



ANNUAL REPORT 2012



Marine Institute
Foras na Mara

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 2012.

Jim Fennell, Chairman

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

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

Marine Institute Act 1991

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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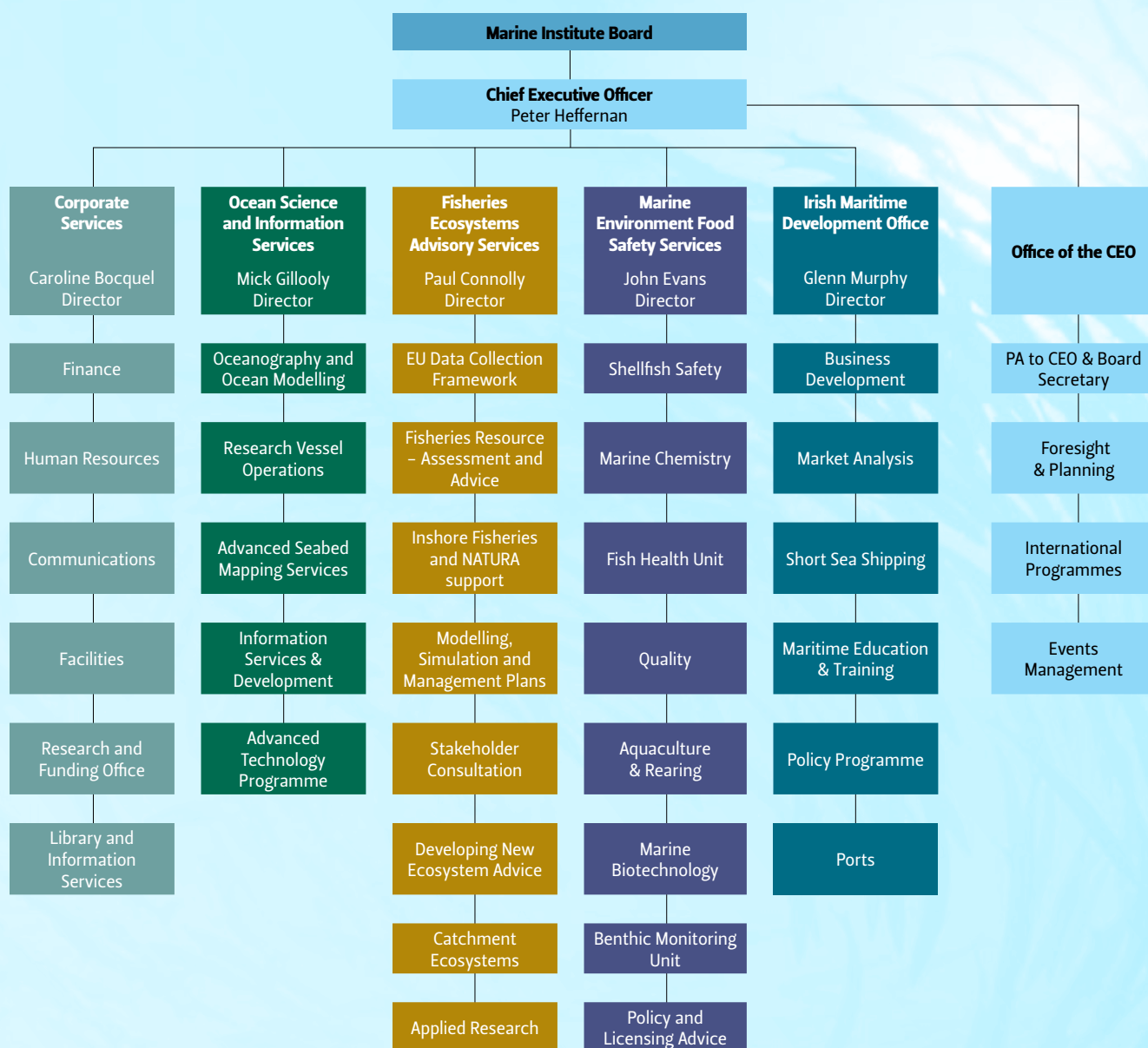
National Standards Authority of Ireland

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

Marine Institute Organisational Structure 2012



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, and safeguard Ireland's natural marine resource through research and environmental monitoring.

Ireland has a marine resource of up to 220 million acres (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
- > 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 2012.

This report highlights the key deliverables and progress made towards our vision during that year.



Board Members



**Mr Jim Fennell – Chairman
(2008 – 2013)**

Appointed in November 2008, Jim Fennell is a Fellow of the Chartered Association of Certified Accountants who holds the position of Financial Controller and Secretary to the Governing Body of Galway-Mayo Institute of Technology. In addition to his role at GMIT he also holds a number of directorships including: President of Galway Chamber of Commerce, An Chéim (Collaborative Higher Education Information Management), HEAnet (Ireland's National Education and Research Network), Chairman of the HEAnet Finance Sub-committee and Mayo County Council Audit Committee.



**Prof. Bernie M Hannigan
(2007 – 2012)**

Bernie Hannigan is Professor of Immunology at the University of Ulster, Northern Ireland. On a part-time basis, she is seconded to the position of Director of Research / Chief Scientific Advisor to the Department of Health, Social Services and Public Safety, Northern Ireland. Previous roles at the University included Pro Vice Chancellor (Research and Innovation) and Dean of the Faculty of Life & Health Sciences. Professor Hannigan's particular research interest is in the relationships between nutrition and immune competence. Educated at Trinity College Dublin and the Royal College of Surgeons in Ireland, she has published almost 100 peer-reviewed papers, supervised over twenty students to successful doctoral graduation and attracted significant external research funding from a variety of UK and international sources. Externally, Professor Hannigan is, and has been, director of a range of organisations that include science parks, knowledge / technology exchange and the support of emerging technology-based companies. Her membership of the Board of Invest Northern Ireland helped to ensure that the potential economic contribution of the universities was included in regional development strategy within the province.



Mr Francis Coyle (2010 – 2015)

Mr 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 sixteen years. During the period 1995–1999 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 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 – 2017)

Paul Hyde (BSc Arch, MA, MPlan, MRIBA, 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 & Sustainable Development. A member of the RIAI, RIBA and IPI professional institutes, he has over sixteen 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 Richie Flynn (2007 – 2012)

Mr Flynn is the Executive Secretary of the Irish Farmers Association's Aquaculture Section, incorporating the Irish Salmon Growers' Association, the Irish Shellfish Association and the Irish Trout Producers' Group. He is the current Chairman of the European Mollusc Producers' Association. Mr Flynn holds a M.Sc. in


Mr Lorcán Ó Cinnéide (2010 – 2015)

Lorcán Ó Cinnéide (BA) is a former Chief Executive of the Irish Fish Producers' Organisation, a leading fishing industry representative body. A graduate in Economics and Politics from Trinity College Dublin, he is also a former fishing vessel owner. Lorcán was an active member of the EU North-western 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 twenty years. He is currently Chairman of Comhairle Raidió na Gaeltachta and Secretary of the Blasket Island Foundation.


Mr David Owens (2012 – 2017)

David Owens (ACA) is currently Vice President, 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 & Young and is a member of the Institute of Chartered Accountants in Ireland.


Dr Eleanor O'Higgins (2007 – 2012)

Eleanor O'Higgins (BA, MSc, MBA, PhD) is on the faculty of the Business Schools at UCD and a Visiting Fellow at the London School of Economics and Political Science. She specialises in teaching, research and publications in corporate governance, strategic management, business ethics and corporate social responsibility. She is the author of numerous papers in academic and professional journals, newspaper articles, book chapters and case studies, and serves on the editorial boards of a number of international management and business journals. She is a member of the Press Council of Ireland, of the Sustainable Enterprise Group at IBEC, and of the Board of Management of the Centre for Corporate Governance at University College Dublin. Previously, she worked in roles including: a research psychologist at Harvard University Medical School; a clinical psychologist in the Irish Health Services; and as staff development manager in RTÉ. She has served on the board of directors of IDA Ireland, Transparency International Ireland and the Well Woman Group of health clinics. She has held various leadership positions in the US Academy of Management.


Dr Emer Rogan (2007 – 2012)

Emer Rogan is a lecturer in the School of Biological, Earth and Environmental Sciences, University College, Cork. She completed her BSc in University College Dublin in 1984 and her PhD in University College Cork in 1990 on plankton ecology. Since then, her main research focus has been on marine mammal ecology and biology, marine mammal fisheries interactions and also the functioning of marine ecosystems, relating dietary analysis to bioaccumulation, migratory patterns and oceanographic and bathymetric parameters. She has supervised over thirty MSc and PhD students in marine mammal and fisheries ecology and has authored many papers in academic and professional journals, press articles and book chapters. Dr Rogan is a member of the Scientific Committee of the International Whaling Commission, the IUCN Cetacean Specialist Group and ICES working group on Marine Mammal Ecology.


Mr Michael Walsh (2007 – 2012)

Michael Walsh was one of the founders of the Irish South & East Fishermen's Organisation, which was formed in 2002. He then worked at setting up the Irish South & East Fish Producers' Organisation which received recognition in December 2004. He currently holds the position of CEO of the Irish South & East Fish Producers' Organisation and is Chairman of the Federation of Irish Fishermen, which was founded late 2006. Mr Walsh has some fifteen years fishing experience and a vast knowledge of various types of sea fishing and fishing patterns. He crewed on board many sea fishing vessels, before becoming skipper in 1994 following his completion of the Skipper Limited Certificate of competency at the BIM Fisheries School in Greencastle, Co Donegal.

Chairman's Statement



In 2012, the Marine Institute completed a three year planning cycle, during which time we worked through significant challenges presented by the difficult economic climate, including reduced exchequer funding and a growing demand for services. This was also a period of significant organisational change for the Marine Institute with a move from seven service areas to five service areas in 2011, and a vacancy arising for the position of Director of Marine Environment and Food Safety Services in August 2012. The Board of the Marine Institute also saw significant changes with five board members coming to

the end of their term during 2012 and the appointment of two new board members.

A key role for the Board was supporting the Executive as it balanced the increased demand for services with already diminished exchequer resources. Maintaining strong leadership was essential during this time and planning for the next three year cycle was a key focus for the Board and the executive. The process for developing a new three year strategic plan for the Marine Institute began late 2012.

The need for good corporate governance was also a priority. Given the change in Board membership we undertook a special induction programme on corporate governance. The Board has an active Internal Audit Committee which meets on a regular basis and advises the full Board as to the adequacy of the systems of internal financial control within the Marine Institute. In 2012 the Committee completed substantial work in respect of risk management with the result that the Institute has a robust risk management framework that is regularly reviewed and supports the ongoing management of risk in accordance with the Institute's corporate strategy. I am very grateful for the work done by my colleagues on this Committee.

Throughout this time, the Marine Institute continued to deliver on its statutory commitments providing scientific advice and services to support the sustainable development of the marine sector.

Significant milestones for the Marine Institute this year included its role in the Marine Coordination Group and the Government's publication of *Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland* in July following a successful public consultation process during February and March 2012.

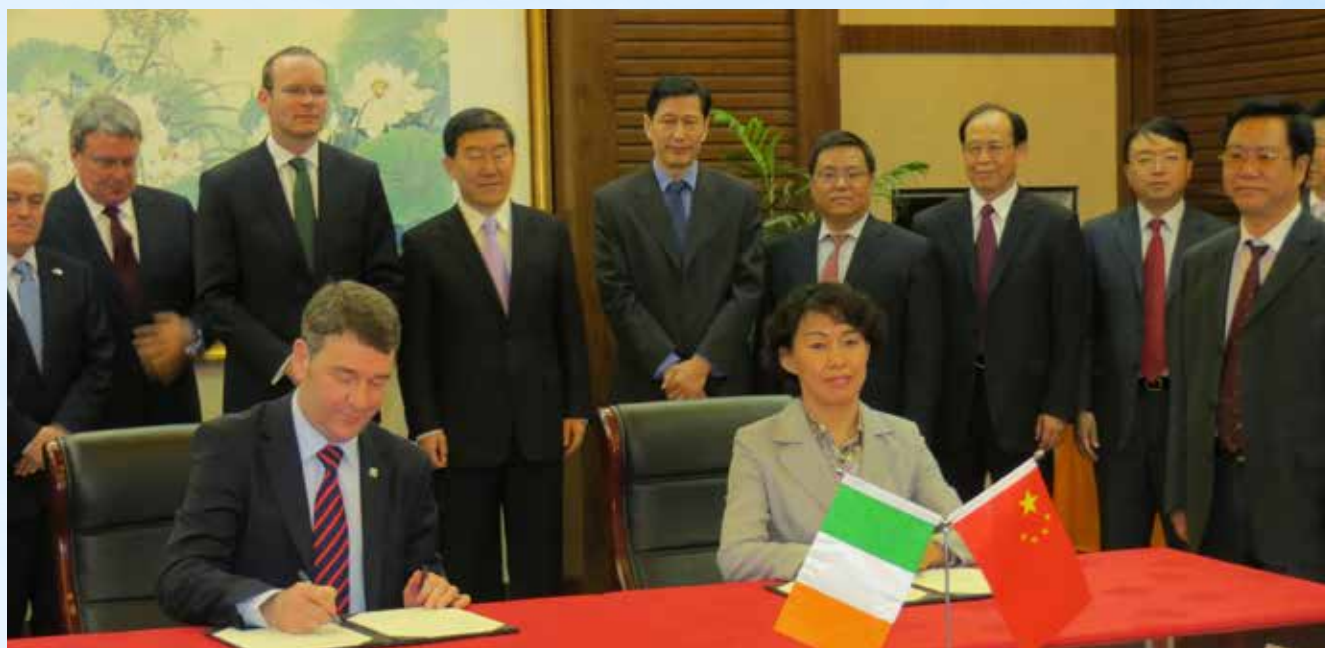
In the marine fisheries sector the *Annual Stock Book 2012*, which is a compilation of management advice on each of the commercial species fished in Irish waters, was presented to Department of Agriculture, Food and the Marine in early December to inform the December EU Council of Fisheries negotiations on Total Allowable Catch (TAC). Encouragingly, it demonstrated an improvement in the status of certain fisheries with a higher number of stocks being harvested sustainably in 2012 compared with 2011.

The Institute delivered a range of statutory monitoring services to support seafood safety and the protection of the marine environment, including the national biotoxin monitoring programme, the national residues (in seafood) control programme, implementation of the EU Fish Health Directive and the national sea lice monitoring programme.

The Marine Institute also delivered the essential elements of the Marine Strategy Framework Directive as well as the coastal and transitional monitoring aspects of the Water Framework Directive. The Institute completed the collection of baseline data needed to set conservation objectives for marine Natura 2000 sites, which allowed further progress with Appropriate Assessments of Fisheries and Aquaculture activities. This in turn allowed the resolution of some licensing issues arising from Ireland's obligations under the Birds and Habitats Directives.

The National Research vessels carried out an intensive survey schedule providing an essential national research platform as well as important training opportunities for third level students through the "Scientists at Sea" programme run by the Strategic Marine Alliance for Research and Training (SMART).

The Advanced Mapping Services Team carried out seabed mapping and data acquisition for the INFOMAR programme in priority areas in the south and south east coast and conducted surveys to support the development of the offshore marine renewable sector and offshore aquaculture.



Dr. Peter Heffernan, CEO Marine Institute and Liu Qing, Vice President Chinese Academy of Fishery Sciences signed a Memorandum of Understanding during a trade visit to China with Mr. Simon Coveney T.D., Minister for Agriculture Food and the Marine

Implementation of the strategy *Sea Change – A Marine Knowledge, Research and Innovation Strategy for Ireland*, 2007–2013 continued during 2012, with an additional investment of €3.5m under the Marine Institute administered NDP Marine Research Sub-Programme. This brought the total investment to-date under the NDP Marine Research Sub-Programme to €60.5m.

The Irish Maritime Development Office continued to support the development of the shipping and maritime services sectors and in September published a report *The Irish Ports Offshore Renewable Energy Services* (IPORES) on Irish ports and their status in relation to meeting offshore renewable energy requirements and services. The first Annual Review of port accounts was published in October 2012 and the analysis was also used to inform wider ports policy deliberations. The IMDO also hosted the European Shortsea Shipping Congress Conference in Dublin in June, which was attended by 150 delegates from Ireland and Europe.

During the year, two of the Marine Institute's senior management team were appointed to prestigious international positions. CEO Dr. Peter Heffernan was appointed to the European Research and Innovation Area Board (ERIAB) by European Commissioner for Research, Innovation and Science, Ms Máire Geoghegan-Quinn. ERIAB is an eleven member board that advises the Commissioner on issues relating to the development of the European Research Area, including the proposed €80 billion Horizon 2020 Programme for Research and Innovation (2014–2020). Dr Paul Connolly, Director of Fisheries Ecosystem Advisory Services at the Marine Institute was appointed President of ICES, the International Council for the Exploration of the Seas.

The Institute was awarded the highest level for the Excellence Through People Accreditation under the NSAI Standard – ETP 1000:2012. This is Ireland's national standard for human resource management which aims to act as a business improvement tool as well as a driver for change and innovation and to promote employee learning, development and involvement in line with the organisation's goals.

Such achievements would not have been possible without the commitment of the Chief Executive, management and staff of the Marine Institute, who have maintained an admirable focus in moving towards the shared vision of "a thriving maritime economy in harmony with our marine and coastal ecosystems and supported by the delivery of excellence in our services."

Finally, I wish to convey my deep appreciation to Mr. Richie Flynn, Prof Bernie M Hannigan, Dr. Eleanor O' Higgins, Dr Emer Rogan, and Mr. Michael Walsh for their dedicated service to the Board during their five year term which ended in 2012. I would also like to welcome new members, Mr. Paul Hyde and Mr. David Owens, to the Board.



Mr Jim Fennell
Chairman



Dr. Peter Heffernan, CEO Marine Institute, Máire Geoghegan-Quinn, European Commissioner for Research, Innovation and Science and Taoiseach Mr. Enda Kenny

"The Marine Institute continued to deliver on its statutory commitments providing scientific advice and services to support the sustainable development of the marine sector."



Dr. Peter Heffernan, CEO Marine Institute presents the 2012 Stock Book to Mr. Simon Coveney T.D., Minister for Agriculture Food and the Marine

Chief Executive's Report



2012 was a milestone year for marine Ireland with the launch of a public consultation process by the Government in February 2012 which sought the view of its citizens as to how best to harness the great potential of Ireland's vast marine resources, followed by the publication of *Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland* in July. The ambitious plan sets three high level goals to achieve a thriving maritime economy, healthy ecosystems, and increase engagement with the sea.

The strategy plans to double the value of Ireland's ocean wealth to 2.4% of GDP by 2030 and to increase the turnover from our ocean economy to exceed €6.4bn by 2020. Launching the plan at the Marine Institute, Galway in July, the Taoiseach, Enda Kenny TD, said, "this plan is a dynamic one and will ensure that our vision remains constant – to dramatically improve our ability as a nation and people to harness our ocean wealth. The Government is determined that it will be a key component of our economic recovery and sustainable growth generating social, economic and cultural benefits for all".

The plan is framed within the context of the European research agenda and in September, the Commissioner for Research Science and Innovation, Ms Maire Geoghegan Quinn visited the Marine Institute, together with Robert-Jan Smits, Director General, DG Research Science and Innovation. They participated in a round table discussion with Government officials and the heads of Irish research and innovation organisations. The discussions centred around two Irish reports, *Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland* (July 2012) and the *Report of the Research Prioritisation Steering Group* (March 2012), and their anticipated synergies with the European Blue Growth Strategy, Horizon 2020 and the EU Atlantic Strategy.

The essential contribution of marine science to society was also highlighted in the Government's Research Prioritisation report published in March 2012. It clearly highlights the opportunities for economic growth through research in the areas of seafood, both aquaculture and wild fisheries, marine renewable energy and ICT applications in the marine environment (based on the SmartOcean concept) and marine food for health.

The report also highlighted the need for "research on policy development" in support of the priority areas. Such research is vital in supporting sustainable development of our marine resources through a better understanding of marine ecosystem functioning and the ecological services and biodiversity it supports. This policy research is also crucial in supporting the implementation of international and EU obligations, such as, the Marine Strategy Framework Directive.

Throughout 2012, our detailed and inclusive adaptive planning process continued, including ongoing efficiency and cost-saving, ensuring we met our obligations under the Croke Park Agreement and supported the Government's Public Sector Reform Programme. Our staff are central to the successful delivery of our work programmes, and we had a sharp focus on maintaining a strong staff morale and demonstrating appreciation of the quality and dedication of our staff.

The Institute delivered a range of statutory monitoring programmes supporting seafood safety and the protection of the marine environment including the National Biotxin Monitoring Programme, the National Residues Control Programme (in seafood) and the implementation of the

EU Fish Health Directive.

We also delivered key elements of the Marine Strategy Framework Directive and the Water Framework Directive in collaboration with the Department of the Environment, Community and Local Government and other state agencies, supported by outsourced contractors.

The annual *Stock Book 2012a* compilation of management advice on each of the commercial species fished in Irish waters – was presented to Department of Agriculture, Food and the Marine in early December to inform the December EU Council of Fisheries negotiations on Total Allowable Catch (TAC) and fishing quotas for 2013. The Institute also published an, 'Atlas of Irish Groundfish Trawl Surveys' in May 2012. The Atlas shows the key results from the Irish scientific surveys of the whitefish and deepwater fish stocks in Ireland's 200 mile Exclusive Fisheries Zone and provides an overview of the distribution and abundance of adult and juvenile fish species in the waters around Ireland.

The national research vessels provide an essential research platform and five year refits of both vessels were completed in early 2012. The vessels engaged in an intensive survey programme with the RV *Celtic Explorer* completing sixteen surveys totalling 291 science days and the RV *Celtic Voyager* completing a total of twenty-seven surveys comprising 272 science days. This included a charter in April – May 2012 by the Centre for Fisheries and Ecosystems Research (CFER) of the Marine Institute of Newfoundland, Canada for the completion of a forty-one day fisheries survey. The research vessels also provided an important training platform for third level students through the Science@Sea training programme run by the Strategic Marine Alliance for Research and Training (SMART).

The Institute's Advanced Mapping Services team carried out INFOMAR seabed data acquisition off the south and south east coast onboard the RV *Celtic Voyager*. Significant additional data was collected as part of the Value Added Exploitation Programme. This included an extension to the Galway Bay test site cable route to facilitate a revised route for the proposed cable installation landing in Spiddal and survey work offshore west Clare in a priority area defined by the Marine Renewables Energy Association in consultation with the Sustainable Energy Authority of Ireland.

There was a strong focus on international collaboration in 2012 during which time we formed research partnerships with the UK, China and the US. On behalf of the Marine Institute I signed a Memorandum of Understanding with Liu Qing, Vice President of the Chinese Academy of Fishery Sciences at the Ministry of Agriculture, Beijing on the 16th April 2012. The MOU aims to enhance cooperation in Fishery Science and Technology and was signed during a trade visit to China with Mr. Simon Coveney TD., Minister for Agriculture Food and the Marine.

The Marine Institute also established a Memorandum of Understanding with the National Oceanography Centre (UK) on the 24th April to foster closer cooperation and joint activities between Ireland and the UK in the area of marine research, development and innovation.

Ireland also established a Memorandum of Understanding with the United States Department of Energy which I signed on behalf of the Minister for Communications, Energy and Natural Resources, Pat Rabbitte TD. The potential of Ireland's oceans to offer a source of clean, green, renewable energy in the future is huge and the signing of this memorandum will hopefully serve as a catalyst in the development of new ocean energy technologies that will provide us with a secure source of green energy and also create commercial opportunities for services in this emerging sector.

During 2012, the Institute also contributed to the Atlantic Forum – a consultation process on the European Union Atlantic Strategy to develop an action plan to implement the strategy.

We participated in a number of public outreach events such as the Volvo Ocean Race finale in Galway and the European Science Open Forum (ESOF 2012) in Dublin. The Marine Institute made significant contributions at both these events during June and July. We exhibited at the Volvo Ocean Festival Global Village in Galway 30th June – 8th July during which we hosted a marine careers fair 'Ocean's of Opportunity' to promote over eighty job opportunities in the marine sector supported online with a web portal www.marinejobs.ie. At ESOF 2012, the Marine Institute hosted the Atlantic Symposium which brought together scientists and policymakers from both sides of the Atlantic to explore how to harness evolving technology to drive the 'blue economy' through smart, sustainable and inclusive growth and how to achieve this through collaboration across the Atlantic Ocean in the areas of science, technology and innovation.

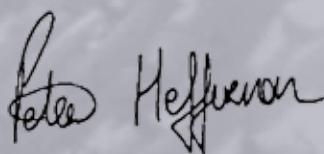
We also presented a marine science, music and ocean literacy event called 'The Longest River', which promoted marine science and technology through music, poetry, narration, lecture as well as photography and video footage of the deep ocean. The Institute hosted the world premiere of National Geographic's *Alien Deep* at ESOF 2012, which featured the discovery onboard the RV *Celtic Explorer* of the Moytirra hydrothermal vent field. The documentary had its Irish television premiere in October and was subsequently broadcast in over 150 countries worldwide.

We collaborated for the second year with National University of Ireland Galway to bring Sea2Sky to Galway as part of European Researchers night and extended to Cork through the Blackrock Castle Observatory. The Institute also exhibited at the 16th year of the Galway Science and Technology Festival.

The Marine Institute continued to deliver its Explorers Education programme with partners Galway Atlantaquaria, Galway Education Centre, Bray Sea Life Centre, Blackrock Education Centre, and the Lifetime Lab, Cork. The programme includes the installation of marine aquariums in classrooms and includes beach safaris, outreach events and the delivery of classroom resource material online through www.explorers.ie.

The SmartOcean Conference was hosted at the Marine Institute for the third year, coinciding this year with the arrival of the Volvo Ocean Race into Galway. A new initiative, the SmartOcean Innovation Exchange was held as part of the event in the Volvo Ocean Race Global Village where twenty-two innovative Irish and international companies showcased their marine focused technology solutions to an international audience.

I would like to thank the management and staff of the Institute for their continued commitment and enthusiasm in the challenging circumstances that our country finds itself. Finally, I extend my gratitude to the Chairman and the Board for their guidance, support and dedication during the year.

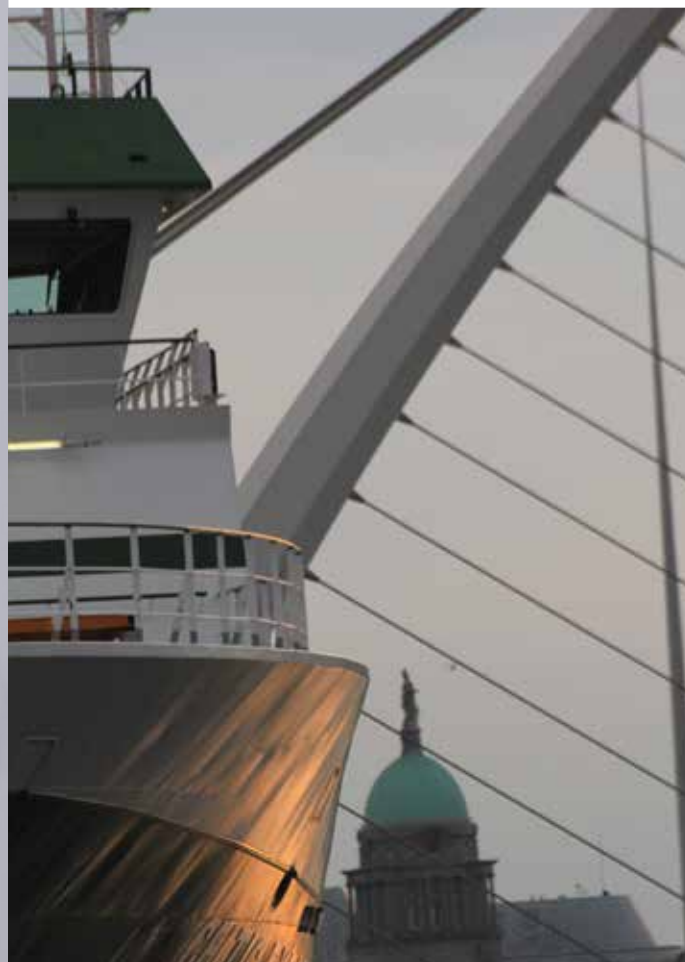


Dr Peter Heffernan
Chief Executive



The Taoiseach Enda Kenny, TD launched '*Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland*' at the Marine Institute, Galway

"This plan is a dynamic one and will ensure that our vision remains constant – to dramatically improve our ability as a nation and people to harness our ocean wealth."



The RV *Celtic Explorer* was on show in Dublin during ESOF 2012

Corporate Services



Director's Statement

The public sector embargo on recruitment together with fiscal pressures and a difficult economic environment determined that the objectives for 2012 remained on providing value for money to customers in a highly efficient manner. This was achieved through collaborations with other bodies and the provision of a responsive, dynamic service with a continued focus on strong corporate governance.

Highlights of 2012 included:

- > The attainment of the Platinum Excellence Through People (ETP) Accreditation under the National Standards Authority Ireland (NSAI) – ETP 1000:2012. This is Ireland's national standard for human resource management with the two main objectives of the standard being to act as a business improvement tool as well as being a driver for change and innovation, and to promote employee learning, development and involvement in line with the organisation's goals.
- > Implementation of the *Sea Change* strategy – *A Marine Knowledge, Research and Innovation Strategy for Ireland, 2007–2013* continued during 2012, with an additional investment of €3.5m under the Marine Institute administered National Development Plan (NDP) Marine Research Sub-Programme. This brought the total investment to-date under the NDP Marine Research Sub-Programme to €60.5m.
- > Participation in a number of key Irish and International public and outreach events in 2012 including the Volvo Ocean Race Festival Galway, European Science Open Forum (ESOF 2012) in Dublin, and Sea2Sky Galway and Cork which enabled the Institute to reach new audiences.
- > A positive profile of the Marine Institute and the *Sea Change* strategy was communicated through the comprehensive use of electronic and web-based communication evidenced by 274,560 visitors coming through www.marine.ie
- > Corporate Governance continued to be an important priority for Corporate Services, with regular internal audits reporting maximum levels of assurance on a broad range of controls to the Marine Institute Board.

Mrs Caroline Bocquel

Director: Corporate Services

Human Resources

Supporting the Marine Institute to deliver quality services and programmes under a number of Strategic Initiatives was a key activity for the Human Resources Team. The proactive, solutions focused service was underpinned by our Human Resources Charter.

2012 saw the Marine Institute secure the Platinum Excellence Through People Accreditation, the highest level of the award under the NSAI Standard – ETP 1000:2012. This accreditation is a reflection of the Institute's ongoing investment in improving performance via the effective management and development of those who work at the Marine Institute. The electronic Performance Management and Development System was enhanced in 2012 to ensure it was more user friendly and time efficient.

The importance of investing in and developing our staff was reflected in our Learning and Development Programme during 2012. In addition to a programme focused on essential and developmental training to support delivery of business critical work programmes, the Marine Institute Learning and Development focus for 2012 included Personal Development and Management Development. This included Strategic Management and Planning, Finance for non Finance Managers as well as Mental Wellbeing and Effective Work Life Balance. This centred on value for money and a return of investment with an ongoing use of online and self learning tools and materials.

Reflecting the continuing embargo on public sector recruitment, activities in this area included hiring twelve recently qualified graduates (Stagiaires) under a fifty week work experience programme across a range of scientific, technical and administration disciplines. This programme has been overwhelmingly successful with 89% of Stagiaires securing a position in either the public or private sector, or alternatively taking up further education upon completion of their placement with the Marine Institute.

Twenty-seven Internship opportunities were offered to persons on the live register across mainly scientific areas. This programme has been very successful in enhancing the employability of Interns, with 67% securing jobs after their JobBridge placement with the Marine Institute.

The Institute's Quality Accredited Health & Safety Programme saw the committee which represents all locations and activities across the organisation hold eight meetings during 2012, promoting and supporting the importance of health and safety across all Marine Institute facilities. Health, Safety and Employee Wellbeing awareness in 2012 was directed towards effective safety and wellbeing practices at work, while travelling and at home.

Finance

The Marine Institute is committed to maintaining the highest standards of corporate governance and ensuring compliance with the revised Code of Practice for the Governance of State Bodies which was published in 2009.

Under the stewardship of the Internal Audit Committee, the Marine Institute continued to conduct internal audits in 2012, all of which affirmed the Institute's high standards of governance and ensuring that an effective system of internal control is maintained and operated. The following internal audits on the Statement of Internal Financial Control, the Code of Practice, Business Continuity Planning and Human Resource Management took place in 2012. There was also a 'Look Back' Report on six previous internal audits reports that verified that the recommendations from those reports had been implemented.

There continues to be a strong public procurement ethos and focus throughout the Marine Institute and 36 tenders were issued in 2012 of which four were published on the Official Journal of the European Communities. Centralised purchasing has proven to be an efficient and effective means of reducing costs in 2012.

It is the policy of the Marine Institute to ensure that all invoices are paid promptly. Systems and procedures have been put in place to enable invoices to be tracked and to ensure that payments are made before their due date. Purchase invoices are logged on a daily basis in the finance section, and are followed up systematically to ensure that they are processed without delay. Payments are issued as required to ensure a prompt and efficient service.

Facilities

The facilities team continued to deliver excellent customer, project, team, stores, maintenance and other ancillary services to manage the Institute's facilities in Galway, Newport and Dublin together with a number of regional locations. High quality front line services were provided to our clients and stakeholders to support delivery of all Marine Institute Programmes. More than 14,400 incoming telephone queries were responded to.

Cost savings and effective procurement were key objectives for the Institute during 2012 with our stores service centralising the purchase of laboratory consumables. In addition collaborative procurement with other agencies and organisations in 2012 have seen cost savings being made under a range of collaborative tenders with other bodies including the HSE and via the National Procurement Services.

Strategic procurement continued to be a key focus in delivering value for money to customers and stakeholders.

The main energy consumption at Marine Institute offices and laboratories is in relation to lighting, heating, power and water. In 2012 the Marine Institute consumed 3,232,234 kWh of electricity, 22,626 litres of Kerosene and 442,177 litres of bulk propane gas.

Facilities have been using the SEAI energy bill tracker since 2010, as well as undertaking a range of initiatives to improve the Institute's energy performance.



John Perry, Minister for Small Business with Caroline Bocquel, Director Corporate Service and Catherine Johnston, Human Resources Manager, from the Marine Institute, Maurice Buckley, CEO NSAI and Paul O'Toole, FAS at the National Standards Authority of Ireland – Excellence Through People Awards

“2012 saw the Marine Institute secure the Platinum Excellence Through People Accreditation, the highest level of the award under the NSAI Standard – ETP 1000:2012”



The Marine Institute and Cois Cladaigh present The Longest River – a music, arts and marine science literacy event during ESOF 2012

Corporate Services



Library Services

Since the Library launched the Marine Institute Open Access Repository (<http://oar.marine.ie/>) in 2011, it has proved a great success in the accessibility of publications. The Repository contains digital full-text versions of Marine Institute publications including Annual Reports, scientific reports, peer-reviewed articles, conference papers, information leaflets, educational resources, and MSc and PhD theses. The Repository also acts as an archive and electronically preserves old reports and papers, such as Irish Fisheries Investigations (from 1965) and Irish Fisheries Leaflets (from 1938).

By the end of 2012, the Repository contained 744 publications and had 15,156 visits in 2012, and a total of 21,917 visits since its launch in March 2011. Visits have come from 48 different countries. A significant feature of the repository is that performance indicators are available that show how often publications are being viewed and downloaded and from what countries. The Marine Institute publications visibility, research impact, and probability of being cited, has been greatly increased as all records in the Repository are fully searchable by Google and other search engines. The Repository ensures the Marine Institute complies with mandates from national and international funding bodies that all publications arising from their funding be placed in an open access repository.

Communications

The Marine Institute Communications Office supported a number of key Irish and international events in 2012 and delivered targeted communications to the Institute's key stakeholders through our website www.marine.ie and electronic platforms, education and outreach and via a targeted media relations programme. The Institute's website www.marine.ie had 274,560 visits throughout the year and Facebook and LinkedIn social media profiles were established to increase engagement with stakeholders.

The Marine Institute participated in the Volvo Ocean Race Global Village, and hosted the SmartOcean Conference and Innovation Exchange, in Galway during July 2012. The Institute also exhibited at ESOF 2012 in Dublin where the Institute's Remotely Operated Vehicle (ROV) *Holland 1* was on display at the International Science Festival from July 12th–15th July. 'The Longest River' event – a fusion of marine literacy, music and science, communicated the importance of marine science and was presented to an international audience during ESOF 2012. During the Volvo Ocean Race Festival, the Marine Institute held a marine careers fair and launched the website www.marinejobs.ie to promote opportunities in the marine sector. The Institute also participated in the annual Galway Science and Technology Festival in November.

The Marine Institute supported the preparation and publication of the Government report *Harnessing Our Ocean Wealth – An Integrated Marine Plan for Ireland*, which was launched by the Taoiseach, Enda Kenny, TD. at the Marine Institute 31st July 2012. The Institute produced a promotional video on the report which was made available online to promote Ireland's ocean wealth and highlight the potential for job creation.

The Explorers marine education programme for primary schools delivered by Atlantaquaria engaged with 44 schools in the west coast including counties Galway, Mayo and Clare. On the East coast, six schools participated through the Sea Life Centre, Bray who installed aquaria in school classrooms with support from Blackrock Education Centre. The programme ran in Cork for the second year in collaboration with the Lifetime Lab, University College Cork where a series of twenty-one marine science workshops delivered to fourteen schools and 590 pupils from Cork City and County.

The Marine Institute collaborated with the National University of Ireland, Galway (NUI Galway), Galway Atlantaquaria and Blackrock Castle Observatory, Cork to run Ireland's second successful European Researchers Night – Sea2Sky event. Over 300 cities participated in European Researchers Night around Europe, in which Galway and Cork successfully presented Irish marine, atmospheric and astronomical research to the general public as part of a one day / night event.

A total of 38 press releases and thirty-two news updates on the Marine Institute website resulted in 1135 media hits in 2012.

A number of marine related stories promoted by the Institute featured prominently in the media throughout the year. This included the launch of the Government Report, *Harnessing Our Ocean Wealth* in July. The launch of the Irish television premiere of the National Geographic documentary, *Alien Deep*, which featured the discovery of a field of hydrothermal vents along the Mid-Atlantic Ridge by a team of scientists using the ROV *Holland 1* onboard the RV *Celtic Explorer*, received extensive national coverage. Other stories which gained media coverage included reports on the progress and impact of a significant algal bloom that affected the North West coastline during July and August, as well as the 'Sea2Sky' event in September. The signing of a Memorandum of Understanding on offshore renewable energy research cooperation with the United States Department of Energy in March by Dr. Peter Heffernan, Marine Institute on behalf of Minister for Communications, Energy and Natural resources, Pat Rabbitte TD, in March 2012 gained media coverage. The signing of a Memorandum of Understanding between Ireland and China regarding fisheries science and technology in April, also received coverage. The launch of a website www.marinejobs.ie and a marine careers fair at the Volvo Ocean Race Festival attracted national media coverage in print, radio and TV.

The IMDO's publication of the Irish Maritime Transport Economist in April and Shipping results reported in August received significant media coverage.

Sea Change Management Unit and Research Office

2012 marked the penultimate year of the term of the *Sea Change Strategy – A Marine Knowledge, Research and Innovation Strategy for Ireland, 2007–2013*. During the year, just over €2.5m was invested under the Marine Institute administered NDP Marine Research Sub-Programme. A full list of the new investments in 2012 is provided in Appendix 1. The investment in 2012 brings the total investment to-date under the NDP Marine Research Sub-Programme to €60.5m (2007–2012). The vast majority (99%) of the 2012 investment was awarded to support research

(147 days) and under/postgraduate training programmes (61 days) onboard the national research vessels RV *Celtic Explorer* and RV *Celtic Voyager*. The research undertaken addressed the thematic areas of fisheries (ecosystem approach to management), aquaculture (harmful algal blooms), oceanography/climate change, marine geology, marine technology and marine biodiversity/biodiscovery. Training programmes were provided to students from eleven Higher Education Institutes, through structured, accredited specific modules or generic multidisciplinary courses.

In 2012, mid-term reviews were completed for a number of large, long-term (five to seven years) Marine Institute funded projects. These comprehensive reviews, conducted by panels of international experts, were designed to assess activities and progress to date as well as provide recommendations on the future scope and direction of the projects. All of the projects were positively reviewed and have agreed ongoing work programmes for their remaining terms.

An additional €5.2m was committed, via other competitive programmes (e.g. HEA, SFI, EPA, IRCSET), to research aimed at addressing the objectives of *Sea Change*. This included a significant award (€2.3m) to the Marine Institute, under the Science Foundation Ireland Research Infrastructure scheme, for the installation of a fibre optic / power cable at the Galway Bay ocean energy / SmartBay test site.

Irish marine researchers continued to enjoy success in EU competitive funding programmes (e.g. FP7 and INTERREG), with grant-aid of €6.1m being awarded in 2012. This brings the cumulative grant-aid awarded to Irish marine researchers in the current EU funding cycle (2007–2012) to €53m. The total investment in marine activities and marine related research in Ireland over the lifetime of *Sea Change* now stands at approximately €180m.

During 2012, the Marine Institute was engaged in the Prioritisation Action Group, convened by Government to oversee the delivery of the research prioritisation agenda. The Report of the Research Prioritisation Steering Group was published in March 2012, identifying key target areas for research to ensure the maximum economic return on investment. The 14 Priority Areas recommended in the report include significant opportunities to support the development of Ireland's marine resources. In particular, the areas of Marine Renewable Energy, Marine Information Communications Technology (ICT) and Seafood are clearly identified as priority areas for investment. Other priority areas present opportunities to harness marine resources within the area of Marine Biotechnology, such as marine materials as a source for drug discovery and materials (e.g. bone replacement and bio-glues).

Finally, in early 2012 the role of the Research Office was expanded to incorporate responsibility for providing support to Marine Institute staff in all service areas in the financial management and administration of EU funded research projects. This centralised approach ensures consistency in project administration procedures and maximises the Institute's draw-down of EU funds. Support is currently provided to 25 projects, valued in excess of €3.2m in grant-aid to the Institute.

Accessibility

The Institute was fully compliant with the Disability Act during 2012.



Mr Thomas Furey from the Marine Institute speaks to Máire Geoghegan-Quinn, European Commissioner for Research, Innovation and Science at the Sea2Sky event in Galway.

“2012 marked the penultimate year of the term of the Sea Change Strategy – A Marine Knowledge, Research and Innovation Strategy for Ireland, 2007–2013.”



Dr. Louise Allcock, NUI Galway and Dr. Margaret Rae, Marine Institute/NUI Galway, with the ROV *Holland I*, used during the biodiversity survey of the Whittard Canyon System. This survey was carried out under the Sea Change strategy and the Marine Research Sub-programme of the National Development Plan 2007–2013.

Irish Maritime Development Office



2012 marked the 10th year since the introduction of the Irish Tonnage Tax regime. The Irish Maritime Development Office (IMDO) prepared the original business case for the Irish Government which was subsequently approved by the European Commission under its State Aid to Maritime Transport. The scheme has resulted in the creation of new jobs and investment opportunities for over 600 people and continues to grow. IMDO estimate that over

€3bn of shipping assets are currently managed and controlled from Ireland.

Since the introduction of tonnage tax in 2002, IMDO have seen the reversal of a previous decline in the indigenous ship-owning sector which has been followed by a steady growth and investment programme. The industry's growth in Ireland has been driven both by established Irish shipping companies and by foreign inward investment from overseas firms.

The Irish Tonnage Tax regime is an excellent model of Government taking a proactive stance to halt the decline in a sector and also of the industry working with these measures to deliver new jobs and investment. The attractiveness of a stable platform, and the increasingly competitive business environment that Ireland has to offer indigenous and international investors, is fundamental to the future growth of international shipping services in Ireland.

2012 was another year of strong output by the office which is reflected in this year's Annual report. IMDO's 2012 Corporate Strategy covered 21 specific primary programme objectives in four thematic areas: Policy Advice; Business Development; Market Analysis; and Education Support.

Mr Glenn Murphy

Director: Irish Maritime Development Office

Focus on Irish Shipping and Ports Sector

As expected, 2012 turned out to be another difficult year for Irish shipping and port companies operating in both domestic and international shipping sectors. The aftermath of the global economic crisis that occurred in 2008 continued to send shockwaves that rippled over the course of last year, which hindered the prospects of a return to global growth in the near future. Unsurprisingly, given the subdued macroeconomic environment, shipping volumes were largely flat over the course of 2012. The only observed growth was in the dry bulk market. One note of concern was the slowdown of the export sector and its subsequent decline in the second quarter of the year. Imports in the headline container trades also remained negative, despite the rate of decline easing to its lowest level since 2007.

The IMDO continues to work closely with Irish Ports throughout the island of Ireland. IMDO also have regular interaction and briefings with the principal shipping lines that provide regular scheduled services to and from Ireland with over 120 meetings completed during 2012.

Focus on Business Development and International Shipping markets

The Irish Tonnage Tax regime is a specific tax regime for shipowning and managing companies located in Ireland and has been the central pillar for the growth of this market segment. Since its introduction in 2002, the scheme has gone from approximately 60 vessels to over 400 vessels, owned, managed and operated by companies located in Ireland in 2012. Since 2010 over 100 new jobs have been created by IMDO client companies operating in this scheme with just under 450 employees at their Irish service based operations. These companies are also central to the high added value services for employment in the wider services cluster including banks, legal, accounting, broking and other elements of the Irish shipping services cluster. The office continues to work with the IDA and other agencies to identify potential new shipping inward investment projects.

Irish Tonnage Tax based companies had to again deal with the largely volatile situation across the principal international shipping markets in 2012 with record high deliveries in some segments continuing to see supply of tonnage outpace global demand. The overall global fleet grew by 7% largely made up of growth in the bulk segment by almost 9%, the container fleet by a further 5.5% and tanker fleet by a more modest 2.7%. As a result of the oversupply of ships, charter rates and earnings remained under pressure. While slow steaming and other strategies continued to help, the number of ships idle increased to 12% by the end of the year. Against the weaker trading background, fuel and other costs continued to trend upwards albeit at a slower pace than previous years. Nonetheless several Irish owners took a long term view on the markets with almost a dozen new ships on order by Irish based companies. 2012 was a difficult year to be a shipowner.

Market Analysis & Policy Support

As part of the day-to-day role, the IMDO undertakes regular analysis of domestic and international shipping markets. IMDO use this analysis to inform both the Government and the private sector, with respect to important policy and investment decisions, as well as market reports that are also published. The IMDO provides policy support to the Department of Transport, Tourism and Sport (DTTAS). Over the course of 2012 IMDO worked closely with the DTTAS in the preparation of a new Irish Ports Policy which will be published in March 2013. As part of the input process the IMDO carried out specific analysis on key areas relating to future policy. The office also worked with several other State Bodies undertaking maritime related projects or studies last year including the Competition Authority and Forfás.

In March IMDO completed the *Annual Review of The Irish Tonnage Tax regime 2011*, which is a mandatory obligation from European Commission and a condition of the state aid ruling. IMDO also coordinated an Industry consultation on the current maritime state aid guidelines which was used to inform a national response submitted in April.

IMDO publish quarterly annual maritime traffic bulletins which provide expert analysis on the Irish ports and shipping markets. IMDO also collate the information to publish the *Annual Maritime Transport Economist* which was published in April. We also published fifty weekly shipping and economic market summaries.

In 2012, IMDO also revised the online publication of IMDO's shipping trade review series in a new format. The Shipping-trade-reviews is a fourteen country review of Irish shipping traffic data between Ireland and the main European maritime partners. The system generated 3,500 requests for information from the data published online.

In September IMDO published a report on the *Irish Ports Offshore Renewable Energy Services* (IPORES).

In October IMDO published for the first time the *Review of Port Financial Accounts*. The analysis was also used to inform wider ports policy deliberations. The study extrapolates key data from the financial statements and provides a comparative review of the ports financial performances.

IMDO Publications and Events

In April IMDO published its 9th annual *Irish Maritime Transport Economist*, which was launched at an industry briefing in Dublin attended by senior executives from the Irish Ports and Shipping sector.

In June, IMDO hosted the European Shortsea Congress Conference in Dublin. The Minister for Transport Tourism and Sport, Leo Varadkar TD, gave the keynote address at the conference which was attended by 150 delegates from Ireland and Europe. The office has supported "Irish Exporters Shortsea Shipping Award" at the Irish Exporters Association annual awards since its inception. Stena was the 2012 Shortsea Shipping Company of the Year.

Supporting Education Development

In 2012 the Irish Seafarers Education Assistance Scheme (ISEAS) grant funded a record number of cadets, with 123 students and twelve companies benefiting from seagoing training payments and company support. The IMDO manages and administers the government's ISEAS. IMDO also provided grant aid to 15 seafarers that enabled them to achieve higher certificates of professional competency including Fishing Skipper conversion course.

IMDO's dedicated schools program Follow the Fleet continued to generate a high level of interest with 1,421 primary level schools now participating on a nationwide basis with a potential outreach of over 55,000 school children. The annual schools competition was chaired by well know maritime journalist, Mr Tom McSweeney, with the overall prize won by Scoil Bhridhe Naofa from Kinvara. IMDO also commenced a new partnership with the National Maritime Museum which now uses Follow the Fleet as part of its school tours program at its recently refurbished Dun Laoghaire base.



IMDO hosted the European Shortsea Congress Convention in Dublin in 2012

"The industry's growth in Ireland has been driven both by established Irish shipping companies and by foreign inward investment from overseas firms."



IMDO published its 9th annual *Irish Maritime Transport Economist*, which was launched at an industry briefing in Dublin

Marine Environment and Food Safety Services



Director's Statement

Marine Environment and Food Safety Services (MEFS) at the Marine Institute conducted a number of statutory monitoring programmes in support of seafood safety and the protection of the marine environment throughout 2012. These included: the National Biotoxin Monitoring Programme; the seafood component of the National Residues Control Programme; implementation of inspections and monitoring of movements

of fish and shellfish stocks as required under the EU Fish Health Directive; and the National Sea Lice Monitoring Programme. In support of these programmes, the Institute is the National Reference Laboratory for diseases in shellfish, finfish, and crustaceans; biotoxins; microbiological contaminants in shellfish; and certain chemical substances in aquaculture.

In collaboration with the Department of Environment, Community and Local Government (DECLG) and other state agencies, and supported by outsourced contractors, the Institute delivered the essential elements of the Marine Strategy Framework Directive and the coastal and transitional monitoring aspects of the Water Framework Directive. The programme of baseline data collection to assist the setting of conservation objectives for marine Natura 2000 sites (Special Areas of Conservation and Special Protection Areas) was completed in 2012. This allowed for further progress in carrying out Appropriate Assessments of fisheries and aquaculture activities that may impact on the conservation objectives of these sites, allowing the resolution of some of the licensing issues that have arisen following a European Commission judgement that Ireland had failed to meet its obligations under the Birds and Habitats Directives.

A robust quality system accredited by the Irish National Accreditation Board underpins the delivery of many of these food safety and environmental programmes. The scope of accreditation for quality standard ISO 17025 was maintained in 2012 and two additional test methods were awarded accreditation, bringing the total number to 36.

The provision of scientific advice and support was a key element in the 2012 work programme including those for foreshore leases and licences, aquaculture licences, disposal of dredge spoil at sea, support for the Marine Coordination Group Enablers Task Force, and aquaculture Single Bay Management.

A collaborative approach is a key feature of all the work outlined above, which is carried out with the Department of Agriculture, Food and the Marine (DAFM), the Food Safety Authority of Ireland (FSAI), the Sea Fisheries Protection Authority (SFPA), the Department of Environment, Community and Local Government (DECLG); the Environmental Protection Agency (EPA), the National Parks and Wildlife Service (NPWS) and a number of other government departments and agencies.

Finally, research programmes, in support of the above statutory and international obligations such as reporting under various EU Directives, OSPAR, and International Council for the Exploration of the Seas (ICES) continues to be a core component of the work of MEFS at the Institute. Some of the main outputs include publications in peer-reviewed journals and a variety of reports. These included publications on a wide range of marine related issues such as food safety, fish health, spatial planning and environmental status and sea lice control.

Mrs Caroline Bocquel

Acting Director: Marine Environment and Food Safety Services

Advice

In 2012, MEFS staff, in collaboration with colleagues from Fisheries Ecosystems Advisory Services, oversaw the completion of the collection of baseline data in marine Natura 2000 sites. This baseline data is provided to NPWS to allow the setting of conservation objectives for these sites, which, in turn, feed into the process of Appropriate Assessments of fisheries and aquaculture activities. Further progress towards the completion of additional Appropriate Assessments was made in 2012.

Following the award of a contract by the Institute in late 2011, on behalf of DECLG, during 2012 the Marine Strategy Framework Directive work focused on the provision of expert advice to the external contractors to assist in the initial assessment of the environmental status of Irish marine waters, determination of Good Environmental Status, the establishment of environmental targets and associated indicators, and the development of a digital Marine Atlas.

The Shellfish Safety team continued to provide advice on the food safety of shellfish to the SFPA and FSAI for ongoing official controls under the monitoring programmes for shellfish biotoxins and microbiological classification in our role as National Reference Laboratory for both of these areas.

The 2012 Single Bay Management process designed to coordinate husbandry practices 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 was completed in all active finfish farming bays. The Single Bay Management process has proved very effective in controlling sea lice and in reducing the overall incidence of disease in the stocks. Ten Single Bay Management documents, including active fallow plans, were updated for all finfish aquaculture operators along the coast in 2012.

Other areas in which MEFS staff provided advice during 2012 included:

- > Advice to the EPA on issues related to the disposal of dredge spoil at sea by way of participation on the Agency's Dumping at Sea Advisory Committee;
- > Advice to DECLG on applications for Foreshore Leases and Licenses by way of participation on the Department's Marine License Vetting Committee; and
- > Advice to Department of Agriculture, Food and Marine on applications for Aquaculture Licences.

Finally, the MEFS team have also continued to contribute to the work of the OSPAR Convention and ICES, and to provide advice to the Department of Communications Energy and Natural Resources and the EPA, on certain environmental aspects of offshore hydrocarbon exploration and production.

Monitoring

2012 marked the first full year in which chemical analyses were exclusively used in carrying out the National Biotoxin Monitoring Programme. Two additional analytical methods were accredited to facilitate the move away from bioassays. These new analytical tests cover a wider range of regulated marine toxins and facilitate faster turnaround times. Very high concentrations of the shellfish toxin Azaspiracid were recorded in farmed shellfish during the summer months leading to extensive and protracted closure of sites in the southwest.

An extensive bloom of the fish killing phytoplankton *Karenia mikimotoi* was detected along the North West from Mayo to Donegal and at lower concentrations along the rest of the West coast during July and August with considerable impact on coastal marine life and farmed shellfish in these areas. The bloom was extremely dense, with reports of discoloured red or brown water in some areas and several locations also reported dead marine life washing up on the shoreline.

The MEFS team working in the National Residues Monitoring Programme reported a further year with full compliance for the fish farming industry, and advice was provided to the FSAI and the SFPA on the levels of contaminants in seafood.

The National Sea Lice Monitoring Programme carried out 254 sea lice inspections on 23 active salmonid (salmon and trout) rearing sites during 2012, in accordance with the national sea lice monitoring protocol (*Monitoring Protocol No.3 for Offshore Finfish Farms – Sea Lice Monitoring and Control, Department of Marine and Natural Resources (2000)*). Monthly reports on the monitoring results were circulated to interested parties and all the 2012 data was published in an annual report.

On behalf of the EPA and DECLG, an extensive environmental monitoring programme was implemented during 2012 for physico-chemical parameters, priority substances, phytoplankton and benthic fauna in transitional and coastal waters to fulfil the requirements of the Shellfish Waters Directive (Dir 2006/113/EC) and Water Framework Directive (Dir. 2000/60/EC).

In 2012, over 3,000 finfish (primarily Salmon, but also Carp, Rainbow Trout, Arctic Char, Pike and other coarse fish) were tested for pathogens 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 (*Under Directive 2006/88/EC and also those included*

under Commission Decision 2010/221/EU). Over 9,000 molluscs and crustaceans were also tested for the presence of disease, which primarily addressed the surveillance of the herpes virus (OsHV-1 μ var) in Pacific oysters. The virus was detected in a further three bays, bringing the total of positive bays in Ireland to 26. The entire coastline, with the exception of eight bays, is considered free from .

Competent Authority for Fish Health

In addition to the fish health laboratory services, encompassing the NRLs for diseases of fish, molluscs and crustacean, the Fish Health Unit is the Competent Authority in relation to the implementation of Council Directive 2006/88/EC ('The Fish Health Directive'). The Competent Authority section directs the work of the DAFM Veterinary Inspectors who work in the aquaculture field. In 2012, 319 inspections were completed under the legislation; 1,800 movements (imports, exports and internal movements) of live aquatic animals were authorised; and 13 new Fish Health Authorisations were issued, bringing the total number of authorised Aquaculture Production Businesses in the country to 417.

Research

MEFS carry out applied research in support of the delivery of monitoring programmes and to inform and direct future regulatory requirements. A number of multi-annual projects, with a range of national and international research partners, were ongoing or nearing completion during 2012 including:

- > *Biological Effects* – combining biological effects with chemical analysis to provide more effective assessment of pollution in Irish waters.
- > *GilPat and AquaPlan* – both of which address fish health issues relating to the Irish finfish aquaculture sector.
- > *Prevent Escape* (EU FP7-7th Framework Programme) – which is seeking to quantify the level and impact of escapes from farmed finfish sites and to develop strategies for their reduction.
- > *Bivalife* (FP7 funded) – the objectives of which are to provide innovative knowledge related to pathogens infecting oysters and mussels and to develop practical approaches for the control of infectious diseases affecting these animals.
- > *ASTOX II* – provided further answers regarding the toxicology of this shellfish toxins and a research cruise along the southern and western coasts in August for the first time used molecular methods to map the distribution of the causative species in coastal waters.
- > *ASIMUTH* (FP7 funded) – developed forecasting products using physical models, satellite and data to provide early warning of blooms to allow fish and shellfish farmers to modify their culture and harvesting strategies in order to reduce potential losses.
- > A range of other projects, at MSc and PhD level, in shellfish microbiology, marine chemistry and fish health.

The Marine Institute continues to support Ireland's National Marine Biotechnology Programme, in particular through the provision of laboratory facilities for research projects being carried out by the National University of Ireland Galway under the Beaufort Marine Biodiscovery award.

Fisheries Ecosystems Advisory Services



Director's Statement

Scientific support that meets the needs of the Institutes major clients and stakeholders was a central element of the Fisheries Ecosystems Advisory Services (FEAS) work programme in 2012. Supporting the Department of Agriculture, Food and Marine (DAFM) at various EU meetings and the timely production of the annual Stock Book were key to Ireland's negotiations

with the EU on sustainable fishing opportunities for the Irish fleet. Regular meetings of the Irish Fisheries Science Research Partnership (IFSRRP) continued and identified the need for new prawn surveys. The results from these surveys provide essential information in managing the Irish Nephrops quotas. Regular meetings were also held with the Irish Environmental NGO's. Negotiations on the reform of the Common Fisheries Policy continued throughout 2012 and FEAS supported DAFM at many meetings particularly in relation to the discard ban and the new Data Collection Multi Annual Plan. FEAS secured €2.88m in EU funding for the Data Collection Framework (DCF) which supported the extensive port, sea sampling and research vessel survey programmes. FEAS continued its work on developing fisheries management plans for NATURA sites. A new survey Atlas was produced which outlined the distribution and abundance of fish species from the Irish Groundfish programme (2005 to 2011). These data were also used in the Irish fish biodiversity assessment for the Marine Strategy Framework Directive. A considerable amount of time was devoted to working with the Marine Institute team on developing *Harnessing our Ocean Wealth – An Integrated Marine Plan for Ireland*. Against the background of a challenging economic climate, FEAS continued to source additional EU funds in order to strengthen scientific service delivery and add value to existing data assets.

Dr. Paul Connolly

Director: Fisheries Ecosystems Advisory Services

The Data Collection Framework

The Marine Institute is charged by DAFM to carry out Ireland's work programmes in relation to national obligations under the Data Collection Framework (DCF; EU Council Regulation 199/2008). The DCF supports the data collection, data management and scientific advice needed to conduct the Common Fisheries Policy. The 2012 work programme included a comprehensive research vessel survey programme, port sampling of landings, sea sampling of discards, age profile of the fisheries resource, analyses of EU Logbook and Vessel Monitoring Systems (VMS) data. A total of 175 sea sampling observer trips were carried out on Irish fishing vessels resulting in 8,349 scientist sea days. These observer trips provide FEAS with invaluable "on the ground" contact with industry. The data collected are the raw material used to assess the resource and develop scientific advice to ensure its sustainable exploitation. Over 400,000 fish were measured and 43,000 aged to provide the data for stock assessment models. The Marine Institute worked very closely with BIM in delivering the 2012 Irish National Programme for the DCF.

Research Vessel Surveys

A considerable amount of FEAS financial and staff resources are deployed to deliver the DCF research vessel survey programme. A total of twelve fishery surveys were conducted on the RV *Celtic Explorer*, RV *Celtic Voyager* and chartered commercial vessels in the waters off Ireland. The survey cruises totalled 190 sea days and 1,237 scientist days were undertaken on a broad range of surveys including the blue whiting, boarfish and herring acoustic surveys, underwater TV surveys of Nephrops stocks and the Irish groundfish survey. These surveys were all internationally co-ordinated through the International Council for the Exploration of the Seas (ICES) and involved strong international collaborations with Norway, UK, Netherlands, France, Spain and Germany. The data were used in international stock assessments that informed scientific advice on fishing opportunities for 2013.

Stakeholder Interaction

Regular meetings with stakeholders continue to be a key element of FEAS work. Much energy was devoted to working with industry through the Regional Advisory Councils and the Irish Fisheries Science Partnership. The major issues addressed included development of various Management Plans (e.g. Celtic Sea Herring), proposed management for the Nephrops Porcupine Grounds, and undertaking additional trawl surveys on chartered commercial vessels. This latter survey was used to supplement data for advice on the state of the Porcupine Nephrops stocks. Quarterly meetings were held with the environmental NGO's (Irish Environmental Pillar) to discuss the latest scientific advice. FEAS supported Department of Communications, Energy and Natural Resources and Inland Fisheries Ireland at the national consultations with eel stakeholders, giving presentations in Clonmel, Athlone, Carrick on Shannon and in the Oireachtas.

Scientific Advice

The Stock Book provides all the latest scientific advice on those stocks of interest to Ireland that comes under the remit of the Common Fisheries Policy. The book was delivered to DAFM and will form a very important part of the negotiations with the EU on fishing opportunities for the Irish fleet in 2013. It also forms the basis of the annual sustainability statement on fish stocks made by the Minister to the Dail. FEAS scientists participated in over 50 international scientific expert groups meetings at ICES and the Scientific, Technical and Economic Committee for Fisheries.

A broad range of scientific issues were addressed at these meetings relating to the provision of scientific advice to support the Common Fisheries Policy. FEAS scientists chaired key scientific groups including: planning for Maximum Sustainable Yield; using research vessel surveys for ecosystem indicators; Herring advice; elasmobranch advice; Eel advice; using research vessel surveys in assessment and advice; pelagic ecosystem surveys and the use of VMS data in advice. Work on the inshore fisheries, salmon and eel resources also formed a considerable part of the programmes for 2012. Work continued with BIM, National Park Wildlife Service, Department of Environment, Community and Local Government and DAFM on developing fisheries measures for NATURA sites that meet our obligations under the EU Birds and Habitats Directive. A report on the status and management of native oyster fisheries in Ireland was also completed. FEAS developed a new approach to the provision of salmon catch advice for 2013 which incorporates an enhanced risk analysis of forecasts of salmon abundance. Salmon and eel advice was developed in cooperation with Inland Fisheries Ireland and the Standing Scientific Committees for Salmon and Eel. The eel and salmon Standing Scientific Committees were chaired by FEAS personnel.

Newport Facility

The FEAS staff at Newport continued their work on the maintenance and development of long term physical, chemical and biological datasets characterising the freshwater component of the Burrishoole ecosystem. While the fish traps in Burrishoole underwent considerable upgrade in 2012, the census work on salmon, sea trout, eel, the juvenile catchment programme and associated stock dynamics continued (see Appendix). The GLEON (Global Lake Ecological Observatory Network) conference was held in Newport with over 130 international scientists participating. A presentation was made at the World Fisheries Congress on the fifty year analysis of silver eel in Burrishoole. Five PhD's were completed in 2012 which were either based in Newport or used material and data collected in Burrishoole. A new PhD project, in collaboration with Norway and the Loughs Agency in Northern Ireland commenced in 2012 and will examine the factors affecting the ecology of salmon at sea. The University College, Cork Beaufort Genetics project continued its work at Newport and produced many publications in peer reviewed journals.

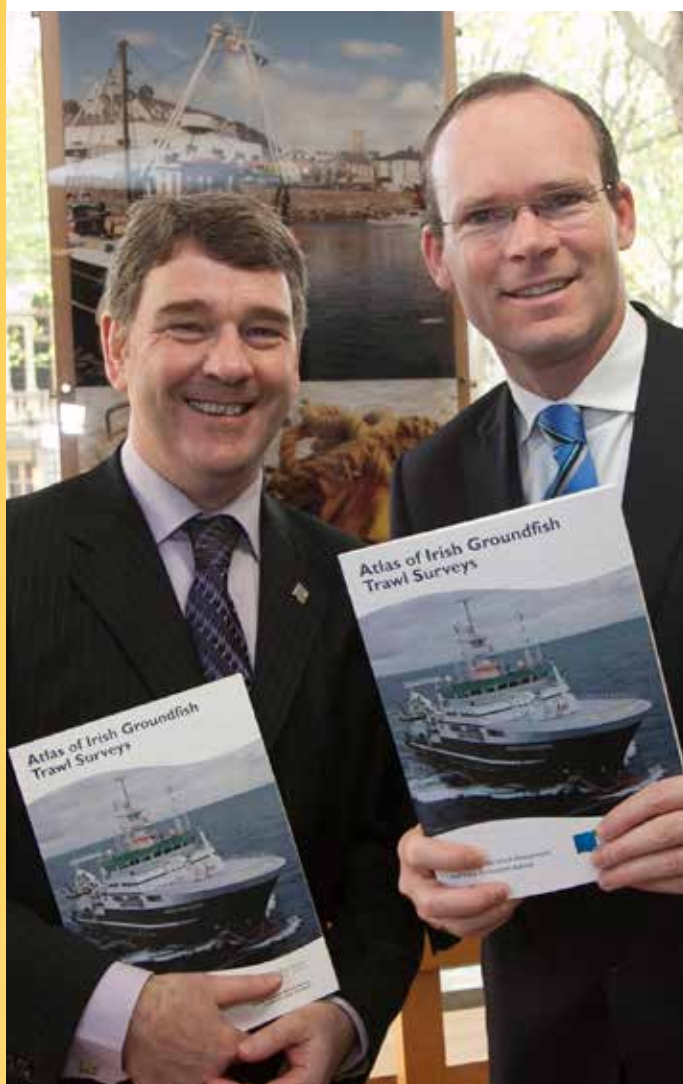
Applied Research

Participation in applied research projects is critical to the evolution of scientific advice. The Beaufort Ecosystem Project continued to forge strong links with the third level sector on a broad range of projects that include fisheries-seal interactions, marine birds, size based modelling and stakeholder engagement. FEAS are also co-supervising a range of research projects with a number of Irish universities. Our strong link with the third level sector continued through jointly supervised PhD projects. These projects focused on the biology of Black Scabbard, Nephrops modelling, discard modelling, capturing the tacit knowledge of fishermen for use in stock assessment, data integration methods and signal detection from data sets. FEAS are also engaged in a number of EU funded projects including DEEPFISHMAN (managing the Deep Water Ecosystem); BENTHIS (Benthic ecosystem fisheries impact study); SOCIOEC (Socio-economic effects of management measures of the future Common Fisheries Policy) and MYFISH (Maximising yields of fisheries while balancing ecosystem, economic and social concerns). The Newport facility supported a wide variety of research including STIMULUS, STRIVE and PhD projects on lake dynamics, predation, fish morphology and genetics. The FEAS applied research work is built on the concept of sustainable development and on delivering the new type of ecosystem advice that will be required in the near future. The results from many of the projects were published in peer reviewed scientific journals (see Appendix 4).



As part of the silver eel survey at the Marine Institute in Newport, every eel migrating downstream is counted and a large number are sampled

“Scientific support that meets the needs of the Institutes major clients and stakeholders was a central element of the Fisheries Ecosystems Advisory Services.”



Dr Peter Heffernan presents the Marine Institute's Atlas of Irish Groundfish Trawl Surveys Report to Simon Coveney TD, Minister for Agriculture, Food and the Marine

Ocean Science and Information Services



Director's Statement

During 2012 Ocean Science and Information Services (OSIS) carried out significant work in each of the service areas of oceanography, seabed mapping, research vessel operations, information services, ocean energy and advanced marine technology. OSIS supports considerable national and international research, technology development and innovation, as well as monitoring activities from field acquisition through the generation of complex data products and services.

OSIS participated in a range of national, European and international programmes which improves our capacity to provide support services to the demands of integrated science programmes which inform cross-sectoral policy advice. Recognising the increasing requirement for an integrated approach to marine RTDI, OSIS endeavours to provide end to end solutions to clients. OSIS 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* and the EU strategy on the Atlantic.

Mr. Michael Gillooly

Director: Ocean Science and Information Services

Research Vessel Operations

Research Vessel Operations (RVOps) mission is to coordinate and manage the operation of the Marine Institute's two research vessels, the RV *Celtic Voyager*, the RV *Celtic Explorer* and the deep-water remotely operated vehicle ROV *Holland I*. They provide support services to the users of the vessels, including instrumentation and engineering support services and extremely flexible operations.

Refits of both vessels were completed in 2012. The RV *Celtic Voyager* underwent a five year refit in Mooney Boats in Killybegs from 4th to 28th of January. The refit which included a full repaint of the vessel and an engine and generator rebuild was completed to a very high standard within the assigned period. The RV *Celtic Explorer* entered dry dock in Milford Haven UK to complete its five year special refit on the 30th of January. This major overhaul was completed ahead of schedule on the 20th of February.

Following their respective refits, intensive survey programs were completed on both research vessels with the RV *Celtic Explorer* completing sixteen surveys totalling 291 science days and the RV *Celtic Voyager* completing a total of twenty-seven surveys comprising 272 science days.

2012 saw the successful completion of the annual fisheries programme which included three acoustic survey programs and the annual Groundfish survey completed using the RV *Celtic Explorer*. The RV *Celtic Voyager* completed thirty days of Underwater TV surveys for *Nephrops* stock assessment including a successful survey of the prawn grounds on the Porcupine Bank at depths down to 540m.

Five external charters were completed on board the RV *Celtic Explorer* in German and UK waters including surveys for BSH (Bundesamt für Seeschifffahrt und Hydrographie – German Federal Maritime and Hydrographic Agency) and University of Ulster which provided a valuable external contribution to the operational budget.

The RV *Celtic Explorer* was chartered for forty-one days in April and May 2012 once again by the Centre for Fisheries and Ecosystems Research of the Marine Institute of Newfoundland for the completion of a fisheries survey which included work on the Flemish Cap and the southern Grand Banks. The survey was preceded by a nine day transit survey of the North Atlantic which was manned by Irish and Canadian scientists and which valuable cetacean and oceanographic data was collected.

The RV *Celtic Explorer* completed the "ECO2@NORTHSEA" Eurofleets funded survey led by Geomar (Germany), during which saw it completed a very intensive survey in the Norwegian and UK sectors of the North Sea using the ROV *KIEL 6000* and a wide range of sampling equipment to study the effects of storage of CO₂ as part of a large scale multiyear and multi-vessel project.

The RV *Celtic Voyager* also completed two hydrographic surveys totalling twenty-five days in support of SEAI Ocean Energy development off the west Clare coast.

Researchers from National University Ireland, Maynooth (NUI Maynooth) completed the "Gateways" survey in the Celtic Sea which was a geological survey funded under the NDP shiptime fund.

The RV *Celtic Voyager* was also provided to University of Liverpool under the Eurofleets Transnational Access Program to complete the AmSedis survey in the Irish Sea. This successful survey studied large sediment wave in the Irish Sea using a variety of techniques including grabs and corers and seismic equipment.

Other notable RV *Celtic Voyager* activities included successful Science@Sea training programs led by the SMART team and university lead training programs.

The ROV *Holland I* completed a successful survey season in 2012 and was mobilised for two science surveys totalling fifty-three survey days. The ROV was mobilised onto the RRV *James Cook* for a successful thirty-five day survey in UK, Irish and International waters entitled “The Changing Oceans Expedition”.

Foreign Vessel Observer Scheme 2012

In 2012, the Marine Institute placed ten Irish observers onboard foreign vessels conducting research surveys in our waters. The total number of days spent by observers at sea was 238 with the surveys varying in length from forty-six days to just eight days. The average duration of the surveys was 23 days. Seven of the observers participated onboard British surveys and the others participated in Belgian, Dutch and Norwegian surveys.

Advanced Mapping Services

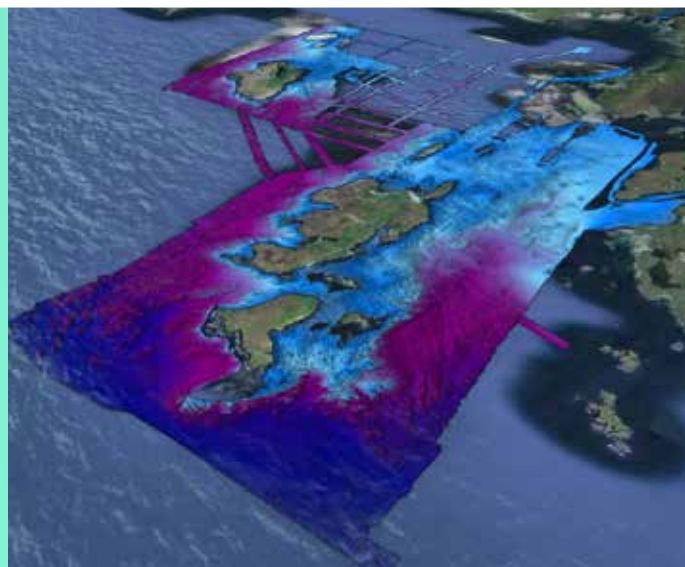
During 2012 the Advanced Mapping Services (AMS) team undertook INFOMAR data acquisition off the South and South East coast onboard the RV *Celtic Voyager* progressing coverage in the respective priority areas

A very successful program of survey activity was completed under the INFOMAR program comprising a total of 78 days survey on the RV *Celtic Voyager* including extensive bathymetric surveys of the Irish Sea as well as surveys off the south coast.

Significant additional data acquisition was undertaken as part of the Value Added Exploitation Programme including: Two areas of survey activity were undertaken during 2012 onboard the RV *Celtic Voyager* for Sustainable Energy Authority Ireland (SEAI), to underpin the development of the marine renewable sector offshore Ireland. An extension to the Galway Bay Test Site cable route survey carried out in 2011 was undertaken to facilitate a revised route for the proposed cable installation, landing in Spiddal, County Galway. During March and September 2012, survey work was undertaken offshore west Clare, in a priority area defined by the Marine Renewables Industry Association (MRIA) in consultation with SEAI.

AMS coordinated the Deep Sea Fish Farming site investigation survey carried out onboard the GSI's inshore survey vessel RV *Keary* at Inis Turk and Inisbofin, Co. Mayo, to provide baseline data for oceanographic modelling and potential site selection.

AMS coordinated INFOMAR's Value Added Exploitation 2012 Quarter One Research Workshop and the Quarter Four Annual Seminar. AMS also exhibited INFOMAR products and outputs at outreach events including Volvo Ocean, Oceanology, ESOF 2012, Sea2Sky, Galway, Science and Technology Festival, and PAD Atlantic Margins. AMS also presented at the MESH Atlantic Workshop, GeoScience Ireland, and the International Conference on Ocean Energy.



INFOMAR coverage at Inisbofin & Inisturk

“OSIS supports considerable national and international research, technology development, and innovation and monitoring activities...”



RV Celtic Explorer with Kiel 6000 on the back deck



Ocean Science and Information Services

Oceanographic Services

The oceanographic team serviced over 150 requests for oceanographic data and products during 2012 and continued to provide dedicated field and model data and analysis to the deepwater aquaculture project led by Marine Environment and Food Safety services at the Marine Institute.

The Ocean Science Information Service delivered key elements of the SEAI Ocean Energy service level agreement on time and within budget. This included the development and deployment of a high bandwidth acoustic buoy in Galway Bay, supporting a joint project involving SEAI, Marine Institute, IBM and Galway based SME, Biospheric Engineering Ltd.

OSIS also led a successful application to SFI under its 2012 research infrastructure call which approved a funding contribution towards the build of a fibre optic cable and seabed node and associated equipment which will underpin test and demonstration activities at the quarter scale ocean energy test site and SmartBay in Galway Bay. Significant stakeholder and authority consultation took place throughout 2012 with the aim of submitting foreshore and other applications in early 2013 for infrastructure installation in 2014.

The Malin Head long-term sea surface temperature reference station was upgraded and characterised. The national weather buoy network was supported and maintained on behalf of the Department of Transport, Tourism and Sport (DTTAS). The network performance was also reviewed by DTTAS in 2012 with a favourable outcome and continued funding. Building on the newly developed ocean models for oil spill and biogeochemical applications, a further downscaling to a high resolution shelf model was developed. A tide prediction tool went live on the internet providing marine users with tide forecasts for up to two years ahead. This development of this application was possible due to the continued maintenance of the National Tide Gauge Network. OSIS also provided oceanographic analysis and input to the Marine Strategy Framework Directive initial assessment.

Key elements of the EU funded projects ASIMUTH, JERICO and MyOcean2 were successfully delivered and a novel data acquisition system developed in 2011 is now deployed in Bantry Bay.

OSIS remains active on both the ICES WGOH and EuroGOOS and on the Marine Observations and Data Expert Group of DG Mare. OSIS continued to develop the legal work for a long term partnership on the FP7 European Multidisciplinary Seafloor Observatory (EMSO) project and an interim office was established in Rome. OSIS also participated in the CoOPEUS and SIDERI projects and a wide range of EU and international infrastructure projects.

Information Services & Development (IS&D)

Information Services & Development (IS&D) team continued to provide day-to-day technical support across the Institute servicing over 3,892 requests for support covering technical, applications and data management queries, while servicing in excess of 238 data requests from external parties. IS&D were involved in 83 Strategic Business and Technical Support, Operational and Marine Institute Service Group Support Projects and activities.

A key activity for IS&D in 2012 was the development of the new Marine Institute Information and Communications Technologies (ICT) Strategy (2013–2015) which outlines a concise set of high-level objectives and actions taking into account organisational objectives, technological development and Government policy to ensure a focused use of resources for the strategic development of the Institute's ICT infrastructure and services over the next three years.

During 2012, services to Marine Institute infrastructure by the IT Operations team included a major upgrade to the telephony system, the completion of the anti-virus environment migration from McAfee to Sophos; the implementation of mobile device management software allowing non-Blackberry devices to be used, and support for the deployment of SCS data acquisition software on the vessels. Improved processes for managed software licensing have also been implemented.

To facilitate better access to Marine Institute data the Online Data Download Portal was developed by the Data Management team and will provide an easy to use access point for downloading Marine Institute data, reducing the manual effort to satisfy data requests and providing a much more responsive service to end users. The system allows diverse complex datasets to be easily accessed from a single online location.

Data management support was also provided for the Data Collective Framework, INFOMAR and Marine Strategy Framework Directive programmes, including hosting of the Ocean Energy SEA data, for Aquaculture Foreshore licensing. This included further development and support of the online decision support application, and to assist with the setup and relocation of the new SmartBay team and infrastructure. This service has ensured that data for the above programmes is being well managed.

There was also ongoing development work on data systems for tidal, wave and fisheries data, and both chemistry and Harmful Algal Blooms (HABs) reporting services have been extended to provide more efficient access to data.

Other data-related activity included: support for EU FP7 funded ENVIRO-FI Future-Internet project with partners InTune Networks which has showcased the Institute's data services; participation in the SeaDataNet II European data infrastructure project; the Irish Spatial

Data Infrastructure Working Group; and a joint pilot with Department of Environment, Community and Local Government to determine the roadmap for the Irish implementation of the INSPIRE directive.

In the Applications Development area an extensive technical evaluation has been carried out to select an appropriate technology for the Marine Institute's new website. This work will be expanded in 2013 to develop website templates and provide technical support for the new website. During 2012 the Application Development team also further developed the Fish Health Directive Movements and Inspections applications and the RVOps Survey Planning System. Technical support was also provided to assist with the deployment of the new MEFS quality document management system, and the *Harnessing Our Ocean Wealth – An Integrated Marine Plan* and Maritime Careers website.

Advanced Technology Programme

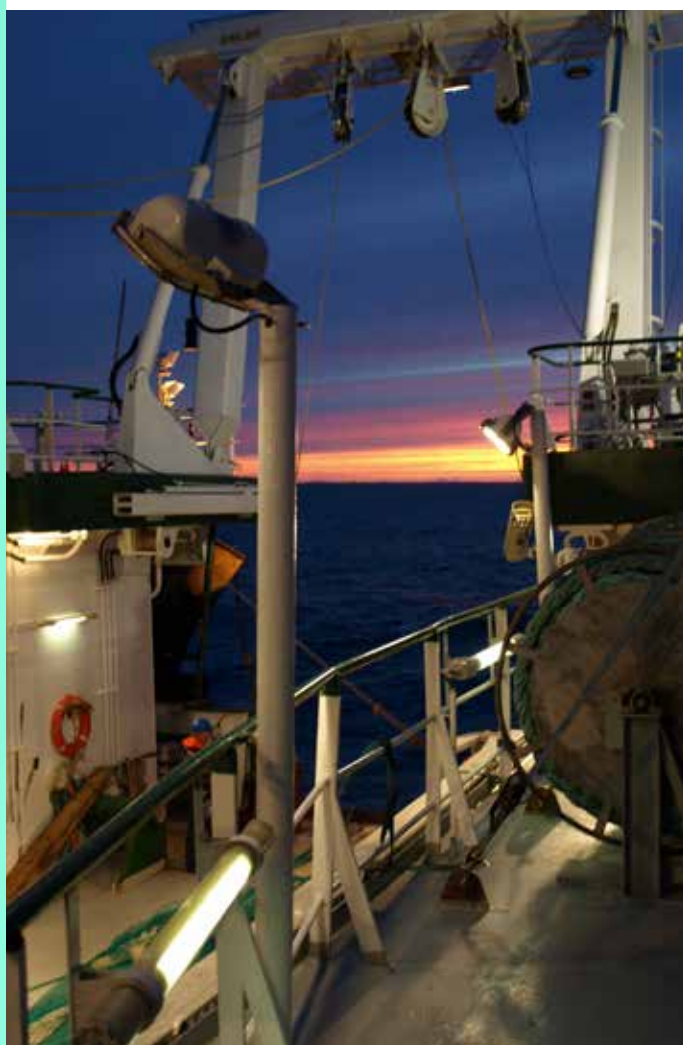
The Programme has delivered capacity development in marine technology through support of national initiatives including:

- > Beaufort Award in Marine Sensing and Communications Technology Dublin City University (<http://www.mestech.org/projects/beaufort-marine-research-awards.html>)
- > International SmartOcean Graduate Enterprise Initiative (industry co-funded graduate research) under the IRCSET EPS (Dublin City University, University College Cork, NUI Galway, NUI Maynooth, University of Limerick).
- > A key goal of the programme involves supporting the development of a national multi-disciplinary innovation cluster at the interface of the ICT and marine sectors – SmartOcean.
- > The Institute's delivery of technical and ICT support services to the SmartBay programme, which engaged in a broad range of marine technology research and development including sensor development, communications testing and data analytics. SmartBay is the National Research, Test and Demonstration Facility for marine ICT. Increasing demand and interest in marine ICT led to the establishment of a Not for Profit company called SmartBay Ireland Ltd in 2012. SmartBay (www.smartbay.ie) is funded under the Programme for Research in Third-Level Institutions.
- > The 3rd Annual SmartOcean Workshop was hosted by the Marine Institute on 2nd and 3rd July 2012. Day two of the workshop consisted of a SmartOcean Innovation Exchange, which recognised selected participating companies in the form of sponsorships by Multinational Companies, which are members of the SmartOcean Cluster.
- > The Advanced Technology team also profiled Ireland's National Capacity in Marine ICT at a number of national and international events including organization of an Irish pavilion at Oceanology 2012 in London and a wide range of EU and other national and international meetings.



Mr Paul Gaughan Showcases Ireland's Marine Technology at Oceanology International Exhibition in London

“A tide prediction tool went live on the internet providing marine users with tide forecasts for up to two years ahead.”



General Administration

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 and 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)

Overview of Energy Usage in 2012

The main energy users at the Marine Institute are the Headquarters based in Rinville, Oranmore. The state of the art facility was built by the Office of Public Works and has numerous energy saving installations throughout the building such as energy saving light fittings and motion detector lighting, heat reflective glass, natural ventilation and under floor heating.

The main energy consumption is through the LPG heating and electrical consumption for the air handling units in the 55 on site laboratories and lighting services.

In 2012, Marine Institute consumed 6,545,359 kWh of energy, consisting of:

- > 3,323,234 kWh of Electricity
- > 3,315,125 kWh of LPG

Actions Undertaken in 2012

The Marine Institute is committed to improving energy performance and energy efficiencies. It continued to engage with the SEAI Energy Efficiency Management e-MAP Programme with the objective of developing an energy efficiency strategy to assist in setting energy performance indicators and energy reduction targets, avoid energy wastage, and reduce emissions to the environment.

In 2012, the Institute continued with a number of energy management initiatives including:

- > raising awareness about energy use and the need for reduction
- > the installation of radiator temperature controls in offices and laboratories
- > reprogramming of light sensors to ensure optimum performance
- > a monitoring and maintenance programme for cold weather to optimise heating efficiency
- > effectiveness and monitoring of air handling systems to identify areas for possible energy reduction

Actions Planned for 2013

The Marine Institute will publish an Energy Efficiency Policy and will establish an Energy Group to implement the policy, with the aim of reducing energy costs and our carbon footprint. The Institute intends to establish and maintain a Register of Opportunities for energy reduction, to which all employees can contribute energy saving ideas. Actions identified in the Energy Efficiency Assessment report will be addressed and a staff awareness campaign to highlight the need for energy efficiency and energy efficient operating practices in all areas of Marine Institute activity will be initiated to all employees.

Scéim Gaeilge 2012 Update

The Marine Institute Irish Language scheme, “Scéim Gaeilge” came about as a result of the Marine Institutes obligation as a State Agency to provide a bilingual public service, as outlined in the Official Languages Act 2003, and also in the Irish Constitution Article 8.

The Scéim Gaeilge expired July 2012, in which the Final Audit of the Scéim Gaeilge July 2009 – July 2012 was conducted in September 2012 by a member of the Irish language Commissioners Office. A summary of the overall findings of that Audit is as follows:

- > Based on the information provided throughout the process it is clear that the Scéim Gaeilge has been implemented within the Marine Institute and excellent progress was made during the life time of the scheme in providing services in Irish.
- > The Audit demonstrated that obligations in relation to the website, press releases, information leaflets, Irish place names and Irish language training were all achieved.
- > Additional materials were developed in Irish, throughout the life time of the scheme. In particular, credit is given for the development of educational materials for schools which was made available in Irish.



“The Scéim Gaeilge has been implemented within the Marine Institute and excellent progress was made during the life time of the scheme in providing services in Irish.”



Appendices

APPENDIX 1 – NDP MARINE RESEARCH PROGRAMME 2007–2013 SHIP-TIME PROGRAMME AWARDS 2012

NDP MARINE RESEARCH PROGRAMME 2007–2013 – SHIP-TIME PROGRAMME 2012

Sea Change Research Measure	Sea Change Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant-Aid
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12003	Galway Bay Undergraduate Training	National University of Ireland, Galway	€80,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12019	SMART: Applied Marine Biological Sampling & Data Collection	Galway-Mayo Institute of Technology	€48,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12020	SMART Science at Sea: Multidisciplinary Ship-Based Training for Students of Marine-related Sciences	Galway-Mayo Institute of Technology	€72,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12021	SMART: Common Blended Learning Module	Galway-Mayo Institute of Technology	€136,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12022	MSc Marine Biology – Cork Harbour	University College Cork	€16,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12026	SMART: Galway Bay Training (with NUI Galway)	Galway-Mayo Institute of Technology	€48,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12027	SMART: HMRC/UCC Student Training	Galway-Mayo Institute of Technology	€24,000
Infrastructure Supporting	Research Vessel Ship-Time	Dedicated Training Programme	CV12030	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	Dedicated Training Programme	CV12031	SMART: GMIT 40th Anniversary Open Day	Galway-Mayo Institute of Technology	€8,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE12001	Climate Change Oceanography, Biogeochemistry & Geology Sections	Marine Institute	€238,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE12003	Cetaceans on the Frontier III	Galway-Mayo Institute of Technology	€255,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE12006	Biodiscovery 2012	National University of Ireland, Galway	€475,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CE12012	Smart ROV Testing with Integrated Sensors for Underwater Archaeological Operations	University of Limerick	€153,000
Infrastructure Supporting	Research Vessel Ship-Time	Integrated Research Survey	CV12004	Trophic Effects of Trawling 2012	Galway-Mayo Institute of Technology	€88,000

NDP MARINE RESEARCH PROGRAMME 2007–2013 – SHIP–TIME PROGRAMME 2012

Sea Change Research Measure	Sea Change Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant–Aid
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV12006	Seabed Geological Investigation Off the South Coast of Ireland and Northern Irish Sea (NSGeo)	University College Cork	€120,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV12008	GATEWAYS 2012	National University of Ireland, Maynooth	€176,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV12016	Enhancing Ireland's Capacity to Forecast Harmful and Toxic Algal Blooms on the Irish Shelf	Marine Institute	€88,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV12023 and CV12024	Sediment Transport Processes on Inverin Bank, Galway Bay	National University of Ireland, Galway	€72,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV12029	Fine Scale Ecosystem Links at Cetacean Hotspots in the Celtic Sea	Galway–Mayo Institute of Technology	€64,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV12002	Nutrients Survey Programme	Marine Institute	€104,000
Infrastructure Supporting	Research Vessel Ship–Time	Other	–	International Conference on Ocean Energy (ICOE 2012)	Marine Institute	€40,000
Infrastructure Supporting	Research Vessel Ship–Time	Other	–	EuroScience Open Forum (ESOF 2012)	Marine Institute	€136,000
TOTAL						€2,497,000

FUNDED RESEARCH PROJECTS 2012

NDP MARINE RESEARCH PROGRAMME 2007–2013: FUNDED PROJECTS 2012

Sea Change Research Measure	Sea Change Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant–Aid
Innovation	Innovation	Networking Awards	Various	Attendance at/Hosting of Marine Conferences, Workshops and Events	Various	€21,779
TOTAL						€21,779

Appendices

APPENDIX 2 – IRISH PARTICIPATION IN EU RTD PROJECTS.

Since the publication of the 2011 review of Irish participation in EU funded marine research projects and marine research related initiatives (ref: New Connections: Exploring Ireland's International Marine Research Relationships: 2007–2010)(www.marine.ie/home/Publications) and the addition of 25 additional projects (Grant-aid >€9.4m) in 2011, 14 new FP7 (grant-aid: € 3.3m) and 12 new INTERREG-IV (Grant-aid: € 2.8m) projects can be added to the Irish total. This results in a total of 150 co-operative projects with grant-aid of over €53m going to the Irish marine research (including research based-SMEs) community over the period 2007–2012. It is clear that EU cooperative and competitive research funding programmes make a major contribution to the dynamism and innovation of the Irish marine research community and supplement research funding secured through national research, development and innovation programmes such as those supported under the National Development Plan (2007–2013).

The Marine Institute is a partner in five (ACRUNET, BENTHIS, COFASP, COOPEUS, GEPETO) of the 26 new projects in 2012, securing grant-aid in excess of €330K.

Details of EU Research Funding opportunities are described on the Marine Institute website (www.marine.ie/home/funding/InternationalFunding/) and a database of EU funded projects can be found at the EurOCEAN Knowledge Gate (www.kg.eurocean.org/).

EU FP7 Projects (2012)

AT-SEA: Advanced Textiles for Open Sea Biomass Cultivation. *OceanFuel Ltd.*

BENTHIS: Benthic Ecosystem Fisheries Impact Study. *Marine Institute.*

BIOFECTOR: Resource Preservation by Application of BIOeffectORS in European Crop Production. *BioAtlantis Ltd.*

CITCLOPS: Citizens' observatory for coast and ocean optical monitoring. *CoastWatch.*

COFASP: Cooperation in Fisheries, Aquaculture and Seafood Processing. *Marine Institute.*

COOPEUS: Building a Framework for a Sustainable, Transatlantic Cooperation in the Field of Environmental Research Infrastructures. *Marine Institute.*

ECSAFEFOOD: Priority environmental contaminants in seafood: safety assessment, impact and public perception. *AquaTT Ltd.*

EUROSHELL: Bridging the gap between science and producers to support the European marine mollusc production sector. *University College Cork / Irish Salmon Growers Association Ltd.*

IDREEM: Increasing Industrial Resource Efficiency in European Mariculture. *Daithi O'Murchu Marine Research Station (DOMMRS).*

KILL Spill: Integrated Biotechnological Solutions for Combating Marine Oil Spills. *National University of Ireland, Galway.*

MaCuMBA: Marine Microorganisms: Cultivation Methods for Improving their Biotechnological Applications. *University College Cork / AquaTT Ltd.*

MARLISCO: Marine Litter in Europe Seas: Social Awareness and Co-Responsibility. *University College Cork.*

PharmaSea: Increasing Value and Flow in the Marine Biodiscovery Pipeline. *University College Cork.*

STAGES: Science and Technology Advancing Governance of Good Environmental Status (MSFD). *Aqua TT Ltd.*

INTERREG-IV (2012)

ACCSEAS: Accessibility for Shipping, Efficiency, Advantages and Sustainability. *Commissioners of Irish Lights / Trinity House.*

ACRUNET: A Transitional Approach to Competitiveness and Innovation in the Brown Crab Industry. *Killybegs Fishermans Organisation / Marine Institute / Bord Bia.*

ARCOPOLUS: Maritime Safety / Oil Pollution Response. *National Maritime College.*

ATLANTICPOWER: Training for the Marine Renewable Energy Sector & Identification of New Market Niches. *Galway County Council / Cork Institute of Technology.*

ENERGYMARE: Co-operation on enhanced Renewable Energy production in the Atlantic space. *Limerick Energy Agency / National University of Ireland, Galway.*

GEPETO: Fisheries Management and Transnational Objectives. *Marine Institute.*

HARVEST ATLANTIC: Harnessing all resources valuable to Economies of Seaside territories on the Atlantic. *South West Regional Authority / Cork Institute of Technology.*

IBIS: Integrated Aquatic Resource Management between Ireland Northern Ireland and Scotland. *The Loughs Agency.*

LABELFISH: Atlantic network on genetic control of fish and seafood labelling and Traceability. *Indigo Rock Marine Research Ltd. / University College Dublin / Bord Iascaigh Mhara.*

MARMED: Valorisation of Marine Residues and Sub-products. *National University of Ireland, Galway.*

MARNET: Marine Atlantic Regions Network. *Border Midland and Western (BMW) Assembly / National University of Ireland, Galway.*

NETMAR: Robotic Systems, Sensors and Networking Technologies. *University of Limerick / National Maritime College.*

APPENDIX 3 – MARINE INSTITUTE PUBLICATIONS

Special Reports

Marine Institute (2012). *The Stock Book. Annual Review of Fish Stocks in 2012 with Management Advice for 2013*.
http://oar.marine.ie/handle/10793/841

Marine Institute (2012). *Atlas of Irish Groundfish Trawl Surveys: supporting fish stock assessment and new ecosystem advice*. Marine Institute. ISBN 978-1-902895-53-6.
http://oar.marine.ie/handle/10793/792

Marine Institute & Bord Iascaigh Mhara (2012). *Shellfish Stocks and Fisheries Review 2011: An assessment of selected stocks*. Marine Institute. ISBN 978-1-902895-52-9.
http://oar.marine.ie/handle/10793/751

Marine Institute (2012). *Oceans of Opportunity: A Guide to Marine Careers*. http://oar.marine.ie/handle/10793/825

Silke, J. (2012). *Shellfish Biotoxin Analysis: A national report 2011*. Aquaculture and Seafood Ireland Yearbook 2012. Inshore Ireland Publishing Ltd, Athenry, Co. Galway.

Irish Maritime Development Office (2012). *Irish Ports Offshore Renewable Energy Services (IPORES) – A review of Irish ports offshore capability in relation to requirements for the Marine Renewable Energy Industry*. Irish Maritime Development Office. http://oar.marine.ie/handle/10793/838

Irish Maritime Development Office (2012). *Review of Port Financial Accounts: Review of Irish Semi-State Port Companies Financial Accounts*. Irish Maritime Development Office.
http://oar.marine.ie/handle/10793/839

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ISSN: 1649-5055

O'Donohoe, P., Kane, F., Kelly, S., McDermott, T., Drumm, A., & Jackson, D. (2012). *National Survey of Sea Lice (Lepeophtheirus salmonis Kroyer and Caligus elongatus Nordmann) on Fish Farms in Ireland – 2011*. Irish Fisheries Bulletin No. 40: Marine Institute.
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ISSN: 1649-0037

Brazier, B., Caffery, J.M., Cross, T., & Chapman, D.V. (2012). *A History of common carp Cyprinus carpio (L.) in Ireland: A Review*. Irish Fisheries Investigations No. 25: Marine Institute.
http://oar.marine.ie/handle/10793/811

O'Donnell, C., Farrell, E., Saunders, R., & Campbell, A. (2012). *The abundance of boarfish (Capros aper) along the western shelf estimated using hydro-acoustics*. Irish Fisheries Investigations No. 23: Marine Institute. http://oar.marine.ie/handle/10793/787

Tully, O., & Clarke, S. (2012). *The Status and Management of Oyster (Ostrea edulis) in Ireland*. Irish Fisheries Investigations No. 24: Marine Institute. http://oar.marine.ie/handle/10793/828

Survey Reports

Doyle, J., Lordan, C., Hehir, I., Fee, D., O'Connor, S., Browne, P., & Casserly, J. (2012). *The "Smalls" Nephrops Grounds (FU22) 2012 UWTV Survey Report and catch options for 2013*. Marine Institute.
http://oar.marine.ie/handle/10793/833

Lordan, C., Doyle, J., Hehir, I., Fee, D., Allsop, C., & O'Neill, R. (2012). *Aran, Galway Bay and SLYNE Head Nephrops Grounds (FU17) 2012 UWTV Survey Report and catch options for 2013*. Marine Institute.
http://oar.marine.ie/handle/10793/835

Lordan, C., Fitzpatrick, R., Doyle, J., Strong, J., & Service, M. (2012). *Western Irish Sea Nephrops Grounds (FU15) 2012 UWTV Survey Report and catch options for 2013*. Marine Institute.

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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 2012

Upstream census data for the Burrishoole system, 2012

Species	Salmon Leap Upstream 2012	Mill Race Upstream 2012	Totals Upstream 2012	Totals Upstream 2011	Totals Upstream 2010	Totals Upstream 2009
Wild Grilse	640	31	671	523	686	549
Wild Spring Salmon	17	1	18	50	17	37
Reared Grilse	2124	164	2288	866	861	1453
Wild Sea Trout	34	1	35	18	35	21
Wild Finnock	86	18	104	50	37	117
Wild Brown Trout	47	10	47	87	104	90

Downstream census data for the Burrishoole system, 2012

Species	Salmon Leap Downstream 2012	Mill Race Downstream 2012	Totals Downstream 2012	Totals Downstream 2011	Totals Downstream 2010	Totals Downstream 2009
Wild Salmon Smolt	7081	636	7717	6629	7123	7980
Wild Sea Trout Smolt	586	47	632	620	213	657
Silver Eel	2608	727	3335	1969	2136	2879

APPENDIX 6 – RESEARCH VESSEL PROGRAMME 2012

Days at Sea from 01/01/2012 – 31/12/2012	Days	Surveys	Scientist Days	Student Days
RV Celtic Voyager	272	27	1459	348
RV Celtic Explorer	291	16	3098	697
Total	563	43	4557	1045

Appendices

RV Celtic Voyager Activity 2012

Survey	No. of Days	No. of Scientists	Scientist Days	No. of Students	Student Days	Scientist + Student Days
M2 Weather buoy	2	2	4	0	0	4
Winter monitoring survey	13	6	78	0	0	78
Galway Bay undergraduate training 2012	8	5	40	82	82	122
INFOMAR Trial	2	6	12	0	0	12
Trophic effects of trawling 2012	10	4	40	0	0	40
Hydrographic surveying supporting ocean energy sectoral development	19	7	133	0	0	133
Seabed geological investigation off the south coast of Ireland and northern Irish Sea (NSGeo)	14	7	98	0	0	98
AmSedIS: Amplified sediment waves (Eurofleets)	11	7	77	0	0	77
GATEWAYS 1 2012	22	7	154	0	0	154
INFOMAR 1	23	5	115	0	0	115
Porcupine grounds survey	10	5	50	0	0	50
Galway Bay SMART undergraduate projects	4	2	8	6	8	16
Celtic Sea/Aran Ground UWTV	10	4	40	0	0	40
UCC training	1	6	6	4	4	10
INFOMAR 2	30	5	150	0	0	150
Irish Sea UWTV	10	5	50	0	0	50
Enhancing Ireland's capacity to forecast harmful and toxic algal blooms on the Irish shelf	9	5	45	0	0	45
INFOMAR 3	25	5	125	0	0	125
Sediment transport process	3	4	12	0	0	12
SEAI Clare survey	6	5	30	0	0	30
GMIT 40th anniversary transition year competition	1	2	2	12	12	14
SMART Applied marine biological sampling	4	4	16	18	72	88
Fine scale ecosystem links at cetacean hotspots in the Celtic Sea	7	4	28	0	0	28
Sediment transport processes on Inverin Bank, Galway Bay	3	4	12	0	0	12
Undergraduate shipboard training in methods of oceanographic, benthic, megafauna and fisheries research	5	6	30	50	50	80
SMART Science@Sea multidisciplinary training in marine science	6	4	24	36	36	60
MSc Marine biology University College Cork	2	4	8	12	12	20
SMART Multidisciplinary offshore operations in marine science: A common blended learning module for students of marine science	12	6	72	72	72	144
TOTAL	272	136	1459	292	348	1807

RV Celtic Explorer Activity 2012

Survey	No. of Days	No. of Scientists	Scientist Days	No. of Students	Student Days	Scientist + Student Days
Climate change oceanography, biogeochemistry and geology sections	10	8	80	2	20	100
BSH No. 1	10	9	90	0	0	90
Cetaceans on the frontier III	11	11	121	9	99	220
BHS No. 2	9	7	63	0	0	63
Blue whiting acoustic survey	21	7	147	0	0	147
Biodiscovery and deep-ocean ecosystems	18	6	108	8	144	252
CFER 2012 acoustic fisheries survey	41	9	306	8	272	578
NERC sea level 2012	11	12	132	0	0	132
Northwest herring acoustic survey	21	9	189	0	0	189
ECO2@NorthSea	18	16	288	3	54	342
BSH No. 3	35	11	385	0	0	385
Multi-mode ROV testing with integrated sensors for underwater archaeological operations	7	10	70	6	42	112
Irish Groundfish Survey leg 1	16	14	224	0	0	224
Celtic Sea Herring Acoustic Survey	21	15	315	0	0	315
BSH No. 4	9	15	135	0	0	135
Irish Groundfish Survey Leg 2 and Leg 3	33	25	445	4	66	511
TOTAL	291	184	3098	40	697	3795

Appendices

RV Celtic Voyager Cruise Details 2012

Survey Code	Chief Scientist	Organisation	Description	Start Date	End Date	Number of Days
CV12001	Miss Sheena Fennell	National University of Ireland, Galway	M2 Weather buoy	30/1/2012	31/1/2012	2
CV12002	Dr. Evin McGovern	Marine Institute	Winter monitoring survey	1/2/2012	13/2/2012	13
CV12003	Dr. Rachel Cave	National University of Ireland, Galway	Galway Bay Undergraduate Training 2012	14/2/2012	21/2/2012	8
CV12032	Mr. Kevin Sheehan	Marine Institute	INFOMAR Trial	23/2/2012	24/2/2012	2
CV12004	Dr. Samuel Shephard	Galway Mayo Institute of Technology	Trophic effects of trawling 2012	25/2/2012	15/3/2012	10
CV12005	Mr. Kevin Sheehan	Marine Institute	Hydrographic surveying supporting ocean energy sectoral development	6/3/2012	24/3/2012	19
CV12006	Dr. Boris Dorschel	University College Cork	Seabed geological investigation off the south coast of Ireland and northern Irish Sea (NSGeo)	25/3/2012	7/4/2012	14
CV12007	Mr. Katrien Van Landeghem	University of Liverpool	AmSedIS: Amplified sediment waves (Eurofleets)	9/4/2012	12/5/2012	22
CV12009	Mr. Kevin Sheehan	Marine Institute	INFOMAR 1	14/5/2012	5/6/2012	23
CV12010	Mr. Colm Lordan	Marine Institute	Porcupine grounds survey	8/6/2012	17/6/2012	10
CV12026	Dr. Rachel Cave	National University of Ireland Galway	Galway Bay SMART undergraduate projects	20/6/2012	23/6/2012	4
CV12012	Ms. Jennifer Doyle	Marine Institute	Celtic Sea/Aran Ground UWTV	24/6/2012	3/7/2012	10
CV12027	Dr. Jimmy Murphy	University College Cork	UCC training	6/7/2012	6/7/2012	1
CV12014	Mr Fabio Sacchetti	Marine Institute	INFOMAR 2	9/7/2012	7/8/2012	30
CV12015	Mr Ross Fitzgerald	Marine Institute	Irish Sea UWTV	8/8/2012	17/8/2012	10
CV12016	Mr. Joe Silke	Marine Institute	Enhancing Ireland's capacity to forecast harmful and toxic algal blooms on the Irish shelf	19/8/2012	27/8/2012	9
CV12017	Mr. Kevin Sheehan	Marine Institute	INFOMAR 3	29/8/2012	22/9/2012	25
CV12023	Dr. Garret Duffy	National University of Ireland Galway	Sediment transport processes	24/9/2012	126/9/2012	3
CV12028	Mr. Jim Walsh	Unassigned	SEAI Clare Survey	27/9/2012	2/10/2012	6
CV12031	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	GMIT 40th anniversary transition year competition	7/10/2012	7/10/2013	1
CV12019	Mr. John Boyd	Galway Mayo Institute of Technology	SMART Applied marine biological sampling	11/10/2012	14/10/2012	4
CV12029	Ms. Mareike Volkenandt	Galway Mayo Institute of Technology	Fine scale ecosystem links at cetacean hotspots in the Celtic Sea	21/10/2012	27/10/2012	7
CV12024	Dr. Garret Duffy	National University of Ireland Galway	Sediment transport processes on Inverin Bank, Galway Bay	29/10/2012	31/10/2013	3
CV12030	Dr. Ian O'Connor	Galway Mayo Institute of Technology	Undergraduate shipboard training in methods of oceanographic, benthic, megafunga and fisheries research	1/11/2012	5/11/2012	5
CV12020	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	SMART Science@Sea multidisciplinary training in marine science	7/11/2012	12/11/2012	6
CV12022	Dr. Rob McAllen	University College Cork	MSc Marine biology University College Cork	15/11/2012	16/11/2012	2
CV12021	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	SMART Multidisciplinary offshore operations in marine science: A common blended learning module for students of marine science	17/11/2012	28/11/2012	12

RV Celtic Explorer Cruise Details 2012

Survey Code	Chief Scientist	Organisation	Description	Start Date	End Date	Number of Days
CE12001	Dr. Glen Nolan	Marine Institute	Climate change oceanography, biogeochemistry and geology sections	3/1/2012	12/1/2012	10
CE12002	Dr. Stefan Schmolke	(Germany) Bundesamt für Seeschifffahrt und Hydrographie Survey (BSH)	BSH survey No. 1	17/1/2012	26/1/2012	10
CE12003	Dr. Joanne O'Brien	Galway Mayo Institute of Technology	Cetaceans on the frontier III	24/2/2012	5/3/2012	11
CE12004	Ms. Sieglinde Weigelt	(Germany) Bundesamt für Seeschifffahrt und Hydrographie Survey (BSH)	BSH No. 2	9/3/2012	17/3/2012	9
CE12005	Mr. Ciaran O'Donnell	Marine Institute	Blue whiting acoustic survey	22/3/2012	11/4/2012	21
CE12006	Dr. Louise Allcock	National University of Ireland, Galway	Bio discovery and deep-ocean ecosystems	12/4/2012	29/4/2012	18
CE12007	Dr. George Rose	Newfoundland – Fisheries and Marine Institute of Memorial University	CFER 2012 acoustic fisheries survey	30/4/2012	2/6/2012	34
CE12008	Professor Andrew Cooper	University of Ulster	NERC sea Level 2012	10/6/2012	20/6/2012	11
CE12009	Dr. Cormac Nolan	Marine Institute	Northwest herring acoustic survey	21/6/2012	11/7/2012	21
CE12010	Dr. Peter Linke	(Germany) Bundesamt für Seeschifffahrt und Hydrographie Survey (BSH)	ECO2@NorthSea	20/7/2012	10/9/2012	18
CE12011	Mr. Holger Klein	(Germany) Bundesamt für Seeschifffahrt und Hydrographie Survey (BSH)	BSH No. 3	7/8/2012	10/9/2012	35
CE12012	Dr. Daniel Toal	University of Limerick	Multi-mode ROV testing with integrated sensors for underwater archaeological operations	14/9/2012	20/9/2012	7
CE12013	Mr. Dave Stokes	Marine Institute	Irish groundfish survey leg 1	23/9/2012	8/10/2012	16
CE12014	Mr. Ciaran O'Donnell	Marine Institute	Celtic Sea herring acoustic survey	9/10/2012	29/10/2012	21
CE12015	Dr. Stefan Schmolke	(Germany) Bundesamt für Seeschifffahrt und Hydrographie Survey (BSH)	BSH No. 4	2/11/2012	10/11/2012	9
CE12016	Mr. Hans Gerritsen	Marine Institute	Irish groundfish survey leg 2 and leg 3	15/11/2012	17/12/2012	33

Appendices

APPENDIX 7: FOREIGN MARINE SCIENTIFIC RE- SEARCH ACTIVITIES IN IRISH WATERS IN 2012

Foreign Vessel Activity 2012

Scientist Days Ireland	Scientist Days Foreign
4557	2803

Vessel Name	Country	No. of Days	No. of Scientists	Scientist Days
<i>Benaiah IV</i>	Britain	30	2	60
<i>Scotia</i>	Britain	7	7	49
<i>Fridtjof Nansen</i>	Russia	17	15	255
<i>Tridens</i>	The Netherlands	16	6	96
<i>MS Brennholn</i>	Norway	6	6	36
<i>Scotia</i>	Britain	6	12	72
<i>TBC</i>	Norway	20	5	100
<i>RRS James Cook</i>	Britain	7	30	210
<i>BNS Belgica</i>	Belgium	8	15	120
<i>RRS Discovery</i>	Britain	8	28	224
<i>BNS Belgica</i>	Britain	9	15	135
<i>Thalassa</i>	France	6	14	84
<i>RRS Discovery</i>	Britain	10	20	200
<i>Vizconde De Eza</i>	Spain	28	14	392
<i>Scotia</i>	Britain	7	7	49
<i>Endeavour</i>	Britain	10	7	70
<i>Pelagia</i>	The Netherlands	19	14	266
<i>RRS James Cook</i>	Britain	4	32	128
<i>Christina E</i>	Norway	3	6	18
<i>Thalassa</i>	France	11	15	165
<i>Endeavour</i>	Britain	1	18	18
<i>Scotia</i>	Britain	7	8	56
TOTAL		240	296	2803



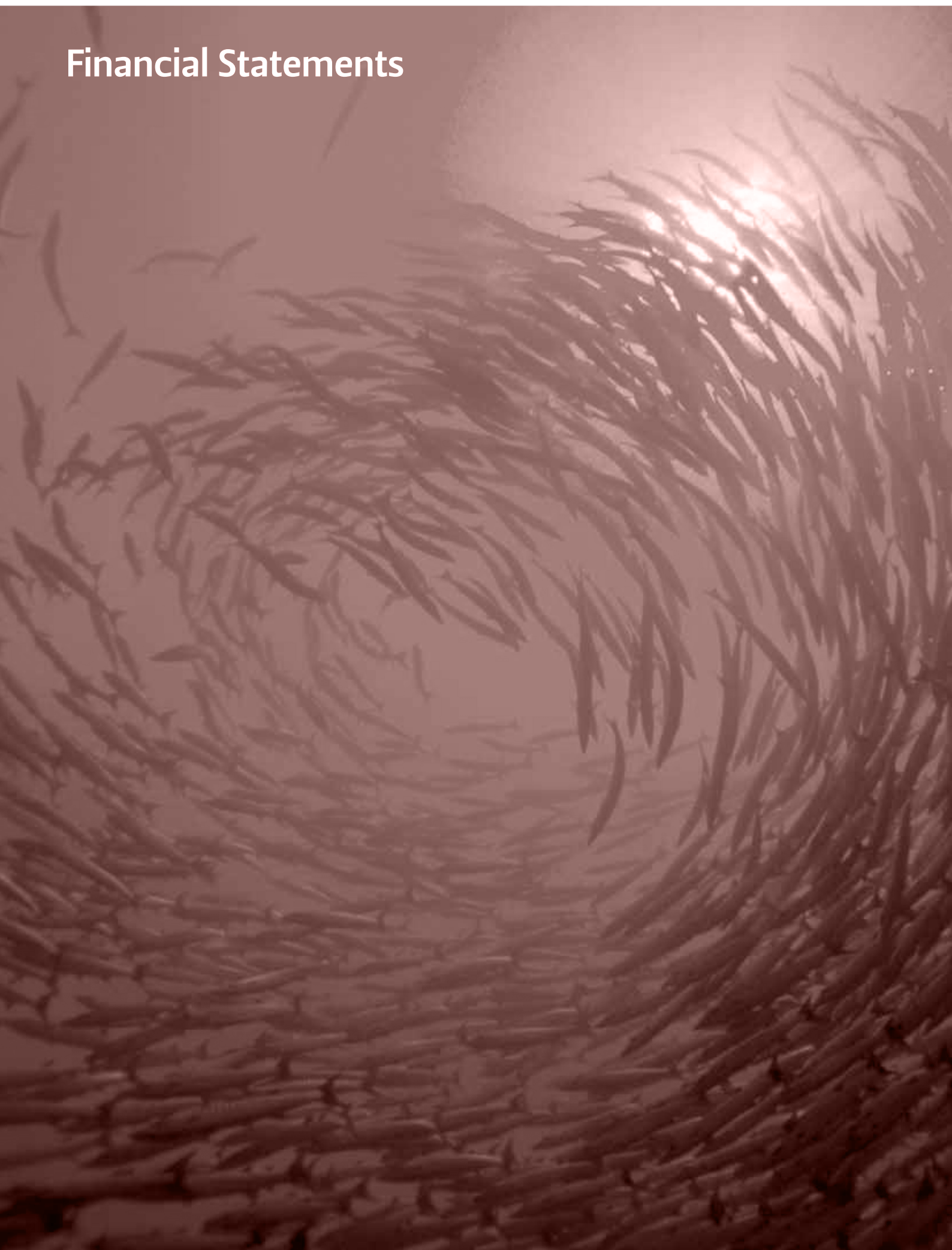
Glossary of Abbreviations

AMS	Advanced Mapping Services	GLEON	Global Lake Ecological Observatory Network
ASIMUTH	Applied simulations and integrated modelling for the understanding of toxic and harmful algal blooms	HABS	Harmful Algal Blooms Service
ASTOX II	Azaspiracids Toxicological Evaluation, Test Methods and Identification of the Source Organism	HEA	Higher Education Authority
BA	Bachelor of the Arts	HEAnet	Ireland's National Education and Research Network
BENTHIS	Benthic Ecosystems Fisheries Impact Study	IBM	International Business Machines Corporation
BIM	Bord Iascaigh Mhara (the Irish Sea Fisheries Board)	ICES	International Council for the Exploration of the Seas
BSc	Bachelor of Science	ICT	Information Communications Technology
BSH	Bundesamt für Seeschifffahrt und Hydrographie – German Federal Maritime and Hydrographic Agency	IDA	Industrial Development Authority
CEO	Chief Executive Officer	IFSRP	Irish Fisheries Research Science Partnership
CoOPEUS	Strengthening the cooperation between the US and the EU in the field of environmental research infrastructures	IMDO	Irish Maritime Development Office
DAFM	Department of Agriculture, Food and Marine	INFOMAR	Integrated Mapping for the Sustainable Development of Ireland's Marine Resources
DCENR	Department of Communications, Energy and Natural Resources	INSPIRE	Infrastructure for Spatial Information in the European Community
DCF	Data Collection Framework	INTERREG	EU Inter-Regional Co-operation Programme
DG	Directorate General (for Research & Innovation)	IPI	Irish Planning Institute
DG Mare	Directorate General for Maritime Affairs and Fisheries	IPORES	Irish Ports Offshore Renewable Energy Services
DECLG	Department of the Environment, Community and Local Government	IRCSET	Irish Research Council for Science, Engineering and Technology
DEEPFISHMAN	Managing the Deep Water Ecosystem	IS&D	Information Services and Development
DTTAS	Department of Transport, Tourism and Sport	IISEAS	Irish Seafarers Educational Assistance Scheme
EMEA	Europe, Middle East, Asia	IT	Information Technology
EMSO	European Multidisciplinary Seafloor Observatory	IUCN	International Union for the Conservation of Nature
ENVIRO-FI	The Environmental Observation Web and its Service Applications within the Future Internet	JERICO	Towards a joint European research infrastructure network for coastal observatories
EPA	Environmental Protection Agency	LPG	Liquid Petroleum Gas
EPS	Enterprise Partnership Scheme	MA	Master of Arts
ERIAB	European Research and Innovation Board	MBA	Master of Business Administration
ESOF	European Science Open Forum	MEFS	Marine Environment and Food Safety Services
ETP	Excellence Through People	MESH	Mapping European Seabed Habitats
EU	European Union	MOU	Memorandum of Understanding
EuroGOOS	European Global Ocean Observing System	MSc	Master of Science
FEAS	Fisheries Ecosystem Advisory Services	MSFD	Marine Strategy Framework Directive
FP7	Seventh Framework Programme	MyFISH	Maximising yields of fisheries while balancing ecosystem, economic and social concerns
FSAI	Food Safety Authority of Ireland	MyOcean2	provides Ocean Monitoring and Forecasting service
GDP	Gross Domestic Product	NATURA	NATURA 2000 sites are protected for flora and fauna of European importance

NDP	National Development Programme
NGO	Non Governmental Organisation
NPWS	National Parks and Wildlife Service
NRL's	National Research Laboratories
NSAI	National Standards Authority Ireland
NUI Galway	National University of Ireland, Galway
NUI Maynooth	National University of Ireland, Maynooth
OSPAR	Oslo and Paris Convention (1992)
OSIS	Ocean Science Services (of the Marine Institute)
PAD	Petroleum Affairs Division
PhD	Doctor of Philosophy
PRTLl	Programme for Research in Third Level Institutions
RIAI	The Royal Institute of the Architects of Ireland
RIBA	Royal Institute of British Architects
ROV	Remotely Operated Vehicle
RTD	Research, Technology and Development
RTÉ	Raidió Teilifís Éireann (Radio [and] Television of Ireland)
RV	Research Vessel
RVOps	Research Vessel Operations
SCS	Scientific Computer System
SEAI	Sustainable Energy Authority of Ireland
SFI	Science Foundation Ireland
SFPA	Sea Fisheries Protection Authority
SIDERI	Strengthening International Dimension of Euro-Argo Research Infrastructure
SMART	Strategic Marine Alliance for Research and Training
SMEs	Small to Medium Sized Enterprises
SOCIOEC	Socio-economic effects of management measures of the future Common Fisheries Policy
TAC	Total Allowable Catch
TD	Teachta Dala (Member of the Dail)
TV	Television
UCC	University College Cork
US	United States of America
UK	United Kingdom
VMS	Vessel Monitoring System
WGOH	Working Group on Oceanic Hydrography

* Also see Appendix 2 – Irish Participation in EU RTD Projects, for additional project names and abbreviations

Financial Statements



Report of the Comptroller and Auditor General

For Presentation to the Houses of the Oireachtas

I have audited the financial statements of the Marine Institute for the year ended 31 December 2012 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 2012 and of its income and expenditure for the year then ended.

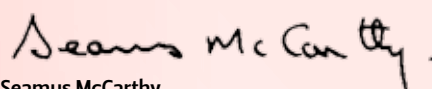
In my opinion, proper books of account have been kept by the Institute. The financial statements are in agreement with the books of account.

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

18 April 2014

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;

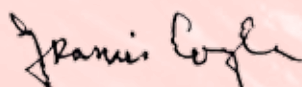
- > Prepare the financial statements on a going concern basis unless it is inappropriate to presume that the Institute will continue in operation.

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.



Mr John Killeen
Board Member
25 March 2014



Mr Francis Coyle
Board Member
25 March 2014

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 2012 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 of identified risks occurring;
- > An undertaking to continue working closely with Government and various Agencies to ensure that there is a clear understanding of the Marine Institute's goals and support for the Institute's strategies to achieve those goals.

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:

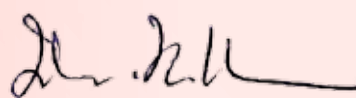
- > A comprehensive budgeting system with an annual budget which is reviewed and agreed by the Board;

- > 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 2012 was endorsed by the Audit Committee and approved by the Board. The Audit Committee has received the report of internal audit activity in 2012, 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 of the effectiveness of the system of internal financial controls in 2012.

On behalf of the Board:



Mr John Killeen
Chairman
25 March 2014

Accounting Policies

Year ended 31 December 2012

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 and advance payments received from EU and other contract research projects is treated as deferred income where the research project is ongoing and there is future expenditure to charge against the project. This income is recognised in the accounting period in which the related expenditure is charged. On completion of a project any unutilised balance on the deferred income account for that project is also brought to account as income.

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 (Note 18) 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 Technology Development Innovation Projects (RTDI)

The Marine Institute enters into commitments in respect of contracts awarded for Marine RTDI 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 RTDI projects are funded by the National Development Plan (NDP) 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.

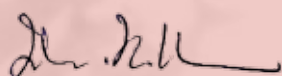
Income and Expenditure Account

Year ended 31 December 2011

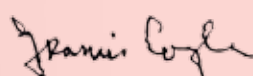
	Note	2012 €'000	2011 €'000
Income			
Oireachtas Grants	2	23,523	25,115
Other Income	3	11,882	11,179
Net Deferred Funding For Pensions	17	2,857	3,184
		38,262	39,478
Transfer (to)/from Capital Account	10	738	2,640
		39,000	42,118
Expenditure			
Corporate Services	4	4,488	4,283
Marine Environment and Food Safety Services	5	7,665	6,349
Fisheries Ecosystem Advisory Services	6	4,815	5,005
Ocean Science and Information Services	7	11,900	12,173
Irish Maritime Development Office	8	895	807
Marine RTDI and SSTI Programme	12	6,772	8,933
Pensions Costs	17	2,878	3,153
Refund to Exchequer	16	270	0
Total Expenditure		39,683	40,703
Surplus/(Deficit) for the year		(683)	1,415
Surplus at 1 January		2,464	1,049
Surplus at 31 December		1,781	2,464
Statement of Total Recognised Gains and Losses			
(Deficit)/Surplus for the year		(683)	1,415
Actuarial Gains/(Losses) on Pension Scheme Liabilities		1,360	3,080
Changes in Assumptions			
Adjustment to Deferred Pension Funding		(1,360)	(3,080)
Total Recognised Gains and Losses for the year		(683)	1,415

The results for the year relate to continuing operations.

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



Mr John Killeen
Board Member
25 March 2014



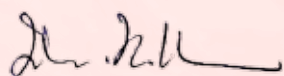
Mr Francis Coyle
Board Member
25 March 2014

Balance Sheet

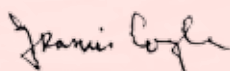
As at 31 December 2012

		2012		2011	
	Note	€'000	€'000	€'000	€'000
Fixed Assets	11		22,552		23,290
Current Assets					
Debtors and Prepayments	14	3,045		6,560	
Banks and Cash		1,211		596	
		4,256		7,156	
Current Liabilities					
Creditors and Accruals	15	2,475		4,692	
Net Current Assets			1,781		2,464
Total Assets Less Current Liabilities before Pensions					
Deferred Pension Funding		27,501		26,004	
Pension Liabilities		(27,501)		(26,004)	
Total Assets less Current Liabilities			24,333		25,754
Financed By:					
Capital Account	10	22,552		23,290	
Income and Expenditure Account		1,781		2,464	
			24,333		25,754

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



Mr John Killeen
Board Member
25 March 2014



Mr Francis Coyle
Board Member
25 March 2014

Cash Flow Statement

For the Year ended 31 December 2012

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

	Note	2012 €'000	2011 €'000
(Deficit)/Surplus per Income and Expenditure Account		(683)	1,415
Interest received		0	0
Transfer to/(from) Capital Account	10	(738)	(2,640)
Depreciation	11	2,906	4,440
(Increase)/Decrease in Debtors and Prepayments	14	3,515	(1,830)
Increase/(Decrease) in Creditors and Accruals	15	(2,217)	7
Net cash inflow from operating activities		2,783	(1,392)

Cash Flow Statement

	Note	2012 €'000	2011 €'000
Net cash inflow from operating activities		2,783	1,392
Returns on investments and servicing of finance			
Interest received		0	0
Net capital expenditure			
Acquisition of fixed assets	11	(2,168)	(1,800)
Increase / (Decrease) in cash		615	(408)

Reconciliation of net cash flow to movement in net funds

	2012 €'000	2011 €'000
Increase / (Decrease) in cash	615	(408)
Net funds at 1 January	596	1,004
Net funds at 31 December	1,211	596

Notes to the Financial Statements

Year Ended 31 December 2012

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 2012

2. Grant in Aid

	2012		2011	
	€'000	€'000	€'000	€'000
Current purposes				
Marine Institute – Vote 30, Subhead A.7	14,449		14,772	
Less Superannuation contributions repayable*	(421)	14,028	(446)	14,326
Capital purposes				
National Seabed Survey – Vote 29, Subhead D.7	1,495		1,441	
Marine Institute – Vote 30, Subhead A.7	1,500		1,770	
Beaufort (Note 12) – Vote 30, Subhead A.7	2,167		1,793	
Research and Technical Development Infrastructure (RTDI) (Note 12) – Vote 30, Subhead A.7	4,333	9,495	5,785	10,789
		<u>23,523</u>		<u>25,115</u>

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

3. Other Income

	2012		2011	
	€'000	€'000	€'000	€'000
EU Contract Research				
Data Collection Framework (see note below)	2,841		2,948	
Other	<u>1,258</u>		<u>1,234</u>	
		4,099		4,182
Other Income				
Research Vessel Charterage	2,542		3,242	
Databuoy – Department of Transport	370		583	
Marine Strategy Framework Directive (DECLG)	996		0	
Natura (DAFM and DECLG)	571		899	
Water Framework Directive funded by EPA	956		745	
Marine NDP project co-funded by EPA	0		213	
Marine NDP project co-funded by Teagasc	288		0	
Sundry and Other Contract Income	<u>2,060</u>	7,783	<u>1,315</u>	6,997
TOTAL		11,882		11,179

The Data Directive is a European wide Directive establishing a community framework on the collection and management of data needed to conduct the Common Fisheries Policy.

Notes to the Financial Statements

Year ended 31 December 2012

4. Corporate Services

	2012 €'000	2011 €'000
Wages and Salaries	1,209	1,186
Administration	3,014	2,684
Depreciation	265	413
TOTAL	4,488	4,283

Administration costs include an audit fee of €19,270 in 2012 (2011: €19,270)

During 2012 there was an internal reorganisation resulting in expenditure previously included under Strategic Planning and Development Services now being included under Ocean Science and Information Services 2012 €2.285m (2011: €2.652m) Marine Environment and Food Safety Services 2012 €0.049m (2011: €0.042m) and Corporate Services 2012 €0.064m (2011: €0.065m).

5. Marine Environment and Food Safety Services

	2012 €'000	2011 €'000
Wages and Salaries: Core staff	2,736	2,622
EU Contract Staff	<u>78</u>	<u>0</u>
	2,814	2,622
Research & Development Programmes	4,595	3,492
Depreciation	256	235
TOTAL	7,665	6,349

During 2012 there was an internal reorganisation resulting in expenditure previously included under Strategic Planning and Development Services now being included under Ocean Science and Information Services 2012 €2.285m (2011: €2.652m) Marine Environment and Food Safety Services 2012 €0.049m (2011: €0.042m) and Corporate Services 2012 €0.064m (2011: €0.065m).

6. Fisheries Ecosystems Advisory Services

	2012 €'000	2011 €'000
Wages and Salaries: Core staff	1,926	1,958
EU Contract Staff	<u>1,378</u>	<u>1,379</u>
	3,304	3,337
Research & Development Programmes	1,401	1,465
Depreciation	110	203
TOTAL	4,815	5,005

Notes to the Financial Statements

Year Ended 31 December 2012

7. Ocean Science and Information Services

	2012 €'000	2011 €'000
Wages and Salaries	1,339	557
Administration & Development Programmes	8,288	9,434
Depreciation	2,273	2,182
TOTAL	11,900	12,173

The total running costs of the Research Vessels which are included under Ocean Science and Information Services was €7.85m for 2012 (2011 €7.549m). €2.5m of this expenditure is included under the Marine NDP (ship-time programme) for 2012 (2011 €2.5m). The running costs include any capital equipment costs incurred before adjusting for depreciation.

During 2012 there was an internal reorganisation resulting in expenditure previously included under Strategic Planning and Development Services now being included under Ocean Science and Information Services 2012 €2.285m (2011: €2.652m) Marine Environment and Food Safety Services 2012 €0.049m (2011: €0.042m) and Corporate Services 2012 €0.064m (2011: €0.065m).

8. Irish Maritime Development Office

	2012 €'000	2011 €'000
Wages and Salaries	326	299
Administration & Development Programmes	569	506
Depreciation		2
TOTAL	895	807

9. Salary Costs

	2012 €'000		2011 €'000	
Wages and Salaries:				
Core staff	136	7,538	140	7,594
Pensioners and Pension Costs	14	2,878	12	3,153
Contract Staff and other payroll costs	47	3,104	50	3,333
	197	13,520	202	14,080

Pension related deductions of €0.590m were made from salaries and remitted to the Department of Agriculture, Food and the Marine.

10. Capital Account

	2012 €'000		2011 €'000	
Balance at 1 January		23,290		25,930
Transfer (to) /from Income and Expenditure Account Capital funding	2,168		1,800	
Amortisation in line with asset depreciation	(2,906)	(738)	(4,440)	(2,640)
Balance at 31 December		25,552		23,290

Notes to the Financial Statements

Year ended 31 December 2012

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 2012	3,672	31,284	3,904	19,789	7,813	358	66,820
Additions at cost	71	1,107	223	541	226	0	2,168
Cost at 31 December 2012	3,743	32,391	4,127	20,330	8,039	358	68,988
Depreciation							
Balance at 1 January 2012	851	13,482	3,300	18,088	7,550	259	43,530
Charge for the year	75	1,204	356	960	270	41	2,906
Balance at 31 December 2012	926	14,686	3,656	19,048	7,820	300	46,436
Net Book Value							
At 31 December 2012	2,817	17,705	471	1,282	219	58	22,552
At 31 December 2011	2,821	17,802	604	1,701	263	99	23,290

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.

Notes to the Financial Statements

Year Ended 31 December 2012

12. Marine NDP (2000–2006), Beaufort and Marine NDP (2007–2013)

The total funding and amounts applied in 2012 was as follows:

	2012 €'000 NDP 2007–2013	2011 €'000 Total
Oireachtas Income (Note 2)	6,500	7,578
Other Income (Note 3)	<u>288</u>	<u>213</u>
Total Income	6,788	7,791
Expenditure:		
Amounts paid to third parties	5,546	6,514
Amounts paid to the Marine Institute	919	967
Administration	<u>307</u>	<u>352</u>
Total Programme Expenditure	6,772	7,833
Surplus / (Deficit) in year	16	(42)

Marine NDP (2000–2006), Beaufort and Marine NDP (2007–2013)

	2012 €'000	2011 €'000
Marine RTDI Programmes Expenditure	6,772	7,833
Assets purchased under the ERDF Fund	0	0
Depreciation on ERDF assets	0	1,100
TOTAL	6,772	8,933

Under the Laboratory Infrastructure Sub-Measure of the Marine RTDI Measure the Marine Institute purchased assets at a total cost of €5.912m (2007: €0.821m and 2008: €5.091m). These assets were fully depreciated at 31/12/2011 but are still in use.

Notes to the Financial Statements

Year ended 31 December 2012

Note 12 Cont'd

NDP 2000–2006

The primary objectives of the Marine RTDI Measure (NDP 2000–2006) are to enhance and consolidate the performance of the marine sector in Ireland through support for R&D and technology transfer activities and provide the RTDI capacity and infrastructure to enable Ireland to fully utilise marine resource potential in a sustainable manner. Expenditure comprises PhD Scholarships, Post Doctorate Scholarships, Michael Manahan Fellowship, Desk Studies, Applied/Industry Projects, Networking and Technology Transfer projects and Strategic projects.

The total investment in RTDI projects under the National Development Plan (NDP) between the period 2000 –2006 assisted 226 projects representing an investment of €16.289m.

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. 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 105 projects have been supported up to the end of 2012 under the Marine Research Sub-Programme of the NDP with 62 of these projects still ongoing.

The total expenditure under the Marine Research Sub-Programme up to 31 Dec 2012 was €50.0m. Commitments at 31 Dec 2012 were €14.2m.

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 2012 payments were outstanding on amounts charged to the financial statements as follows (note 17).

	2012 €'000	2011 €'000
Amounts Outstanding	0	190

At 31st December 2012 commitments entered into but not yet charged to the financial statements in respect of RTDI projects were €14.2m with the following breakdown.

	NDP and SSTI 2007–2013 €'000	NDP 2000–2006 €'000	Total €'000
Commitments as at 01 January 2012	17,307	0	17,307
Committed in 2012	3,698		3,698
Decommitted in 2012	0	0	0
Paid in 2012	(6,772)	0	(6,772)
Commitments as at 31 December 2012	14,233	0	14,233

Notes to the Financial Statements

Year Ended 31 December 2012

13. Expenditure

	2012 €'000	2011 €'000
Payroll Costs	10,496	10,710
Pension Costs	2,878	3,153
Board Costs	39	76
Annual Audit Fee	19	19
Insurance	240	256
Rent, Rates and Service Charges	368	357
Facility Costs	1,766	1,555
Telephone and Data Communications	211	188
IT Costs	627	757
Laboratory and Field Costs	878	833
Other Admin Costs	1,687	1,477
Travelling Expenses	917	892
Statutory Testing, Research and Surveys	4,195	2,728
Marine NDP (2007–2013)	4,272	5,333
NDP Shiptime Programme	2,500	2,500
Vessel Operation Costs	5,394	5,058
Other Sundry Equipment and Refits	131	154
Hire of Equipment	159	217
Depreciation (Note 11)	2,906	4,440
Total Expenditure Per Income and Expenditure Account	39,683	40,703

The figures in the note exclude capital expenditure of €2.1m.

Foreign travel costs included under travelling expenses in 2012 amounted to €320,419.

14. Debtors and Prepayments

	2012 €'000	2011 €'000
Trade Debtors	140	3,913
Contract Income	2,604	2,526
Prepayments	301	121
	3,045	6,560

An amount of €3.1m included under Trade Debtors relates to the recoverability of VAT payments. This amount was fully received in 2012.

15. Creditors and Accruals

	2012 €'000	2011 €'000
Trade Creditors	981	2,092
Deferred Income	837	1,514
RTDI Accrual (Note 14)	0	190
Accruals	565	325
Payroll and Revenue Accruals	92	571
	2,475	4,692

16. Refund to Exchequer

The Institute received a VAT refund of €2.8m in December 2012. It had estimated the refund at €2.53 million. The excess over that amount (€270,000) was paid over to the Department of Agriculture, Food and the Marine.

Notes to the Financial Statements

Year ended 31 December 2012

17. 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 2012.

The major actuarial assumptions are as follows:

	2012	2011	2010
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:

	2012	2011
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 is as follows:

	2012	2011
Total accrued pension liability	€27.5m	€26.0m

- (a) 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.

	2012 €'000	2011 €'000
Analysis of the Total Pension Costs charged to Expenditure		
Current Service Cost	1,900	2,200
Interest on pension scheme liabilities	1,400	1,400
Employee Contributions	(442)	(447)
	2,878	3,153
Analysis of the amount recognised in a statement of total		
recognised gains and losses (STRG)	€'000	€'000
Experience gains and (losses)	1,360	3,080
Changes in assumptions underlying the present value of scheme	0	0
Actuarial gain and (loss) recognised in STRGL	1,360	3,080

Notes to the Financial Statements

Year Ended 31 December 2012

Note 17 Cont'd

Net Deferred Funding for Pensions Recognised in the year	2012 €'000	2011 €'000
Current Service and Interest Cost	3,300	3,600
Less benefits paid in the year	(443)	(416)
	2,857	3,184

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 2012 amounted to €27.5million (2011: €26.0million). 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	2012 €'000	2011 €'000	2010 €'000	2009 €'000	2008 €'000
Deficit at the beginning of the year	26,004	25,900	24,700	19,300	18,300
Current Service Cost	1,900	2,200	2,100	1,900	1,900
Interest on Scheme Liabilities	1,400	1,400	1,400	1,100	1,000
Actuarial (Gain) Loss recognised in the STRGL	(1,360)	(3,080)	(2,075)	2,625	(1,679)
Benefits paid in the year	(443)	(416)	(225)	(225)	(221)
Deficit at the end of the year	27,501	26,004	25,900	24,700	19,300

History of Defined Benefit Obligations	2012 €'000	2011 €'000	2010 €'000	2009 €'000	2008 €'000
Defined benefit obligations	27,501	26,004	25,900	24,700	19,300
Experience Gains/(Losses) on Scheme Liabilities	1,360	3,080	2,075	(2,625)	1,679
Percentage of Scheme Liabilities	4.96%	11.8%	8.0%	(10.6%)	8.7%
Assumptions (Gains)/Losses on Scheme Liabilities	0	0	0	0	0
Percentage of Scheme Liabilities	0%	0%	0%	0%	0%

The cumulative actuarial gain recognised in the statement of total recognised gains and losses amounts to €4,097,000.

18. 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 five 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: Warehouse, Galway Harbour, commenced in 2000 for a period of 25 years with five yearly rent reviews.

Notes to the Financial Statements

Year ended 31 December 2012

Note 18 Cont'd

The current annual rental charge of these leases amounts to €327,720 (2011 €328,589)

	2012	2011
Expiring within 1 year	0	0
Expiring during the years 2 to 5	235,735	235,735
Expiring thereafter	91,985	92,854

19. Investment

The Marine Institute has 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 is €127,000. As it is not possible to accurately assess the value of this investment, the shares are not capitalised in the Balance Sheet.

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 Annual Basic Salary of the Chief Executive of the Marine Institute for 2012 was €146,220. 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.

Payments to the 2012 Marine Institute Board members were as follows.

Board Member	Category 3	Gross Fees 2012	Expenses 2012	Total 2012
Jim Fennell	Chairperson	0	1,762	1,762
Richard Flynn	Director	2,287	1,261	3,548
Michael Walsh	Director	2,287	0	2,287
Bernie Hannigan	Director	0	2,958	2,958
Eleanor O Higgins	Director	0	315	315
Emer Rogan	Director	0	1,037	1,037
Lorcan O Cinneide	Director	7,695	5,535	13,230
Francis Coyle	Director	7,695	2,164	9,859
Paul Hyde	Director	4,489	0	4,489
		24,453	15,032	39,485

Board Member	Category 3	Board Meetings 2012	Board Meetings Attended 2012	Term Commenced/ Ended
Jim Fennell	Chairperson	9	9	Term Ended Nov 2013
Richard Flynn	Director	9	2	Term Ended Apr 2012
Michael Walsh	Director	9	2	Term Ended Apr 2012
Bernie Hannigan	Director	9	1	Term Ended Apr 2012
Eleanor O Higgins	Director	9	3	Term Ended Apr 2012
Emer Rogan	Director	9	4	Term Ended Apr 2012
Lorcan O Cinneide	Director	9	9	
Francis Coyle	Director	9	9	
Paul Hyde	Director	9	5	Commenced June 2012

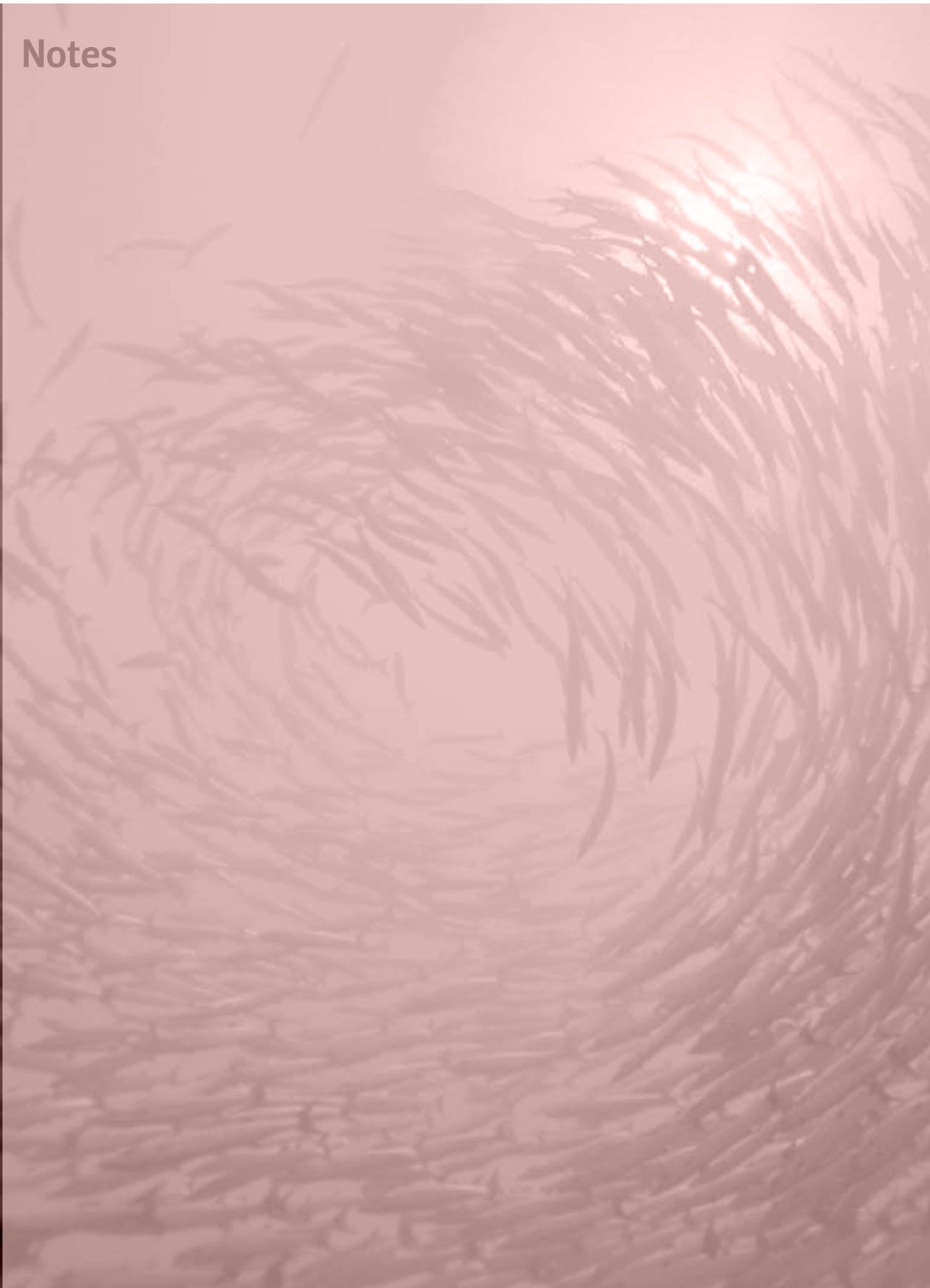
22. Board Approval

The financial statements were approved by the Board on the 25 March 2014.

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

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