROV Holland 1 provided a way of sampling deep-sea animals without impacting the ecosystem.



Adrian Ahearn, Central Bank, Peter Heffernan, CEO Marine Institute and Paul Molumby, Director of Currencies at the Central Bank, at the launch of the limited edition Silver Proof Collector coin in commemoration of John Philip Holland at the Marine Institute, Oranmore.

collaborating with research partners in the National University of Ireland, Galway, University College Cork, and University College Dublin.

Fisheries Ecosystem and Advisory Services provided critical scientific advisory services to the Department of Agriculture Food and the Marine in implementing CFP and delivering Ireland's scientific obligations under the Data Collection Framework, as well as Natura 2000 and the Marine Strategy Framework Directive. We produced the Annual Stock Book 2014 which provides key scientific data for the EU Council of Ministers fisheries negotiations in December. Our FEAS team also secured significant funding for the period to 2020 under the new European Maritime and Fisheries fund for fisheries data collection, as well as carrying out a major programme of fisheries surveys and research projects.

In 2014 the RV *Celtic Voyager* was fitted with a new multibeam system for seabed mapping and we saw another excellent performance by our research vessels across a range of multi-purpose scientific surveys.

Our programme of trans-Atlantic surveys continued in partnership with Memorial University, Newfoundland and Irish research colleagues.

Our seabed mapping team played a key role in INFOMAR, the flagship national seabed mapping programme carried out in partnership with the Geological Survey of Ireland. Oceanographic Services provided modelling and forecasting services as well as contributing to research with our scientific service teams and operating ocean energy test site services and the national weather buoy network.

We welcomed a number of visitors to the Marine Institute throughout the year including the newly appointed US Ambassador to Ireland, Kevin O'Malley on 14th November 2014. Also in November we opened our doors to more

than 300 transition year students for demonstrations in fisheries and seafood safety, as well as an exhibition on marine careers and training opportunities including our annual bursar programme for third-level students. We hosted a Central Bank of Ireland launch, 1st September, of a coin to commemorate Irish born inventor of the modern submarine, John Philip Holland [1841 -1914]. With our own unmanned submarine, the ROV *Holland 1* as a backdrop, the event highlighted Ireland's long tradition of marine innovation.

I sincerely thank the staff of the Marine Institute for their commitment and consistent high standard of service delivery and the Board for their dedication and diligence in maintaining the highest standards in corporate governance.

Peter Heffernan
Chief Executive

Corporate Services

Director's Statement »



The gradual improvement of the economic environment together with some limited recruitment moved the outlook in 2014 to one of growth and optimism with a focus on maximising value for money to stakeholders through the provision of a highly responsive, customer driven service and a continued emphasis on strong corporate governance and providing value for money.

Highlights of 2014 included:

The retention of Excellence Through People (ETP) Accreditation under the NSAI Standard - ETP 1000:2012. ETP is Ireland's only national human resource management scheme dedicated to the role of people and their impact on business. The Marine Institute has held this prestigious award continually since 2005, which reflects the Institute's investment in our staff who play a key role in maximizing the efficiency of our business and building up organisational capabilities.

Compliance with the Code of Practice for the Governance of State Bodies including regular internal audits reported maximum levels of assurance and best practice procurement.

The investment of €4.4m under the Marine Research Programme including €3m for ship-time on-board the national research vessels the *RV Celtic Explorer* and the *RV Celtic Voyager* together with €1.4m on research projects and infrastructure.

Quarterly risk management reporting to the Internal Audit Committee coupled with a review of risk policy and a monthly review of the Risk Register by the Risk Officer. Understanding the risks we face and managing them appropriately enhances the Institute's ability to make better decisions, deliver on objectives and subsequently improve performance.

The redevelopment and launch of a modern and innovative new website www.marine.ie which had over 250,000 visits in 2014. With a huge range of on-line services and the ability to be accessed from mobile devices, the website will improve the way we interact with customers and the service we provide to them.

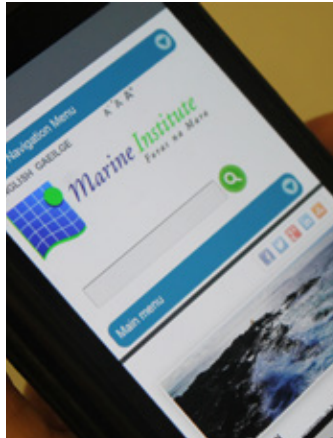
Energy saving initiatives got underway with modest but important savings already accruing by the end of 2014, with a detailed programme identified for implementation in 2015.

A handwritten signature in black ink, appearing to read 'C Bocquel'.

Ms Caroline Bocquel
Director Corporate Services



Transition year students attended the Marine Institute's Transition year open day during the Galway Science and Technology Festival, November 2014.



The Marine Institute launched a new website, based on responsive design, in December 2014.



The SMART Operational Oceanography post graduate training programme aboard the RV Celtic Voyager provides integrated advanced training in operational oceanography, June 2014.

Human Resources

2014 was a year that focused on adding value to the services and supports that the Institute delivers under our Corporate Strategy while ensuring engagement with and the development of our staff.

The Marine Institute was involved with a number of European and international research projects that saw the recruitment of five project funded temporary personnel to support delivery of research in the areas of oceanography, fisheries and ecosystems, shellfish safety and data development. Two new members of staff joined the Irish Maritime Development Office. We continued to support initiatives for the development of graduates and those on the live register with placements for 11 recently qualified graduates (stagiaires) on 50 week work experience programmes and 20 job bridge internships. These placements were across a range of scientific, technical and administration disciplines with 65 percent of stagiaires securing employment and 17 percent returning for further study and 81 percent of Interns securing employment with other organisations or returning to full time study for either a Masters or PhD.

Our Excellence Through People Accreditation under the NSAI Standard - ETP 1000:2012 was retained in 2014. This reflected our ethos and values as an organisation, focused on effective communications and investing in the lifelong learning and development of staff. Our 2014 Learning and Development programme concentrated on personal and management development, strategic management and planning and health and safety. The programme included the provision of essential training and development, investment in third level programmes, coaching programmes and personal development to ensure delivery of Work Programme Priorities and the Corporate Strategy resulted in an investment of over €350,000 (3.85 percent of payroll).

Eight meetings were held by the Marine Institute's health and safety committee with representatives from all locations delivering an ETP Quality Accredited

Programme. Throughout the year over 21 risk assessments took place with 13 minor incidents being reported in 2014. The annual health, safety and employee wellbeing week took place in December 2014, which included workshops on mindfulness, mental wellbeing as well as first aid and fire safety.

Finance

The Marine Institute continues to comply with the code of practice for the governance of State bodies. An independent review of the Institute's compliance with the code and of the internal controls system in place in the Institute was undertaken in 2014, which found that the Institute has comprehensive policies and procedures covering the key areas of governance and internal control with corporate governance given high priority within the organisation.

Under the stewardship of the internal audit committee, the Marine Institute continued to undertake internal audits in 2014. All four audits affirmed the Institute's high standards of governance and ensuring that an effective system of internal control is maintained and operated. Audits included the code of practice, review of the system of internal financial controls, contract management and IT policies, with any internal audit recommendations arising actioned and reported to the internal audit committee and to the board of the Marine Institute. The internal audit plan for the period 2015 – 2016 was developed during 2014 and reflects the risks identified in the Marine Institute risk register, the requirements of the Comptroller and Auditor General and the internal audit committee.

The Marine Institute's financial procedures and policies were updated during 2014 and there continues to be a strong public procurement ethos and focus throughout the Marine Institute. In 2014, 43 tenders were issued of which six were published on the *Official Journal of the European Communities*. Centralised purchasing and the use of the Office of Government Procurement as proven to be an efficient and effective means of reducing costs and generating savings and will continue into 2015.

It is the policy of the Marine Institute to ensure that all invoices are paid promptly within the terms of the Prompt Payment of Accounts Act, 1997 and the European Communities (Late Payment in Commercial Transactions) Regulations 2012. Systems and procedures are in place enabling invoices to be tracked and to ensure that payments are made in a timely and efficient manner.

Facilities

The Facilities team is primarily based in the headquarters in Oranmore and comprises of staff working in reception, stores, maintenance, administration and procurement. The main functions of the team are the provision of safe working environments, providing procurement services and offering excellent customer support throughout all Institute facilities, whilst maintaining these facilities to a high standard in a cost efficient manner.

One of the core objectives for the team for 2014 was to achieve cost efficiencies through centralised purchasing together with the promotion and use of Office of Government Procurement (OGP) frameworks and contracts. Members of the team are now providing advice and assistance to the organisation for procurement in respect of OGP frameworks. A large number of laboratory consumables are now purchased through a framework, resulting in significant financial savings to the Institute.

The centralised reception in Oranmore responded to 11,500 incoming telephone queries throughout 2014. Maintenance dealt with 404 non scheduled maintenance issues that were raised and closed out during the year. The key objective for the specialist and general maintenance engineers is to ensure smooth operations throughout the facilities and maintain the buildings, plant and equipment to a very high operating standard. The planned preventative maintenance covers 35 specialist building services, and involves a total of 59 site visits.

Library Services

The Marine Institute's Open Access Repository (OAR) (<http://oar.marine.ie/>), managed and maintained by the library, is an online full text collection of all the Marine Institute and staff publications. At the end of 2014, OAR held 927 publications and received 17,644 visits, an increase in visits of almost 10 percent on 2013, which could be attributed to OARs integration into RIAN late 2013. RIAN is the national portal that enables searches across all Irish research publications. Horizon 2020 mandates that all funding proposals outline how they will make their research output open access. OAR provides this function for the Marine Institute, ensuring that all funding proposals are fully compliant.

The library coordinated a book drive and collected 15 boxes of books donated by Marine Institute staff. These were donated to Better World Books with all proceeds of the sale going to Irish National Adult Literacy Awareness. In 2014, library services were put to tender and a four year

contract was awarded for continued library services in the Marine Institute.

Communications

In 2014 we redeveloped and launched our new website www.marine.ie based on responsive design to meet the changing needs of our website visitors. Our website can now easily be viewed from a range of devices. The website received 252,361 visits with 155,622 returning visitors during 2014.

We continued to develop social media engagement on platforms such as Facebook, LinkedIn and Twitter and our scientists@sea blog where scientists blog about their surveys aboard the *RV Celtic Explorer* and *RV Celtic Voyager*.

Our Explorers Education Programme grew to reach 100 primary schools in the West of Ireland in 2014. A pilot module-based programme trialled in Galway during 2013–14 was rolled out in Clare, Mayo and Sligo, in association with Galway Atlantaquaria and the County Education Centres during the 2014–15 school year. The programme continued successfully in the East and South with 12 primary schools participating in Dublin/Wicklow with Blackrock Education Centre and Bray Sea Life and 19 primary schools participating at the Lifetime Lab, Cork. In July, we ran a week long Explorers teacher training course together with Galway Atlantaquaria and the Galway Education Centre. Up to 50 new lesson plans, using marine themes, were developed for the Explorers Education Programme that supports the Irish NCCA Primary School Curriculum. The lesson plans are available in English and Irish on www.explorers.ie. This project was funded by Science Foundation Ireland and coordinated by Galway Atlantaquaria, with the support of the Marine Institute. In late 2014 we commenced an external evaluation of the Explorers programme with the aim of developing the programme further to meet the objectives of *Harnessing our Ocean Wealth - An Integrated Marine Plan for Ireland* which highlights the development of the programme as a key action.

In November we welcomed 300 transition year students to the Oranmore headquarters in association with the Galway Science and Technology Festival and the EU Sea for Society project. The students enjoyed presentations and demonstrations by staff of their work as well as a tour of the labs.

We supported a number of events throughout the year including the first annual 'Our Ocean Wealth' Conference in Dublin Castle in June, and a European Commission workshop in Dublin Castle in December on the implementation of the 'Galway Statement' (Appendix 9) focusing on Atlantic seabed mapping. This event was attended by EU, US and Canadian participants to establish key priorities and approaches for targeted seabed mapping to support ocean observation and forecasting capabilities.

We hosted the launch of the John Philip Holland commemorative coin by the Central Bank at our headquarters in Oranmore, September 1st in honour of the Irish born inventor of the modern submarine.

During 2014 we featured in several television productions including the Eco Eye series with interviews at the Marine Institute labs and onboard the *RV Celtic Explorer* on ocean impacts and climate change and a feature on the Institute's porbeagle shark tagging programme in Ireland's Ocean. A number of marine related stories promoted by the Marine Institute gained national media coverage during the year including a survey where scientists from NUI-Galway were exploring the Whittard Canyon deep-sea submarine canyon system in the North East Atlantic onboard the Marine Institute's *RV Celtic Explorer*. New discoveries relating to the geology and biological habitats of the South-Eastern slope of Rockall Bank were made by scientists led by University College Cork was also covered in the national press, as well as research by the Marine Institute and the University of Southampton on deepwater fish storing carbon dioxide. We published 53 news stories and press releases on our website www.marine.ie during 2014.

Research Office

In 2014 €4.4m was invested under the Marine Research Programme including €3m for ship-time on-board the national research vessels and €1.4m on research projects and infrastructure. Two-thirds of the 2014 investment was awarded to support research (156 days) for undergraduate and post-graduate training programmes (62 days) on-board the national research vessels the *RV Celtic Explorer* and the *RV Celtic Voyager*. The research undertaken focused on the areas of marine environment, oceanography and climate change, marine geology, marine technology and marine biodiversity. Training programmes were provided to students from six Higher Education Institutes, either through structured, accredited specific modules or generic multi-disciplinary courses that were coordinated by the SMART Sea School at Galway-Mayo Institute of Technology.

In 2014, two final project reports were published and made available on the Marine Institute Open Access Repository. These reports provide important evidence based research findings that will assist future policy decision-making for shellfish aquaculture in relation to the shellfish toxin *Azaspiracids*, as well as water quality assessment for Irish marine waters.

An investment of just under €1m was made in infrastructure that will develop new ocean observation technologies adapted to the specific sea conditions in the Atlantic, facilitate the deployment of in-situ observations and remote sensed marine data and also allow the extension of the subsea cable that will provide power and data connectivity to the Galway Bay ocean energy test site.

The Cullen Fellowship Programme was established by the Marine Institute which aims to provide further



Primary school teachers at Grattan Beach, Galway during the Explorers Teacher Training Programme in conjunction with Galway Atlanaquaria, July 2014.

development opportunities for the next generation of marine scientists and researchers at Masters and PhD level. After a successful pilot call in 2014, it is anticipated that this programme will become well established and highly regarded over the coming years.

Horizon 2020 opened in 2014 and the Research Office provided support to Marine Institute staff in submitting their proposals. To date Marine Institute researchers have been awarded five projects under Horizon 2020, with grant-aid of €2m being awarded. The largest award being the Atlantic Ocean Research Alliance Coordination and Support Action (AORAC-SA), which is designed to provide scientific, technical and logistical support to the European Commission in developing and implementing trans-Atlantic Marine Research Cooperation between the European Union, the United States of America and Canada. Grant-aid to the Marine Institute is €1.2m for the AORAC-SA project, which has an overall project value of €4.2m of which €3.5m is funded by the EU Commission.

The Research Office also provided support to Marine Institute colleagues in all service areas during 2014 in the financial management and administration of EU-funded research projects. Support is currently provided for 21 projects (including the new Horizon 2020 projects), valued in excess of €4.4m in grant-aid to the Marine Institute.

Accessibility

The Institute was fully compliant with the Disability Act during 2014.

Irish Maritime Development Office

Director's Statement »



The Irish Maritime Development Office (IMDO) was established by statute in 1999 and is responsible for the development of the maritime economy, including shipping, ports and maritime commerce. In pursuit of its mandate and in support of national economic policy, the IMDO was active throughout 2014 in:

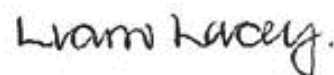
- encouraging investment in the maritime sector
- offering policy advice on the development of our ports and shipping infrastructure
- promoting higher standards in maritime education
- increasing general awareness of the sector, in terms of career opportunities and the contribution that it makes to the national economy
- conducting economic analysis.

The economic analysis undertaken by the IMDO in the year under review, which culminated in the publication of the 12th edition of the *Irish Maritime Transport Economist*, found evidence that supports a growing optimism in the recovery of the Irish economy. This publication has become a reference document for all those interested in the development of the maritime sector. It monitors the performance of our ports and shipping companies and in doing so, recognises their strategic importance in driving national competitiveness, facilitating growth in trade and creating employment, both within the maritime sector and across the broader economy. The *Irish Maritime Transport Economist* relies heavily on the cooperation of the ports and shipping industry to create an invaluable database that monitors past performance, but more importantly, provides empirical data that informs future development. We value the relationship that we enjoy with industry and are grateful to all industry stakeholders who have supported our work in creating robust, timely and accurate economic

analysis through the *Irish Maritime Transport Economist*.

The IMDO worked closely with other development agencies in 2014, in the national effort to restore Ireland's economic fortunes. We continue to collaborate with such agencies, particularly through the Government's *Harnessing Our Ocean Wealth - An Integrated Marine Plan for Ireland*. The implementation of this plan requires coordination between the development agencies, as exemplified by the very constructive engagement that the IMDO has enjoyed with the Industrial Development Authority, Enterprise Ireland, Fáilte Ireland and the National Maritime College of Ireland. This engagement has driven progress in the sector and we are grateful to colleagues within the development community for their fulsome support of our efforts.

I would also like to acknowledge the work of the team in responding so positively to the exciting challenge of developing the maritime industry. In August 2014, the team was strengthened by the appointment of Rebecca Wardell as Business Development Manager. Rebecca's appointment brought drive and focus to the many business development opportunities that are arising in the sector as the economy continues to rebound from the period of contraction and faces into a challenging future of expansion and growth.

A handwritten signature in dark ink that reads "Liam Lacey". The signature is written in a cursive, slightly slanted style.

Liam Lacey
Director: Irish Maritime Development Office
Economic Analysis



Irish container shipping volumes rose by nine percent by the third quarter in 2014.

The IMDO provides regular economic commentary on the Irish maritime sector. In 2014, quarterly bulletins were issued to the market, in addition to bespoke reports that addressed emerging areas of interest or topics of concern to industry.

Our analysis showed that the Irish maritime sector continued to grow in 2014, closely tracking the growth of the Irish economy. Port volumes increased by two percent during the period, as measured on the iShip index, a composite index that combines five traffic types in a single indicator of total port throughput. Although this measure shows that total port volumes recovered to 914 points on the scale, they remain 12 percent below the high water mark of 1042 points achieved in 2007. Nonetheless, the return of growth to the sector has bolstered confidence and resulted in a number of Irish ports advancing ambitious plans to add capacity. Consistent with National Ports Policy, the team has been supportive of these development efforts, which have seen our Tier One ports lead the response to providing the additional capacity that will be required to meet the needs of our growing economy.

At a macro-economic level, growth in the global economy remained sluggish at 2.6 percent in 2014 and was lower than expected. Within the EU, growth was constrained by low domestic spending, most notably in France and Italy. The relatively strong economic performance of two of Ireland's main trading partners, the United States and the United Kingdom resulted in imports and exports increasing by 7.1 percent and 2.4 percent respectively. Shipping and transport costs for importers and exporters were alleviated by significant reductions in fuel costs, particularly toward the end of the year, and ship charter costs that have not yet recovered to levels that give owners an economic return.

By monitoring these trends nationally and internationally, the IMDO provides a valuable service to industry and a sound economic foundation on which to base investment decisions in the maritime sector.

Business Development

The IMDO's mandate requires it to develop the industry through job creation and increased investment in the sector. Our business development strategy fulfils this remit and addresses the opportunities that exist to attract new inward investment, in addition to supporting our indigenous maritime industry base and existing FDI.

In order to advance our business development agenda, considerable time has been spent building a broader and deeper relationship with the IDA, culminating in presentations to their financial services team and their emerging sectors team and a clearer understanding about the development potential of the sector. Following these presentations, contact was established with IDA personnel in China, the United States, Singapore and Germany, in order to maximise the impact of business development missions that are being planned to these countries. In the same vein, work has been done with our embassies, particularly in the United Kingdom, Greece, Germany and Singapore, with the intention of further broadening these relationships as we begin to exploit the business opportunities that exist in these regions. In addition, there has been extensive engagement with professional services providers in Ireland in order to develop a shared understanding of how best to market Ireland's maritime industry internationally. Professional advisors are influential in the decision making process of firms seeking to locate in Ireland and their willingness to work collaboratively in this endeavour has been encouraging and fruitful. By developing these relationships, the IMDO presented at the Irish Maritime Law Association, to an audience of 50 legal professionals, all with an interest in the development of Ireland's maritime economy.

With similar intent, there has been extensive engagement with port companies. Ports are enablers of economic growth and have been unequivocal in their support for the development ambitions of the IMDO. The IMDO presented at the Irish Ports Association Annual Conference (now the Irish Maritime Forum). This event was a collaborative endeavour between the Irish Ports Association, the Institute of Master Mariners, the Port of Cork, the Institute of Chartered Shipbrokers, and the Irish Chamber of Shipping. The conference provided an opportunity to engage with the ports industry, to support and articulate National Ports Policy and encourage business development and investment in the sector.

In order to encourage foreign shipping companies to locate in Ireland a Tonnage Tax Report, prepared by PwC, was commissioned and launched in September 2014. Ireland's favourable tonnage tax regime is a key selling point for our maritime industry. The report found the regime fit for purpose and superior on many dimensions to the tonnage tax regimes operating in other jurisdictions.

The IMDO remains closely involved with the Irish Shipping Services Centre project, which seeks to establish Ireland as an international shipping hub. The centre will result in

the creation of high quality jobs in Ireland and will catalyse investment in the maritime industry. The potential of the project was recognised by the Development Task Force under the *Harnessing Our Ocean Wealth - An Integrated Marine Plan for Ireland* initiative.

Policy Support and Development

The IMDO offers policy support and advice to the Minister and the Department of Transport, Tourism and Sport. These responsibilities take the form of regular market briefings, facilitating engagement between industry and the Department, as well as the production of reports on specific issues that arise from time to time.

The IMDO participated in the Expert Group that produced *A Study of the Current and Future Skills Requirements of the Marine / Maritime Economy to 2020*. The project was led by officials from the Department of Jobs, Enterprise and Innovation and provides clear guidance and recommendations on how the future skills requirements of the industry will be met.

The IMDO has supported the development of Irish Ports in a way that is consistent with National Ports Policy and has articulated its views on port development at an oral planning hearing of An Bord Pleanála and at industry events and conferences.

Addressing the need for research in the area of port performance metrics, as outlined in National Ports Policy, the IMDO appointed a research fellow, under the Marine Institute's Cullen Fellowship Scheme to conduct research that was called for by the Department of Transport, Tourism and Sport and by the Competition Authority. The research project will run for three years and influence policy in the area of future port capacity.

In addition, the IMDO will, at the instigation of the Department of Transport, Tourism and Sport, commence the development of a training programme for port directors. It is intended that these courses will run every three months and be available to new and existing directors of state ports and to public servants involved in the corporate governance of such companies.

The IMDO promotes the development and implementation of EU policy by providing a liaison service between industry and European funding programs, such as Horizon 2020 (Waterborne), the Ten-T program, and the Interreg program.

Education and Outreach

The IMDO's remit includes an obligation to support education within the maritime sector and to heighten awareness of maritime issues. In pursuit of this objective, the IMDO:

- Occupies a seat on the advisory board of the National Maritime College of Ireland
- Manages the Irish Seafarers Education Assistance Scheme (ISEAS) programme which supports the training of cadets from the National Maritime College

of Ireland. In 2014, more than €200K was paid out under this scheme

- Participated in the 'Expert Group on Future Skills Needs' coordinated by the Department of Jobs, Enterprise and Innovation
- Runs the "Follow the Fleet" outreach program to engage primary school children in maritime issues by following the movement of participating vessels through Irish and international waters. This program was used by more than 800 schools in 2014 and reached more than 25,000 primary school children
- Continues to support and promote the activities of the Institute of Chartered Shipbrokers, which trains the professionals who will drive progress in the maritime industry in the future.

An additional work programme is in preparation that will increase awareness among transition year students of the very diverse range of careers that are available in the maritime sector, from master mariner to maritime lawyer. This program will also be promoted by the National Maritime College of Ireland.

By engaging in initiatives such as those listed above, the IMDO encourages positive change and fulfils its mandate to support the development of the Irish maritime industry. Throughout 2014, the IMDO laid particular emphasis on initiatives and policies that offer the potential for economic renewal and job creation. In formulating its views, the IMDO engaged with industry, representative groups and professional advisors, taking part in more than 300 business development meetings and presenting on more than 50 occasions to industry groups.

Through its European network of industry contacts, including permanent representatives of Irish agencies in Brussels, the IMDO is kept apprised of significant developments at EU level. At a global level, the IMDO tracks industry developments through direct contact with the shipping and ports community, engagement with representative groups and through attendance at international conferences, attending eight national and international conferences in the year under review.

In 2014, the IMDO advanced the interests of the Irish maritime industry by participating fully in policy development and implementation. The IMDO has a significant role to play in the future development of the sector, particularly at this important juncture in its evolution, when the underperformance of the industry has been recognised and its future potential captured in an ambitious Government initiative (*Harnessing Our Ocean Wealth - An Integrated Marine Plan for Ireland*) that can transform the contribution the industry makes to the national economy.

Marine Environment and Food Safety Services

Director's Statement »



The work of Marine Environment and Food Safety Services focuses on ensuring consumer protection through seafood safety monitoring and testing services; providing monitoring services in support of protection of marine environmental legislation and obligations; as well as providing advisory services in support of sustainable development and management of the marine environment. This work is delivered via three core functions: monitoring, advice and technical support, and research.

Ongoing monitoring programmes in 2014 included:

- National shellfish biotoxin monitoring programme
- National residues control programme (seafood component)
- Inspections and monitoring of movements of fish and shellfish stocks as required under the EU Fish Health Directive
- National sea lice monitoring programme
- Water Framework Directive monitoring programme (transitional and coastal waters elements).

In support of these programmes, the Marine Institute is the national reference laboratory for diseases in shellfish, finfish and crustaceans; shellfish biotoxins; microbiological contaminants in shellfish; and certain chemical substances in aquaculture products.

In 2014, our Fish Health Competent Authority office was awarded ISO 9001 certification and our Irish National Accreditation Board accredited laboratory quality system (ISO 17025), which underpins the delivery of our environmental and food safety laboratory services, was further expanded; from 40 to 43 accredited test methods.

Advisory and technical services provided in 2014 supported:

- Aquaculture licensing by the Department of Agriculture, Food and the Marine
- Appropriate assessments of fisheries and aquaculture activity in Special Areas of Conservation and Special Protection Areas.
- Aquaculture Single Bay Management
- Delivery of key Marine Strategy Framework

Directive (MFSD) milestones to the Department of Environment, Community and Local Government

- Foreshore lease/licensing decisions by the Department of Environment, Community and Local Government
- Dumping at sea advice to the Environmental Protection Agency
- Implementation of the Offshore Renewable Energy Development Plan.

Participation in research programmes and projects that support our core environmental and seafood safety monitoring and advisory roles played a key part in our 2014 work programme. Of particular note was our success in the Department of Agriculture, Food and the Marine competitive research programme, in which we achieved success in leading and partnering on three projects amounting to a total grant-aid of €1.23m. This work, addressing issues for the oyster and seaweed industries, will provide just over €0.8m for Marine Environment and Food Safety Services to employ three researchers over three years.

We carried out all of the above work on a collaborative basis with Government departments and agencies—including Department of Agriculture, Food and the Marine; the Department of Environment, Community and Local Government; Department of Arts, Heritage and the Gaeltacht; Department of Communications, Energy and Natural Resources; Food Safety Authority of Ireland; Sea Fisheries Protection Authority; and the Environmental Protection Agency. We also play an active role in international fora: e.g. International Council for the Exploration of the Seas (ICES) and the Oslo and Paris Convention 1992 (OSPAR).

Aengus Parsons

Director: Marine Environment and Food Safety Services

Monitoring

Shellfish Safety

Naturally occurring biotoxins in shellfish are monitored as part of national official controls on seafood. We carry this out in cooperation with the Sea Fisheries Protection Authority and Food Safety Authority of Ireland. In 2014, an extensive and protracted series of biotoxin events led to the closure of many shellfish production areas from early summer through to year-end: particularly in the south-west rope-grown mussel areas. The monitoring of these toxins was carried out using state-of-the-art biotoxin chemistry analysis. This was supported by phytoplankton monitoring, molecular biological assays and immuno-assays to detect the presence of both the toxin and causative organisms. Some 3,140 samples of shellfish were analysed in 2014, with 520 of these being positive for toxin content above regulatory levels.

Although biotoxin events are natural, and lengthy closures have been observed previously, the impact on the industry was particularly significant in 2014. Continuous support, scheduled and additional monitoring, was provided to measure the levels of toxicity in all samples submitted and to issue advice, along with the Sea Fisheries Protection Authority, on the re-opening of areas once safe to do so.

2014 saw the introduction of mandatory phytoplankton sampling from all shellfish production areas. The areas that failed to submit samples were placed on a closed status. This led to a marked improvement in compliance and a consequential increase in sample numbers analysed. As a result, improved risk management of toxin sampling frequency and improved forecasting of toxic events were achieved. Of 3,400 phytoplankton samples submitted, 277 contained toxic phytoplankton species; indicating potential problems and requiring follow-up advice or further sampling.

Stemming from a European Commission funded project (ASIMUTH) completed in 2013, a weekly summary report giving a synopsis of toxin and harmful algal bloom occurrence, and a short-term forecast of the likelihood of changes in the status has been incorporated into the advisory products available on our website. This report combines monitoring data, satellite and modelled information and has been very well received by both regulatory authorities and aquaculture industry stakeholders.

Monthly monitoring of *E. coli* levels in shellfish was conducted in all production areas and the annual review of the data was carried out with the Sea Fisheries Protection Authority to assign appropriate classification to each area. In addition, target areas have been tested for the presence of Norovirus to build up information on the presence and risk associated with this pathogen in Irish shellfish.

Residues and Contaminants Monitoring

The chemistry team carried out the aquaculture

component of the 2014 National Residues Monitoring Programme to ensure compliance with European Commission legislation and ensure farmed fish are fit for human consumption. The results of 2014 testing will be reported in 2015. The 2013 results, for in excess of 651 tests and 1,494 measurements, were published in 2014 and show full compliance with the European standards. Monitoring of levels of environmental contaminants in shellfish and wild fish was also undertaken on behalf of the Food Safety Authority of Ireland and the Sea Fisheries Protection Authority.

Finfish Farm Monitoring

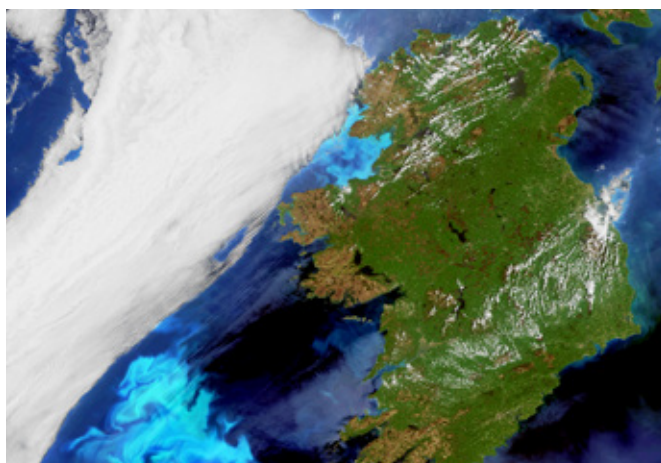
The National Sea Lice Monitoring Programme carried out a total of 242 sea lice inspections on 23 active salmonid (Atlantic salmon and rainbow trout) rearing sites during 2014. Over 84 percent of Atlantic salmon samples and 90 percent of rainbow trout samples were below the Treatment Trigger Levels as outlined in the Monitoring Protocol No.3 for Offshore Finfish Farms – Sea Lice Monitoring and Control (Department of Marine and Natural Resources, 2000). Of 125 inspections carried out on salmon smolts, 94 percent were below the Treatment Trigger Level. Of the 105 inspections carried out on one-sea-winter salmon 71 percent were below the Treatment Trigger Level. There were no two-sea-winter salmon stocked in 2014. Monthly reports on the monitoring results were circulated to interested parties and all the 2014 data will be published in an annual report (O'Donohoe *et al.*, 2015).

Fish Health

In 2014, over 2,500 finfish—primarily Atlantic salmon, but also rainbow trout, wrasse and coarse fish—were tested for pathogens. This was done either under health surveillance programmes following the submission of diagnostic samples to the laboratory, or as a result of screening tests carried out for the aquaculture industry. Ireland remains free of listed finfish diseases. Over 1,800 shellfish samples were tested for the presence of pathogens. Screening of Pacific oysters for the presence of the ostreid herpes virus-1 (OsHV-1 μ var) and the bacterial pathogen *Vibrio aestuarianus* represented a considerable proportion of the testing in 2014. Both pathogens were detected in association with mortality from several oyster producing areas. The entire country, with the exception of eight bays, is considered free from *Bonamia ostreae* and the entire country remains free from *Marteilia refringens*. The Fish Health Unit also contributes to the all-island Animal Disease Surveillance Report, a joint publication by state veterinary laboratories in both jurisdictions.

Environmental Monitoring

An extensive environmental monitoring programme was implemented on behalf of Environmental Protection Agency and the Department of the Environment, Community and Local Government in transitional and coastal waters for physico-chemical parameters, priority substances and other pollutants, phytoplankton and benthic fauna; so as to fulfil the requirements of the Water Framework and Shellfish Waters Directives.



The Marine Institute's phytoplankton monitoring programme is essential for monitoring harmful species and managing water quality which is a key component of the Water Framework Directive.



The introduction of mandatory phytoplankton sampling from all shellfish production areas in 2014 has since seen a reduction in the numbers of toxic events.

The team undertook a winter environmental survey in January 2014, on board the RV *Celtic Voyager*, sampling at 284 stations from the Irish Sea and along the north and west coasts for testing of nutrients, carbon and other water quality parameters. Samples for analysis of the benthic fauna were also collected.

Advice and Technical Support

During 2014, Marine Environment and Food Safety services provided advice to the Department of Agriculture, Food and the Marine in support of aquaculture licensing, which included:

- Completion of six appropriate assessments for marine Special Areas of Conservation and Special Protection Areas including: Dungarvan Harbour, Clew Bay, Valentia Harbour/Portmagee Channel, Galway Bay, Kenmare River and Ballycotton Bay. This allowed for progress on approximately 280 licensing decisions.
- Environmental Impact Assessment screening for non-salmonid licence applications and appropriate assessments screening for licence applications in non-Natura sites.
- Advice on 20 aquaculture licences in non-Natura sites.

The Single Bay Management process was completed for all active finfish farming bays in 2014. Single Bay Management documents, including active fallow plans, were updated for all finfish aquaculture operators along the coast. The Single Bay Management process is designed to coordinate fish husbandry in such a way that best practice is followed and that stocking, fallowing and treatment regimes on individual farms are compatible with the arrangements on neighbouring farms. It has proven very effective in enhancing the efficacy of sea lice control and in reducing the overall incidence of disease in the stocks. Single Bay Management plans are subject to revision for each production cycle.

The Shellfish Safety team provided advice on the food safety of shellfish to the Sea Fisheries Protection Authority and the Food Safety Authority of Ireland

for ongoing official controls under the monitoring programmes for shellfish biotoxins and microbiological classification.

During 2014, the team assisted the competent authority during an aquaculture fact-finding mission by the European Commission's Food and Veterinary Office.

Following on from the submission to the European Commission, in 2013, of Ireland's Initial Assessment under the Marine Strategy Framework Directive, during 2014 the team provided scientific and technical inputs into the formulation of the subsequent draft national monitoring programme required under the Directive. This work is managed by the Marine Institute on behalf of the Department of the Environment, Community and Local Government, the competent authority for the implementation of the Directive. Our scientists also participated in many aspects of the work of the OSPAR Convention for the Protection of the North-East Atlantic, a key platform for regional delivery of the Marine Strategy Framework Directive.

Other areas in which we provided advice during 2014 included:

- Disposal of dredge spoil at sea - by way of participation on the Environmental Protection Agency Dumping at Sea Advisory Committee
- Applications for foreshore leases/licences - by way of participation on the Department of the Environment, Community and Local Government Marine Licence Vetting Committee
- Certain environmental aspects of offshore hydrocarbon exploration and production - advice to department of Communications, Energy and Natural Resources and the Environmental Protection Agency
- Support and advice to Department of Communications, Energy and Natural Resources on the implementation of the Offshore Renewable Energy Development Plan and the Strategic Environmental Assessment of the oil and gas sector.



Competent Authority for Fish Health

In addition to the fish health laboratory services provided, the fish health unit at the Marine Institute is the Competent Authority in relation to the implementation of the 'Fish Health Directive' (Council Directive 2006/88/EC). The Competent Authority section directs the work of the Department of Agriculture, Food and the Marine veterinary inspectors who work in the aquaculture field. In 2014, 248 inspections were completed under the legislation; 1,685 movements (imports, exports and internal movements) of live aquatic animals were authorised; and 14 new Fish Health Authorisations were issued, bringing the total number of authorised aquaculture production businesses in the country to 462.

During 2014, the Competent Authority office was awarded ISO 9001 certification for its quality management system, ensuring a continued high standard of service delivery.

Research

Our team continued their involvement in European and nationally funded research programmes, carrying out applied research in support of the delivery of our monitoring programmes and advisory services. Some 2014 highlights include:

- Marine Environment and Food Safety Services researchers were awarded just over €0.8m to lead/partner three research projects via the DAFM competitive research programme:
 - Arsenic in Seaweed and Implications for Commercial Uses (AsMARA) - This project will study the environmental factors that influence naturally-occurring arsenic concentrations in commercially relevant species of seaweed, and investigate the effect of processing and storage on arsenic speciation. This information will support industry in developing strategies to minimise

arsenic concentrations in products and assist policy makers in risk management and developing practical regulation for consumer protection.

- Pathogens and Disease in the Irish Oyster Industry – Researchers will investigate the pathogens present (oyster herpes virus OsHV-1 Var and *Vibrio aestuarianus*) and the environmental factors contributing to mortality events in Pacific Oysters, in order to assess methods of control (e.g. antiviral compounds) and strategies to ameliorate events and reduce industry losses.
- Risk Assessment Framework for Norovirus (NoV) in Irish Oyster Production Areas - This project will develop a risk assessment model to estimate the risk of NoV related illness (caused by sewage contamination) following oyster consumption—allowing risk managers to introduce control measures based on acceptable limits for NoV in oysters and producers to assess the impact of potential treatment options to target risk management intervention in a cost-effective manner.
- A Research Fellowship on gill disease in farmed salmon has led to the development of a new molecular-based diagnostic assay for the detection of the marine amoeba causing amoebic gill disease. This disease has caused issues for salmon farms over the last number of years. Further studies utilising non-lethal sampling will aim to define a protocol for early warning of amoeba infections thus allowing farms to implement management measures prior to the onset of disease.
- Biological Effects and Chemical Measurements in Irish Marine Waters - The final report of this project piloting combined effects and chemical assessment was published and the outputs contributed to the development of the Marine Strategy Framework Directive methodology.

Fisheries Ecosystem Advisory Services

Director's Statement »



The primary objective of Fisheries Ecosystem Advisory Services is to provide scientific advice that supports the Department of Agriculture, Food and the Marine in the implementation of the Common Fisheries Policy and other environmental directives (e.g. NATURA 2000, Marine Strategy Framework Directive).

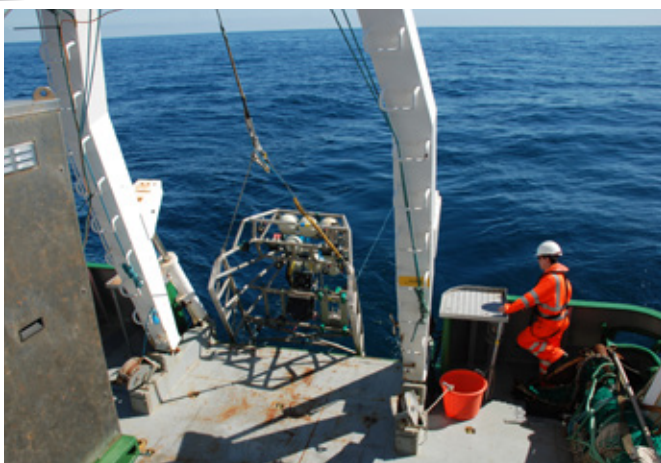
The majority of our work in 2014 was focused on delivering Ireland's obligations under the EU Data Collection Framework, supporting the development of fisheries management plans, servicing national and international fora on the landings obligations (discard ban), and undertaking research that advances our capacity to give the advice decision-makers need. International cooperation is a cornerstone of our work and this is carried out at the International Council for the Exploration of the Seas (ICES); the Scientific, Technical and Economic Committee for Fisheries (STECF), the North Atlantic Salmon Commission (NASCO) and the International Commission for the Conservation of Atlantic Tunas (ICCAT).

A considerable effort went into supporting the Department of Agriculture, Food and the Marine with the development of the new Seafood Operational Programme for the period 2014 to 2020.

During 2014, the strong focus on linking the Marine Institute corporate plan with Fisheries Ecosystem Advisory Services programmes continued through the Institute's Performance Management Development System. Internal staff communications is critical to ensuring efficient and effective service delivery and this was achieved through regular staff and management meetings.

Dr Paul Connolly
Director, Fisheries Ecosystems Advisory Services.





Fisheries Ecosystem Advisory Services undertook underwater TV surveys for Nephrops abroad the RV Celtic Voyager on the Bay of Biscay Stocks in the Porcupine Bank, November 2014.



The Mill Race Trap, at the Marine Institute, Newport monitors fish moving upstream and downstream enabling a full census to be carried out on wild salmon, released reared salmon, sea trout and eels.

Highlights of the year 2014

Fisheries Ecosystem Advisory Services carried out the Data Collection Framework National Programme for 2014, provided its Annual Report for 2013 and delivered the annual cost statement for 2013 to the EU Commission. The Marine Institute secured funding of €32.6 million for the new Data Collection Framework over the period 2014 - 2020 from the European Maritime and Fisheries Fund.

A key service delivery to the Department of Agriculture, Food and the Marine is the production annual *Stock Book* which contains the latest scientific advice on those stocks exploited by the Irish fleet. This was delivered to the Minister in November and was a key component of his sustainability assessment presented to the Oireachtas Committee on Agriculture and Fisheries. It was also at the heart of the negotiations at the EU Council of Ministers in December, which set fishing opportunities for 2015.

The team worked closely with Inland Fisheries Ireland on the Standing Scientific Committee for salmon and for eel and through the group, provided the scientific advice for these important stocks. The team supported the Department of Communications, Energy and Natural Resources at the annual NASCO meeting.

The Department of Agriculture, Food and the Marine established a new Regional and National Inshore Fisheries Framework and we provided scientific support to these new stakeholder groups.

In relation to the Marine Strategy Framework Directive, the team worked closely with our colleagues in Marine Environment and Food Safety Services. We completed fisheries monitoring programmes that support the implementation of the Marine Strategy Framework Directive. A key element of this work was to add value to existing fisheries programmes by treating fish stock assessment data in a different way, so that they can be used in the Directive.

Research vessel surveys are a critical component of our work. In 2014, 13 surveys were conducted, resulting in 184

sea days and a total of 1,061 scientific days at sea. These surveys represent a considerable resource commitment by the Marine Institute and a vital part of our monitoring work. Fisheries Ecosystems Advisory Services are recognised as international experts in the field of underwater TV surveys for Nephrops. France chartered the RV Celtic Voyager and the team's expertise to conduct underwater TV surveys on their Bay of Biscay stocks.

We carried out a range of research projects using both national and international funding sources. The outputs from these projects will improve our advisory products to government. Significant progress was made on evolving fisheries surveys in the Celtic Sea as "ecosystem surveys" with the close cooperation of UK and French scientists.

Working with stakeholders was a key element of our work in 2014. The quarterly Irish Fisheries Science Research Partnership meetings continued and we also engaged with the environmental Non Government Organisation's on a range of issues.

Data Collection Framework

The Marine Institute secured funding of €32.6 million under the European Maritime Fisheries Fund to implement Ireland's obligations under the Data Collection Framework over the period 2014 - 2020. This framework supports the science needed to conduct the Common Fisheries Policy and is a central part of our work programmes. The Department of Agriculture, Food and the Marine has given the Marine Institute responsibility to conduct the various data collection, data management and production of scientific advice required to meet our Data Collection Framework obligations. We submitted the new Data Collection Framework National Programme for Ireland (2014 - 2015), the Data Collection Framework Annual Report for 2013 and a detailed 2013 Cost Statement to the Commission. The 2014 Data Collection Framework work programme included a comprehensive research vessel survey programme, port sampling of landings, sea sampling of discards, age profiles of the main stocks, analyses of EU logbook data and mapping fishing vessel activity from Vessel Monitoring Systems.

A total of 143 sea sampling observer trips were carried out on Irish fishing vessels resulting in 540 scientist sea days. These trips provide the team with invaluable “on the ground” contact with the fishing industry. A total of 549,380 fish were measured and 54,912 fish were aged to provide data for the models used in international stock assessments at ICES. The STOCKMAN and DISCARD databases are the cornerstones of our inputs to international stock assessment and delivered efficient and effective data queries and outputs. We worked closely with the Sea Fisheries Protection Authority and the Irish Naval Service in securing Vessel Monitoring System and Logbook data for stock assessment purposes. The Marine Institute worked very closely with Bord Iascaigh Mhara (BIM) who are charged with delivering the economic components of the Data Collection Framework.

Research Vessel Surveys

We conduct a broad range of surveys carried on the *RV Celtic Explorer*, *RV Celtic Voyager* and chartered commercial fishing vessels. These are an important element of our annual work programmes. In 2014, a total of 13 surveys were conducted in the waters around Ireland, with a total of 184 sea days and 1,061 scientist days. The acoustic survey programmes focused on assessing the blue whiting, boarfish and herring resources. Prawns are a vital resource for the Irish fishing industry and the underwater TV survey programme was a key input to the assessment of this resource, worth over €80 million to the Irish industry. The Irish groundfish survey was carried out over a 42 day period in November–December and surveyed fish stocks in the Celtic Seas and off the west and north-west of Ireland. This survey is linked into surveys carried out by the UK, France and Spain in order to get a broad picture of north east Atlantic fish stocks. A special industry funded mackerel egg survey was carried out in 2014 to assess the start of mackerel spawning. These results will inform the international mackerel egg surveys in 2016. All research surveys were coordinated through the International Council for the Exploration of the Seas (ICES) who also ensure that the protocols and methodologies used by each survey are standardised. The data from all the surveys were used in international stock assessments that informed scientific advice on fishing opportunities for 2015.

Stakeholder Interactions

Regular meetings with the fishing industry were held through the forum of the Irish Fisheries Science Research Partnership and the Regional Advisory Councils, particularly the North Western waters Regional Advisory Council and the Pelagic Regional Advisory Council. The key issues addressed at the quarterly Irish Fisheries Science Research Partnership meeting included funding mechanisms for surveys, the Marine Strategy Framework Directive, NATURA, Sea Bass, implementation of the landings obligation, discard sampling, state of stocks, assessment methods, Maximum Sustainable Yield as a target, economic issues, BIM gear trial results, Marine Protected Areas, ICES advice and management plans.

Our scientists also provided key input to the Celtic Seas Herring Management Committee. Quarterly meetings were also held with the environmental Non Government Organisation's and issues addressed included, Maximum Sustainable Yield, Common Fisheries Policy reform, state of stocks, as well as scientific advice for 2015.

Scientific Advice

Our scientists participated in over 110 international expert group meetings of the EU, ICES and the Scientific Technical and Economic Committee for Fisheries. Many of these meetings were funded under the Data Collection Framework. These meetings dealt with the core business of stock assessment and advice, but other scientific issues and challenges related to the implementation of the Common Fisheries Policy, NATURA 2000 and the Marine Strategy Framework Directive were also addressed at these meetings. These meetings dealt with topics such as calibration of acoustic instruments in fisheries science, indicators for the Marine Strategy Framework Directive, Maximum Sustainable Yield reference points for fish stocks, mackerel coastal states, horse mackerel management plans, stock assessment and advice drafting, implementation of the Data Collection Regulation, EU discard plan and the ecosystem effects of fishing. The team also provided scientific advice on the status of inshore stocks and the *Shellfish Stock Book*. The Department of Agriculture, Food and the Marine established a new Regional and National Inshore Fisheries Forum and we provided scientific support to these new stakeholder groups. Salmon and eel advice was developed in cooperation with Inland Fisheries Ireland and the Standing Scientific Committees for Salmon (SSCS) and Eel (SSCE). The team were at the centre of developing new elasmobranch (ray and skate) advice for the Celtic Sea and on developing scientific techniques to look at the proportion of Irish and Scottish fish in the west of Scotland and Ireland herring. We carried out risk assessments for the Irish Sea and Celtic Sea areas in order to develop management plans for inshore fisheries conducted in Special Areas of Conservation. We worked closely with Marine Environment and Food Safety Services on meeting Ireland's obligations under NATURA 2000. New management plans were developed for the razor clam fishery in the Irish sea and scientific advice was provided to the Department of Agriculture, Food and the Marine on new lobster regulations.

Newport Facility

The census work programmes on salmon, sea trout and eel continued from the fish traps on the Burrishoole ecosystem. In 2014 there was a very poor marine survival of wild salmon smolt leading to one of the lowest recorded returns of wild grilse. A total of 294 salmon were recorded from upstream traps with 8,150 recorded from the downstream traps). The team continued their work on the maintenance and development of long term physical, chemical and biological datasets characterising the freshwater component of the Newport catchment ecosystem. These data are available on the Burrishoole dashboard which went online in 2013.



Simon Coveney, T.D., Minister for Agriculture, Food and the Marine launched the Atlas of Commercial Fisheries around Ireland with Dr. Colm Lordan, Marine Institute, co-author of the report, March 2014.

The fish rearing unit continued its work, with 62,000 eyed ova retained for the ranching programme. A total of 40,000 ranched salmon smolts were released in May 2014 as part of the salmon stock assessment and experimental research programmes. The PhD work on the factors that affect salmon at sea continued in cooperation with Norway and the Loughs Agency in Northern Ireland.

Work continued on the acoustic tagging programme on Lough Feeagh which examined behavioural and environmental preferences of wild and ranched adult salmon. A PhD thesis (*Estimating Carbon Pools and Processing in a Humic Lake*) based on work carried out in Newport, was completed in August 2014. The strong collaboration with the GLEON (Global Lake Ecological Observations Network) continued. The University College Cork Beaufort Genetics project continued its work at Newport and produced many peer reviewed publications in international scientific journals. The PhD on sea bass continued and acoustic tracking arrays were deployed on the south coast. The project will also involve the application of new technologies in satellite tagging to identify site fidelity and the migration patterns of sea bass in the Celtic and Irish Seas.

Applied Research

Fisheries Ecosystem Advisory Services carried out a range of research projects using both national and international funding sources. National funding was used to run the "challenge" programme which looked at fishermen's behaviour in relation to the landings obligation and its implementation (simulation of what happens on the deck at sea with various forms of the landings obligation). The sea bass work continued

in the Celtic Sea with various acoustic arrays set up and fish tagged to monitor movements. The Beaufort Ecosystem project carried out modelling work with Queen's University Belfast and the results demonstrated that biodiversity loss from fisheries did not necessarily lead to a decline in biological ecosystem function. This work was published in *Nature*. Real progress was made on evolving fisheries surveys in the Celtic Sea as "ecosystem surveys" with the close cooperation of UK and French scientists. The surveys used benthic sampling devices to compliment fisheries work. Further work was also completed on resource competition between seals and fisheries in the Celtic sea area.

The team participated in a wide range of EU funded projects including the Atlantic Crab Resource Network (ACRU-NET), developing mixed fisheries management plan for the Celtic Seas (GEPETO and DAMARA), Fisheries, aquaculture and seafood processing network (COFASP), benthic ecosystem fisheries impact studies (BENTHIS), shark satellite tagging, Maximum Sustainable Yield (MYFISH), analysis on key food webs (EUROBASIN), development of models for estimating salmon returns (ECOKNOWS), evolving surveys to collect more data that can support the Marine Strategy Framework Directive. These projects have secured EU funding of € 683,000 and involve close cooperation with Irish third level including NUI-Galway, University College Cork, Galway-Mayo Institute of Technology and Queen's University Belfast.

Ocean Science Information Services

Director's Statement »



Ocean Science and Information Services provide end-to-end solutions to a wide range of clients - both nationally and internationally - and underpins much of the activity of the Marine Institute. 2014 was a busy year where significant work took place in our areas including oceanographic services, advanced mapping, research vessel operations, information services and development, ocean energy and advanced marine technology.

The teams participated in a wide range of national, European and international programmes and were particularly active across a range of EU funded programmes, which improve our capacity to provide support services tailored to the needs of integrated science programmes which inform cross-sectoral policy advice. We were particularly active in participating in the generation of new EU project proposals.

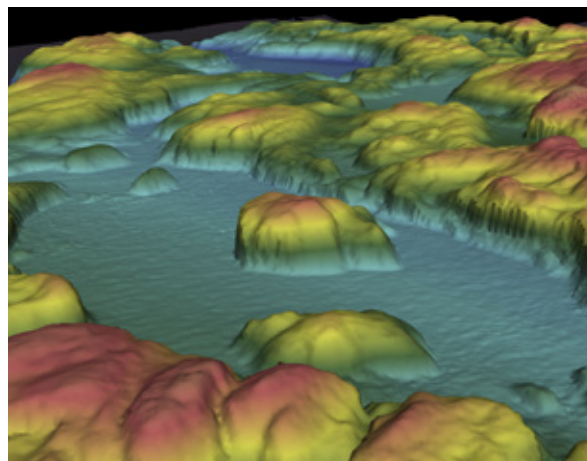
Ocean Science and Information Services also contributed to strategic thinking at national and international level contributing to a range of initiatives including *Harnessing Our Ocean Wealth - An Integrated Marine Plan for Ireland*, supporting workshops related to the Galway Statement on Atlantic Ocean Cooperation and the EU strategy on the Atlantic.

We also further evolved the concept of Integrated Digital Ocean through development of a range of new tools and projects described below. Integrated Digital Ocean is envisaged as an operational collaborative digital platform allowing marine data to be leveraged for research, for commercial development, and for government service delivery. It will be designed to support the flow of data from capture through to information delivery to end users (*collect once - use often*), providing an integrated view of *all* marine data sources. This environment will support all levels of the marine data value chain from acquisition, integration, analytics, and innovation to decision support. This will ultimately lead to a data environment that can support enterprise, research and innovation and the development of public services.

Mr. Michael Gillooly
Director: Ocean Science and Information Services



Dendrophyllia at the base of a wall in the Whittard Canyon captured by an international research team, led by scientists from the National University of Ireland, Galway.



A 3D image of the seabed at Teelin Knoll, Donegal taken with the new multibeam on the Research Vessel, Celtic Voyager, April 2014.

Research Vessel Operations

The research vessel operations team aim to coordinate and manage the operation of the Marine Institute's two research vessels, the *RV Celtic Voyager*, the *RV Celtic Explorer* and the deepwater ROV *Holland I* and to provide support services to the users of the vessels, including instrumentation and engineering support services.

Highlights for the year 2014

The vessels had an intensive year of operations in 2014 with the *RV Celtic Explorer* once again working in Canadian waters and as far east as the Baltic and Norwegian waters as well as a busy schedule in Irish waters.

The *RV Celtic Explorer* completed a total of 19 surveys comprising of 302 days of operations. The *RV Celtic Voyager* completed 25 surveys totalling 239 days of operations.

RV Celtic Voyager:

The *RV Celtic Voyager*'s capability increased greatly when a new Kongsberg EM2040 multibeam was installed in March. This installation was carried out by Mooney Boats in Killybegs and P & O Maritime Services Ltd. The system was successfully trialled in March and was utilised for the full survey season for INFOMAR surveys. The vessels dry lab was also refitted to create more room for personnel and to improve the ergonomics of the space.

The *RV Celtic Voyager* was chartered to undertake a deployment of high and low frequency acoustic cetacean monitoring devices in May 2014. This successfully acquired data is a first for Irish waters and will prove important for the study of cetaceans in the region.

The *RV Celtic Voyager* completed a very successful hydrographic survey season with 79 days surveying completed on the west and south coasts in support of Sustainable Energy Authority Ireland wave energy development and for the INFOMAR programme.

The *RV Celtic Voyager* completed three successful Underwater TV surveys in Irish waters to assess Nephrops stocks including one survey operating to depths of over 500 metres on the Porcupine Bank. Following these surveys, the vessel was chartered by the French fishing industry in September 2014 and manned by Marine Institute and IFREMER scientists to undertake the first TV surveys for Nephrops in the French waters of the Bay of Biscay.

The *RV Celtic Voyager* undertook a wide range of surveys funded under the NDP shiptime program including a study of acoustic noise from seismic surveys led by NUI Galway (CE14014) and the DINO 14 surveys also led by NUI Galway which examined the origin of harmful algal blooms. Galway-Mayo Institute of Technology led a week long survey on micro-plastics and trophic interaction in the Celtic Sea.

The CV14012 survey saw the *RV Celtic Voyager* operating a box corer at depths down to 1,500m to successfully acquire a baseline data set intended for use in Before-After-Control-Impact Design Monitoring programmes in support of future petroleum exploration and exploitation activities.

The *RV Celtic Voyager* was made available for 55 days training for third level students largely through the SMART program operating out of Cork Harbour and a total of 329 students were trained totalling 475 student days.

RV Celtic Explorer:

The *RV Celtic Explorer* began the year with a short survey in the Irish Sea (CE14001) which was led by University College Cork and this survey used an innovative deep cone penetrometer system developed by the Centre for Marine and Environmental Sciences (MARUM) to investigate the deep sediment layers in the Irish Sea.

The CE14003 and CE14004 surveys which were led by NUI Maynooth and University College Cork respectively

saw the *RV Celtic Explorer* deploy the vessel's new six meter Gravity Coring System as well as the GSI Vibrocorer in studies of sediment and shallow geology off the west coast and in the Celtic Sea.

The *RV Celtic Explorer* completed an extended transit survey led by NUI Galway in partnership with Memorial University of Newfoundland scientists focusing on the biology and oceanography of mesoscale eddies and fronts while en route to Canada to complete the acoustic fisheries survey on behalf of Memorial University.

After completion of the survey on behalf of Memorial University the *RV Celtic Explorer* mobilised for the annual climate change survey in St John's Newfoundland and began the survey on the "Ovide" line in the region of the mid-Atlantic ridge which saved a lot of vessel fuel and time.

The vessel completed two ROV surveys in 2014 totalling 31 days. The first (CE14009) was a survey of the ecosystem functioning and biodiversity at Whittard Canyon to the south of Ireland in depths of 1000-3000m. This was followed by a successful expedition to the Rockall Bank in a survey led by University College Dublin which studied slope collapses on the Rockall Bank.

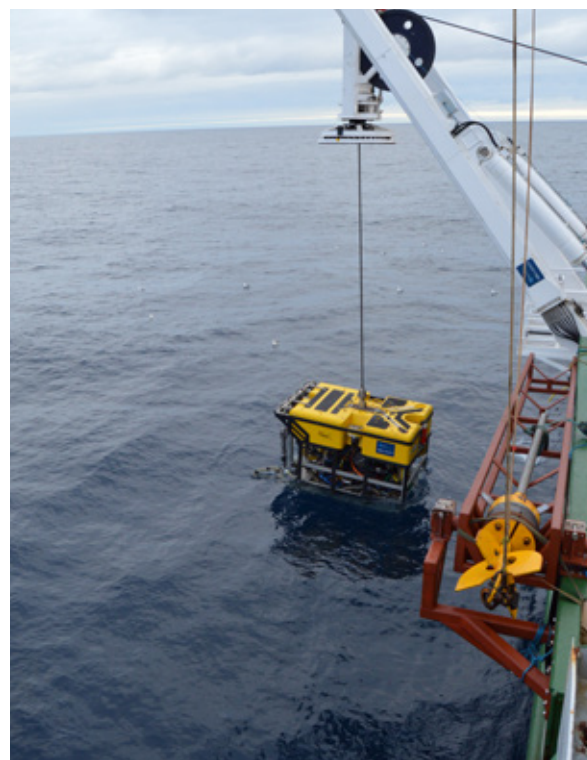
The vessel completed two surveys (CE14012/CE14017) on behalf of The Bundesamt für Seeschifffahrt und Hydrographie (Federal Maritime and Hydrographic Agency) (BSH) Germany which was a vital contribution to the vessels operating budget.

Before commencing the groundfishing season the vessel completed a five day summer school for post graduates (CE14013) focusing on the study of cold water coral regions. This program was organised by the SMART program in collaboration with the Alfred Wegener Institute.

The vessel completed a very successful season of fisheries surveys on behalf of the Fisheries Ecosystem Advisory Services with 63 day's acoustic surveying for Herring and Blue Whiting followed by the annual 47 day ground fishing survey which saw the vessel achieve 170 valid fishing tows in the course of the survey.

Following completion of the survey season on the 17th December the vessel began a maintenance program in advance of a planned refit. The vessel sailed to commence the refit in A & P Falmouth on the 27th December and entered the dry dock to commence work on the 29th December 2014.

The tendering process for the upgrade of the vessel hydrographic and geophysical equipment was completed and Kongsberg Maritime was selected as the supplier of the vessel's new deep-water and high resolution multi-beams and positioning system. IXSEA Blue was the successful bidder for the deep-water sub-bottom profiler. All this equipment will be fitted during the dry dock period in January 2015.



ROV Holland I being launched from the *RV Celtic Explorer* during expedition at Rockall Bank, July 2014. The new gravity corer is in the foreground. The CE14011 research survey was supported by the Marine Institute, and is funded under the Marine Research Sub-Programme by the Irish Government with a contribution from the ERC CODEMAP project.

Vessel	Distance Sailed	Fuel consumption	EEOI (Efficiency measurement Metric Tonnes fuel/Nautical Mile)
Celtic Explorer	41,625 Nm	1,686,960 Litres	0.040844973 M3/NM
Celtic Voyager	23,414 Nm	319,300 Litres	0.013932177 M3/NM

Foreign Vessel Observer Scheme 2014

A total of 22 foreign vessels conducted marine research surveys in Irish waters in 2014. There were 12 UK ships, and the rest were French (2), Norwegian (2), Spanish (1), Dutch (1), Russian (1), German (1) and Lithuanian (1) and USA (1), all of which conducted a training or research survey while in Irish waters. Eight Irish observers participated in some of these surveys throughout the year with a total of 187 days at sea between them.

Advanced Mapping Services

During 2014, Advanced Mapping Services continued to support shallow water and coastal seabed survey activity as the key operational part of the INFOMAR Programme (INtegrated mapping FOr the sustainable development of Ireland's MARine Resource). The team also supported the research vessel operations team with the significant survey infrastructural upgrades which took place on board the *RV Celtic Voyager* and planned for the *RV Celtic Explorer* to facilitate delivery of phase two of INFOMAR, and underpin mapping related research activities and opportunities.

Programme 1 – Data Acquisition, Management and Interpretation:

Survey targets have been broadly met for 2014, with some deviations due to prioritisation reviews of stakeholders, and some technical issues that arose. Nearshore and Coastal survey targets for 2014 were outlined in the “2014 Operational Programme”:

- **Nearshore:** Lough Swilly, outer Mulroy Bay, Sheephaven and Gola Island, Donegal, Blacksod, Broadhaven Bays, West Clare SEAI site, Tralee Bay
 - SEAI nearshore West Clare survey postponed – SEAI reviewing requirements
 - Gola Island survey postponed – BIM reviewing priorities
 - V. shallow survey not undertaken in Swilly, Mulroy, Donegal
 - Gaps filled in Killary Approaches relating to extended bay boundaries
- **Coastal:** West Clare SEAI site, SW Coast, Outer Tralee, Outer Galway Bay, SW Coast
 - Areas completed, weather downtime used to resurvey some areas with old generation multibeam data

Programme 2 – Data Integration and Exchange:

One of the key bottlenecks identified in delivery of an integrated data and product suite, is the time lag between acquisition of inshore survey data, and delivery of processed survey leg data. The latter cleaned and levelled hydrographic data is required to merge with historical data, before final chart production can be undertaken. To streamline this process, outsourced personnel were trained up in hydrographic data processing, the outstanding processing and charting effort were estimated, and two year work plans were implemented.

To improve access to seabed mapping data and associated products and information, the INFOMAR website was given a preliminary update, with a new front page developed to direct users more clearly towards relevant material and data resources. Web map services have been developed and maintained, to ensure systems are compliant with current data exchange standards. This also ensures they are accessible through stable and current platforms and technology.

Programme 3 – Value Added Exploitation

Significant activity has been ongoing under the Value Added Programme, in line with recommendations from the 2013 PwC INFOMAR Programme Review.

The focus of this sub-programme during 2014 has been on:

- Development and delivery of some specific long term high impact projects supported by the Dublin Business Innovation Centre.
- Raising public awareness of INFOMAR through use of social media, higher level engagement in national marine related conferences and events (tourism to heritage to policy), and more active outreach during field operations.
- Engagement in more strategic large scale research collaborations and initiatives.
- Focus on capacity build across the skill set shortage areas related to seabed mapping required to underpin commercial and research opportunities

Some highlights include:

- Launch of the INFOMAR Dive App, INFOMAR Story Maps, and the INFOMAR Education and Outreach Development Programme. The latter is currently targeted at transition year students, enabling them to create their own maps and mapping website, and record coastal and environmental data, thus engaging students in coding, scientific observation and mapping.
- Partnered on EC Coast and Checkpoint proposals, and European Space Agency Thematic Exploitation Proposal, all awaiting funding decisions.
- Partnered on a Science Foundation Ireland Clusters call, which while unsuccessful was deemed a strong proposal, which with the appropriate Remote Sensing Academic lead, may prove successful on the next Clusters call round.

With a view to building on INFOMAR related research capacity, research proposals were drafted for PhD's in Seaweed Resource Assessment, Biotope Mapping, and Fisheries Multibeam Acoustics, the latter of which has commenced.

Oceanographic Services

The Oceanographic Services team serviced over 130 requests for oceanographic data and products during 2014. They continued to provide dedicated field and model data and analysis to support advisory services provided by our Marine Environment and Food Safety services and Fisheries teams at the Marine Institute.

The Oceanographic Services team delivered all elements of the significant work programme of the SEAI Ocean Energy Service Level Agreement on time and within budget. The design and procurement of the acoustic noise monitoring array was advanced throughout 2014 with a view to interfacing this array with the Galway Bay Cable Project. Operational services were provided at both the Galway Bay and Belmullet ocean energy test sites. Oceanographic Services continue to manage the test and demonstration facilities at the quarter scale ocean energy test site in Galway Bay, jointly with SmartBay.



Sheena Fennell from the National University of Ireland, Galway with Dr. George Rose from the Fisheries and Marine Institute of Memorial University, Newfoundland, worked alongside fifteen scientists and students from NUIG, GMIT and UCC while crossing the Atlantic as part of the ongoing transatlantic research from Galway to St. Johns, Newfoundland, April 2014.

A project team from the Marine Institute, SmartBay, University College Cork and Sustainable Energy Authority of Ireland in addition to engineering advisors was assembled to advance the project management of test and demonstration facilities at the quarter scale ocean energy test site in Galway Bay. Significant procurement was undertaken and regulatory licences sought as part of the works. Considerable design and procurement activity was undertaken to assemble the components of the cable infrastructure which will be deployed in Galway Bay in 2015 as part of the Ocean Energy Test Bed infrastructure.

The National Weather Buoy Network was supported and maintained on behalf of the Department of Transport, Tourism and Sport. 2014 proved to be a challenging year for the network due to several system failures and vessel strikes. Due to the concerted efforts of the technical team an availability rate of 80 percent was maintained throughout 2014, in line with metrics specified in the Memorandum of Understanding with Department of Transport, Tourism and Sport. Building on the newly developed ocean models for oil spill and biogeochemical applications, a high resolution (localised fine scale) shelf model was developed. The team worked with the RNLI to provide a high resolution tidal atlas for Galway Bay. This is now in use among four crews in the wider Galway Bay area. A fine scale model is being developed for Inner Galway Bay to aid search and rescue operations in the bay. Oceanographic Services is working with the information services and development team to make oceanographic data available and customisable through a new data dashboard and portal environment. A steady level of

activity, primarily routine maintenance and calibration was rolled out for the National Tide Gauge Network.

Key elements of the EU funded projects JERICO, MyOcean2 and MyOcean follow on were successfully delivered and several new oceanographic projects were submitted for Horizon 2020 funding. The team will play a significant role in the AtlantOS Blue Growth 8 project which received funding approval in 2014.

Oceanographic services team remains active on both the International Council for the Exploration of the Seas (ICES) WGOH and European Global Ocean Observation System (EuroGOOS) and on the Marine Observations and Data Expert Group of DG Mare. The team conducted a coordinated ocean climate cruise from Newfoundland to Galway collecting ocean carbon, salinity, temperature and oxygen data coordinated with a French expedition that ran concurrently between Lisbon and Greenland.

The team continued to provide input to the implementation planning and legal work required for the development of a European Research Infrastructure Consortium (ERIC) for a long term partnership on the European Multidisciplinary Seafloor Observatory (EMSO) project. We also participated in the COOPEUS (linking European/US major environmental research projects), and FixO3 (linking EU activities on fixed point marine observatories) projects and a wide range of EU and international infrastructure projects.

Information Services and Development

The Information Services and Development team continues to provide ICT and data support and development services across the Marine Institute to provide a robust operational ICT and data platform, develop new technical capabilities and support improvements in service delivery.

Operational Support:

In 2014 Information Services and Development serviced over 3,282 support requests covering technical, applications and data management queries, and carried out internal training for 54 personnel.

The team coordinated the servicing of 228 data requests from external parties. The number of external data requests has decreased by approximately 10 percent since 2013, probably explained by the increased use of online data services such as the Marine Data Online data portal which now averages approximately 400 sessions per month. In addition to Irish users in 2014 international access was recorded from 80 countries worldwide. As more datasets are added to the service and data is highlighted by Institute-developed services such as the Irish Spatial Data Exchange, Ireland's Marine Atlas and Ireland's Marine Renewable Energy Portal these numbers are expected to grow.

The data management team also supported the Data Collection Framework, INFOMAR and Marine Strategy Framework Directive programmes, and the Aquaculture Foreshore Licensing team. Of particular note is the work done to support the management of inshore fisheries data for NATURA risk assessment which is supporting the assessment and reporting process.

The application development team has supported the integration of new data sources from the ocean energy test sites and Burrishoole catchment, and for improvements in access to fisheries data.

Project Activity:

Information Services and Development were involved in over 70 projects during 2014 covering operational maintenance, service improvement and strategic capability development. Key activities including the completion of the redevelopment work for the Institute's new website, the development as part of the Sustainable Energy Authority of Ireland of Ireland's Renewable Energy Portal (www.oceanenergyireland.com) which was shortlisted for an eGovernment award, the integration of the Irish Spatial Data Exchange (www.isde.ie) into the Government national Open Data portal (<http://data.gov.ie>), and a major redevelopment of the harmful algal blooms data system which will greatly modernise the system improving data entry, reporting and the public online interfaces.

The IT operations team also carried out a significant upgrade of the ICT server environment on the research vessels, upgraded the Institute's WiFi network, and have started a necessary upgrade to the data storage

infrastructure to ensure that organisational files and data can be securely stored for the next 2-3 years. Also in progress is the early stage definition of how data from the Galway Bay cabled observatory will be processed and managed.

In 2014 the information services and development team has been closely involved in the definition of the Irish Digital Ocean (IDO) concept, a strategic project which aims to joined-up access to marine data from multiple national sources. The team was awarded an Azure4Research grant from Microsoft Research to support this activity, with the Microsoft Azure cloud platform used to prototype several new data services. They also developed a new Innovation focus which is helping to bridge the gap between scientific data acquisition and end-user information e.g. the real-time dashboards. The IDO concept and new Innovation function will be developed further in conjunction with the development of the Institute's data strategy in 2015.

Advanced Technology Programme

Through the course of 2014, the advanced marine technology programme team continued to work in mobilising the research and innovation community to create a critical mass multi-disciplinary industry-oriented marine grouping in the area of advanced sensing, communications and informatics.

The programme facilitated capacity build initiatives through engagement with national and international programmes of research and development. In particular, the Marine Institute worked with its research partners to mobilise the marine research and enterprise community in response to a Science Foundation Ireland Centres call in Earth and Ocean Observation. A consortium of five universities (NUI Galway, NUI Maynooth, Dublin City University, University College Cork and University Limerick) and government agencies including the Marine Institute and Teagasc, led by NUI Galway, submitted a proposal for an Atlantic Centre for Earth Observation (ACEObs) which reached the final round of the review process. The proposal attracted 50 industry partners of which 15 were mobilised by the Marine Institute.

The programme has also been looking at emerging opportunities for the sector through the European Space Agency. Work has also been taking place at a strategic level in association with Enterprise Ireland to assess the need for the marine community for real-time access to data from the new fleet of Sentinel satellites as part of the European Space Agency Copernicus Programme.

The Programme has also been working with the Marine technology community to disseminate information and mobilise interest in relation to the first round of calls in Horizon 2020 for the 2014-2015 work programme. Irish marine researchers were particularly successful in the last cross-thematic call under the FP7 Ocean of Tomorrow with Irish participation in four projects (LEANWIND, COMMON SENSE, SENSE OCEAN, MariaBOX) and UCC coordinating the LEANWIND project.



Michael Roper of P & O Maritime provided technical support to the M6 weather buoy network which is located 300 miles west of Galway. Pictured here with sub sea floats which keep the weather buoy in position in extreme weather conditions.

The promotion of the SmartOcean cluster internationally is a key element of the programme and this year it was facilitated through the Marine Institute supporting a SmartOcean Ireland stand at Oceanology International and also participated in a wide number of other international events to create visibility of the cluster.

The INTERREG STAMAR project also kicked off this year and work has been on-going to deliver work packages 1 and 2 led by the Marine Institute. The first activity is to coordinate a transnational technology assessment to identify ICT-intensive technologies that could be of interest to maritime SMEs. The second will lead to the creation of a portfolio of best available technologies that are beneficial to maritime SMEs. The technologies will support sustainable business development that will lead to the protection of the marine environment.

The advanced marine technology programme has also been working with national infrastructure such as SmartBay to support the development of research

projects. In particular, SmartBay began a number of its National Infrastructure Access Programme (NIAP) activity II large-scale projects. The awards totalling €86k are funded through Dublin City University and fit under the objectives of the SmartBay Ireland Programme for Research in Third-Level Institutions (PRTLII) Cycle 5 programme. A Principle Investigator and industry workshop was also held in November this year where a Memorandum of Understanding was signed with SmartBay, Newfoundland and Labrador to support shared access to facilities and expertise and the creation of joint research and enterprise initiatives and projects. Work has also continued on developing strategic alliances with other agencies for use of platforms that can support research and development. In particular, a number of initiatives took place with the Irish Air Corps including an exploratory exercise where three researchers went on board a routine maritime patrol to explore how the Casa aircraft may also support the marine research and innovation agenda.

Industry is a key focus point for the advanced technology programme and a number of initiatives took place in order to strengthen ties and catalyse activity. In particular the first Marine ICT accelerator programme was held with IBM. Through the work of the development task force established by the marine coordination group in the context of *Harnessing our Ocean Wealth - An Integrated Marine Plan for Ireland*, the programme has been inputting information to help provide context for the requirements for the future development of the sector. Cathx Ocean represent an example of the development of the sector this year with the announcement of 50 jobs in Naas, County Kildare and were presented by the programme at the inaugural *Harnessing Our Ocean Wealth* Conference in June.

The SmartOcean programme in its current format is currently due for revision. This is being carried out through the work of the Development Task Force (DTF) and the Marine Institute in its role in developing the new marine Research and Innovation Strategy (2014-2020) and the programme has been contributing to each of these initiatives in the context of *Harnessing our Ocean Wealth - An Integrated Marine Plan for Ireland*.

General Administration

Audit Committee »

The Audit Committee at 30th March 2015 comprises the following non-executive members of the Board: Patricia Barker, Francis Coyle and David Owens. Lorcan O Cinneide retired as a member of the Committee in February 2015.

The main duties of the Audit Committee are to oversee the relationship with the external auditor, the Comptroller and Auditor General. During the year under review, the Audit Committee did not discuss with the external auditor the nature and scope of the audit to be undertaken, but did meet with the external auditor to review his findings and the outcome of the audit, along with his recommendations contained in the Management Letter. The Committee also monitors the integrity of the financial statements prepared by the Company and the monthly management accounts prepared by management. During the year ended 31st December 2014, the Committee kept under review the effectiveness of the Company's internal controls and risk management systems. In particular, we:

- monitored the Risk Management System and the movement of risks on the register;
- engaged with the internal auditor to discuss the work programme and the outcomes of the internal audits and to assess our reliance on the conclusions of the internal auditor;
- monitored the adoption and implementation of the recommendations of internal and external auditors;
- engaged with the CFO and CEO to assure ourselves as to the accounting judgements applied to the financial statements;
- Prepared data to support the Chairman's letter of assurance to the Minister;
- conducted an internal review of our performance during the year under review.

The Terms of Reference of the Audit, Finance & Risk Committee have been approved by the Board and are reviewed on an annual basis and amended as appropriate. The Committee met four times in 2014 (4 in 2013). There were no material services provided by the internal auditors during the year under review. Therefore the Audit Committee, having considered all relationships between the Institute and the internal audit firm, does not consider that those relationships impair the auditor's judgement or independence.

Liaison

The programme of the Marine Institute covers a wide range of activities that require close liaison and cooperation with many individuals and organisations. These include the Department of Agriculture, Food and the Marine, the Department of Finance, Department of Environment, Community and Local Government, Department of Transport, Tourism and Sport, as well as other government departments and state agencies, private enterprise and the higher education sector. The Institute acknowledges the continued support and cooperation of all concerned.

Health and Safety

In accordance with the Health and Safety and Welfare Act (1989), the Marine Institute has up-dated all Health and Safety Statements. The Institute continues to implement appropriate measures to protect the safety and health of all employees and visitors to its premises.

Ethics and Public Office Act

All persons holding a designated position within the Marine Institute provide a statement of interests to the Public Office Commission in accordance with sections 18 and 20 of the Ethics in Public Office Act, 1995.

Employment Equality

The Marine Institute is committed to a policy of equal opportunity and adopts a proactive approach to equality. The Institute operates a number of schemes that provide staff with options in relation to meeting their career and personal needs, such as job sharing, study leave and educational programmes.

Code of Practice (Reporting)

The Marine Institute adheres to the statutory Codes of Practice for Governance of State Bodies as laid down by the Department of Finance. The Institute can confirm that Directors and employees have adopted and are trained on:

- Formal code of conduct on conflict of interest and customer charter
- Properly constituted Audit Committees
- Procurement procedures
- Sensitive Issues

Energy Efficiency Reporting by Public Sector Bodies (S.I. 542 of 2009)

The predominant energy users in the Marine Institute is the headquarter office and laboratory facility and the research vessels *RV Celtic Explorer* and *RV Celtic Voyager*. Within the headquarters laboratories in Oranmore, laboratory mechanical and electrical services account for approximately 20 percent of the overall electrical energy consumption of the facility. Lighting, general office equipment and laboratory equipment account for the majority of the remaining electrical consumption.

Overview of Energy Usage in 2014

In 2014 the Marine Institute consumed:

- 2,700,764 kWh of electricity
- 12,202 litres of Kerosene
- 347,074 litres of bulk propane gas for heating
- 5,222 litres of road diesel
- 1,444,440 litres of Marine gasoil for Marine Institute funded research surveys

The figures show reductions in all energy types with the exception of bulk propane gas which remained the same:

- 3 percent reduction in electricity – 64,150kWh units
- 10 percent reduction in Kerosene – 1,350 litres
- 25 percent reduction in road diesel (this was due to a vehicle being decommissioned)

Actions Undertaken in 2014

2014 saw the introduction of further energy saving lighting measures by installing timing sensors to key light controls in commonly used areas. Archive rooms, coffee docks and cleaners stores are now fitted with sensors to ensure lights are switched off within 5 minutes of being activated.

A trial has been undertaken in Oranmore to assess the potential savings that could be made through the installation of LED light fittings, with indications that a 50 percent reduction in energy consumption would be possible. A full review will be carried out in 2015 to assess the cost savings benefit and potential roll out throughout the Oranmore facility.

Actions Planned for 2015

A review of laboratory energy consumption was completed and measures will be implemented in 2015 that will continue to ensure safe working practices are met whilst reducing laboratory energy consumption.

Scéim Gaeilge 2014 Update

The Grúpa Gaeilge was established to prepare the Marine Institute's Irish Language Scheme/Scéim Foras na Mara under Section 11 of the Official Languages Act 2003. The first period of the scheme Gaeilge expired in 2012 and preparation and development of the second phase of the scheme was overseen by the Grúpa Gaeilge in 2012 and 2013. This was lodged with the Irish Language Commissioners office in November 2013. The updated scheme was confirmed by the Minister and will remain in force for a three year period from 6th October 2014. The second period of the scheme builds on the extensive efforts to implement the requirements under the Act which were brought about under the first period following identification of areas for enhancement of Irish language services provided by the Institute.

The second period will maintain the commitment to assess, on an ongoing basis, the level of demand for services through Irish and to ensure that the Marine Institute continues to meet this demand in a planned, coherent and accessible way. The Marine Institute continues to gauge the level of demand for its services in the Irish language by carrying out regular audits through a system of counting/measuring the level of queries/requests for services through Irish in a given period. However, in order to generate requests for services, the Marine Institute documents and promotes awareness amongst staff and clients as to which services the Institute provides in Irish.

APPENDIX 1:

MARINE RESEARCH PROGRAMME 2014 - 2020

SHIP-TIME PROGRAMME AWARDS 2014

Research Measure	Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant-Aid
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CE14013	SMART AWI Summer School 2014	Galway-Mayo Institute of Technology	€90,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14002	Multidisciplinary Survey Planning - A Peer Assisted Learning Exercise Led by Postgraduate and Final Year Degree Students	Galway-Mayo Institute of Technology	€40,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14003/ CV14017	SMART Accredited Common Learning Module (Spring and Winter 2014)	Galway-Mayo Institute of Technology	€156,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14004	SMART Ocean Energy 2014	Galway-Mayo Institute of Technology	€16,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14005	SMART Science at Sea: Multidisciplinary Ship-Based Training for Students of Marine-Related Sciences	Galway-Mayo Institute of Technology	€48,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14010	SMART Operational Oceanography 2014	Galway-Mayo Institute of Technology	€40,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14016	SMART Offshore Geological Exploration and MSc Marine Biology - Cork Harbour	Galway-Mayo Institute of Technology	€56,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14018	SMART AIT Common Learning Module 2014	Galway-Mayo Institute of Technology	€16,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14019	SMART Observer Programme: Applied Marine Biological Sampling and Data Collection	Galway-Mayo Institute of Technology	€32,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training	CV14024	Undergraduate Shipboard Training in Methods of Oceanographic, Benthic, Megafauna and Fisheries Research	Galway-Mayo Institute of Technology	€56,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14002	Cetaceans on the Frontier 5	Galway-Mayo Institute of Technology	€324,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14003	GATEWAYS 2	National University of Ireland, Maynooth	€216,000

Research Measure	Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant-Aid
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14004	WICPro (West of Ireland Coring Programme)	University College Cork	€234,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14006	Transatlantic Added Value	National University of Ireland, Galway	€216,000
Infrastructure Supporting	Research Vessel Ship-Time	Policy Support Survey	CE14008	Climate Change Oceanography, Biogeochemistry and Geology Sections	Marine Institute	€144,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14009	Canyon Ecosystems	National University of Ireland, Galway	€423,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14011	SORBEH (Slope collapses On Rockall Bank and Escarpment Habitats)	University College Dublin	€351,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14020	Cetaceans on the Frontier 6	Galway-Mayo Institute of Technology	€90,000
Infrastructure Supporting	Research Vessel Ship-Time	Policy Support Survey	CV14001	Winter Environmental Survey 2014 Programme	Marine Institute	€104,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CV14007	The collapse of the Irish ice sheet in the Celtic Sea sector and its Marine habitat legacy	University of Ulster	€96,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CV14012	DINO14 (Dinophysis Harmful Algal Bloom)	National University of Ireland, Galway	€56,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CV14021	Collaborative Research on the Porcupine Bank	National University of Ireland, Galway	€88,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CV14023	South Coast Plastics	Galway-Mayo Institute of Technology	€64,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE14014	Acoustic monitoring in Irish waters	National University of Ireland, Galway	€44,000
TOTAL						€3,000,000

APPENDIX 1: (continued)

MARINE RESEARCH PROGRAMME 2014 - 2020

FUNDED RESEARCH PROJECTS 2014

MARINE RESEARCH PROGRAMME 2014-2020 - FUNDED RESEARCH PROJECTS 2014

Research Measure	Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant-Aid
Industry	Shipping and Maritime Transport	Postgraduate Fellowship funded	CF/14/01	Cullen Fellowship: Port Performance Metrics	National University of Ireland, Galway	€66,000
Discovery	Marine Technology	Postgraduate Fellowship funded	CF/14/02	Cullen Fellowship: Remote Sensing	University College Cork	€66,000
Policy Support	Marine Environment	Postgraduate Fellowship funded	CF/14/05	Cullen Fellowship: Ocean Climate	National University of Ireland, Galway	€66,000
Discovery	Marine Technology	Postgraduate Fellowship	CF/14/07	Cullen Fellowship: Ocean Observation Technologies	University of Limerick	€66,000
Innovation Supporting	Innovation	Networking Travel Grants	NT/14/01 to NT/14/70	Attendance at or Hosting of Marine Conferences, Workshops and Events	Various	€32,776
Discovery	Marine Functional Foods/ Food Safety	Capacity Building (Ireland/USA Programme)	N/A	Marine Institute Fulbright Fellowship	N/A_	€22,000
Discovery	Marine Technology	Infrastructure	Tenders	Ocean Data and Modelling Capacity	Various	€310,613
Policy Support	Knowledge and Information Management	Contract for Services	Tender	Ocean Data Access Development Applications	Compass Informatics Ltd	€129,150
Discovery	Renewable Ocean Energy	Infrastructure	N/A	Ocean Energy Test Bed (Galway Bay Cable)	Dublin City University/ Marine Institute	*€650,000
TOTAL						€1,408,539

* This represents the Marine Institute contribution to the project, which is jointly funded with Science Foundation Ireland, the Sustainable Energy Authority of Ireland and SmartBay Ireland Ltd.

APPENDIX 2:

IRISH PARTICIPATION IN EU HORIZON 2020 BLUE GROWTH AND RELATED CALLS

Ireland performed strongly in the most recent round of call results announced in relation to Societal Challenge 2 “Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research, and the Bioeconomy”. These included topics under the Blue Growth and Sustainable Food Security areas.

The Marine Institute, in addition to its catalytic role for marine research in Ireland, also performed well in its own right as a research performer. The Institute is a coordinator in the retained project “Atlantic Ocean Research Alliance Support Action”, and a partner in two further projects: *AtlantOS* and *DiscardLess*. These are in addition to the Institute’s participation in the previously retained projects *MyOcean* and *JERICO-NEXT*.

The scale of Ireland’s participation in the context of the total budget available under the relevant topics is summarised below.

	Retained Budget	IE €	IE %	MI €	MI%
BLUE GROWTH CALL					
Single Stage	18,987,405	3,408,137	17.9%	1,265,000	6.7%
Second Stage	77,065,787	1,370,884	1.8%	328,375	0.4%
Blue Growth Subtotal	96,053,192	4,779,021	5.0%	1,593,375	1.7%
SUSTAINABLE FOOD SECURITY					
“Marine” 3 Topics	21,693,845	808,990	3.7%	275,000	1.3%
TOTAL “MARINE”	117,747,037	5,588,011	4.7%	1,868,375	1.6%

In addition to the success rate in participation in retained projects, the quality of proposals in which Irish partners participated has been positive. Irish partners participated in 24 proposals, of which eight (33%) were retained; while a further 10 (42%) were placed on the reserve list.

The successful projects with Irish partners are listed on the following pages.

Atlantic Ocean Research Alliance Support Action (AUROC-SA)

Marine Institute (Coordinator)
Project Value: €4,235,138
Value to Irish Partner: €1,581,250
Projected number of researchers: 2
Main Contact: peter.heffernan@marine.ie, 091 387200

The Atlantic Ocean Research Alliance Coordination and Support Action (AORAC-SA) is designed to provide scientific, technical and logistical support to the European Commission in developing and implementing trans-Atlantic Marine Research Cooperation between the European Union, the United States of America and Canada. The Coordination and Support Action is carried out within the framework of the Atlantic Ocean Research Alliance as outlined in the Galway Statement on Atlantic Ocean Cooperation (May 2013). Recognising the evolving nature of the Atlantic Ocean Research Alliance, the hallmark of this proposal is that it is flexible, responsive, inclusive, efficient, innovative, value-adding and supportive.

Ecosystems Approach to making Space for Aquaculture (AquaSpace)

Water Insight BV (Coordinator)
University College Cork (Irish Partner)
Value to Irish Partner: €200,000
Projected number of researchers: 1
Main Contact: Jeremy Gault j.gault@ucc.ie 021 4703108
Sonia Monteiro s.monteiro@ucc.ie 021 4903054

The AquaSpace project has the goal of providing increased space for aquaculture to allow increased production. Following the call, we will achieve this by identifying the key constraints experienced by aquaculture development in a wide range of contexts and aquaculture types, taking into account all relevant factors and advised by a Reference User Group. We will then map these constraints against a wide variety of tools/methods that have already been developed in national and EU projects for spatial planning purposes, including some that have been designed specifically for aquaculture. In the freshwater sector only, we will also consider ecosystem services provided by aquaculture that are relevant to integrated catchment planning and management.

At 16 case study sites having a variety of scales, aquaculture at different trophic levels with different environmental interactions and most importantly with a range of key space-related development constraints as defined by local stakeholders, we will assess appropriate tools using a common process so as to facilitate synthesis and comparison.

This case study approach will generate a large amount of

information and is allocated about a third of the project's resources. The project will develop the outcomes leading to a set of evaluated tools for facilitating the aquaculture planning process by overcoming present constraints. This information will be presented on an interactive web-based platform with tailored entry points for specific user types (e.g. planners, farmers, public) to enable them to navigate to the tools most appropriate to their application. The knowledge and information gained during this process will be developed into an on-line module at Masters Level which will also be developed into a short continuous professional development course aimed at aquaculture planning professionals. The public will be engaged by an innovative school video competition and a vehicle to ensure project legacy will be established.

Optimizing and Enhancing the Integrated Atlantic Ocean Observing System (AtlantOS)

Helmholtz Zentrum für Ozeanforschung Kiel (Coordinator)
Marine Institute (Irish Partner)
Value to Irish Partner: €328,375
Projected number of researchers: 1

Daithi O'Murchu Marine Research Station Ltd
(Irish Partner)
Value to Irish Partner: €50,000
Projected number of researchers: 5

T.E. Laboratories (Irish Partner)
Value to Irish Partner: €303,750
Projected number of researchers: 1

The overarching objective of AtlantOS is to achieve a transition from a loosely-coordinated set of existing ocean observing activities to a sustainable, efficient, and fit-for-purpose Integrated Atlantic Ocean Observing System (IAOOS), by defining requirements and systems design, improving the readiness of observing networks and data systems, and engaging stakeholders around the Atlantic; and leaving a legacy and strengthened contribution to the Global Ocean Observing System (GOOS) and the Global Earth Observation System of Systems (GEOSS). AtlantOS will fill existing in-situ observing system gaps and will ensure that data are readily accessible and useable. AtlantOS will demonstrate the utility of integrating in-situ and Earth observing satellite based observations towards informing a wide range of sectors using the Copernicus Marine Monitoring Services and the European Marine Observation and Data Network, and connect them with similar activities around the Atlantic. AtlantOS will support activities to share, integrate and standardize in-situ observations, reduce the cost by network optimization and deployment of new technologies, and increase the competitiveness of European industries, and particularly of the small and medium enterprises of the marine sector.

Monitoring, Managing and Transferring Marine and Maritime Knowledge for Sustainable Blue Growth (COLUMBUS)

AquaTT (Coordinator)
Aqua TT (Irish Partner)
Value to Irish Partner: €552,313
Projected number of researchers: 5

SmartBay Ireland Limited (Irish Partner)
Value to Irish Partner: €63,994
Projected number of researchers: 5

BIM (Irish Partner)
Value to Irish Partner: €47,750
Projected number of researchers: 5

The overarching objective of the COLUMBUS project is to ensure that applicable knowledge generated through EC-funded science and technology research can be transferred effectively to advance the governance of the marine and maritime sectors. By incorporating a validated Knowledge Transfer methodology previously developed through EC funding, the COLUMBUS project aims to improve the competitiveness of European companies and unlock the potential of the oceans to create future jobs and economic growth in Europe (Blue Growth). COLUMBUS will also carry out strategic actions to enhance the visibility and impact of research to stakeholders and European Citizens. Furthermore working with funding agencies and stakeholders, COLUMBUS will examine the feasibility of improved systems and processes to ensure measurable value creation from research.

The COLUMBUS Consortium is made up of 26 Partners across 14 countries and is a balanced, multidisciplinary partnership, containing Pan European organisations which represent a broad constituency of stakeholders in the Marine and Maritime areas.

Strategies for the gradual elimination of discards in European fisheries (DiscardLess)

Danmarks Tekniske Universitet (Coordinator)

Marine Institute (Irish Partner)
Value to Irish Partner: €275,000
Projected number of researchers: 1

Irish Observer Network Limited (Irish Partner)
Value to Irish Partner: €194,990
Projected number of researchers: 1

The European Union has committed to the gradual elimination of discarding. DiscardLess will help provide the knowledge, tools and technologies as well as the involvement of the stakeholders to achieve this. These

will be integrated into Discard Mitigation Strategies (DMS) proposing cost-effective solutions at all stages of the seafood supply chain. The first focus is on preventing the unwanted catches from ever being caught. This will promote changes in gear using existing and innovative selectivity technology, and changes in fishing tactics based on fishers' and scientists' knowledge. The second focus is on making best use of the unavoidable unwanted catch. We will detail technical and marketing innovations from the deck, through the supply chain to the final market, including monitoring, traceability and valorisation components. DiscardLess will evaluate the impacts of discarding on the marine environment, on the economy, and across the wider society.

Industrial Applications of Marine Enzymes (INMARE)

Bangor University (Coordinator)
University College Cork (Irish Partner)
Value to Irish Partner: €330,000
Projected number of researchers: 1

INMARE is a collaborative Innovation Action to streamline the pathways of discovery and industrial applications of new marine enzymes and bioactives for targeted production of fine chemicals, drugs and in environmental clean-up applications. The INMARE consortium will unify the multidisciplinary expertise and facilities of academic and industry partners. This will include integrating the following core activities: advanced technologies to access and sample unique marine biodiversity hot-spots; state-of-the-art technologies for construction of metagenomic libraries; innovative enzyme screening assays and platforms; cutting-edge sequence annotation pipelines and bioinformatics resources; high-end activity screening technology; bioanalytical and bioprocess engineering facilities and expertise, nanoparticle-biocatalysts; high-quality protein crystallization and structural analysis facilities and experts in IP management for biotechnology.

The companies involved in the project are market leaders in enzyme production and biocatalysis processes designed to efficiently deliver safer (pharmaceuticals) cheaper (agriculture) and biobased (biopolymers) products. They also have an impressive track record in environmental clean-up technologies and are committed to promoting public understanding, awareness and dissemination of scientific research. The main emphasis will be focused on streamlining and shortening the pipelines for enzyme and 'bioactive compound' discovery towards industrial applications through the establishing of marine enzyme collections with a high proportion of enzymes - "all rounders". The project will also prioritize the identification of novel lead products and the delivery of improved prototypes for new biocatalytic processes.

Marine Investment for the Blue Economy (MARIBE)

University College Cork (Coordinator)
University College Cork (Irish Partner)
Value to Irish Partner: €586,813
Projected number of researchers: 4 (including 1 project manager)

The primary objective of this MARIBE BG5 project is to identify the most promising business models in the Blue Growth economy (in particular multi-purpose platforms). Plans will be developed to overcome their challenges, propose how these models can be advanced to large scale pilot stage, and test the feasibility of the recommended business models. The pilots will be enabled by securing support from the investment community and liaising with European Commission to implement the outcomes of the project and continue funding support via Horizon 2020. The final aim of this project is to unlock the sustainable growth and jobs potential of Blue Growth. A new consortium has been created with connections to H2-Ocean, TROPOS and MERMAID having with the desired degree of independence, impartiality to ensure neutral business model assessment.

The partnership comprises the full spectrum of academic and SME partners, including expertise from all relevant Blue Growth sectors, as well as the Food and Agriculture Organisation as a key global partner to secure Trans-Atlantic pilot, and Business Models Inc. as the business model expert. Business models will first be mapped according to best practice methodology, cognisant of their value chains. The technical and non-technical challenges of the business will be measured based on their life cycle stage and proposals made for their mitigation.

Key stakeholders from all sectors of Blue Economy to Blue Growth will be engaged, as well as key investors. Following these reviews and engagements, four Think Tank workshops will be organised to envision innovative new business models, in particular considering multi-purpose platforms. The final workshop will then define implementation plans for best business model for each of the four basins. Outcome from the project will include toolkits and guidelines for stakeholders and investment community with regards to the Blue Growth socio-economic trends and technical and non-technical challenges as well as reports on best business models for Blue Growth.

Novel Marine Biomolecules against Biofilm. Application to Medical Devices (NOMORFILM)

Fundacio Centre De Recerca en Salut Internacional de Barcelona (Coordinator)
Trinity College Dublin (Irish Partner)

Value to Irish Partner: €358,759
Projected number of researchers: 1

The presented project is focused on finding bioactive compounds from microalgae. These compounds will have medical applicability in both, treatment and prophylaxis, of infections related to implanted prosthetic devices (orthopaedic implants and catheters). These infections are a serious health problem in the EU and overseas, with increasing mortality rates. These antibiofilm compounds will be screened in the largest European microalgae collection, with over 4,000 strains. This huge biodiversity will be deeply screened in order to valorise this marine resource by means of new pharma compounds with potential to be used in EU healthcare systems.

The NOMORFILM project specific objectives are:

- Screening of 4,000 microalgae (from largest EU collection), to search for antibacterial and antibiofilm bioactives
- Isolation and structural determination of the molecules responsible for those antibacterial and antibiofilm bioactivities showed by microalgae extracts
- Determination of mechanism of action for most bioactive compounds and cellular target in the biofilm pathogen
- Determination of toxicity levels by using the *C. elegans* model with the selected bioactive compounds
- Measurement of in vivo antibiofilm activity (implants and catheters) by using a rabbit model
- Generation of novel antibiofilm nanoparticles and determination of their in vivo toxicity and antibiofilm bioactivity once incorporated into real prosthetic devices
- Development of an exploitation plan for the new antibiofilm compounds used for manufacturing prosthetic devices and catheters

Advanced Tools and Research Strategies for Parasite Control in European Farmed Fish (ParaFishControl)

Agencia Estatal Consejo Superior de Investigaciones Cientificas (Coordinator)
AquaTT (Irish Partner)
Value to Irish Partner: €139,000
Projected number of researchers: 2

The overarching goal of ParaFishControl is to increase the sustainability and competitiveness of the European Aquaculture industry by improving our understanding of fish-parasite interactions and by developing innovative solutions and tools for the prevention, control and mitigation of the major parasitic pathogens affecting the main European farmed fish species: Atlantic salmon, rainbow trout, common carp, turbot, European sea bass and gilthead sea bream. The project addresses the most harmful parasitic species affecting either one or more of these six fish hosts. These parasites belong to nine

different groups: crustaceans, monogeneans, myxozoans, microsporidians, ciliates, dinoflagellates, amoebae, oomycetes, and zoonotic helminths.

The ParaFishControl partnership is made up of 30 partners across 13 countries and has been designed to tackle the challenge posed by the necessity to gather all competences required to achieve the ambitious objectives of the project. The consortium encompasses partners who are leaders in the domains they are involved in within the project and have multidisciplinary and complementary expertise and much collaboration is established between partners, expertise and parasites

be achieved by a closely interlinked programme. Sea Change includes a mobilisation phase engaging with citizens, formal education and policy actors. Crucially the legacy of Sea Change, including continuing knowledge sharing with North America, is embedded within the project.

Sea Change (SeaChange)

Marine Biological Association of the United Kingdom
(Coordinator)

AquaTT (Irish Partner)

Value to Irish Partner: €283,688

Projected number of researchers: 2

National University of Ireland Galway (Irish Partner)

Value to Irish Partner: €299,454

Projected number of researchers: 1 + 1 research assistant at various junctions

The overarching goals of the SeaChange project are to bring about a fundamental “Sea Change” in the way European citizens view their relationship with the sea, by empowering them – as ‘Ocean Literate’ citizens – to take direct and sustainable action towards healthy seas and ocean, healthy communities and ultimately – a healthy planet.

Key objectives of Sea Change are to:

- Compile an in-depth review of the links between Seas and Ocean and Human health based on latest research knowledge outputs
- Build upon the latest social research on citizen and stakeholder attitudes, perceptions and values to help design and implement successful mobilisation activities focused on education, community, governance actors and directly targeted at citizens
- Build upon significant work to date, adopting best practice and embedding Ocean Literacy across established strategic initiatives and networks in order to help maximise impact and ensure sustainability
- Ensure that efforts to sustain an Ocean Literate society in Europe continue beyond the life of Sea Change through codes of good practice, public campaigns and other ongoing community activities.
- Ensure that all activities of Sea Change are carefully monitored and evaluated to ensure maximum sustainability, effectiveness and efficiency
- Ensure Knowledge exchange with transatlantic partners to bring about a global approach to protecting the planet’s shared seas and ocean. The objectives will

APPENDIX 3:

MARINE INSTITUTE PUBLICATIONS

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APPENDIX 4:

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INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA (ICES) PUBLICATIONS

Key to ICES abbreviations:

CM	Conference and Meeting Document
ACOM	Advisory Committee
FTC	Fisheries Technology Committee
LRC	Living Resources Committee
RMC	Resource Management Committee
DFC	Diadromous Fish Committee
WKROUND	A Benchmark Workshop on Roundfish
SCICOM	Science Committee
SSGEF	Steering Group on Ecosystem Function
WGNAS	Working Group North Atlantic Salmon
WGECO	Working Group on Ecosystem Effects of Fishing Activities
WGMHM	Working Group on Marine Habitat Mapping
SSGSUE	Steering Group on Sustainable Use of Ecosystems
WGOH	Working Group on Oceanic Hydrography
CRR	Cooperative Research Report

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APPENDIX 5:

CENSUS DATA FOR THE BURRISHOOLE SYSTEM, 2014

Fish Census

The Burrishoole fish (salmon, trout, eel) census programme, which includes the upstream and downstream trap census and the juvenile stock monitoring in the streams and lakes using electrofishing and beach seine, forms the basis for much of the stock assessment and provision of stock and catch advice. Research includes stock-recruitment and linking S-R with juvenile abundances, run timing, fish production analysis, fecundity and fish behaviour. Special emphasis is now also being placed on evaluation of marine survival and growth.

Upstream census data for the Burrishoole system, 2014 *(data for 2014 is provisional)*

Species	Salmon Leap Upstream 2014	Mill Race Upstream 2014	Totals Upstream 2014	Totals Upstream 2013	Totals Upstream 2012	Totals Upstream 2011
Wild Grilse	257	14	271	710	671	520
Wild Spring Salmon	22	4	23	23	18	51
Reared Grilse	1114	51	1165	1301	2288	866
Wild Sea Trout	23	2	25	20	30	13
Wild Finnock	97	8	105	50	85	35
Wild Brown Trout	45	33	78	101	77	115

Downstream census data for the Burrishoole system, 2014

Species	Salmon Leap Downstream 2014	Mill Race Downstream 2014	Totals Downstream 2014	Totals Downstream 2013	Totals Downstream 2012	Totals Downstream 2011
Wild Salmon Smolt	6947	1203	8150	6357	7717	6627
Wild Sea Trout Smolt	398	33	43	485	632	620
Silver Eel	2664	453	3117	3633	3335	1969

APPENDIX 6:

RESEARCH VESSEL PROGRAMME 2014

Operational Days from 01/01/2014 - 31/12/2014	Days	Surveys	Scientist Days	Student Days
Celtic Voyager	239	25	1210	475
Celtic Explorer	302	19	3212	0
Total	541	44	4422	475

RV Celtic Voyager Activity 2014

Survey Code	Survey Name	Survey Days	No. of Scientists	Scientist Days	No. of Students	Student Days	Student and Scientist Days
CV14001	Winter Monitoring Survey	13	7	91	0	0	91
CV14002	Multidisciplinary Survey Planning - A Peer Assisted Learning exercise lead by postgraduates and final year degree students	5	3	15	47	47	62
CV14003	SMART Common Module Spring 2014	9	7	63	38	76	139
CV14005	SMART Science@Sea 2014	6	4	24	36	72	96
CV14004	SMART HMRC Ocean Energy 2014	2	4	8	12	24	32
CV14006	SEAI Renewable Energy Survey	18	4	72	0	0	72
CV14007	The collapse of the Irish Ice Sheet in the Celtic Sea sector and its marine habitat legacy	12	7	84	0	0	84
CV14020	Integrated Cetaceans Offshore Study	5	7	35	0	0	35
CV14008	INFOMAR Seabed Mapping Survey	14	6	84	0	0	84
CV14009	Aran/Porcupine UWTV survey	10	6	60	0	0	60
CV14010	SMART Operational Oceanography 2014	5	3	15	3	15	30
CV14011	Celtic Sea UWTV Survey Leg 1	10	6	60	0	0	60
CV14012	DINO14	7	6	42	0	0	42
CE14014	Monitoring of Acoustic Noise from Seismic Surveys	11	6	66	0	0	66

Survey Code	Survey Name	Survey Days	No. of Scientists	Scientist Days	No. of Students	Student Days	Student and Scientist Days
CV14013	INFOMAR Seabed Mapping Survey	26	4	104	0	0	104
CV14014	Celtic Sea UWTV Leg 2	10	6	60	0	0	60
CV14015	INFOMAR Seabed Mapping Survey	21	5	105	0	0	105
CV14022	Langolf-TV	10	7	70	0	0	70
CV14019	SMART GMIT AMBS 2014	4	4	16	8	16	32
CV14021	Collaborative research on the Porcupine Bank	10	6	60	0	0	60
CV14023	Microplastics and trophic interactions in the southern Irish coastal marine environment	7	2	14	5	35	49
CV14024	Undergraduate shipboard training in methods of oceanographic, benthic, megafauna and fisheries research	6	4	24	60	60	84
CV14016	SMART UCC Exploration Geology 2014	6	5	30	60	60	90
CV14018	SMART Common Module AIT Winter 2014	2	5	10	10	20	30
CV14017	SMART Common Module Winter 2014	10	5	50	50	50	100
Total		239		1210	329	475	1685

RV Celtic Explorer Activity 2014

Survey Code	Survey Name	Survey Days	No. of Scientists	Scientist Days
CE14001	Developing Geotechno Stratigraphies	8	12	96
CE14002	Cetaceans on the Frontier 5	12	20	240
CE14019	Trial of Coring Equipment	5	6	30
CE14003	GATEWAYS II	12	14	168
CE14004	West of Ireland Coring Programme	13	12	156
CE14005	Blue Whiting Acoustic Survey	21	12	252
CE14006	Transatlantic Added Value Survey	13	14	182
CE14007	CE2014 Fisheries Acoustic Survey Newfoundland	29	14	406
CE14008	Ocean climate sections and geology: Porcupine, Rockall, Hatton area	9	10	90
CE14009	Ecosystem Functioning and Biodiversity at Whittard Canyon	17	13	221
CE14010	Northwest Herring Acoustic Survey	21	9	189
CE14011	Slope collapses On Rockall Bank and Escarpment Habitats (SORBEH)	14	13	182
CE14012	BSH Summer Survey	39	12	468
CE14013	SMART AWI Summer School 2014	5	20	100
CE14020	Cetaceans on the Frontier 6	7	18	126
CE14015	Irish Groundfish Survey 2014 Leg 1	12	14	168
CE14016	Celtic Sea Herring Acoustic Survey	21	14	294
CE14017	BSH November Survey	9	10	90
CE14018	Irish Groundfish Survey Legs 2, 3 and 4	35	16	560
Total		302	253	3212

RV Celtic Voyager Cruise Details 2014

Survey Code	Survey Name	Chief Scientist	Organisation	Start Date	End Date	Survey Days
CV14001	Winter Monitoring Survey	Dr. Evin McGovern	Marine Institute	20/01/2014	01/02/2014	13
CV14002	Multidisciplinary Survey Planning	Dr. Ian O'Connor	Galway Mayo Institute of Technology	04/02/2014	08/02/2014	5
CV14003	SMART Common Module Spring 2014	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	02/03/2014	10/03/2014	9
CV14005	SMART Science@ Sea 2014	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	04/04/2014	09/04/2014	6
CV14004	SMART HMRC Ocean Energy 2014	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	10/04/2014	11/04/2014	2
CV14006	SEAI Surveys	Mr. Kevin Sheehan	Marine Institute	16/04/2014	03/05/2014	18
CV14007	The collapse of the Irish Ice Sheet in the Celtic Sea	Dr. Sara Benetti	University of Ulster	05/05/2014	16/05/2014	12

Survey Code	Survey Name	Chief Scientist	Organisation	Start Date	End Date	Survey Days
CV14020	Integrated Cetaceans Offshore Study	Dr. Simon Berrow	Galway Mayo Institute of Technology	17/05/2014	21/05/2014	5
CV14008	INFOMAR	Mr. Kevin Sheehan	Marine Institute	25/05/2014	07/06/2014	14
CV14009	Aran/Porcupine Under Water TV survey	Ms. Jennifer Doyle	Marine Institute	08/06/2014	17/06/2014	10
CV14010	SMART Operational Oceanography 2014	Prof Peter Croot	National University of Ireland Galway	18/06/2014	22/06/2014	5
CV14011	Celtic Sea Under Water TV Survey Leg 1	Ms. Imelda Hehir	Marine Institute	25/06/2014	04/07/2014	10
CV14012	DINO14	Dr. Robin Raine	National University of Ireland Galway	05/07/2014	11/07/2014	7
CE14014	Monitoring of acoustic noise from seismic surveys	Dr. Martin White	National University of Ireland Galway	12/07/2014	22/07/2014	11
CV14013	INFOMAR	Mr. Kevin Sheehan	Marine Institute	23/07/2014	17/08/2014	26
CV14014	Celtic Sea Under Water TV Leg 2	Dr. Colm Lordan	Marine Institute	18/08/2014	27/08/2014	10
CV14015	INFOMAR	Mr. Kevin Sheehan	Marine Institute	28/08/2014	17/09/2014	21
CV14022	Langolf-tv Nephrops Survey	Dr. Michele Salaun	Ifremer	20/09/2014	29/09/2014	10
CV14019	SMART GMIT AMBS 2014	Mr. John Boyd	Galway Mayo Institute of Technology	02/10/2014	05/10/2014	4
CV14021	Collaborative research on the Porcupine Bank	Dr. Adrian Patterson	National University of Ireland Galway	07/10/2014	16/10/2014	10
CV14023	Microplastics and trophic interactions	Miss Amy Lusher	Galway Mayo Institute of Technology	18/10/2014	24/10/2014	7
CV14024	Undergraduate shipboard training	Dr. Ian O'Connor	Galway Mayo Institute of Technology	27/10/2014	01/11/2014	6
CV14016	SMART UCC Exploration Geology 2014	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	04/11/2014	09/11/2014	6
CV14018	SMART Common Module AIT Winter 2014	Mr. John Boyd	Galway Mayo Institute of Technology	10/11/2014	11/11/2014	2
CV14017	SMART Common Module Winter 2014	Mr. John Boyd	Galway Mayo Institute of Technology	19/11/2014	28/11/2014	10

RV Celtic Explorer Cruise Details 2014

Survey Code	Survey Name	Chief Scientist	Organisation	Start Date	End Date	Survey Days
CE14001	Developing Geo-techno Stratigraphies	Professor Andrew Wheeler	University College Cork	10/01/2014	17/01/2014	8
CE14002	Cetaceans on the Frontier 5	Dr. Joanne O'Brien	Galway Mayo Institute of Technology	20/01/2014	31/01/2014	12
CE14019	Trial of Coring Equipment	Mr. Jared Peters	University of Ulster	13/02/2014	17/02/2014	5
CE14003	GATEWAYS II	Dr. Stephen McCarron	National University of Ireland Maynooth	22/02/2014	05/03/2014	12
CE14004	West of Ireland Coring Programme (WICPro)	Professor Andrew Wheeler	University College Cork	06/03/2014	18/03/2014	13
CE14005	Blue Whiting Acoustic Survey	Mr. Ciaran O'Donnell	Marine Institute	22/03/2014	11/04/2014	21
CE14006	Transatlantic added value	Dr. George Rose	Newfoundland - Fisheries and Marine Institute of Memorial University	12/04/2014	24/04/2014	13
CE14007	CE2014 Fisheries Acoustic Survey Newfoundland	Dr. George Rose	Newfoundland - Fisheries and Marine Institute of Memorial University	25/04/2014	23/05/2014	29
CE14008	Ocean climate sections and geology: Porcupine, Rockall, Hatton area	Dr. Glenn Nolan	Marine Institute	27/05/2014	04/06/2014	9
CE14009	Ecosystem functioning and biodiversity at Whittard Canyon	Dr. Martin White	National University of Ireland Galway	05/06/2014	21/06/2014	17
CE14010	Northwest herring acoustic survey	Dr. Cormac Nolan	Marine Institute	22/06/2014	12/07/2014	21
CE14011	Slope collapses On Rockall Bank and Escarpment Habitats (SORBEH)	Dr. Aggeliki Georgiopoulou	University College Dublin	14/07/2014	27/07/2014	14
CE14012	BSH Summer Survey	Mr. Holger Klein	BSH	01/08/2014	08/09/2014	39
CE14013	SMART AWI Summer School 2014	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	12/09/2014	16/09/2014	5
CE14020	Cetaceans on the Frontier 6	Dr. Joanne O'Brien	Galway Mayo Institute of Technology	17/09/2014	23/09/2014	7
CE14015	IGFS 2014 Leg 1	Mr. Hans Gerritsen	Marine Institute	24/09/2014	05/10/2014	12
CE14016	Celtic Sea Herring Acoustic Survey	Dr. Cormac Nolan	Marine Institute	06/10/2014	26/10/2014	21
CE14017	BSH November Survey	Mr. Achim Schulz	BSH	31/10/2014	08/11/2014	9
CE14018	Irish Groundfish Survey 2014 Leg 2, 3 and 4	Mr. Brendan O' Hea	Marine Institute	13/11/2014	17/12/2014	35

APPENDIX 7:

FOREIGN MARINE SCIENTIFIC RESEARCH (MSR)

ACTIVITIES IN IRISH WATERS IN 2014

Foreign Vessel Activity 2014

Scientist Days Ireland	Scientist Days Foreign
4897	2974

Vessel Name	Country	No. of Days	No. of Scientists	Scientist Days
Endeavour *	Britain	16	8	128
Scotia *	Britain	6	7	42
Tridens *	Netherlands	12	6	72
Discovery *	Britain	16	28	448
Fridtjof Nansen	Russia	11	17	187
G. O. Sars	Norway	5	7	35
Inger Hildur *	Norway	14	5	70
Discovery	Britain	15	10	150
RRS James Cook *	Britain	20	6	120
Corwith Cramer	USA	8	4	32
Meteor	Germany	6	20	120
RRS James Cook *	Britain	24	6	144
Scotia	Britain	8	12	96
Vizconde de Eza *	Spain	28	14	392
Endeavour	Britain	5	6	30
RHM Tenace	France	9	4	36
Thalassa	France	13	25	325
Discovery	Britain	6	15	90
Scotia	Britain	6	12	72
Discovery	Britain	5	23	115
Nida	Lithuania	15	2	30
Corystes	Britain	40	6	240
TOTAL		288	315	2974

* Irish Observer onboard (8 total)

APPENDIX 8:

MARINE INSTITUTE STRATEGIC PLAN – EXECUTIVE SUMMARY

Executive Summary

This Plan has been written with the active engagement of the staff and Board of the Marine Institute to provide clarity on our operating framework and the strategic approach that will be taken on key decisions that need to be embraced in the period 2013–2016.

The document sets out the key foundations for the current operations and roles of the Marine Institute through the first two sections.

In Section 3 we state our five key high-level Goals—Service Provider; Research Performer; Research Catalyst and Funder; Infrastructure Provider; and the operation of an Efficient and Effective Organisation. These Goals support our Vision of *A Thriving Maritime Economy in Harmony with the Ecosystem and Supported by the Delivery of Excellence in Our Services* (Figure 1). Each Goal is accompanied by Key Objectives and Priority Actions that inform our detailed Service Area Operational Plans and our Performance Management Development Systems (PMDS). Table 1 provides an overview of the Institute's five Goals and associated key Objectives.



Figure 1: Marine Institute Vision and Goals

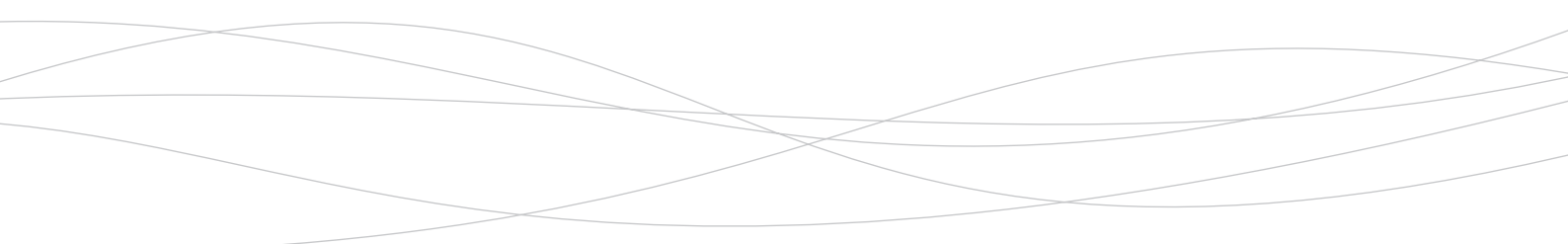
Table 1: Marine Institute Goals and associated Key Objectives

Key Objectives	
Goal 1: Service Provider	Carry out a suite of statutory environmental, fisheries and aquaculture data collection surveys and monitoring programmes assigned to the Marine Institute by Government, to allow Ireland to meet its national and international legal obligations.
	Deliver scientific, technical and economic data services that inform policy and provide advice to Government, underpinning sectoral development and protecting the marine environment.
	Maintain international excellence in marine science and research in order to gain a better understanding of the health and functioning of marine ecosystems and provide scientific advice to meet the needs of decision-makers in the rapidly changing area of ocean governance.
	Continue to partner and collaborate with the Higher Education sector and other research performers.
	Provide services, data, and publications online, in line with the eGovernment Strategy, to improve customer services; including access through mobile devices and the use of social media.
Goal 2: Research Performer	Maintain our track record as a research performer in targeted areas and seek further opportunities to participate in competitive national and international research projects and programmes.
	Engage with key stakeholders to maximise Marine Institute research participation and opportunities to add value to existing research programmes.
Goal 3: Research Catalyst and Funder	Develop and take the lead role in the implementation of national marine research agenda(s) through cross-departmental/agency and Higher Education Institute collaboration.
	Drive the further development of national programmes in Advanced Marine Technology and Marine Biotechnology.
	Maximise Irish participation in, and benefit from, international marine Research, Technology, Development and Innovation programmes.
Goal 4: Infrastructure Provider	Maintain and, where possible, enhance key Marine Institute facilities and assets.
	Maintain and explore opportunities to enhance key national marine infrastructures.
	Ensure the necessary data infrastructure, guidance and supports are in place to allow delivery of efficient and effective day-to-day ICT operations; support best practice management of Marine Institute data; and promote access to national marine datasets.
Goal 5: Efficient and Effective Organisation	Deliver a solution-driven, best practice human resource service with a focus firmly on the needs of all individual staff and service teams, using management information systems and effective operational practices.
	Adhere to the highest levels of corporate governance, while delivering a very high level of value-for-money customer-driven services.
	Maintain and enhance the Marine Institute's reputation and ability to deliver high standards of analysis and services through appropriate quality systems and efficient organisation.
	Ensure that external communications are effective, comprehensive and relevant and help promote an awareness of Ireland's marine resource.

Section 4 describes our approach to achieving our goals, within the context of the current operating environment. Teamwork is key to this approach. We will build on our open and inclusive planning processes to address challenges and opportunities that may arise in the course of the next three years.

We will continue to identify ways in which we can implement our adaptive and cost efficiency measures to minimise the impact of further budget cuts on the delivery of front-line services. We will also explore new and innovative solutions to our service delivery model and examine the scope for new partnerships with the Higher Education Institutes, other government agencies and the private sector. Furthermore, we will strive to expand on our excellent earnings record as a research performer, through externally funded programmes.

The Institute has identified a number of tools which we can use to address the gaps which have been identified. These are innovative and show the flexibility, responsiveness and dedication to public service that is required of a modern, efficient public body. One highly cost-effective means to deliver new services is through the leveraging of EU funding and international partnerships. The Institute has built up a very strong track record of forming successful partnerships with other European agencies and institutions and a protocol agreed in early 2013 for the recruitment of staff under other public, private and EU funding programmes is most welcome and a crucial tool to enable the Institute to achieve its objectives.



Should we reach a limit on the scope of these measures to absorb the impact of further budget cuts on front-line services, we will plan adaptive measures to achieve alignment between budget/capacity and service delivery. This approach would involve dialogue with key clients to clarify service demand prioritisation, in order to identify the most balanced outcome achievable, thus enabling us to protect our priority front-line services to the maximum extent practicable.

Finally, this Plan sets out how we will identify and prepare plans to benefit from new opportunities. There are clear signals of an increase in the demand for services from the Marine Institute, in light of economic development opportunities identified in *Harnessing our Ocean Wealth - An Integrated Marine Plan for Ireland* and Government/EU resource management and monitoring requirements. Furthermore, the prospects for an increase in the priority and support for marine research and innovation at an EU level are encouraging.

This strategic approach, with its balance of reactive and proactive measures, together with the vision, values and commitment of the Marine Institute staff, will help guide the Marine Institute through the challenges and opportunities over the period 2013–2016.

APPENDIX 9:

GALWAY STATEMENT ON ATLANTIC OCEAN COOPERATION – LAUNCHING A EUROPEAN UNION – CANADA – UNITED STATES OF AMERICA RESEARCH ALLIANCE

Galway Statement on Atlantic Ocean Cooperation Launching a European Union - Canada - United States of America Research Alliance

The Signatories of this Statement meeting on the occasion of the high level event

The Atlantic – a Shared Resource, held on

23 and 24 May 2013

at the Marine Institute, Galway, Ireland

Recognizing the importance of the Atlantic Ocean to our citizens, prosperity, human health and well-being, adaptation to climate and other environmental change, and security,

Cognizant of our reliance upon the best available science and knowledge to inform decisions affecting the Atlantic Ocean,

Realizing that our countries face similar challenges in promoting a healthy and well-understood Atlantic Ocean,

Acknowledging the critical interlink between the Atlantic Ocean and the portion of the Arctic region that borders the Atlantic,

Appreciating the value of our ongoing cooperation on ocean science and observation in the Atlantic Ocean, and

Valuing the essential role of international partnership to achieve our shared objectives and the potential of greater cooperation to advance our knowledge of the Atlantic Ocean,

Intend to advance our shared vision of an Atlantic Ocean that is healthy, resilient, safe, productive, understood and treasured so as to promote the well-being, prosperity, and security of present and future generations.

This cooperation is intended to increase our knowledge of the Atlantic Ocean and its dynamic systems - including interlinks with the portion of the Arctic region that borders the Atlantic - by aligning our ocean observation efforts to improve ocean health and stewardship and promote the sustainable management of its resources. Observation is fundamental to understanding the ocean and forecasting its future. Activities may include efforts to better coordinate data sharing, interoperability and coordination of observing infrastructures and seabed and benthic habitat mapping.

This cooperation may result in mutual benefits including better ecosystem assessments and forecasts and deeper understanding of vulnerabilities and risk, including those relating to the global climate system and climate change impacts. It can also help to generate new tools to increase resilience, conserve rich biodiversity, manage risk and determine social, environmental and economic priorities.

We further intend to promote our citizens' understanding of the value of the Atlantic by promoting oceans literacy. We intend to show how results of ocean science and observation address pressing issues facing our citizens, the environment and the world and to foster public understanding of the value of the Atlantic Ocean.

We intend to advance this agenda by

- taking stock of and utilizing existing bilateral science and technology cooperation (e.g. the U.S. - European Union Science and Technology Joint Consultative Group and the Canada - European Union Science and Technology Joint Coordinating Committee) and multilateral cooperation frameworks including those related to ocean observation, and ocean literacy initiatives;
- recommending priorities for future cooperation and, where possible,
- coordinating the planning and programming of relevant activities in these areas, including promoting researcher mobility.

This cooperation could potentially involve national partners and European Commission representatives, the private sector, and the scientific community to further our efforts by harnessing the value of public-private partnerships.


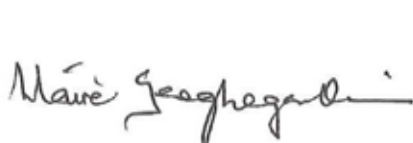
This initiative is also expected to reinforce existing international efforts to advance our knowledge of the ocean, including the World Ocean Assessment.

Signed in Galway on 24 May 2013 in three originals in the English language.

For the European Union

**For the Government of
Canada**

**For the Government of the
United States of America**



**Máire GEOGHEGAN-
QUINN**
Commissioner for Research,
Innovation and Science

Edward FAST
Minister of International
Trade and Minister for the
Asia-Pacific Gateway



Dr Kerri-Ann JONES
Assistant Secretary of State
for Oceans and International
Environmental and Scientific
Affairs



Maria DAMANAKI
Commissioner for Maritime
Affairs and Fisheries

Glossary of Abbreviations

ACA	Association of chartered accountants	DAMARA	Demersal Mixed fishery Analysis tool for Regional Advice
ACEObs	Atlantic Centre for Earth Observation	DCENR	Department of Communications and Environment and Natural Resources
ACRU-NET	Atlantic Crab Resource Network	DEC&LG	Department of the Environment, Community and Local Government
AORAC-SA	Atlantic Ocean Research Alliance	DCF	Data Collection Framework
ASIMUTH	Coordination and Support Action Applied Simulations and Integrated Modelling for the Understanding of Toxic and Harmful Algal Blooms.	DCU	Dublin City University
AsMARA	Arsenic in marine macroalgae and implications for commercial uses	DG Mare	Directorate General for Maritime Affairs and Fisheries
ASTOX	Azaspiracids Toxicological Evaluation, Test Methods and Identification of the Source Organism	DTF	Development Task Force
BA	Bachelor of the Arts	ECOKNOWS	Effective Use of Ecosystem and Biological Knowledge in Fisheries
BENTHIS	Benthic Ecosystems Fisheries Impact Study	EMEA	Europe Middle East and Africa
BIM	Bord Iascaigh Mhara	EMFF	European and Maritime Fisheries Fund
BSc	Bachelor of Science	EMSO	European Multidisciplinary Seafloor Observatory
BSc Arch	Bachelor of Science - Architecture	EPA	Environmental Protection Agency
BSH	Bundesamt für Seeschifffahrt und Hydrographie – German Federal Maritime and Hydrographic Agency	ERIC	European Research Infrastructure Consortium
CEO	Chief Executive Officer	ETP	Excellence Through People Accreditation
CFO	Chief Financial Officer	EU	European Union
CFP	Common Fisheries Policy	EUROBASIN	Integrated Project on Basin – Scale Analysis
CITES	Convention of International Trade in Endangered Species	EuroGOOS	European Global Ocean Observing System
CoFASP	Fisheries aquaculture and seafood processing network	F.C.A.	Financial Conduct Authority
CoOPEUS	Cooperation between the European Union and United States	FDI	Foreign Direct Investment
DAFM	Department of Agriculture, Food and Marine	FEAS	Fisheries Ecosystem Advisory Services (of the Marine Institute)
DAH&G	Department of Arts, Heritage and Gaeltacht	FIRM	Food Industry Research Measure
		FP7	Seventh Framework Programme
		GAA	Gaelic Athletic Association
		GEOSS	Global Earth Observation System of Systems
		GEPETO	Gestion de las Pesquerías y Transnational Objectivos

GLEON	Global Lake Ecological Observations Network	LED	Light Emitting Diode
GMIT	Galway-Mayo Institute of Technology	MA	Master of Arts
GOOS	Global Ocean Observing System	MariaBOX	Marine environmental in situ Assessment and monitoring tool Box
GSI	Geological Survey of Ireland	MARUM	Centre for Marine Environmental Sciences
H2-Ocean	Development of a wind-wave open-sea platform equipped for hydrogen generation with support for multiple users of energy	MEFS	Marine Environment and Food Safety Services (of the Marine Institute)
HEA	Higher Education Authority	MPlan	Masters in Planning and Sustainable Development
IAOOS	Integrated Atlantic Ocean Observing System	MSc	Master of Science
IBM	International Business Machines	MSFD	Marine Strategy Framework Directive
ICCAT	International Commission for the Conservation of Atlantic Tunas	MRIAI	Member of the Royal Institute of the Architects of Ireland
ICES	International Council for the Exploration of the Seas	MYFISH	Maximising Yield of Fisheries while Balancing Ecosystem, Economic and Social Concerns
ICT	Information Communications Technology	NASCO	North Atlantic Salmon Commission
IDA	Industrial Development Authority	NATURA	NATURA 2000 sites are protected for flora and fauna of European importance
IDO	Irish Digital Ocean	NCCA	National Council for Curriculum and Assessment
IFREMER	l'Institut Francais de Recherché Pour l'Exploitation de La Mer	NDP	National Development Programme
IMDO	Irish Maritime Development Office (of the Marine Institute)	NIAP	National Infrastructure Access Programme
INFOMAR	Integrated Mapping for the Sustainable Development of Ireland's Marine Resources	NOAA	National Oceanic and Atmospheric Administration
INTERREG	Inter-Regional Co-operation Programme	NSAI	National Standards Authority of Ireland
ISEAS	Irish Seafarers Educational Assistance Scheme	NUIG	National University of Ireland, Galway
ISO	International Organisation for Standardisation	NYSE:SWI	SolarWinds Inc
JERICO	Towards a joint European research infrastructure network for coastal observatories	OAR	Open Access Repository
JPI Oceans	Joint Programming Initiative Healthy and Productive Seas and Oceans	OGP	Office of the Government Procurement
kWh	Kilowatt hour	OSCE	Organisation for Security and Co-operation in Europe
LEANWIND	Logistic Efficiencies And Naval architecture for Wind Installations with Novel Developments	OsHV-1 var	Herpes Virus
		OSPAR	Oslo and Paris Convention (1992)
		PhD	Doctor of Philosophy
		PMDS	Performance Management Development Systems

PRTL	Programme for Research in Third-Level Institutions
PwC	Price Waterhouse Coopers
RIAN	National Open Access portal for Irish Research Publications
RIBA	Royal Institute of British Architects
RNLI	Royal National Lifeboat Institution
ROV	Remotely Operated Vehicle
RV	Research Vessel
RVops	Research Vessel Operations
SEAI	Sustainable Energy Authority of Ireland
SMART	Strategic Marine Alliance for Research and Training
SME	Small to Medium Sized Enterprise
SSCE	Standing Scientific Committees for Eel
SSCS	Standing Scientific Committees for Salmon
STAMAR	Showcasing Technology Applicable to Maritimes SMEs
STECF	Scientific, Technical and Economic Committee on Fisheries
TD	Teachta Dála
UCC	University College Cork
UK	United Kingdom
US	United States
USA	United States of America
UWTV	University of Washington Television
WGOH	Working Group on Oceanic Hydrography



Financial Statements

Year Ended 31 December 2014

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Comptroller and Auditor General

Report for presentation to the Houses of the Oireachtas

Marine Institute

I have audited the financial statements of the Marine Institute for the year ended 31 December 2014 under the Marine Institute Act 1991. The financial statements, which have been prepared under the accounting policies set out therein, comprise the accounting policies, the income and expenditure account, the statement of total recognised gains and losses, the balance sheet, the cash flow statement and the related notes.

The financial statements have been prepared in the form prescribed under Section 12 of the Act, and in accordance with generally accepted accounting practice in Ireland.

Responsibilities of the Members of the Board

The Board is responsible for the preparation of the financial statements, for ensuring that they give a true and fair view of the state of the Institute's affairs and of its income and expenditure, and for ensuring the regularity of transactions.

Responsibilities of the Comptroller and Auditor General

My responsibility is to audit the financial statements and report on them in accordance with applicable law.

My audit is conducted by reference to the special considerations which attach to State bodies in relation to their management and operation.

My audit is carried out in accordance with the International Standards on Auditing (UK and Ireland) and in compliance with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of Audit of the Financial Statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements, sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of

- whether the accounting policies are appropriate to the Institute's circumstances, and have been consistently applied and adequately disclosed
- the reasonableness of significant accounting estimates made in the preparation of the financial statements, and
- the overall presentation of the financial statements.

I also seek to obtain evidence about the regularity of financial transactions in the course of audit.

In addition, I read the Institute's annual report to identify material inconsistencies with the audited financial statements. If I become aware of any apparent material misstatements or inconsistencies, I consider the implications for my report.

Opinion on the Financial Statements

In my opinion, the financial statements, which have been properly prepared in accordance with generally accepted accounting practice in Ireland, give a true and fair view of the state of the Institute's affairs at 31 December 2014 and of its income and expenditure for the year 2014.

In my opinion, proper books of account have been kept by the Institute. The financial statements are in agreement with the books of account.

Matters on which I report by exception

I report by exception if

- I have not received all the information and explanations I required for my audit, or
- my audit noted any material instance where money has not been applied for the purposes intended or where the transactions did not conform to the authorities governing them, or
- the information given in the Institute's annual report is not consistent with the financial statements, or
- the statement on internal financial control does not reflect the Institute's compliance with the Code of Practice for the Governance of State Bodies, or
- I find there are other material matters relating to the manner in which public business has been conducted.

I have nothing to report in regard to those matters upon which reporting is by exception.



Seamus McCarthy
Comptroller and Auditor General
30th June 2015

Statement of Responsibilities of the Board

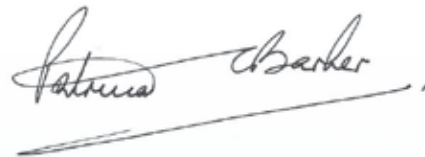
Section 12 of the Marine Institute Act, 1991, requires the Institute to prepare financial statements in such a form as may be approved by the Minister for Agriculture, Food and the Marine. In preparing those financial statements, the Board of the Institute is required to :

- Select suitable accounting policies and apply them consistently;
- Make judgements and estimates that are reasonable and prudent;
- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements;
- Prepare the financial statements on a going concern basis unless it is inappropriate to presume that the Institute will continue in operation.



Dr John Killeen
Board Member
Date: 24th June 2015

The Institute is responsible for keeping proper books of account which disclose with reasonable accuracy at any time the financial position of the Institute and which enable it to ensure that the financial statements comply with Section 12(1) of the Act. The Institute is also responsible for safeguarding its assets and for taking reasonable steps for the prevention and detection of fraud and other irregularities.



Prof Patricia Barker
Board Member
Date: 24th June 2015

Statement on Internal Financial Control

On behalf of the Board of the Marine Institute I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

The system can only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded, and that material errors or irregularities are either prevented or would be detected in a timely period.

The Board has taken steps to ensure an appropriate control environment is in place by:

- Clearly defining management responsibilities and powers;
- Establishing formal procedures for monitoring the activities and safeguarding the assets of the organisation;
- Developing a culture of accountability across all levels of the organisation.

A review of risk management was carried out in 2014 which included:

- An evaluation of the appropriateness and effectiveness of the existing policy and procedures in identifying and evaluating business risks;
- The identification of the nature, extent and financial implication of risks facing the body including the extent and categories which it regards as acceptable;
- The assessment of the likelihood and impacts of identified risks occurring;
- An undertaking that the risk framework addresses the requirements of the Code of Practice for the Governance of State Bodies (2009).

The system of internal financial control is based on a framework of regular management information, administration procedures including segregation of duties, and a system of delegation and accountability. In particular it includes:

- A comprehensive budgeting system with an annual budget which is reviewed and agreed by the Board;
- Regular reviews by the Board of periodic and annual financial reports which indicate financial performance against forecasts;
- Setting targets to measure financial and other performance;
- Formal project management disciplines.

The Marine Institute has established an internal audit function that operates in accordance with the Framework Code of Best Practice set out in the Code of Practice on the Governance of State Bodies. The work of internal audit is informed by analysis of the risk to which the body is exposed, and annual internal audit plans are based on this analysis. The analysis of risk and the internal audit plan for 2014 was endorsed by the Audit Committee and approved by the Board. The Audit Committee has received the report of internal audit activity in 2014, and this was presented to the Board. The report included the Internal Auditor's opinion on the adequacy and effectiveness of the system of internal financial control. The Board's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal auditor, the audit committee which oversees the work of the internal auditor, the executive managers within the Marine Institute who have responsibility for the development and maintenance of the financial control framework, and comments made by the Comptroller and Auditor General in his management letter.

The Board reviewed and approved the effectiveness of the system of internal financial controls for 2014.

On behalf of the Board:



Dr John Killeen
Board Member
Date: 24th June 2015

Accounting Policies

Year Ended 31 December 2014

1. General

The financial statements have been prepared under the accruals method of accounting, except as stated below, and in accordance with generally accepted accounting principles. Financial reporting standards recommended by the recognised accounting bodies are adopted as they become operative.

2. Income

Income arising from Oireachtas Grant in Aid is recognised on a cash receipts basis.

3. Deferred Income

Income received in relation to EU and other contract research projects is recognised on an accruals basis and income is recognised in the accounting period in which the related expenditure is charged. Income received in advance is treated as deferred income and included as creditor on the balance sheet. Expenditure incurred where the related income has not been received is treated as accrued income and shown as a debtor in the balance sheet.

4. Fixed Assets and Depreciation

Depreciation is provided for on a straight line basis at rates estimated to reduce the assets to their realisable value by the end of their expected lives. The rates in use are as follows:

Buildings	2%
Plant and Equipment	25%
Fixtures and Fittings	25%
Computers	33%
Research Vessel	4%
Research Vessel Equipment	25%
Research Vessel Refit	20%
Motor Vehicles	20%
Land is not depreciated	

5. Leased Assets

Payments under operating leases (Note17) are charged to the income and expenditure account in the year to which they relate.

6. Capital Account

The Capital Account represents the unamortised value of income applied for capital purposes.

7. Foreign Currencies

Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rates ruling at the Balance Sheet date. Revenues and costs are translated at the exchange rates ruling at the dates of the underlying transactions.

8. Marine Research Programme

The Marine Institute enters into commitments in respect of contracts awarded for Marine Research Programme projects. Expenditure is charged in the financial statements on the basis of initial payments made on signing of the project contract, an interim payment may be made subject to satisfactory performance and further payments are charged on receipt and verification of claims in respect of work completed. Costs incurred by the Institute in the administration of Marine Research Programme projects are funded by the capital vote of the Marine Institute and charged to the financial statements as they are incurred.

9. Deferred Funding Asset for Pensions

The Marine Institute operates defined benefit pension schemes which are funded annually on a pay as you go basis from monies available to it, including monies provided by the Department of Agriculture, Food and the Marine.

Pension costs reflect pension benefits earned by employees in the period and are shown net of staff pension contributions which are remitted to the Department of Agriculture, Food and the Marine. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge pension payments.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Recognised Gains and Losses and a corresponding adjustment is recognised in the amount recoverable from the Department of Agriculture, Food and the Marine.

Pension liabilities represent the present value of future pension payments earned by staff to date. Deferred pension funding represents the corresponding asset to be recovered in future periods from the Department of Agriculture, Food and the Marine.

Income and Expenditure Account

Year Ended 31 December 2014

		2014		2013	
	Note	€'000	€'000	€'000	€'000
Income					
Oireachtas Grants	2		24,481		22,916
Other Income	3		11,837		12,764
Net Deferred Funding For Pensions	16		2,816		3,038
			39,134		38,718
Transfer (to)/from Capital Account	10		(517)		1,364
			38,617		40,082
Expenditure					
Corporate Services	4	5,330		4,419	
Marine Environment and Food Safety Services	5	6,653		6,798	
Fisheries Ecosystem Advisory Services	6	5,042		4,786	
Ocean Science and Information Services	7	10,855		12,524	
Irish Maritime Development Office	8	619		665	
Marine Research Programme	12	7,130		7,750	
Pensions Costs	16	2,895		2,966	
Total Expenditure			38,524		39,908
Surplus (Deficit)/ for the year			93		174
Surplus at 1 January			1,955		1,781
Surplus at 31 December			2,048		1,955

Statement of Total Recognised Gains and Losses

Surplus/(Deficit) for the year	93	174
Actuarial Gains/(Losses) on Pension Scheme Liabilities	816	2,339
Changes in Assumptions		
Adjustment to Deferred Pension Funding	(816)	(2,339)
Total Recognised Gains and Losses for the year	93	174

The results for the year relate to continuing operations.

The Statement of Accounting Policies and Notes 1 - 22 form part of these financial statements.



Dr John Killeen

Board Member

Date: 24th June 2015



Prof Patricia Barker

Board Member


Date: 24th June 2015

Balance Sheet

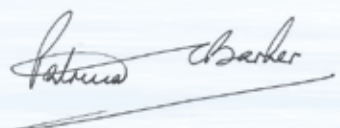
as at 31 December 2014

		2014		2013	
	Note	€'000	€'000	€'000	€'000
Fixed Assets	11		21,705		21,188
Current Assets					
Debtors and Prepayments	14	5,200		3,966	
Banks and Cash		1,334		458	
		6,534		4,424	
Current Liabilities					
Creditors and Accruals	15	4,486		2,469	
Net Current Assets			2,048	-	1,955
Total Assets Less Current Liabilities before Pensions					
Deferred Pension Funding		30,200		28,200	
Pension Liabilities		(30,200)		(28,200)	
Total Assets less Current Liabilities			23,753		23,143
Financed By:					
Capital Account	10	21,705		21,188	
Income and Expenditure Account		2,048		1,955	
			23,753		23,143

The Statement of Accounting Policies and Notes 1 – 22 form part of these financial statements.



Dr John Killeen
Board Member
Date: 24th June 2015



Prof Patricia Barker
Board Member
Date: 24th June 2015

Cash Flow Statement

for the Year Ended 31 December 2014

Reconciliation of operating surplus/(deficit) to net cash flow from operating activities

	Note	2014 €'000	2013 €'000
Surplus/(Deficit) per Income and Expenditure Account		93	174
Interest received		0	0
Transfer to/(from) Capital Account	10	517	(1,364)
Depreciation	11	3,988	3,726
(Increase) /Decrease in Debtors and Prepayments	14	(1,234)	(921)
Increase /(Decrease) in Creditors and Accruals	15	2,017	(6)
Net cash inflow from operating activities		5,381	1,609

Cash Flow Statement

		2014 €'000	2013 €'000
Net cash inflow from operating activities		5,381	1,609
Returns on investments and servicing of finance			
Interest received		0	0
Net capital expenditure			
Acquisition of fixed assets	11	(4,505)	(2,362)
Increase / (Decrease) in cash		876	(753)

Reconciliation of net cash flow to movement in net funds

	2014 €'000	2013 €'000
Increase / (Decrease) in cash	876	(753)
Net funds at 1 January	458	1,211
Net funds at 31 December	1,334	458

1. General

The Marine Institute was established on 30 October, 1992 in accordance with the provisions of the Marine Institute Act, 1991,

“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 Financial Statements cover the Year Ended 31 December 2014

2. Grant in Aid

	2014		2013	
	€'000	€'000	€'000	€'000
Current purposes				
Marine Institute - Vote 30, Subhead A.7	13,479		13,920	
Less Superannuation contributions repayable*	<u>(404)</u>	13,075	<u>(433)</u>	13,487
Capital purposes				
National Seabed Survey - Vote 29, Subhead D.7	1,406		1,404	
Marine Institute - Vote 30, Subhead A.7	3,387		1,650	
Beaufort (Note 12) - Vote 30, Subhead A.7	2,195		2,167	
Marine Research Programme (Note 12)				
Vote 30, Subhead A.7	4,418	11,406	4,208	
				9,429
		<u>24,481</u>		<u>22,916</u>

*By agreement with the Department of Agriculture, Food and the Marine this amount is refundable in respect of employee pension contributions.

3. Other Income

	2014		2013	
	€'000	€'000	€'000	€'000
EU Contract Research				
Data Collection Framework (see note below)	325		3,340	
EMFF Income Note 14	3,030			
Other	<u>787</u>	4,142	<u>800</u>	4,140
Other Income				
Research Vessel Charterage	2,117		2,028	
Databuoy – Department of Transport	419		418	
Marine Strategy Framework Directive (DECLG)	556		479	
Natura (DAFM and DECLG)	330		333	
Water Framework Directive funded by EPA	1,024		940	
Marine NDP project co-funded by EPA	0		107	
Marine Research Prog project co-funded by Teagasc	517		893	
Wave Energy Test Sites Funded by SEAI	995		1,085	
Galway Bay Cable Project – Funded by HEA	635		300	
Sundry and Other Contract Income	<u>1,102</u>	7,695	<u>2,041</u>	8,624
TOTAL		<u>11,837</u>		<u>12,764</u>

The Data Collection Framework is a European wide framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy. From 2015 onwards funding for the DCF is received as grant aid from the Department of Agriculture, Food and Marine. The amount of €3.030m is the amount which is accrued for 2014 for expenditure incurred on the 2014 DCF/EMFF programme.

4. Corporate Services

	2014 €'000	2013 €'000
Wages and salaries	1,186	1,232
Administration	3,602	2,713
Depreciation	542	474
TOTAL	5,330	4,419

Administration costs include an audit fee of €18,400 in 2014 (2013: €19,270)

5. Marine Environment and Food Safety Services

	2014 €'000	2013 €'000
Wages and Salaries: Core staff	2,664	2,749
Research & Development Programmes	3,842	3,791
Depreciation	147	258
TOTAL	6,653	6,798

6. Fisheries Ecosystems Advisory Services

	2014 €'000	2013 €'000
Wages and Salaries: Core Staff	1,798	1,913
EU Contract Staff	<u>1,452</u>	<u>1,412</u>
	3,250	3,325
Research & Development Programmes	1,711	1,383
Depreciation	81	78
TOTAL	5,042	4,786

7. Ocean Science and Information Services

	2014 €'000	2013 €'000
Wages and Salaries	1,260	1,289
Administration & Development Programmes	6,377	8,320
Depreciation	3,218	2,915
TOTAL	10,855	12,524

The total running costs of the Research Vessels and the ROV (remote operating vehicle) in 2014 was €7.86m (2013: €7.52m). €7.469m of this expenditure has been recognised in the Income and Expenditure account. €4.679m is charged to Ocean Science and Information Services (note 7) and the remaining €3.0m is charged to the Marine Research Programme (note 12). €0.391m relates to expenditure which has been capitalised and is included in fixed assets (note 11).

8. Irish Maritime Development Office

	2014 €'000	2013 €'000
Wages and Salaries	199	230
Administration & Development Programmes	420	435
Depreciation	0	0
TOTAL	619	665

9. Salary Costs

	2014 €'000	2013 €'000
Wages and Salaries: Core Staff	131 7,107	134 7,414
Pensioners and Pension Costs	17 2,895	15 2,966
Contract Staff and other payroll costs	44 3,215	43 3,073
	192 13,217	192 13,453

Pension related deductions of €0.404m were made from salaries and remitted to the Department of Agriculture, Food and the Marine.

10. Capital Account

	2014 €'000	2013 €'000
Balance at 1 January	21,188	22,552
Transfer (to) /from Income and Expenditure Account	4,505	2,362
Capital funding	(3,988)	(3,726)
Amortisation in line with asset depreciation	<u>517</u>	(1,364)
Balance at 31 December	21,705	21,188

11. Fixed Assets

Fixed Assets as stated in the financial statements are made up as follows:

	Land & Buildings €'000	Research Vessels €'000	Vessel Equipment €'000	Fixtures & Fittings €'000	Computers €'000	Motor Vehicles €'000	TOTAL €'000
Cost or Valuation							
Balance at 1 January 2014	3,743	32,531	4,378	21,889	8,455	354	71,350
Additions at cost		123	1,649	2,311	368	54	4,505
Disposals at Cost						(70)	(70)
Cost at 31 December 2014	3,743	32,654	6,027	24,200	8,823	338	75,785
Depreciation							
Balance at 1 January 2014	1,001	16,604	3,952	20,189	8,102	314	50,162
Charge for the year	75	1,516	657	1,367	337	36	3,988
Disposal at Cost						(70)	(70)
Balance at 31 December 2014	1,076	18,120	4,609	21,556	8,439	280	54,080
Net Book Value							
At 31 December 2014	2,667	14,534	1,418	2,644	384	58	21,705
At 31 December 2013	2,742	15,927	426	1,700	353	40	21,188

The Marine Institute main premises are at Rinville, Oranmore, County Galway. This building is owned by the OPW. No rent is paid to the OPW for these premises.

12. Beaufort and Marine Research Programme 2014 - 2020 (NDP 2007-2013)

The total funding and amounts applied in 2014 was as follows:

	2014 €'000 Total	2013 €'000 NDP 2007 2013
Oireachtas Income (Note 2)	10,000	8,025
Expenditure on capital equipment	(3,387)	(1,650)
Income for Marine Research Programme projects	6,613	6,375
Other Income (Note 3)	517	1,000
Total Income for Marine Research Programme projects	7,130	7,375
Expenditure:		
Amounts paid to third parties	6,434	6,659
Amounts paid to the Marine Institute	524	913
Administration	172	178
Total Programme Expenditure	7,130	7,750
(Deficit)/Surplus in year	0	(375)

In 2014 expenditure on capital equipment funded under the Marine Research Programme projects included €0.65m for the Galway Bay Cable project, €1.47m on vessel equipment and refit, and the balance of €1.18m on IT, Oceanographic equipment and fixtures and fittings.

Note 12 Cont'd

Marine NDP 2007- 2013

Under the NDP Marine Research Sub-Programme 2007-2013, investment in marine research over the period 2007-2013 is targeted at meeting objectives, research activities and outputs of Sea Change, the national marine knowledge, research and innovation strategy and *Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland (July 2012)*. Funding is targeted at the Research Measures and Programmes of the strategy via a range of mechanisms, including competitive calls for research proposals (project-based awards, desk studies, PhDs, Post-Docs etc) and tendering for the provision of infrastructure/services. A total of 172 projects have been supported up to the end of 2014 under the Marine Research Sub-Programme of the NDP with 93 of these projects still ongoing.

The total expenditure under the Marine Research Sub-Programme up to 31 Dec 2014 was €65m. Commitments at 31 Dec 2014 were €7.6m.

Research Projects awarded are subject to contract which specifies that an initial payment will be made on signing of the contract; an interim payment may be made subject to satisfactory performance with final payment made on receipt of and verification of claims. Expenditure is charged in the financial statements in accordance with Accounting Policy 8.

At 31 December 2014 payments were outstanding on amounts charged to the financial statements as follows (note 15).

	2014 €'000	2013 €'000
Amounts Outstanding	156	218

At 31st December 2014 commitments entered into but not yet charged to the financial statements in respect of Marine Research Programme projects were €7.6m with the following breakdown.

	Total €'000
Commitments as at 01 January 2014	
Committed in 2014	12,563
Decommitted in 2014	2,538
Paid in 2014	0
Commitments as at 31 December 2014	<u>(7,467)</u>
	7,634

13. Expenditure

	2014 €'000	2013 €'000
Payroll Costs	10,127	10,330
Pension Costs	2,895	2,966
Board Costs	73	63
Annual Audit Fee	19	19
Insurance	191	219
Rent, Rates and Service Charges	354	328
Facility Costs	1,699	1,657
Telephone and Data Communications	156	170
IT Maintenance	687	704
Laboratory and Field Costs	810	786
Other Admin Costs	1,029	918
Travelling Expenses	865	867
Statutory Testing, Research and Surveys projects	3,737	3,710
Marine Research Programme (NDP (2007-2013)	4,130	5,250
Marine Institute Shiptime Programme	3,000	2,500
Vessel Operation Costs	4,469	4,679
Other Sundry Equipment	213	69
Hire of Equipment and Vessels	152	947
Depreciation (Note11)	3,918	3,726
Total Expenditure Per Income and Expenditure Account	38,524	39,908

The figures in the note excludes capital expenditure of €4.5m

Foreign travel costs included under travelling expenses in 2014 amounted to €388,223.

14. Debtors and Prepayments

	2014 €'000	2013 €'000
Trade Debtors	206	359
Contract Income	1,423	2,961
EMFF 2014 Income Prepayment	3,030	0
Prepayments	541	646
	5,200	3,966

15. Creditors and Accruals

	2014 €'000	2013 €'000
Trade Creditors	1,994	1,017
Deferred Income	1,946	856
Marine Research Programme Accrual (Note 12)	156	218
Accruals	311	292
Payroll and Revenue Accruals	79	86
	4,486	2,469

16. Superannuation Scheme and Spouse & Children's Contributory Pension Scheme

The Marine Institute is a statutory State agency, established under section 3(1) of the Marine Institute Act, 1991 (No. 2 of 1991). Section 9(1) of the Act provides that the Institute shall make schemes for the granting of superannuation benefits to and in respect of staff members, subject to Ministerial approval. Two such approved schemes - the Marine Institute Staff Superannuation Scheme 1998 and the Marine Institute Spouses' and Children's Contributory Pension Scheme 1998 - are being operated by the Institute. The former scheme provides retirement benefits (lump sum and pension) to staff members, and death gratuity benefits in respect of death in service. The latter scheme provides pension benefits for the surviving spouses and dependant children of deceased members. Normal retirement age is a member's 65th birthday. Both schemes are defined benefit superannuation schemes. Staff Superannuation contributions are paid over to the Department of Agriculture, Food and the Marine.

In common with the generality of public service superannuation schemes, no separate fund is maintained, or assets held, to finance the payment of pensions and gratuities.

For the purposes of reporting in accordance with Financial Reporting Standard 17 (revised) – Retirement Benefits, the Institute has been advised by a qualified actuary. A valuation has been prepared by the actuary in order to assess the liabilities of the superannuation schemes at 31 December 2014.

The major actuarial assumptions are as follows:

	2014	2013	2012
Inflation rate increase (a)	2% per annum	2% per annum	2% per annum
Salary rate increase	4% per annum	4% per annum	4% per annum
Pension rate increase	4% per annum	4% per annum	4% per annum
Scheme liabilities discount rate	5.5% per annum	5.5% per annum	5.5% per annum

Average remaining future life expectancy according to the mortality tables used to determine pension liabilities, is as follows:

	2014	2013
Male aged 65	22	22
Female aged 65	25	25

On the basis of these and other assumptions and applying the projected unit method prescribed in FRS 17 (Revised), the pension deferred funding asset and pension liability are as follows:

	2014	2013
Total accrued pension liability	€30.2m	€28.2m

As pension increases under the Marine Institute schemes are based on salary increases rather than on price increases, a price inflation assumption is not necessary for the purposes of this valuation. However, since FRS 17 requires reference to an assumed rate of inflation, the above rate would be appropriate for this purpose.

Analysis of the Total Pension Costs charged to Expenditure

	2014 €'000	2013 €'000
Current Service Cost	1,800	1,900
Interest on pension scheme liabilities	1,500	1,500
Employee Contributions	(405)	(434)
	<u>2,895</u>	<u>2,966</u>

Note 16. Cont'd

Analysis of the amount recognised in a statement of total recognised gains and losses (STRG)

	2014 €'000	2013 €'000
Experience gains and (losses)	816	2,339
Changes in assumptions underlying the present value of scheme	0	0
Actuarial gain and (loss) recognised in STRGL	816	2,339

Net Deferred Funding for Pensions Recognised in the year

	2014 €'000	2013 €'000
Current Service and Interest Cost	3,300	3,400
Less benefits paid in the year	<u>(484)</u>	<u>(362)</u>
	<u>2,816</u>	<u>3,038</u>

The Marine Institute recognises amounts owing from the State as an asset corresponding to the unfunded deferred liability for pensions on the basis of the set of assumptions described above and a number of past events. These events include the statutory basis for the establishment of the superannuation scheme and the policy and practice in relation to funding public service pensions, including contributions from employees and the annual estimates process. The Marine Institute has no evidence that this funding policy will not continue to meet such sums in accordance with current practice. The deferred funding asset for pensions as at 31 December 2014 amounted to €30.2million (2013: €28.2million). The quantification of the liability is based on the Financial assumptions set out in this note. The assumptions used, which are based on professional actuarial advice, are advised to the Department of Agriculture, Food and the Marine but are not formally agreed with the Department.

Analysis of movement in net pension liability during the year

	2014 €'000	2013 €'000	2012 €'000	2011 €'000	2010 €'000	2009 €'000
Deficit at the beginning of the year	28,200	27,501	26,004	25,900	24,700	19,300
Current Service Cost	1,800	1,900	1,900	2,200	2,100	1,900
Interest on Scheme Liabilities	1,500	1,500	1,400	1,400	1,400	1,100
Actuarial (Gain) Loss recognised in the STRGL	(816)	(2,339)	(1,360)	(3,080)	(2,075)	2,625
Benefits paid in the year	<u>(484)</u>	<u>(362)</u>	<u>(443)</u>	<u>(416)</u>	<u>(225)</u>	<u>(225)</u>
Deficit at the end of the year	30,200	28,200	27,501	26,004	25,900	24,700

History of Defined Benefit Obligations

	2014 €'000	2013 €'000	2012 €'000	2011 €'000	2010 €'000	2009 €'000
Defined benefit obligations	30,200	28,200	27,501	26,004	25,900	24,700
Experience Gains/(Losses) on Scheme Liabilities	816	2,339	1,360	3,080	2,075	(2,625)
Percentage of Scheme Liabilities	2.7%	8.29%	4.96%	11.8%	8.0%	(10.6%)
Assumption Gains/(Losses) on Scheme Liabilities	0	0	0	0	0	0
Percentage of Scheme Liabilities	0%	0%	0%	0%	0%	0%

The cumulative actuarial gain recognised in the statement of total recognised gains and losses amounts to €7,252,000.

17. Lease commitments

Operating Leases

The Marine Institute occupies leased premises at the following locations:

Lease 1: 80 Harcourt Street, Dublin 2 commenced in 1993 for a period of 22 years with five yearly rent reviews. There is a rent review every 5 years, with no more lease breaks until the conclusion of the lease in 2015.

Lease 2: Parkmore Office Park, Galway, commenced in 1999 for a period of 25 years with five yearly rent reviews

Lease 3: Red Sail Warehouse, Galway Harbour, commenced in 2013 for a period of 11 years with a rent review in 2018

The current annual rental charge of these leases amounts to €375,002 (2013 €375,002)

	2014	2013
Expiring within 1 year	235,735	0
Expiring during the years 2 to 5	0	235,735
Expiring thereafter	139,267	139,267

18. Investment

The Marine Institute had a 1.3% fully diluted shareholding in a company called Wavebob Ltd. This company was established to develop a concept in delivering Wave Energy. The total cost of the investment grant by the Marine Institute was €127,000. As it was not possible to accurately assess the value of the investment, the shares were not capitalised in the Balance Sheet. The company was wound up on the 26th March 2013. There were no further costs incurred by the Marine Institute.

19. Related Party Transactions

Smartbay Ltd, was established as a company limited by guarantee by PRTL project partners DCU and NUI Galway, during February 2012 to manage Ireland's marine test and demonstration facility at Galway Bay. The company receives funding from the HEA which is used to fund a team to cover the company's operational costs for the period 2012 to 2015. Dublin City University is the lead research organisation which provides the HEA funding to Smartbay. The income received from the HEA and the expenditure incurred by Smartbay Ltd is accounted for by Dublin City University.

The Institute's CEO is a Board member and the Head of Corporate Services of the Institute is Company Secretary. During 2014, the Institute advanced funding of €224,170 to Smartbay Ltd (2013 €35,356). This expenditure is included under Ocean Science and Information Services and Corporate Services expenditure in Note 7 in the accounts.

20. Register of interests

The Institute has adopted procedures in accordance with the guidelines issued by the Department of Public Expenditure and Reform in relation to the disclosure of interest by Board members and the Institute has adhered to these procedures. There were no transactions in the year in relation to the Institute's activities in which board members had a beneficial interest.

21. Board Fees, Board Attendance and Chief Executive Salary

The Institute has adhered to the updated Code of Practice for the Governance of State Bodies which was published by the Minister for Finance on 15 June 2009. The total remuneration paid to Chief Executive of the Marine Institute for 2014 was €136,496. There were no payments made to the Chief Executive under a performance related pay scheme or no other benefits paid as part of the remuneration package. The CEO pension entitlements do not extend beyond those of the model public sector scheme. The total expenses for business purposes paid to the CEO for 2014 was €18,471 which includes foreign travel expenses of €5,118.

Payments to the 2014 Marine Institute Board members were as follows.

Board Member	Category 3	Gross Fees 2014	Expenses 2014	Total 2014
John Killeen	Chairperson	11,753	0	11,753
Lorcan O Cinneide	Director	7,695	5,507	13,202
Francis Coyle	Director	7,695	5,217	12,912
Paul Hyde	Director	2,565	1,299	3,864
David Owens	Director	7,695	1,250	8,945
Patricia Barker	Director	7,695	1,534	9,229
Donal Kelly	Director	7,695	0	7,695
		52,793	14,807	67,600

Board Member	Category 3	Board Meetings 2014	Board Meetings Attended 2014	Term Commenced/Ended
John Killeen	Chairperson	10	9	
Lorcan O Cinneide	Director	10	9	
Francis Coyle	Director	10	10	
Paul Hyde	Director	10	4	Resigned April 2014
David Owens	Director	10	10	
Patricia Barker	Director	10	9	
Donal Kelly	Director	10	7	

22. Board Approval

The financial statements were approved by the Board on the 30/06/2015.



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[@MarineInst](https://twitter.com/MarineInst)

Marine Institute Headquarters

Rinville,
Oranmore,
Co. Galway.
H91 R673
Phone: +353 91 387 200
Fax +353 91 387 201
Email: institute.mail@marine.ie

Marine Institute Regional Offices and Laboratories

Marine Institute Dublin
Wilton Park House,
Wilton Place,
Dublin 2.
D02 YE35
Phone: +353 17 753 900
Fax: +353 91 387 201
Email: institute.mail@marine.ie

Marine Institute Catchment Research Facility
Furnace,
Newport,
Co. Mayo
F28 PF65
Phone: +353 98 423 00
Fax: +353 98 423 40
Email: institute.mail@marine.ie