

ANNUAL REPORT 2011



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 2011.

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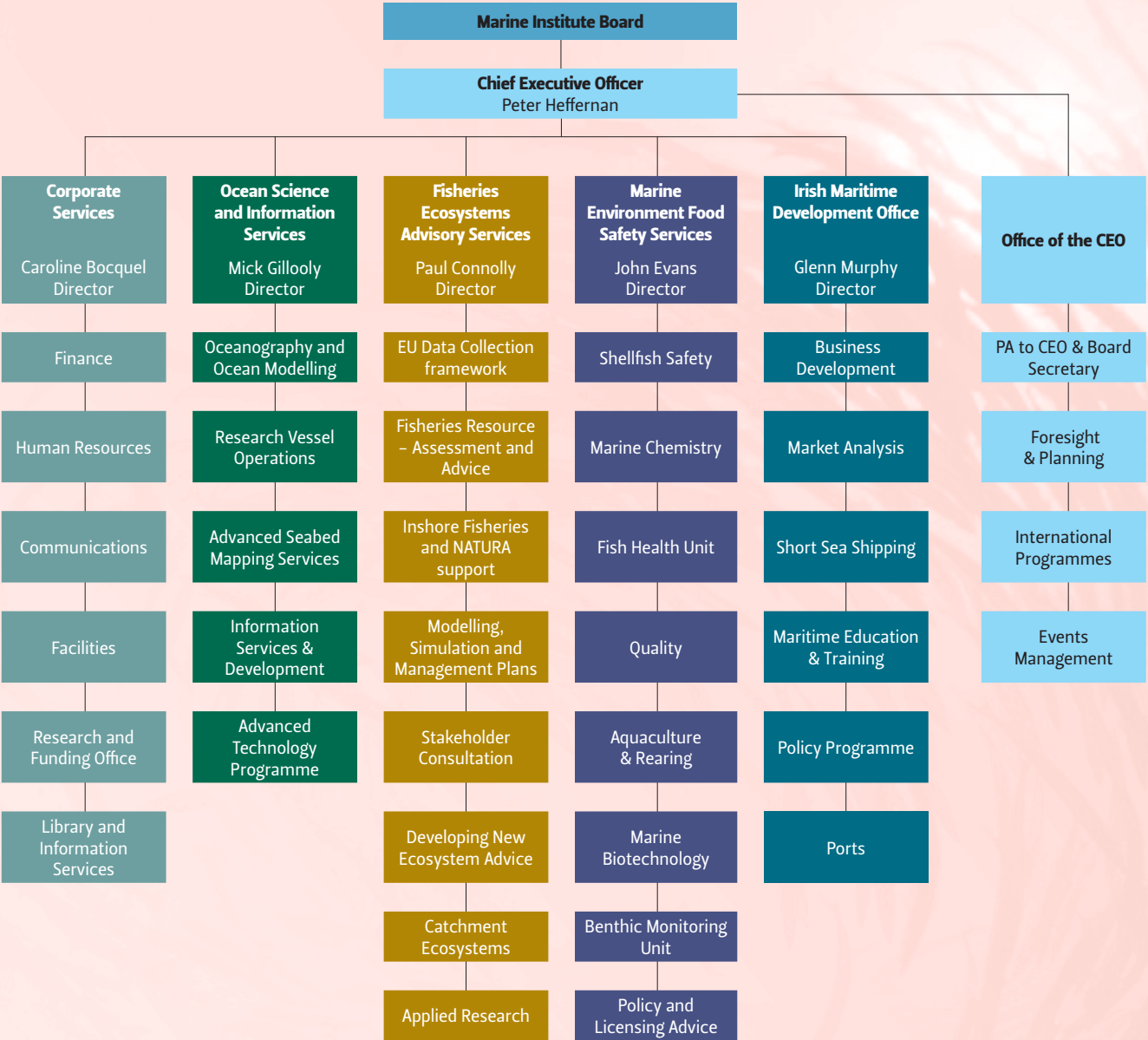
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The Marine Institute Annual Report is available in Irish
and can be downloaded from www.marine.ie



Introduction and Organisational Structure

The Marine Institute is the national agency for marine research, technology, development & innovation (RTDI). 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 220 million acres under the sea, which is over ten times its land area and until recently, largely unexplored. 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

During 2011 the Marine Institute was reorganised into five service areas:

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

A new Office of the CEO was also established in September 2011 to incorporate the roles of Strategic Planning and Foresight and International Cooperation. Other elements of the Strategic Planning & Development Services (SPDS) and Aquaculture and Catchment Management Services (ACMS) were incorporated into other services areas as indicated in the new organisational structure outlined in the organogram opposite. The Marine Institute 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 2011.

This report highlights the key deliverables and progress made towards our vision during 2011.



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 (GMIT). In addition to his role at GMIT he also holds a number of directorships including; Deputy 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.



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 an M.Sc. in Science Communications from Dublin City University, held the position of president of the EU Aquaculture Advisory Group for 10 years and is a former member of the Irish Executive Council of the National Union of Journalists (NUJ).



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 (CPMR) 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 co-ordination.



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 20 students to successful doctoral graduation and attracted significant external research funding from a variety of UK and international sources. 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 Lorcán Ó Cinnéide (2010 – 2015)

Lorcán Ó Cinnéide (B.A.) 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 been involved in fishing industry development and representation for the past 20 years. He is also a member of the Aquaculture License Appeals Board, Comhairle Raidió na Gaeltachta and Secretary of the Blasket Island Foundation.


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 UCD in 1984 and her PhD in UCC 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 30 MSc and PhD students in marine mammal and fisheries ecology and has authored over 50 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.


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 UCD. Previously, she worked as a research psychologist at Harvard University Medical School, as a clinical psychologist in the Irish health services, and as staff development manager in RTE. 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.


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 15 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 Bord Iascaigh Mhara (BIM) Fisheries School in Greencastle, Co Donegal.

Chairman's Statement



The Marine Institute met head-on the challenges presented by the current economic climate, including reduced exchequer funding and increasing service demands. In September, the Institute undertook a reorganisation moving from seven to five service groups: Corporate Services, Ocean Science and Information Services, Marine Environment and Food Safety Services, Fisheries Ecosystems Advisory Services, and the Irish Maritime Development Office.

Despite a reduction in resources, the Institute continued to meet its statutory

commitments providing scientific advice and services in support of the sustainable development of established marine industries, to the Department of Agriculture, Food and Marine (DAFM) and a number of other government departments. The Institute worked effectively in partnership with government and a range of departments in facing the increased workload involved with the Marine Strategy Framework Directive (MSFD), the Water Framework Directive (WFD), the Fish Health Directive, the Natura 2000 Directive and other marine spatial planning initiatives.

We succeeded in putting in place mechanisms through outsourced contracts to implement the Marine Strategy Framework Directive and the Coastal and transitional monitoring aspects of the Water Framework Directive.

In the marine fisheries sector, the *Annual Stock Book 2011* – 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 November to inform the December EU Council of Fisheries negotiations on Total Allowable Catch (TAC).

The National Research Vessels completed an intensive survey programme with the *RV Celtic Explorer* completing 17 surveys totaling 307 science days and *RV Celtic Voyager* completing a total of 33 surveys comprising 281 science days. This included a charter in February 2011 by the Centre for Fisheries and Ecosystems Research (CFER) of the Marine Institute of Newfoundland, Canada for the completion of a 23 day overwintering cod survey. This survey saw the *RV Celtic Explorer* demonstrating its capabilities in acoustic fisheries research in the challenging waters of Newfoundland and Labrador.

Despite a promising start to the year for the shipping sector with strong growth in shipping volumes in Quarter one, this declined through the year moving from flat to negative by year end. The IMDO remained active throughout providing policy advice to government, business

development, market analysis and education support. In December a seven year extension to the *PRSI refund scheme for Irish ship-owners*, was granted, approving state aid that directly supports the employment of over 250 Irish seafarers.

The Marine Institute continued to play an active role in the development of national and European marine policy, through our CEO, Dr. Peter Heffernan, in the work of the Inter-Departmental Marine Coordination Group, established by An Taoiseach in 2009 to address the major opportunities for socio-economic benefits that could be achieved through a well coordinated national cross-government policy development vehicle related to the marine.

At a European level, the Institute continued to play an important role in influencing policy on research and innovation, emphasising the important role of marine science, technology and innovation in supporting Europe's economic recovery and promoting "blue growth". Throughout 2011, the Marine Institute actively contributed to the work of the national FP8 Steering Group (National Consultation for Ireland's submission to the EU Eighth Framework Programme), chaired by Prof Anita Maguire, Advisory Council for Science, Technology and Innovation (ACSTI). The EU's 8th Framework Programme for Research, now officially named Horizon 2020, is the European Union's proposed €80 billion programme for research and innovation 2014 – 2020. The importance of a strong marine research component in Horizon 2020 contributes to the aims and objectives of the Europe 2020 Strategy. The Integrated Maritime Policy for the European Union was continually emphasised during this consultation phase and was further consolidated during visits of Commissioners Geoghegan-Quinn (DG Research and Innovation) and Damanaki (DG Maritime Affairs) to the Marine Institute in Galway in September 2011.

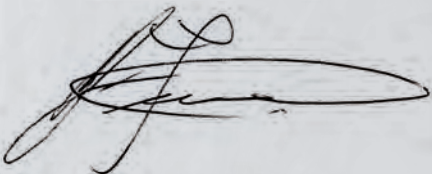
Further to work undertaken throughout 2010, in support of the Inter-Department Marine Co-ordination Group's formulation of Ireland's input (November 2010) to the proposed European Union Strategy for the Atlantic (EUSA), the Marine Institute assisted in the preparation of the joint French-Irish-Spanish-Portuguese statement (January 2011) supporting the EUSA initiative. Further highlights included the appointment of the first ever Irish Maritime Attaché (Ms Ciara Delaney) to Irish Permanent Representation in Brussels (March 2011) and in November 2011, our CEO, Dr Peter Heffernan, had the honour of addressing the Lisbon Atlantic Conference at the official launch of the European Union Strategy for the Atlantic (EUSA). At the Atlantic Conference, EU Commissioner for Maritime Affairs and Fisheries, Ms Maria Damanaki told delegates that "Europe urgently needs new far-sighted strands of smart, sustainable and inclusive growth in a new low-carbon 'blue economy'. Emerging maritime industries have every chance to become one of the pillars of the Europe 2020 Strategy for growth and jobs".

The Commission's proposal for an €80 billion programme for research and innovation 2014 – 2020, *Horizon 2020*, was launched late November. It also highlighted the importance of the role that marine and maritime research will play in creating jobs and driving growth to secure Europe's global competitiveness. *Horizon 2020* specifically mentions marine research in the Societal Challenge "Food Security", while reference is also made to environmentally friendly fishing, offshore aquaculture, marine biotechnology, the greening of maritime transport, renewable ocean energy, marine spatial planning and seabed mining.

During 2011, the Institute implemented the European Commission Decision to make chemical analyses the standard for tests carried out under National Biotoxin Monitoring programmes for shellfish. This was significant as it was the result of years of pioneering work by our scientists developing new test methods and demonstrating their effectiveness to the EC and other Member States.

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 and commitment to the shared vision of "a thriving maritime economy in harmony with the ecosystem and supported by the delivery of excellence in our services."

Finally, I wish to convey my deep appreciation to the members of the Board for their dedication and work throughout 2011.



Jim Fennell
Chairman



EU Commissioners, Ms Maria Damanaki (DG Maritime Affairs and Fisheries) and Ms Máire Geoghegan-Quinn (DG Research and Innovation) visit the Marine Institute in Galway – pictured with (L to R) Dr Peter Heffernan, CEO of the Marine Institute; Mr Simon Coveney T.D., Minister for Agriculture, Food and the Marine and Jim Fennell, Chairman of the Marine Institute

"Emerging maritime industries have every chance to become one of the pillars of the Europe 2020 Strategy for growth and jobs..."



Chief Executive's Report



The Marine Institute began 2011 with a visit by President Mary McAleese in January, who told us "Our economic recovery will in part rest on this Institute's capacity for ensuring that Ireland's marine resources are translated into economically viable ideas which deliver jobs, efficiencies and solid prosperity for our people. You are key enablers in the delivery of the Government's marine strategy 'Sea Change'. You are key strategists in optimising the funding available, in directing research and encouraging innovation."

This set the scene for the year ahead, during which we continued to address the issues arising from reduced exchequer allocation and increased service delivery demands through our short-term action plan "Navigating the Downturn Planning for the Upturn 2010-2012", while maintaining a strong focus on our objectives.

In September we carried out a reorganisation moving from seven service areas to five¹. As part of the reorganisation, the Office of the CEO was established to incorporate the roles of Strategic Planning and Foresight and International Cooperation.

Despite these challenges we remained focused on our role in optimising funding available, directing research, in encouraging innovation and ensuring that Ireland's marine resources support the country's economic recovery. We also maintained the highest standards in our advice and services to Government and a range of departments.

During the year, foundations were laid for an *Integrated Marine Plan for Ireland* through the work of the Marine Coordination Group, to which I contribute. The Group carried out preparatory work for a public consultation on "Our Ocean Wealth" which was launched February 2012 to seek the views of maritime stakeholders and the public on how best to get the most from our marine resources.

The Marine Institute continued to deliver on the objectives of *Sea Change (A Marine Knowledge, Research and Innovation Strategy for Ireland, 2007-2013)* with additional investment commitments of €16m from national and international sources and focusing on fisheries and aquaculture, marine biotechnology and technology, renewable ocean energy, maritime transport and marine environment. The 2011 investment included €3m from the Marine Institute administered NDP Marine Research Sub-Programme, bringing the total investment committed under this programme to €58m (2007-2011) and the overall investment in marine research over the lifetime of *Sea Change* to €166m.

A review of the *Sea Change* strategy was undertaken by external consultants to assess the impact of R&D investments, programmes and initiatives aimed at achieving the objectives of *Sea Change*; and to provide recommendations for the remainder of the strategy period and beyond.

The Marine Institute contributed to the Government's Research Prioritisation Exercise, that set out identifying priority areas for future public investment in science, technology and innovation to ensure the maximum economic return on investment. The Institute aimed to ensure that the opportunities presented by our marine resources are fully taken into consideration in the setting of future priorities in science and technology investments.

In May 2011 an Irish-led team of scientists made a major scientific discovery of a previously uncharted field of hydrothermal vents along the Mid-Atlantic Ridge onboard the national research vessel *RV Celtic Explorer*. The VENTuRE mission led by Dr Andy Wheeler of University College, Cork (UCC), together with scientists from the National Oceanography Centre and the University of Southampton in the UK, National University of Ireland, Galway (NUI Galway) and the Geological Survey of Ireland, was supported by the Marine Institute under the 2011 Ship-Time Programme of the National Development Plan and by the National Geographic Society, who filmed the work for a new series, "Alien Deep," which premiered globally in 2012.

In the fisheries sector, the Institute proposed a range of possible solutions to the problem of discards in the Irish fishing fleet in the Marine Institute/BIM publication, *An Atlas of Demersal Discards*, published in November. The atlas was compiled with the support of the Irish fishing industry in order to inform the EU-wide discard debate, and identify appropriate measures.

The INFOMAR national seabed mapping programme carried out in partnership with the GSI completed 75 survey days on the *RV Celtic Voyager* including extensive bathymetric surveys of the Irish Sea as well as surveys off the south coast.

We continued to promote the value and opportunity of Ireland's marine resource through our outreach and education programme. The "Explorers" marine education and outreach programme for primary school engaged 44 schools in counties Galway, Mayo and Clare and six schools in Dublin and Wicklow as well as 12 schools in Cork. The programme is run through Galway Atlantaquaria as well as in collaboration with SeaLife Bray, Blackrock Education Centre and the Lifetime Lab, University College Cork.

¹Given the embargo on recruitment in the public sector, a realignment of the Marine Institute's organisational structure was necessary following the resignation of the Director of Strategic Planning and Development Services mid-year and the retirement earlier of the Director of Aquaculture and Catchment Management Services.

We also took part in 'Sea2Sky' on 23rd September 2011 with NUI Galway. This event was Ireland's first participation in European Researchers Night, bringing exploration of the oceans and the skies to over 10,000 students and members of the public who attended the event.

Among the highlights of the year was a visit to the Institute in April 2011 by his serene highness, Prince Albert II of Monaco in May during which a Memorandum of Understanding was signed between the Marine Institute and the Institut Océanographique de Monaco. Later in the year we welcomed two EU Commissioners – Máire Geoghegan-Quinn, Commissioner for Research, Innovation and Science and Maria Damanaki, Commissioner for Maritime Affairs and Fisheries – who visited the Institute to discuss key policy areas and priorities in marine science and innovation.

The Institute became one of just three public sector organisations to achieve the platinum level Excellence Through People (ETP) Accreditation, the highest level of Ireland's national standard for human resources management.

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. A special thanks to members of the management team who left the Institute in the last year for their considerable service to the Institute and the marine community: Dr Ken Whelan and Dr John Joyce who retired and Ms Yvonne Shields, who has taken up position as chief executive of the Commissioners of Irish Lights.

I extend my gratitude to the Chairman and Board of Directors for their guidance and support during the year.

Peter Heffernan

Peter Heffernan
Chief Executive



L to R: Dr Martin McAleese, President Mary McAleese, Marine Institute Chairman Jim Fennell and Chief Executive Dr Peter Heffernan with the 'Real Map of Ireland'

"Our economic recovery will in part rest on this Institute's capacity for ensuring that Ireland's marine resources are translated into economically viable ideas which deliver jobs, efficiencies and solid prosperity for our people."



His Serene Highness Prince Albert II of Monaco and his fiancée, Ms. Charlene Wittstock visit the Marine Institute

Corporate Services



Director's Statement

The public sector embargo on recruitment together with fiscal pressures and a difficult economic environment determined that the focus in 2011 was 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 and a continued focus on strong corporate governance.

Highlights of 2011 included:

- The attainment of the Platinum level Excellence Through People (ETP) Accreditation, making the Institute one of three public sector bodies to have achieved this standard. The ETP accreditation is Ireland's national standard for human resource management. Its two main objectives of the standard are to act as a business improvement tool as well as being a driver for change and innovation, and also 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 2011, with an additional investment of €3m under the Marine Institute administered NDP Marine Research Sub-Programme bringing the total investment to-date under the NDP Marine Research Sub-Programme to €58m (2007–2011).
- A positive profile of the Marine Institute and the *Sea Change strategy* was communicated through comprehensive use of electronic and web-based communication evidenced through the number of visitors coming through www.marine.ie
- The Institute completely reorganised how Marine Institute publications are made available online with the launch of the Marine Institute Open Access Repository (<http://oar.marine.ie/>). This repository contains digital full-text versions of Marine Institute publications and promotes open access to the general public.
- 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

The Human Resources Team continued to deliver an effective and solutions focused service supporting the business Strategy of the Marine Institute in 2011 and the ongoing implementation of the 2009 to 2013 Human Resources Charter.

The focus of learning, development and investment in people during 2011 outside of mandatory, essential or work related technical training was "Working Through Challenging Times" to support employees wellbeing and ensure delivery of priority Marine Institute work programmes. Ensuring value for money and a return of investment drove a proactive approach to exploring shared services and joint purchasing of training with other agencies. In addition, the Human Resources team continued to invest in personal and team development resources including books, self-learning materials and CD based tools further exploring e-learning and shorter training courses to support ongoing learning needs whilst minimising the time investment required during working time.

With the continuing embargo on public sector recruitment, activities continued to be focused on graduate, work experience, FAS Work-placement and JobBridge Internship schemes. Twelve recently qualified graduates joined us on a 50 week programme across a range of scientific, technical and administration disciplines and 19 Work placement / Internship opportunities were offered to persons on the live register across mainly scientific areas to enhance their employability. In all, 31 opportunities were recruited, 422 applications were processed and 128 interviews took place. Of the graduate trainees, 72% went on to take up employment at the end of their programme and 23% returned to education. Of the JobBridge Internships, 58% left to take up employment and 21% returned to further education.

The Institute's Quality Accredited Health & Safety Programme saw the committee, which represents all locations and activities across the organisation hold nine meetings during 2011, highlighting the importance of health and safety across all Marine Institute facilities. Health, Safety and Employee Wellbeing awareness in 2011 focused on retaining our high work place safety standards and assisting employees to implement work life balance and manage both work and home related challenges.

Finance

The Marine Institute is committed to maintaining the highest standards of corporate governance and ensuring full compliance with the revised Code of Practice for the Governance of State Bodies which was published in 2009. The Marine Institute had an independent assessment of the Institute's compliance with the report carried out in 2011 and it found that the Marine Institute was 100% compliant with the code.

Under the stewardship of the Internal Audit Committee, the Marine Institute continued to conduct internal audits in 2011, all of which affirmed the Institute's high standards of governance. The following internal audits on internal and budgetary controls, HR, Health and Safety, Risk Management, IT Security and the Research vessel contract took place in 2011.

Strong public procurement ethos and focus throughout the Marine Institute remains. Thirty five tenders were issued in 2011, of which eight were published on the Official Journal of the European Communities (OJEU).

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 tracking of invoices 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 certified and returned for payment without delay. Payments are issued as required to ensure prompt payment.

Facilities

The facilities team continued to deliver excellent maintenance and support services in managing the Institute's facilities in Galway, Newport and Dublin together with a number of regional port locations enabling the delivery of front line services to our clients and stakeholders. In excess of 14,000 incoming telephone queries were handled.

Collaborative procurement with other agencies and organisations in relation to laboratory consumables and chemicals is underway. Centralised purchasing has proven to be an efficient and effective means to reduce costs and strategic procurement will be a key focus in delivering value for money to customers and stakeholders.

Library Services

In March 2011, the Library completed reorganising how Marine Institute publications are made available online with the launch of the Marine Institute Open Access Repository (<http://oar.marine.ie/>). 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 / 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 2011, the Repository contained 628 publications and had 6,761 visits from 48 countries since its launch. A significant feature of the repository is that performance indicators are now available that show how often publications are being viewed/downloaded and from what countries. The visibility, research impact, and probability of being cited of Marine Institute publications has been greatly increased as all records in the Repository are fully searchable by Google and other search engines. The establishment of the Repository also enables the Marine Institute to comply with mandates from national and international funding bodies that all publications arising from their funding be placed in an open access repository.

Communications

Cost-effective communications with the Institute's key stakeholders continued during 2011 through a strategic campaign including the web and electronic platforms, education and outreach and a targeted media relations programme. The Institute's website www.marine.ie had 257,560 visits throughout the year.

The "Explorers" marine education and outreach 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 in the programme through the Sea Life Centre, Bray and the Blackrock Education Centre. The programme was also extended to Cork through collaboration with the Lifetime Lab, University College Cork where a series of marine science workshops being made available to primary schools in Cork City between March 28th and April 8th. These were attended by 17 classes from 12 schools.

The Marine Institute also collaborated with NUI Galway and Galway Atlantaquaria in the successful 'Sea2Sky' event, as part of the European Researchers Night held on 23rd September 2011. The Sea2Sky event promoted marine, atmospheric and astronomical research and was attended by over 10,000 visitors.

A number of marine-related stories promoted by the Institute featured prominently in the media throughout the year including the discovery of field of hydrothermal vents along the Mid-Atlantic Ridge by a team of scientists using the ROV *Holland 1* onboard the RV *Celtic Explorer*. The survey was featured in the national press, television and radio. Other stories which gained significant media coverage were 'Sea2Sky', the INFOMAR seabed mapping programme, and a visit by Prince Albert II Monaco to the Marine Institute, during which a Memorandum of Understanding was signed between the Marine Institute and the Institut Océanographique of Monaco.

Research & Funding Office

Implementation of the *Sea Change Strategy (A Marine Knowledge, Research and Innovation Strategy for Ireland, 2007–2013)* continued during 2011, with an additional investment of €3m under the Marine Institute administered NDP Marine Research Sub-Programme. A total of €2.5m was awarded in support of research onboard the national research vessels—supporting fisheries, oceanographic, seabed mapping, marine biodiversity and biodiscovery research. In addition, an investment of €0.5m was committed to new initiatives in marine ICT, aquaculture, fisheries and knowledge transfer in the marine sector (Appendix 1). This brings the total investment to-date under the NDP Marine Research Sub-Programme to €58m (2007–2011). 2011 saw the completion of a number of Marine Institute funded projects, with all final project report published as part of the Marine Research Sub-Programme (NDP 2007–2013) Series (Appendix 2)

During 2011, an additional €13m was committed, via other competitive national (e.g. HEA, SFI, EPA, IRCSET) and European funding sources, to research aimed at addressing the objectives of *Sea Change*. This brings the total investment in marine/marine-related research in Ireland over the lifetime of the strategy to in excess of €166m. Of particular note is the success of Irish researchers in attracting over €45 million in EU grant-aid for research addressing *Sea Change* objectives in the period 2007–2011. The balance (€3m) of EU funding (Appendix 3) relates to maritime heritage and tourism topics not included in the *Sea Change Strategy*.

As a result of the restructuring that took place during the year, the *Sea Change* Discovery R&D Programme (The Marine Biotechnology Programme, the Advanced Technology Programme, and the Renewable Ocean Energy Programme) have moved into Marine Environment and Food Safety Services and Ocean Science and Information Services respectively and are reported on under those sections of the report.

During 2011, a review of the *Sea Change Strategy* was undertaken by external consultants. The review, due for completion in early 2012, sought to assess the impact of R&D investments, programmes and initiatives aimed at achieving the objectives of *Sea Change*, and to provide recommendations for the remainder of the strategy period and beyond.

The Marine Institute contributed to the Government's Research Prioritisation Exercise, aimed at identifying priority areas for future public investment in science, technology and innovation to ensure the maximum economic return on investment.

Accessibility

The Institute was fully compliant with the Disability Act during 2011.



Irish Maritime Development Office



Director's Statement

2011 began with some optimism in shipping markets that the worst of the economic crisis had passed and that a rising global tide would lift prospects for shipping companies operating in the Irish market as well as the wider global economy. In Ireland, there was a strong first quarter of growth across the majority of the key traffic segments. The renewed international uncertainty arising from the global credit crisis in the following

three quarters caused a cooling in volume demand and a reversal of earlier growth trends by year-end.

The Irish Maritime Development Office (IMDO) 2011 Corporate Strategy focused on maximising our investment in four thematic areas: Policy Advice, Business Development, Market Analysis and Education Support. In total, our programme covered 21 primary objectives which are highlighted in the annual analysis of each programme area. The work programme supported the creation of new jobs and sustained existing employment. We directly assisted re-skilling, training and development and provided expert market analysis on companies that deliver front line services that support export growth.

Mr. Glenn Murphy

Director: Irish Maritime Development Office

Focus on Irish and International Shipping Markets

Last year (2010) our annual review focused largely on the recovery phase that occurred in the domestic economy. This was reflected in a return to growth across most of the principal shipping market segments. In 2011, the momentum of this recovery appeared to be steadily progressing along a more sustainable expansionary path for the Irish sector, with first quarter volumes in some segments reaching double digit growth. However, the pace of this momentum slowed as concerns about the pace of the recovery in the European and Global economy started to develop. The world economy appeared to transition from a crisis involving the banks to a "sovereign debt" crisis which escalated in the second quarter of last year and continued to undermine the prospects for the global economy. The fortunes of the Irish market can be charted against this background. Recovery in both import and export volumes weakened post Easter and continued to dissipate before turning negative over the remainder of the year. Analysis of Irish shipping traffic data indicates that only one of the six principal sectors, dry bulk, recorded any growth in 2011.

Focus on Business Development

In 2002 the IMDO proposed a new Tonnage Tax for Ireland. The measure was endorsed by the Irish Government and formally approved by the European Commission in December 2002. The regime was introduced by the Irish Government as a direct measure that was designed to halt the decline in the Irish shipping industry and prevent the migration of the shipping industry to alternative European jurisdictions. The tonnage tax is a part of the Irish Corporation Tax rules. Today, it remains one of the central elements in our business development program and one of the key growth drivers in the Irish shipping services cluster.

The IMDO continued to provide advice and support to both Irish based and foreign owned shipping companies on joining or expanding their existing operations in Tonnage Tax. Last year, despite the prevailing global market conditions and weak underlying domestic economy, the Irish Tonnage Tax Regime remained predominantly stable with a slight increase in both direct employment (2%), and the number of firms operating in the system (10%), resulting in a total fleet of around 300 vessels. Irish based firms within the regime directly support the sustainable employment of 350 people.

Tonnage Tax is an important stability mechanism for the Irish industry, in particular for an industry where capital commitments are long term but the prevailing markets are usually more cyclical in nature.

Policy Support

The IMDO provides regular policy advice and support to the Department of Transport, Tourism and Sport. In February, we completed a report on the Annual Review of The Irish Tonnage Tax Regime 2010. This review is undertaken as part of Ireland's obligation to the European Commission as a condition of our state aid. In April, we submitted a report to the Department of Transport seeking the "Extension of the PRSI refund scheme for Irish ship-owners". This state aid directly supports the employment of over 250 Irish seafarers. In December, the European Commission confirmed a further seven year extension of this scheme.

Our work on the All Ireland Freight Forum continued. We commenced a significant review of the connectivity of the existing sea and air services from the island and their relevance to specific industrial and commercial sectors. The office presented its interim findings to the group at plenary sessions in June, September and October. We plan to complete a report on our findings in 2012.

In September we submitted our fifth annual review of Irish commercial ports accounts. The report analyses key data from the financial statements and provides a comparative review of ports collectively and individually, including a ratio analysis taken over eight financial metrics. The IMDO used this level of expertise to advise the review of State Assets which was published by the Department of Finance in 2011.

Supporting Education Development

The IMDO manages and administers the government's Irish Seafarer Educational Assistance Scheme (ISEAS). In 2011, more than 72 students and nine companies benefited from seagoing training payments and company support. We also provided grant aid to 13 seafarers that enabled them to achieve higher certificates of professional competency. In addition, our support for the Fishing Skipper conversion course continued, funding a further eight fishermen to achieve their merchant marine tickets in 2010. We also continued our funding for the Marine Notice 15 course enabling officers to achieve a ships master certificate for vessels under 3000 deadweight tonnes.

The Follow the Fleet school programme continued to grow last year with in excess of 911 primary level schools now registered on a nationwide basis with a potential outreach of over 45,000 school children participating.

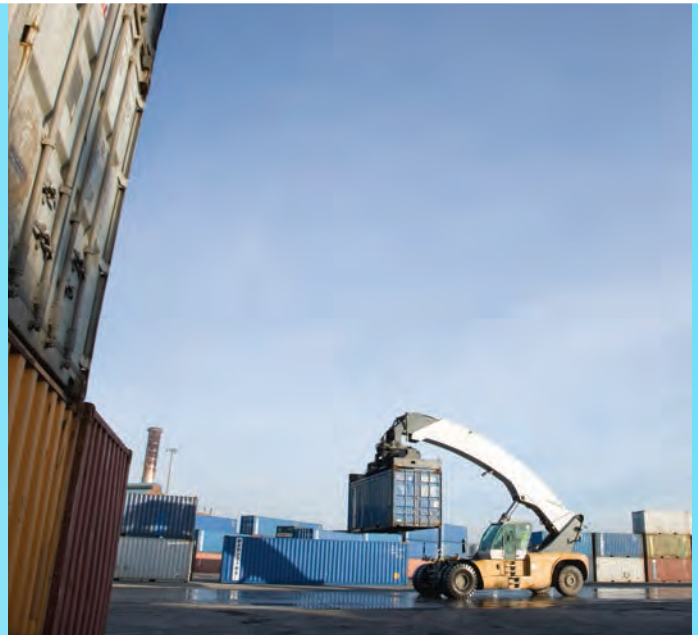
IMDO Publications and Events

In April the IMDO published our 8th annual *Irish Maritime Transport Economist*, which was launched at an industry briefing hosted by the Port of Cork. We cooperated with the Central Statistics Office to include quarterly shipping traffic data which is subsequently published on its "Centralstat" system. We also published 50 weekly shipping and economic market summaries.

In June we published our shipping trade review series in a new format. The Shipping Trade Reviews is a 14 country review of Irish shipping traffic data between Ireland and our main European maritime partners. The system generated 3,500 requests for information from the data published online.

In June, we co-hosted the European Shortsea Congress Conference in Hamburg which was attended by 120 delegates and we will host SHORTSEA12 in Dublin in June 2012.

The IMDO has supported "Irish Exporters Shortsea Shipping Award" at the Irish Exporters Association annual awards since its inception. The 2011 Shortsea Shipping Company of the year was awarded to EUCON Shipping and Transport Ltd., the container division of the Irish Continental Group.



"Tonnage Tax is an important stability mechanism for the Irish industry..."



L to R: Ms. Victoria Vogel, Shipping Analyst , Mr. Glenn Murphy, Director, Irish Maritime Development Office and Mr. Brendan Keating, Chief Executive Port of Cork Company at the launch of the Irish Maritime Transport Economist, Volume 9

Marine Environment and Food Safety Services



Director's Statement

Marine Environment & Food Safety Services (MEFS) ran a number of statutory monitoring programmes in support of seafood safety and the protection of the Marine Environment throughout 2011.

This included implementation of inspections and monitoring of movements of fish and shellfish stocks as required under the Fish Health Directive. Other programmes

include the National Sea Lice Monitoring Programme, the National Biotoxin Monitoring Programme, and the seafood component of the National Residues Control Programme. The National Sea Lice Monitoring Programme moved from Aquaculture and Catchment Management Services to the MEFS group in 2011 as part of an internal reorganisation of the Marine Institute.

The Marine Institute is the National Reference Laboratory for monitoring diseases in shellfish, finfish and crustaceans, biotoxins, microbiological contaminants in shellfish, and a range of chemical contaminants in the Marine Environment.

In September 2011, following a further restructuring within the Institute, the Marine Biotechnology Programme moved from Strategic Planning and Development Services into MEFS.

During 2011, the Institute implemented the European Commission decision to make chemical analyses the standard for tests carried out under National Biotoxin Monitoring Programmes for shellfish. This marked the culmination of a number of years work by the Marine Institute in developing such methods and demonstrating their effectiveness to the European Commission and other Member States.

Through outsourced contracts, the Institute put in place mechanisms for the implementation of the Marine Strategy Framework Directive (MSFD) and the coastal and transitional monitoring aspects of the Water Framework Directive (WFD). The Institute continues to play a significant role in managing the procurement of data collection to resolve the roadblock in aquaculture and fisheries licensing that had arisen as a result of a European Commission judgement that Ireland had not met its obligations under the Birds and Habitats Directives. Based on this data, the Institute started to carry out appropriate assessments of fisheries and aquaculture activities in Natura 2000 areas.

A collaborative approach is a key feature of all these programmes, which are 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 Environmental Protection Agency (EPA), 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 monitoring obligations, such as reporting to International Council for the Exploration of the Seas (ICES) and OSPAR, continues to be a core component of the work of the Institute. Publications in peer-reviewed journals and a variety of reports formed key outputs. These included publications in the areas of food safety, animal health and pest control and environmental compliance.

Mr. John Evans

Director: Marine Environment and Food Safety Services

Advice

MEFS built on the Habitats and Birds Directives work programmes which began in 2009 together with the NPWS, carrying out further baseline data collection in order to set Conservation Objectives. A number of Appropriate Assessments of fisheries and aquaculture activities were completed by staff from MEFS and Fisheries Ecosystems Advisory Services.

Work began, largely through outsourcing, on the implementation of the Marine Strategy Framework Directive (MSFD) and the Water Framework Directive (WFD). An initial assessment required under the MSFD and the development of a Marine Atlas commenced following the award of a contract by the Institute on behalf of the Department of Environment, Community and Local Government (DECLG).

Similarly, a programme of monitoring for coastal and transitional waters commenced, which will supplement monitoring being carried out by the Marine Institute and the EPA as required under the WFD.

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 (DCENR) and the EPA, on certain environmental aspects of offshore hydrocarbon exploration and production and dumping at sea respectively.

Monitoring

In addition to the usual programme of work associated with monitoring marine biotoxins and micro-biological contaminants, MEFS worked with colleagues in the SFPA and FSAI following an audit of food safety controls in live bivalve molluscs by the Food & Veterinary Office of the EU.

The biotoxin programme switched reference methods to chemistry techniques following the commissioning and accreditation of additional tests using Liquid Chromatography – Mass Spectrometer.

The MEFS team working in the national residues monitoring programme reported a further year clear of contaminants, while advice was provided by MEFS to the FSAI and the SFPA on the levels of contaminants in seafood.

The National Sealice Monitoring Programme continued its work including the production of the results of the Annual Survey 2010.

Competent Authority for Fish Health

The Fish Health Unit, working with Veterinary Inspectors from DAFM, continued to implement a monitoring and testing programme for oyster herpes virus, OSHV1 in response to the presence of the virus in *C. Gigas* during the year. Controls in relation to the movement of *C. Gigas* were implemented in line with a European Commission regulation on the matter. The monitoring programme and controls are designed to provide the best possible protection to Ireland's shellfish health status and trading position, and MEFS are working with the Commission and partners in other European countries on the topic.

Research

MEFS carries out applied research in order to support the delivery of monitoring programmes and to inform and direct future regulatory requirements. A number of multi-annual projects were ongoing during 2011. These included:

- > The ASTOX II project which addresses issues surrounding azaspiracid toxins in shellfish achieved several milestones, most notable of which was the identification of the causative organism for azaspiracid toxin in Irish waters.
- > The Biological effects and chemical measurements for the assessment of pollution in Irish Waters, led by Trinity College Dublin and in collaboration with the Enterprise Ireland Shannon Aquatic Toxicity Laboratory and Dublin Institute of Technology.
- > The GillPath and AquaPlan projects, both of which address issues relating to the Irish Finfish Aquaculture sectors.
- > Participation in the EU FP7 Prevent Escape project, which is seeking to quantify the level and impact of escapes from farmed finfish sites, and to develop strategies for their reduction.

In 2011, work began on the EU FP7 ASIMUTH project, which is led by the Daithi O'Murchu Marine Research Station, an independent commercial research station in Bantry, together with 10 partners including the Marine Institute. The project brings together scientists and industry from five countries along Europe's Atlantic Margin to form a network to produce the first realistic HAB advisory and forecasting capability, as a downstream service from the Global Monitoring for Environment and Security (GMES) system, to the European aquaculture industry. The early warning of severe blooms will allow fish and shellfish farmers to adapt their culture and harvesting practices in time, in order to reduce potential losses.

The Marine Institute commenced participation in a trans-national EU FP7 project, BIVALIFE, in partnership with Galway-Mayo Institute of Technology (GMIT), investigating aspects of the Oyster Herpes Virus.

Support for Ireland's National Marine Biotechnology Programme continued, 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.

A range of other projects in shellfish microbiology, marine chemistry and fish health are also being conducted at Masters Degree and PhD level within the Institute.



“MEFS carries out applied research in order to support the delivery of monitoring programmes and to inform and direct future regulatory requirements.”



Fisheries Ecosystems Advisory Services



Director's Statement

Delivering scientific services to meet the needs of our major clients and stakeholders was the main element of the Fisheries Ecosystems Advisory Service (FEAS) work programme in 2011. Supporting the Department of Agriculture, Food and the Marine (DAFM) at various EU meetings and the timely production of the annual Stock Book were key to negotiations with the EU

on fishing opportunities for the Irish fleet. The successful integration of salmon and eel science into FEAS from Aquaculture and Catchment Management Services and working closely with two new clients, the Department of Communications Energy and Natural Resources (DCENR) and Inland Fisheries Ireland (IFI) were important elements of FEAS work in 2011. The Irish Fisheries Science Research Partnership identified the need for new monkfish and boarfish surveys and additional funding was secured to carry out this work. The reform of the Common Fisheries Policy (CFP) continued and FEAS contributed to the international debate, particularly on the issue of discarding. The *Atlas of Demersal Discarding* produced by FEAS was widely acknowledged internationally as a providing clear and innovative thinking on the issue. FEAS secured €2.67 million in EU funding for the 2011 Data Collection Framework (DCF) which supported the port, sea sampling and research vessel survey programmes. Under the Marine Strategy Framework Directive (MSFD), the seas around Ireland must achieve Good Environmental Status (GES) by 2015. Developing GES indicators from routine data collection programmes continued. The second edition of the *North Western Waters Atlas* was produced and provides an overview of the oceanography, birds, mammals and fishing activity for the waters around Ireland. This Atlas was very well received by stakeholders.

Dr. Paul Connolly

Director: Fisheries Ecosystems Advisory Services

The Data Collection Framework

The Marine Institute is charged by DAFM to carry out the national work programmes in relation to Ireland's obligations under the Data Collection Framework (DCF). The DCF supports the scientific advice needed to implement the Common Fisheries Policy. The 2011 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 data. These data are the raw material used to assess the resource and develop scientific advice. The Marine Institute worked very closely with BIM and IFI in delivering the 2011 Irish National Programme. FEAS staff chaired the key EU scientific group that reviewed the DCF international work programmes and technical reports and examined the future requirements of the DCF (2014 to 2020).

Other data programmes included the tagging of 200,000 salmon smolts with coded wire tags for return as adult salmon in 2013. This information is critical for the salmon advisory programme.

Research Vessel Surveys

A considerable amount of FEAS resources are involved in delivering our research vessel survey programmes. A total of 14 research vessel surveys were conducted on the *RV Celtic Explorer* and *RV Celtic Voyager* in the waters off Ireland. A total of 216 sea days and 1,337 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 ICES and involved strong 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 2012.

Stakeholder Interaction

Significant effort was devoted to working with industry through the Regional Advisory Council (RAC) and the Irish Fisheries Science Research Partnership. The major issues addressed included development of Management Plans, proposed management for the Nephrops Porcupine Grounds, and undertaking additional monkfish and Porcupine Nephrops surveys on chartered commercial vessels. The results of the surveys were used to supplement data used to advise on monkfish off the north west of Ireland and the state of the Porcupine Nephrops stocks. Quarterly meetings were held with the environmental NGO's (Irish Environmental Pillar) to keep them informed about the latest scientific advice.

Scientific Advice

The Stock Book provides all the latest scientific advice on those stocks of interest to Ireland that come under the remit of the Common Fisheries Policy (CFP). The book was delivered to DAFM and was a very important part of the negotiations with the EU on fishing opportunities for the Irish fleet in 2012. FEAS scientists participated in over 50 international scientific expert groups meetings, where a broad range of scientific issues were addressed related to the provision of scientific advice to support the CFP. 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 vessel monitoring systems data in advice. Work on the inshore fisheries, salmon and eel resources also formed a considerable part of the programmes for 2011. Data and scientific advice was prepared on the shrimp, crayfish, surf clam, cockle, oyster and whelk. Work continued with BIM, NPWS, DECLG and DAFM on developing fisheries measures for NATURA sites that meet our obligations under the EU Birds and Habitats Directive. Salmon and eel advice was developed in cooperation with IFI and the Standing Scientific Committees for Salmon and Eel. The eel and salmon Standing Scientific Committees were chaired by FEAS personnel.

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 staff also co-supervise a range of research projects with a number of Irish universities. These PhD projects focus 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 FP7 funded projects including MEFEPO (making the European Fisheries Ecosystem Plan Operational), MARIFISH (an ERA NET to improve co-operation between fisheries research funders), DEEPFISHMAN (managing the Deep Water Ecosystem), BENTHIS (Benthic ecosystem fisheries impact study), SOCIOEC (Socio-economic effects of management measures of the future CFP) and MyFISH (Maximising yields of fisheries while balancing ecosystem, economic and social concerns). This 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 EU funded SALSEA Merge project was brought to a successful conclusion in 2011. The major deliverables from this project include a comprehensive description of marine migration routes and timing of all North East Atlantic salmon stocks. FEAS also participated in the EU funded ECKNOWS (Improving the use of ecological knowledge in fisheries stock assessments 2010 to 2013) project which will help to improve the accuracy of marine fisheries forecasting.

Burrishoole Facility

The Burrishoole Fish Stock Assessment programme continued in 2011, which included the permanent fish trap census of salmon, sea trout and eel. It also included the juvenile catchment assessment programme and associated stock dynamics. The team also played an active part in the work of the Global Lake Ecological Observation Network (GLEON) and with the European Inland Fisheries Aquaculture Advisory Commission (EIFAAC), a body under the FAO (Food and Agricultural Organisation) of the UN. The stock assessment team also participated in the DGMARE pilot study to estimate potential and actual escapement of silver eel. The Burrishoole catchment is being used as an index and trial site for estimating silver eel production, biomass and silvering rates. This research is being integrated into the National Eel Monitoring Programme led by Inland Fisheries Ireland. The maintenance and development of long term physical, chemical and biological datasets characterising the freshwater component of the Burrishoole catchment continued in 2011. Biological monitoring of the lake and rivers was carried out in 2011, including macro-invertebrate, Chlorophyll 'a' and zooplankton sampling. The ecosystem information from the catchment is now being integrated with the fish stock assessments in Burrishoole.



“Supporting DAFM at various EU meetings and the timely production of the annual Stock Book were key to negotiations with the EU on fishing opportunities for the Irish fleet.”





Ocean Science and Information Services



Director's Statement

2011 was a busy year for Ocean Science and Information Services (OSIS) with increased activity in each of the service areas of oceanography, seabed mapping and Research Vessel operations. Information Services and other programmes in ocean energy and advanced technology were also transferred into the service group in September following restructuring within the Marine Institute. OSIS now underpins considerable Research, Technology,

Development and Innovation (RTDI) and monitoring activity, from acquisition through to data products and services and continues to build on its considerable success in securing partnership in, and funding for EU projects. OSIS participated in a range of European and international activities and this improves our capacity to provide support services to meet increasingly complicated integrated science programme demands, which inform integrated policy advice.

Mr Michael Gillooly

Director: Ocean Science and Information Services

Research Vessel Operations

Intensive survey programs were completed by Research Vessel Operations (RVOps) on both research vessels with the *RV Celtic Explorer* completing 17 surveys totalling 307 science days and the *RV Celtic Voyager* completing a total of 33 surveys comprising 281 science days.

Among the highlights of the survey programme 2011 was the completion of the annual fisheries programme which included three acoustic survey programs and the annual groundfish survey onboard the *RV Celtic Explorer*. The *RV Celtic Voyager* completed 30 days of Underwater TV surveys for Nephrops stock assessment.

In addition to the Institute's surveys, five external charters were completed onboard the *RV Celtic Explorer* which provided a valuable external contribution to the operational budget. In February 2011 the vessel was chartered by the Centre for Fisheries and Ecosystems Research (CFER) of the Marine Institute of Newfoundland for the completion of a 23 day overwintering cod survey.

In August the successful UCC-led "VENTURE" survey onboard the *RV Celtic Explorer* using the deepwater remotely operated vehicle, *ROV Holland 1*, discovered the first deepwater vent system on the mid-Atlantic ridge, North of the Azores at depths of 3000m. Footage of this challenging expedition is the subject of a National Geographic Documentary to be broadcast in 2012.

RV Celtic Voyager activities included a successful oil and gas geo-hazard survey on behalf of Providence Resources plc and successful university led training programs. The Marine Institute worked on an interoperability exercise, for the Eurofleets FP7 project, examining how to successfully

deploy equipment across the European research vessel fleet.

The *ROV Holland 1* completed a successful survey season in 2011 and was mobilised for two science surveys totalling 46 survey days as well as a short four day mobilisation on the *Granuaile* to complete a joint agency exercise in support of the development of national search and recovery capabilities.

Advanced Mapping Services

At the end of 2011 the Advanced Mapping Services (AMS) team completed INFOMAR data acquisition in the Shannon Approaches and Irish Sea onboard the *RV Celtic Voyager*. Significant additional data acquisition was undertaken as part of the Value Added Exploitation Programme including:

- > Hydrographic, geophysical and geotechnical data acquisition offshore Belmullet for Sustainable Energy Authority of Ireland's (SEAI) Atlantic Marine Energy Test Site onboard the *RV Celtic Voyager*.
- > Habitat mapping survey and Water Framework Directive groundtruthing in Kenmare River, under the INTERREG IV MESH Atlantic Project.
- > Hydrographic survey offshore Dundalk under the INTERREG IV INIS Hydro Project.
- > AMS coordinated the WestWave site surveys for ocean energy device site selection nearshore Killard, Co. Clare, and Achill, Co. Mayo for SEAI.
- > Galway Bay Ocean Energy Test Site and Smart Bay cable route surveys undertaken for SEAI.

AMS coordinated INFOMAR's 2011/2012 Research Call under the Value Added Exploitation Programme. A total of 23 projects received INFOMAR Research contract awards (Appendix 9). The annual INFOMAR seminar was held at the Marine Institute, November 16th-17th. AMS supported RVOps in the delivery of a commercial pipeline route inspection survey during 2011, and mobilised a team of freelance marine survey specialists and equipment to undertake the analogue survey off the south coast of Ireland.

AMS presented the INFOMAR programme at Ocean Business and CHAS, and had a stand at the Sea2Sky public scientific outreach event hosted by NUI Galway. The team also represented INFOMAR and the Marine Institute at MSFD, STRATAG, & IOSEA4 Advisory Committees, and Geological Survey of Ireland's (GSI) Consultative Committee during 2011.

Oceanographic Services

The oceanographic team serviced over 200 requests for oceanographic data and products during 2011 and provided dedicated field and model data and analysis to the deepwater aquaculture project led by Marine Environment and Food Safety Services.

Oceanographic Services delivered the SEAI Ocean Energy service level agreement on time and within budget and managed the Institute's delivery of technical services to the SmartBay programme.

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 and new ocean models for oil spill and biogeochemical applications were developed. Oceanographic Services also provided oceanographic analysis for the Birds and Habitats Directives to Marine Environment and Food Safety Services.

Key elements of the EU funded projects ARCOPOL, EASYCO, ASIMUTH and JERICO were successfully delivered and a novel data acquisition system (successor to Ethernet) was developed to send data directly from marine sensors to the Marine Institute.

Section Manager Dr Glenn Nolan, completed successful terms as ICES WGOH chair and EuroGOOS Board member. OSIS completed implementation strategies for the FP6 ESONET NoE project which was successfully completed in 2011 and was positively reviewed. The Marine Institute continued to develop the legal work for a long term partnership on the FP7 EMSO project (European Multidisciplinary Seafloor Observatory) and statutes were issued to the EC for review.

Information Services & Development

Information Services & Development (IS&D) continued to provide day-to-day technical support across the Institute servicing over 4500 requests for support covering technical, applications and data management queries, while servicing in excess of 270 data requests from external parties. IS&D were involved in excess of 100 projects and support activities (Strategic Business and Technical Support, Operational and Marine Institute Service Group Support Projects).

Upgrades were made to the Marine Institute technical infrastructure including a new archival solution and updated backup systems, the first phase of the anti-virus environment migration from McAfee to Sophos, and an extranet version of Sharepoint was made available to support collaborative research projects such as ASIMUTH and SmartBay etc.

The team provided data management solutions and support including an 'Aquaculture Decision Support Tool' which has been made available to the Department of Agriculture, Food and the Marine (DAFM) and BIM. IS&D organised a Marine Strategy Framework Directive Data Workshop to evaluate available data resources across Government. We also developed an upload tool for the Underwater TV survey adding value to INFOMAR data and a Data Planning tool.

IS&D oversaw ICT management including work on the development of a new Institute ICT Strategy, the establishment of an IT services procurement framework to facilitate more timely provisioning of contract services, management of the Institute's approval and reporting process with the DAFM / ICT Control in line with Circular 2/09.

Support was provided for EU FP7 funded projects including, the ENVIRO-FI Future-Internet project which is now successfully up and running with partners InTune Networks, the SeaDataNet II European data infrastructure project, the Irish Spatial Data Infrastructure Working Group, and the Irish implementation of INSPIRE.

Training sessions were developed for common ICT tools and for intranet and extranet editing. The team supported finance reporting and PO systems, the upgrade of the facilities catering booking, the MEFS document management system, and orthoimagery data tender.



L to R: Minister for Agriculture, Food and Marine Mr. Simon Coveney T.D., Marine Institute CEO Dr. Peter Heffernan, An Taoiseach Mr. Enda Kenny T.D. and Mr. Tommy Furey of the Marine Institute view a display of seabed mapping on board the RV Celtic Explorer

Advanced Technology Programme

SmartBay infrastructure continued to support a broad range of marine technology research and development including sensor development, communications testing and data analytics.

IBM identified a SmartBay project on the investigation of real-time streaming analytics for monitoring underwater noise generated by wave energy conversion devices, as one of its 100 'Icons of Progress' as part of IBM's centenary celebrations, acknowledging the project as a hub for marine technology innovation (see <http://www.ibm.com/ibm100/us/en/icons/smarterwater/>)

The PRTL partners – Dublin City University, NUI Galway, NUI Maynooth, University College Dublin, Intel, IBM and the Marine Institute engaged in a series of meetings in 2011 to develop an appropriate governance and management mechanism for the project. SmartBay continued to develop its international reputation in 2011 through project activity with the SmartOcean Industry Cluster.

Commissioner for Research, Innovation and Science, Máire Geoghegan-Quinn and Commissioner for Maritime Affairs and Fisheries, Maria Damanaki visited the Marine Institute to discuss key policy areas and priorities in marine science and innovation including the SmartBay testbed. The SmartBay and SmartOcean Cluster was subsequently referenced in the Commission Communication on the draft Strategy for the Atlantic (2011) as an example of sustainable inclusive growth.

The 2nd Annual SmartOcean Workshop was hosted by the Marine Institute in July 2011. The Advanced Tech team also profiled Ireland's National Capacity in Marine ICT at a number of national and international events. Highlights included an invited presentation on SmartOcean Ireland at a session on the European Institute of Technology and an invited keynote at the Ocean Tech Expo in Rhode Island in May 2011. The team also hosted an Engineers Ireland Seminar in September, and information exchange visits by representatives of IT Innovation Southampton (UK) and SINTEF (Norway), key partners in the ENVIROFI project in May.

General Administration

Liaison

The programme of the Marine Institute covers a wide range of activities that require close liaison and co-operation 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 co-operation of all concerned.

Health and Safety

In accordance with the Health and Safety and Welfare Act (1989), the Marine Institute has updated 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 2011

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 2011, Marine Institute consumed 5,423,363 kWh of energy, consisting of:

- > 2,786,950 kWh of Electricity
- > 2,636,413 kWh of LPG

Scéim Gaeilge

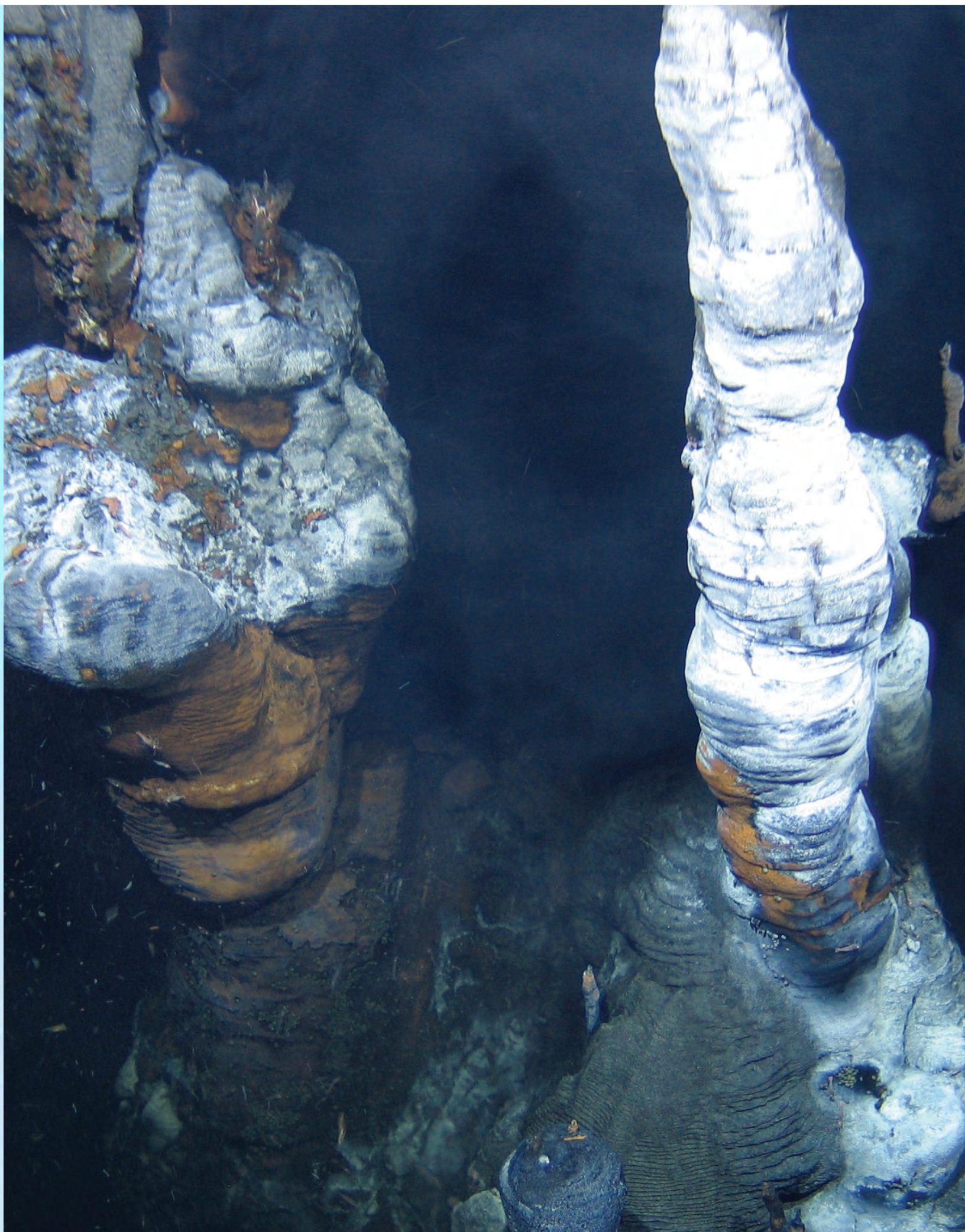
The Marine Institute Irish Language scheme, “Scéim Gaeilge” came about as a result of the Marine Institutes obligation as a State Agency to provide a bi-lingual public service, as outlined in the Official Languages Act 2003, and also in the Irish Constitution Article 8. The Grúpa Gaeilge was established to prepare the Marine Institute’s Irish Language Scheme/Sceim Foras na Mara under Section 11 of the Official Languages Act 2003. Section 11 provides for the preparation by public bodies of a statutory scheme detailing the services they will provide:

- > through the medium of Irish
- > through the medium of English, and
- > through the medium of Irish and English

and the measures to be adopted to ensure that any service not provided by the body through the medium of the Irish language will be so provided within an agreed timeframe.

The current Scéim Gaeilge was implemented in the period July 2009 to July 2012. An Grúpa Gaeilge identified and investigated a number of priority areas where Marine Institute will commit to enhancing services they provide through the medium of Irish including:

- > Corporate Publications, including Statement of Strategy, Annual Report, Customer Service Charter, Freedom of Information Sections 15 & 16 Manuals
- > Guidelines, information leaflets and application forms relating to individual schemes/programmes/processes
- > Other Marine Institute strategy documents and other Publications.
- > Press Releases, Advertisements, Requests for Tender
- > Email communication and Website
- > Gaeltacht Placenames
- > Telephone/Switchboard Services and Reception Facilities
- > Recruitment and placement
- > Training, Language Resources and Translation Services
- > Corporate Identity
- > Monitoring and Revision of Marine Institute commitments



Appendices

APPENDIX 1: NDP MARINE RESEARCH PROGRAMME 2007–2013 SHIP–TIME PROGRAMME AWARDS 2011

NDP MARINE RESEARCH PROGRAMME 2007–2013 – SHIP–TIME PROGRAMME 2011						
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	CV11016	University of Ulster Student Training	University of Ulster	€65,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11021	Postgraduate Shipboard Training for Erasmus Mundus Marine Biodiversity and Conservation Students	Galway–Mayo Institute of Technology	€43,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11024	Wildlife Biology – Marine Science Training Programme	Institute of Technology Tralee	€14,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11008 CV11009	Student training in Dublin Bay	Trinity College Dublin	€51,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11022	Undergraduate Shipboard Training in Methods of Oceanographic, Benthic, Megafauna and Fisheries Research	Galway–Mayo Institute of Technology	€43,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11017	Galway Bay Undergraduate Training	National University of Ireland, Galway	€64,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11001	Introduction to Seabed Mapping – Training for MA Students	University College Cork	€22,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11006	MSc Marine Biology – Cork Harbour	University College Cork	€22,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11007	University College Cork Student Training	University College Cork	€14,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	CV11035	Joint GMT/NUIG Shannon Survey	National University of Ireland, Galway	€35,000
CV10033	Science at Sea	Various	CV11025	Science at Sea: Multidisciplinary Ship–Based Training for Students of Marine–related Sciences	Galway–Mayo Institute of Technology	€85,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CE11006	Biodiscovery and Deep–Ocean Ecosystems	National University of Ireland, Galway	€477,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CE11009	University College Cork	National University of Ireland, Galway	€641,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CE11011	Seismic Investigation of the Geology and Oceanography of the Rockall Trough, North Atlantic	University College Dublin	€238,000

NDP MARINE RESEARCH PROGRAMME 2007–2013 – SHIP–TIME PROGRAMME 2011

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	CE11017	Porcupine and Rockall 2011	Geological Survey of Ireland	€85,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CE11001	Climate Change Oceanography, Biogeochemistry and Geology	Marine Institute	€153,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV11011	Climate and Ecosystem Sections on the Irish Shelf	Marine Institute	€80,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV11002	Trophic Effects of Trawling	Galway–Mayo Institute of Technology	€56,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV11018	Kenmare Bay Habitat Mapping Survey MESH Atlantic	Marine Institute	€104,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV11026	Smart ROV Testing for Archaeology and Energy Target Operations	University of Limerick	€88,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	CV11020	Nutrients Survey Programme	Marine Institute	€104,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	–	Equipment Testing and Calibration	Marine Institute	€16,000
TOTAL						€2,500,000

NDP MARINE RESEARCH PROGRAMME 2007–2013: FUNDED PROJECTS 2011

Sea Change Research Measure	Sea Change Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant–Aid
Discovery	Marine Technology	Capacity–Building	–	International SmartOcean Graduate Programme	Various	€200,000
Discovery	Marine Technology	Infra–Structure Support	–	SmartBay	Dublin City University	€175,000
Innovation	Innovation	Networking Awards	Various	Attendance at/Hosting of Marine Conferences, Workshops and Events	Various	€55,494
Industry	Aquaculture	Tender	SERV/11/SPDS/071	Feasibility Study on Establishing a Broodstock Programme for Pacific Oysters (<i>Crassostrea gigas</i>) in Ireland	Cartron Point Shellfish Ltd.	€33,122
Discovery	Marine Technology	Capacity–Building	–	Marine Institute Fulbright Fellowship	–	€22,000
TOTAL						€485,616

*This represents a contribution by the Marine Institute to the IRCSET / Industry Enterprise Partnership Programme.

APPENDIX 2: SEACHANGE PUBLICATIONS

Marine Research Sub-Programme NDP 2007–2013

ISSN: 2009–3195

O'Dowd, C., Cave, R., **McGovern, E.**, Ward, B., Kivimae, C., **McGrath, T.**, Stengel D., & **Westbrook, G.** (2011). *Impacts of Increased Atmospheric Co₂ on Ocean Chemistry and Ecosystems*. Marine Research Sub-Programme (NDP 2007–2013) Series: Marine Institute. <http://oar.marine.ie/handle/10793/703>

Blight, A., Foster-Smith, R., Sotharan, I., Egerton, J., McAllen, R., & Savidge, D. (2011). *Development of a methodology for the quantitative assessment of Ireland's inshore kelp resource*. Marine Research Sub-Programme (NDP 2007–2013) Series: Marine Institute. <http://oar.marine.ie/handle/10793/702>

Compass Informatics Ltd, Inland Fisheries Ireland, & National University of Ireland Galway. (2011). *Compilation of habitat-based catchment information and historical eel data in support of eel management plans 'EEL-PLAN' – Final Summary Report*. Marine Research Sub-Programme (NDP 2007–2013) Series: Marine Institute. <http://oar.marine.ie/handle/10793/701>

Compass Informatics Ltd, Inland Fisheries Ireland, & National University of Ireland Galway. (2011). *Compilation of habitat-based catchment information and historical eel data in support of eel management plans 'EEL-PLAN' – Final Technical Report*. Marine Research Sub-Programme (NDP 2007–2013) Series: Marine Institute. <http://oar.marine.ie/handle/10793/700>

Kirrane, P., Fabricius, P., & Morvan, R. (2011). *Development of an efficient design technique for the optimisation of mooring systems for wave energy arrays*. Marine Research Sub-Programme (NDP 2007–2013) Series: Marine Institute. <http://oar.marine.ie/handle/10793/75>

All publications available at: www.marine.ie/home/Publications/

APPENDIX 3: IRISH PARTICIPATION IN EU RTD PROJECTS

European Union Framework (FP) and Regional Development (INTERREG) Programmes continue to play a major role in facilitating and supporting Irish participation in competitive pan-European co-operative marine research and development projects and initiatives.

In 2011, 18 new competitive FP7 marine projects (grant-aid €6.1m to Irish partners), six new INTERREG-IV marine projects (grant-aid €3.3m to Irish partners) and one COST Action, with Irish participation, were approved for funding. The Marine Institute is a partner in eight of the 25 projects listed below, amounting to €1.1m in grant-aid.

Taken together with the revised assessment of Irish participation in EU projects over the period 2007–2010 (see *New Connections* below), this brings the total for the period 2007–2011 to 82 FP7 projects (grant-aid €31.8m to Irish partners) and 38 INTERREG-IV projects (grant-aid €16.2m to Irish partners), in addition to one COST Action, one LIFE+ project and one Erasmus Mundus training network. The total value (i.e. to all partners) of these projects is in excess of €630 million.

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 EuroOCEAN Knowledge Gate (www.kg.eurocean.org/).

A summary and analysis of Irish participation in EU funded projects over the period 2007–2010 is contained in the Marine Institute Publication: *New Connections: Exploring Ireland's International Marine Research Relationships* (Marine Institute, December 2011) 155pp (available at www.marine.ie/home/Publications/).

EU FP7 Projects (2011):

ARRAINA: Advanced Research Initiatives for Nutrition and Aquaculture. AquaTT Ltd. *AquaTT Ltd.*

BEADS: Bio-engineered Micro-Encapsulation of Active Agents Delivered to Shellfish. *University College Cork/Coastal Zone Services Ltd.*

DOCKINGASSIST: Improved Port Efficiency and Safety Using a Novel Wireless Network and Differential Global Navigation Satellite System Providing Enhanced Vessel Navigation. *Port of Cork Company.*

eMAR: e-Maritime Strategic Framework and Simulation-Based Validation. *Nautical Enterprise Centre Ltd.*

ENVIROFI: The Environmental Observation Web and its Service Applications within the Future Internet. *Marine Institute/InTune Ltd.*

Micro 3B: Marine Microbial Diversity, Bioinformatics and Biotechnology. *University College Cork.*

Multiwave: Multidisciplinary Studies of Extreme and Rogue Wave Phenomena. *University College Dublin.*

MyFish: Maximising Yield of Fisheries While Balancing Ecosystem, Economic and Social Concerns. *AquaTT Ltd./Marine Institute/Killybegs Fishermen's Organisation.*

MyOCEAN-II: Development and Validation of Up-graded GMES Marine Core Services and Capacities. *Marine Institute*

JERICO: Marine Observatory for the Study of Anthropogenic and Climate Impacts in Temperate Coastal Waters. *Marine Institute.*

NEPHROPS: Development of New Techniques in Hatchery Rearing,

Fishery Enhancement and Aquaculture of Nephrops. Clew Bay Marine Forum Ltd./NUI Galway.

OSS2015: Ocean Strategic Services Beyond 2015. University College Cork/Daithi O Murchu Marine Research Centre.

RingMan: Offshore Wind Turbine Towers – A Quicker, Cheaper Flange Supply Route. Material Test and Inspection Ltd.

SafePort: Safe Port Operations using EGNOS SoL Services. Dublin Port Company.

SeaDataNet-II: Pan-European Infrastructure for Ocean and Marine Data Management. Marine Institute.

Sfs: Sea for Society. AquaTT Ltd./Marine Institute/NUI Galway.

SIDERI: Strengthening the International Dimension of the Euro-Argo Research Infrastructure. Marine Institute.

SOCIOEC: Socio-economic Effects of Management Measures of the Future Common Fisheries Policy (CFP). Aqua TT Ltd./Marine Institute/NUI Galway.

SWAFAX: Seaweed Derived Anti-inflammatory Agents and Antioxidants. Cybercolloids Ltd./Marigot Ltd.

INTERREG-IV (2010).

Atlanterra: Transnational Preservation and Promotion of Mining Heritage in the Atlantic Area. Geological Survey of Ireland/Castlecomer Discovery Park/Copper Coast Geopark.

EnAlgae: Energetic Algae. University College Dublin/NUI Galway

FAME: IFuture of the Atlantic Marine Environment. BirdWatch Ireland.

INIS Hydro: Ireland, Northern Ireland, Scotland Hydrographic Project. Marine Institute/Geological Survey of Ireland.

Marleanet: MARitime LEArning NETwork. National Maritime College of Ireland/Cork Institute of Technology.

PharmAtlantic: Knowledge Transfer Network for the Prevention of Mental Diseases and Cancer in the Atlantic Area. Cork Institute of Technology/Dublin City University.

European Co-operation in Science and Technology – COST (2011):

SPLASHCOS: Submerged Prehistoric Archaeology and Landscapes of the Continental Shelf. Trinity College Dublin/University College Dublin University College Cork.

APPENDIX 4: MARINE INSTITUTE PUBLICATIONS

Special Reports

Marine Institute (2011). *The Stock Book. Annual Review of Fish Stocks in 2011 with Management Advice for 2012.* <http://oar.marine.ie/handle/10793/669>

Marine Institute (2011). *The Farmed Salmonid Health Handbook.* <http://oar.marine.ie/handle/10793/721>

Marine Institute & Bord Iascaigh Mhara (2011). *Shellfish Stocks and Fisheries Review 2010.* ISBN 978-1-902895-47-5 <http://oar.marine.ie/handle/10793/103>

Marine Institute & Bord Iascaigh Mhara (2011). *Atlas of Demersal Discarding: Scientific Observations and Potential Solutions.* <http://oar.marine.ie/handle/10793/666>

McGovern, E., McHugh, B., O'Hea, L., Joyce, E., Tlustos, C., & Glynn, D. (2011). *Assuring Seafood Safety: Contaminants and Residues in Irish Seafood 2004-2008.* Marine Institute. ISBN 978-1-902895-48-2 <http://oar.marine.ie/handle/10793/706>

Nolan, C., Connolly, P., Kelly, E., Dransfeld, L., Slattery, N., Paramor, O.A.L., & Frid, C.L.J. (2011). *Making the European Fisheries Ecosystem Plan Operational (MEFEPO) North Western Waters Atlas 2nd Edition.* <http://oar.marine.ie/handle/10793/640>

O'Sullivan, G., Nic Aonghusa, C., & Kenny, A. (2011). *New Connections: Exploring Ireland's International Marine Research Partnerships (December 2011):* Marine Institute. <http://oar.marine.ie/handle/10793/747>

Irish Maritime Development Office (2011). *The Irish Maritime Transport Economist Volume 8.* <http://oar.marine.ie/handle/10793/572>

Wells, N., & McDonnell, M. (2011). *Assessment of the Irish Ports & Shipping Requirements for the Marine Renewable Energy Industry: Sustainable Energy Authority of Ireland and Irish Maritime Development Office.* <http://oar.marine.ie/handle/10793/645>

Irish Fisheries Bulletin

ISSN: 1649-5055

O'Donohoe, P., Kane, F., Kelly, S., McDermott, T., Drumm, A., & Jackson, T. (2011). *National Survey of Sea Lice (Lepeophtheirus salmonis Kroyer and Caligus elongatus Nordmann) on Fish Farms in Ireland – 2010.* Irish Fisheries Bulletin No. 34: Marine Institute. <http://oar.marine.ie/handle/10793/104>

Stokes, D., & Lordan, C. (2011). *Irish fisheries-science research partnership trawl survey of the Porcupine Bank Nephrops Grounds July 2010.* Irish Fisheries Bulletin No. 39: Marine Institute. <http://oar.marine.ie/handle/10793/712>

Marine Environment and Health Series

ISSN: 1649-0053

McGovern, E., Cronin, M., Joyce, E., & McHugh, B. (2011). *An Assessment of dangerous substances in Water Framework Directive Transitional and Coastal Waters 2007–2009*. Marine, Environment and Health Series No.38: Marine Institute. <http://oar.marine.ie/handle/10793/635>

Survey Reports

Doyle, J., Lordan, C., Fitzgerald, R., O'Connor, S., Fee, D., Nolan, C., & Hayes, J. (2011). *Celtic Sea Nephrops Grounds 2011 UWTW Survey Report*: Marine Institute. <http://oar.marine.ie/handle/10793/671>

Lordan, C., & Doyle, J. (2011). *Aran, Galway Bay and Slyne Head Nephrops Grounds 2010 UWTW Survey Report*: Marine Institute. <http://oar.marine.ie/handle/10793/688>

Lordan, C., & Doyle, J. (2011). *Celtic Sea Nephrops Grounds 2010 UWTW Survey Report*: Marine Institute. <http://oar.marine.ie/handle/10793/689>

Lordan, C., Doyle, J., & Briggs, R. (2011). *Western Irish Sea Nephrops Grounds (FU15) 2010 UWTW Survey Report*: Marine Institute & Agri-Food and Biosciences Institute. <http://oar.marine.ie/handle/10793/694>

Lordan, C., Doyle, J., Bunn, R., Fee, D., & Allsop, C. (2011). *Aran, Galway Bay and Slyne Head Nephrops Grounds 2011 UWTW Survey Report*: Marine Institute. <http://oar.marine.ie/handle/10793/707>

Lordan, C., Service, M., Doyle, J., & Fitzgerald, R. (2011). *Western Irish Sea Nephrops Grounds (FU15) 2011 UWTW Survey Report*: Marine Institute & Agri-Food and Biosciences Institute. <http://oar.marine.ie/handle/10793/672>

Marine Institute, Institute for Marine Resources & Ecosystem Studies, Institute of Marine Research, PINRO, Faroe Marine Research Institute, Marine Scotland Marine Laboratory, Johann Heinrich von Thünen-Institut, & Danish Institute for Fisheries Research (2011). *International Blue Whiting Spawning Stock Survey Spring 2011*: Marine Institute. <http://oar.marine.ie/handle/10793/674>

O'Donnell, C., Farrell, E., Saunders, R., & Campbell, A. (2011). *Boarfish Acoustic Survey Report 07 July–28 July, 2011*: Marine Institute. <http://oar.marine.ie/handle/10793/675>

O'Donnell, C., Saunders, R., Mullins, E., Johnston, G., & Lyons, K. (2011). *Blue Whiting Acoustic Survey Cruise Report March 28–April 16, 2011*. FSS Survey Series: Marine Institute. <http://oar.marine.ie/handle/10793/298>

Saunders, R., O'Donnell, C., Campbell, A., Mullins, E., Sullivan, M., & McKeogh, E. (2011). *Northwest Herring Acoustic Survey Report 18 June–07 July, 2011*: Marine Institute. <http://oar.marine.ie/handle/10793/699>

International Co-Operation Publications

O'Sullivan, G., & Evard, M. (2011). *A Draft Marine Research Plan for the European Atlantic Sea Basin: Discussion Document (October 2011)*. FP7 SEAS-ERA Project Report. 44pp. : Marine Institute and Marine Board-ESF, Belgium. <http://oar.marine.ie/handle/10793/705>

Roose, P., Albaigés, J., Bebianno, M.J., Camphuysen, C., Cronin, M., de Leeuw, J., Gabrielsen, G., Hutchinson, T., Hylland, K., Jansson, B., Jenssen, B.M., Schulz-Bull, D., Szefer, P., Webster, L., Bakke T., & Janssen, C. (2011). *Monitoring Chemical Pollution in Europe's Seas: Programmes, Practices and Priorities for Research*, Marine Board Position Paper 16. Calewaert, J.B. and McDonough N. (Eds.): Marine Board-ESF, Ostend, Belgium. <http://oar.marine.ie/handle/10793/734>

Ruhl, H.A., André, M., Beranzoli, M., Çağatay, M.N., Colaço, A., Cannat, M., Dañobeitia, J.J., Favali, P., Géli, L., Gillooly, M., Greinert, J., Hall, P.O., Huber, R., Karstensen, J., Lampitt, R.S., Larkin, K.E., Lykousis, V., Mienert, J., Miranda, J.M., Person, R., Priede, I.G., Puillat, I., Thomsen, L., & Waldmann, C. (2011). *Societal need for improved understanding of climate change, anthropogenic impacts, and geo-hazard warning drive development of ocean observatories in European Seas*. ESONET European Seas Observatory Network: Network of Excellence (NoE). Project Deliverable D11-2011 – Updated report on scientific background and objectives. http://www.ifremer.fr/esonet_emso/content/download/42231/574412/file/D11%20-%20Science%20Objectives%20and%20Design_final.pdf

Walker, A.M., Andonegi, E., Apostolaki, P., Aprahamian, M., Beaulaton, L., Bevacqua, P., Briand, C., Cannas, A., De Eyto, E., Dekker, W., De Leo, G., Diaz, E., Doering-Arjes, P., Fladung, E., Jouanin, C., Lambert, P., Poole, R., Oeberst, R. & Schiavina, M. (2011). *Pilot projects to estimate potential and actual escapement of silver eel. Final Report to the EU of the project under Studies and Pilot Projects for Carrying out the Common Fisheries Policy – Lot 2*. Service Contract No. SI2.539598.

Brochures

Marine Institute (2011). *Irish and European Attitudes to Marine Climate Change*: Marine Institute, Environment Protection Agency and Heritage Council of Ireland. <http://oar.marine.ie/handle/10793/747>

APPENDIX 5 – SCIENTIFIC PAPERS & PUBLICATIONS

Scientific Papers

- Aasen, J.A.B., Espenes, A., Miles, C. O., Samdal, I.A., **Hess, P.**, & Aune, T. (2011). Combined oral toxicity of azaspiracid-1 and yessotoxin in female NMRI mice. *Toxicon*, 57(6), 909–917. <http://oar.marine.ie/handle/10793/419>
- Bastian, T., **Stokes, D.**, Kelleher, J. E., Hays, G. C., Davenport, J., & Doyle, T. K. (2011). Fisheries bycatch data provide insights into the distribution of the mauve stinger (*Pelagia noctiluca*) around Ireland. *ICES Journal of Marine Science*, 68(3), 436–443.
- Baxter, E.J., Sturt, M.M., **Ruane, N.M.**, Doyle, T.K., McAllen, R., Harman, L., & Rodger, H.D. (2011). Gill damage to Atlantic salmon (*Salmo salar*) caused by the common jellyfish (*Aurelia aurita*) under experimental challenge. *PLoS ONE*, 6(4), e18529.
- Belpaire, C., Geeraerts, C., Evans, D., Ciccotti, E., & **Poole, R.** (2011). The European eel quality database: towards a pan-European monitoring of eel quality. *Environmental Monitoring and Assessment*, 183(1–4), 273–284.
- Connolly, P.L.**, & **Caffrey, L.** (2011). Supply chaining fishery advice. *ICES Journal of Marine Science*, 68(8), 1706–1711.
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- Davie, S.**, & **Lordan, C.** (2011). Definition, dynamics and stability of métiers in the Irish otter trawl fleet. *Fisheries Research*, 111(3), 145–158.
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- Ensing, D., Prodöhl, P.A., McGinnity, P., Boylan, P., **O'Maoiléidigh, N.**, & Crozier, W.W. (2011). Complex pattern of genetic structuring in the Atlantic salmon (*Salmo salar* L.) of the River Foyle system in northwest Ireland: disentangling the evolutionary signal from population stochasticity. *Ecology and Evolution*, 1(3), 359–372. <http://oar.marine.ie/handle/10793/655>
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- Gerritsen, H.**, & **Lordan, C.** (2011). Integrating vessel monitoring systems (VMS) data with daily catch data from logbooks to explore the spatial distribution of catch and effort at high resolution. *ICES Journal of Marine Science*, 68(1), 245–252. <http://oar.marine.ie/handle/10793/407>
- Giltrap, M.**, Macken, A., Davoren, M., **McGovern, E.**, Foley, B., Larsen, M., **White, J.**, & **McHugh, B.** (2011). Utilising caging techniques to investigate metal assimilation in *Nucella lapillus*, *Mytilus edulis* and *Crassostrea gigas* at three Irish coastal locations. *Estuarine, Coastal and Shelf Science*, In Press, Corrected Proof. <http://oar.marine.ie/handle/10793/713>
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- Graham, N.**, Grainger, R., Karp, W.A., MacLennan, D.N., MacMullen, P., & Nedreaas, K. (2011). An introduction to the proceedings and a synthesis of the 2010 ICES Symposium on Fishery-Dependent Information. *ICES Journal of Marine Science*, 68(8), 1593–1597.
- Hartnett, M., **Dabrowski, T.**, & McGovern, J. (2011). Modelling and monitoring towards 'ecologically good' status. *Proceedings of the Institution of Civil Engineers-Water Management*, 164(8), 421–431.
- Hoare, D.**, **Graham, N.**, & Schon, P.-J. (2011). The Irish Sea data-enhancement project: comparison of self-sampling and national data-collection programmes—results and experiences. *ICES Journal of Marine Science*, 68(8), 1778–1784.
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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 6 – CENSUS DATA FOR THE BURRISHOOLE SYSTEM, 2011

Upstream census data for the Burrishoole system, 2011

Species	Salmon Leap Upstream 2011	Mill Race Upstream 2011	Totals Upstream 2011	Totals Upstream 2010	Totals Upstream 2009	Totals Upstream 2008
Wild Grilse	401	119	520	682	537	551
Wild Spring Salmon	45	6	51	16	40	23
Reared Grilse	752	114	866	861	1453	1750
Wild Sea Trout	26	4	30	46	42	11
Wild Finnock	12	4	16	25	90	24
Wild Brown Trout	53	25	78	84	87	72

Downstream census data for the Burrishoole system, 2011

Species	Salmon Leap Downstream 2011	Mill Race Downstream 2011	Totals Downstream 2011	Totals Downstream 2010	Totals Downstream 2009	Totals Downstream 2008
Wild Salmon Smolt	5781	1342	7123	7980	6909	6685
Wild Sea Trout Smolt	179	34	213	657	395	593
Silver Eel	1758	375	2133	2875	2257	2549

APPENDIX 7 – RESEARCH VESSEL PROGRAMME 2011

Days at Sea from 01/01/2011 – 31/12/2011	Days	Surveys	Scientist Days	Student Days
Celtic Voyager	281	33	1616	522
Celtic Explorer	307	17	3883	482
Total	588	50	5499	1004

Celtic Voyager Activity 2011

Survey	No. of Days	No. of Scientists	Scientist Days	No. of Students	Student Days	Scientist + Student Days
Trinity College Dublin's Student Training in Dublin Bay	2	1	2	7	14	16
Winter Nutrients Survey	13	6	78	0	0	78
National University of Ireland, Galway's Undergraduate Training programme in Galway Bay	8	5	40	10	80	120
University College Cork's Introduction to seabed mapping training for MA students	2	3	6	11	22	28
M3 Weather Buoy Service	4	2	8	0	0	8
Irish Whale and Dolphin Mooring Recovery	3	2	6	0	0	6
Trophic Effects of Trawling	6	5	30	2	12	42
Bathymetric Survey	15	8	120	0	0	120
Environmental Survey	5	6	30	0	0	30
INFOMAR 1	32	7	224	0	0	224
Oceanographic Sections on the Irish shelf	9	3	27	0	0	27
M4 Weather Buoy Service	4	2	8	0	0	8
Aran Grounds Nephrops Under Water TV Survey	10	8	80	0	0	80
Natural Environment Research Council's Sea level 2011 Survey	14	9	126	0	0	126
Celtic Sea Nephrops Under Water TV Survey	10	5	50	1	10	60
Joint shipboard training for international postgraduate students	5	4	20	10	50	70
INFOMAR 2	15	5	75	0	0	75
Kenmare Bay Habitat Mapping Survey – MESH Atlantic	14	10	140	0	0	140
Irish Sea Nephrops Under Water TV Survey	10	4	40	2	20	60
Analogue survey	5	7	35	0	0	35
INIS Hydro – Hydrographic Survey	15	7	105	0	0	105
INFOMAR 3	28	4	112	0	0	112
M5 Weather Buoy Servicing	3	2	6	1	3	9
Birdwatching Survey	6	6	36	0	0	36
Trinity College Dublin's Student Training in Dublin Bay	3	2	6	11	33	39
Radiological Protection Institute of Ireland Annual Survey	1	2	2	0	0	2
Undergraduate shipboard training in methods of Oceanographic, Benthic, Megafauna and Fisheries research	5	4	20	10	50	70
University of Ulster Student Training 2011	7	7	49	12	84	133
University College Cork's MSC Marine Biology Student Training Survey	2	4	8	15	30	38
Institute of Technology Tralee 's Wildlife Biology – Marine Science Training Programme	2	2	4	12	24	28
University College Cork Student Training	2	4	8	12	24	32
Science@Sea Autumn 2011	11	5	55	6	66	121
Smart ROV Testing for Archaeology and Energy Target Operations	10	6	60	0	0	60
TOTAL	281	157	1616	122	522	2138

Appendices

Celtic Explorer Activity 2011

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	13	130	0	0	130
BSH's German North Sea Monitoring Program	9	11	99	0	0	99
North Atlantic Transit survey	10	9	90	0	0	90
Overwintering cod survey	24	7	168	7	168	336
BSH's German North Sea Monitoring Program 2	9	11	99	0	0	99
Blue Whiting Acoustic Survey	21	7	147	0	0	147
Biodiscovery and deep-ocean ecosystems	21	15	315	0	0	315
Porcupine Coring Campaign 2011	11	15	165	0	0	165
Nordsee 11	21	19	399	0	0	399
Northwest Herring Acoustic Survey	21	9	189	0	0	189
Vents & Reefs (VENTuRE campaign)	25	11	275	4	100	375
BSH's German North Sea Monitoring Program 3	30	14	420	0	0	420
Seismic Investigation of the geology and oceanography of the northern Rockall Trough	16	6	96	5	80	176
Irish Groundfish Survey Leg 1	13	12	156	2	26	195
Celtic Sea Herring Acoustic Survey	21	11	231	0	0	231
BSH's German North Sea Monitoring Program 4	9	11	99	0	0	99
Irish Groundfish Survey Leg 2	36	22	792	3	108	900
TOTAL	307	203	3883	21	482	4365

Celtic Explorer Cruise Details

Survey Code	Chief Scientist	Organisation	Description	Start Date	End Date	Number of Days
CE11001	Ms Sheena Fennell	Marine Institute	Climate Change Oceanography, Biogeochemistry and geology.	03/01/2011	12/01/2011	10
CE11002	Dr. Stefan Schmolke	BSH	German North Sea Monitoring Program	17/01/2011	25/01/2011	9
CE11014	Dr. George Rose	Fisheries and Marine Institute	North Atlantic Transit Survey	29/01/2011	07/02/2011	10
CE11003	Dr. George Rose	Fisheries and Marine Institute	Overwintering Cod Survey	08/02/2011	03/03/2011	24
CE11004	Ms. Sieglinde Weigelt	BSH	German North Sea Monitoring Program	15/03/2011	23/03/2011	9
CE11005	Dr. Ryan Saunders	Marine Institute	Blue Whiting Acoustic Survey	27/03/2011	16/04/2011	21
CE11006	Dr. Louise Allcock	National University of Ireland, Galway	Bio discovery and deep-ocean ecosystems	20/04/2011	10/05/2011	21
CE11017	Mr. Xavier Monteys	Geological Survey of Ireland	Porcupine Coring Campaign 2011	11/05/2011	21/05/2011	11
CE11007	Dr. Lutz Reinhardt	Bundesanstalt Geowissenschaften Rohstoffe (BGR)	Nordsee 11	25/05/2011	14/06/2011	21
CE11008	Dr. Ryan Saunders	Marine Institute	Northwest Herring Acoustic Survey	18/06/2011	08/07/2011	21
CE11009	Dr. Andrew Wheeler	University College Cork	Vents & Reefs (VENTuRE campaign)	11/07/2011	04/08/2011	25
CE11010	Mr. Holger Klein	BSH	German North Sea Monitoring Program	08/08/2011	06/09/2011	30
CE11011	Dr. Aggeliki Georgiopoulou	University College Dublin	Seismic investigation of the geology and oceanography of the northern Rockall Trough	07/09/2011	22/09/2011	16
CE11012	Mr. Dave Stokes	Marine Institute	Irish Groundfish Survey Leg 1	23/09/2011	05/10/2011	13
CE11015	Mr. Ciaran O'Donnell	Marine Institute	Celtic Sea Herring Acoustic Survey	07/10/2011	27/10/2011	21
CE11016	Mr. Achim Schulz	BSH	German North Sea Monitoring Program	31/10/2011	08/11/2011	9
CE11013	Mr. Hans Gerritsen	Marine Institute	Irish Groundfish Survey Leg 2	12/11/2011	17/12/2011	36

Appendices

Celtic Voyager Cruise Details

Survey Code	Chief Scientist	Organisation	Description	Start Date	End Date	Number of Days
CV11008	Professor Jim Wilson	Trinity College Dublin	Student Training Dublin Bay	27/01/2011	28/01/2011	2
CV11020	Dr. Evin McGovern	Marine Institute	Winter Nutrients Survey	29/01/2011	10/02/2011	13
CV11017	Dr. Rachel Cave	National University of Ireland, Galway	Galway Bay Undergraduate Training	21/02/2011	28/02/2011	8
CV11001	Dr. Max Kozachenko	Coastal and Marine Resources Centre	Introduction to Seabed Mapping – training for MA students	03/03/2011	04/03/2011	2
CV11013	Ms. Sheena Fennell	Marine Institute	M3 Weather Buoy Service	11/03/2011	14/03/2011	4
CV11030	Mr. Dave Wall	Irish Whale and Dolphin Group	Irish Whale and Dolphin Mooring Recovery	16/03/2011	18/03/2011	3
CV11002	Dr. Samuel Shephard	Galway Mayo Institute of Technology	Trophic Effects of Trawling	23/03/2011	28/03/2011	6
CV11031	Mr. Kevin Sheehan	Marine Institute	Bathymetric Survey	29/03/2011	12/04/2011	15
CV11032	Mr. Andy Bendell	Marine Institute	Environmental Survey	14/04/2011	18/04/2011	5
CV11029	Mr. Fabio Sacchetti	Marine Institute	INFOMAR 1	20/04/2011	21/05/2011	32
CV11011	Ms. Sheena Fennell	Marine Institute	Oceanographic Sections on the Irish Shelf	22/05/2011	30/05/2011	9
CV11014	Ms. Sheena Fennell	Marine Institute	M4 Weather Buoy Service	31/05/2011	03/06/2011	4
CV11003	Ms. Jennifer Doyle	Marine Institute	Aran Underwater TV Nephrops Survey	05/06/2011	14/06/2011	10
CV11010	Professor Andrew Cooper	University of Ulster	NERC Sea Level 2011	16/06/2011	29/06/2011	14
CV11004	Ms. Jennifer Doyle	Marine Institute	Celtic Sea Underwater TV Survey	01/07/2011	10/07/2011	10
CV11021	Dr. Ian O'Connor	Galway Mayo Institute of Technology	Join shipboard training for international postgraduate students	13/07/2011	17/07/2011	5
CV11028	Mr. Ronan O'Toole	Geological Survey of Ireland	INFOMAR 2	19/07/2011	02/08/2011	15
CV11018	Mr. Kevin Sheehan	Marine Institute	Kenmare Bay Habitat Mapping Survey – MESH Atlantic	03/08/2011	16/08/2011	14
CV11005	Mr. Ross Fitzgerald	Marine Institute	Irish Sea Underwater TV Survey	17/08/2011	26/08/2011	10
CV11033	Ms. RV Ops Chief Scientist	Marine Institute	Analogue Survey	27/08/2011	31/08/2011	5
CV11019	Mr. Fabio Sacchetti	Marine Institute	INIS Hydro – Hydrographic Survey	02/09/2011	16/09/2011	15
CV11027	Mr. Kevin Sheehan	Marine Institute	INFOMAR 3	17/09/2011	14/10/2011	28
CV11015	Ms. Sheena Fennell	Marine Institute	M5 Weather Buoy Servicing	15/10/2011	17/10/2011	3
CV11036	Ms. Viv Greenough	ECON Ecological Consultancy Limited	Birdwatching Survey	18/10/2011	23/10/2011	6
CV11009	Professor Jim Wilson	Trinity College Dublin	Student Training Dublin Bay	24/10/2011	26/10/2011	3
CV11034	Mr. Leo McKittrick	Radiological Protection Institute of Ireland	Radiological Protection Institute of Ireland 2011	27/10/2011	27/10/2011	1
CV11022	Mr. John Boyd	Galway Mayo Institute of Technology	Undergraduate shipboard training in methods of oceanographic, benthic, megafauna and fisheries research	31/10/2011	04/11/2011	5
CV11016	Dr. Rory Quinn	University of Ulster	University of Ulster Student Training 2011	08/11/2011	14/11/2011	7
CV11006	Dr. Rob McAllen	University College Cork	MSC Marine Biology – Cork Harbour (annual request)	17/11/2011	18/11/2011	2
CV11024	Mr. Noel Mulligan	Institute of Technology Tralee	Wildlife Biology – Marine Science Training Programme	19/11/2011	20/11/2011	2
CV11007	Dr. Andrew Wheeler	University College Cork	UCC Student Training	21/11/2011	22/11/2011	2
CV11025	Dr. Pauhla McGrane	Galway Mayo Institute of Technology	Science at Sea	23/11/2011	03/12/2011	11
CV11026	Dr. Daniel Toal	University of Limerick	Smart ROV Testing for Archaeology and Energy Target Operations	05/12/2011	14/12/2011	10

Appendices

APPENDIX 8: FOREIGN MARINE SCIENTIFIC RESEARCH (MSR) ACTIVITIES IN IRISH WATERS IN 2011 FOREIGN VESSEL ACTIVITY 2011

Scientist Days Ireland	Scientist Days Foreign
5219	6848

Vessel Name	Country	No. of Days	No. of Scientists	Scientist Days
Benaiah IV	Britain	63	2	126
Cefas Endeavour	Britain	10	12	120
FRV Scotia	Britain	19	7	133
Fridtjof Nansen	Russia	53	14	742
G.O. Sars	Norway	14	6	84
Tridens	Netherlands	5	6	30
RV Pelagia	Netherlands	6	8	48
FRV Scotia	Britain	24	12	288
Havglans	Norway	26	4	104
James Cook	Britain	24	31	744
Cefas Endeavour	Britain	17	18	306
RRS Discovery	Britain	9	28	252
RV Pelagia	Netherlands	2	8	16
James Cook	Britain	5	30	150
Cefas Charisma	Britain	18.5	2	37
FRV Scotia	Britain	20	11	220
RRS Discovery	Britain	3	28	84
RV Pelagia	Netherlands	14	14	196
Pourquoi Pas	France	37	32	1184
Cefas Endeavour	Britain	25	7	175
Vizconde de Eza	Spain	28	14	392
Thalassa	France	42	25	1050
Cefas Endeavour	Britain	31	7	217
FRV Scotia	Britain	15	10	150
TOTAL		510.5	336	6848

APPENDIX 9: INFOMAR RESEARCH CONTRACT AWARDS (WITH AMS/MARINE INSTITUTE)

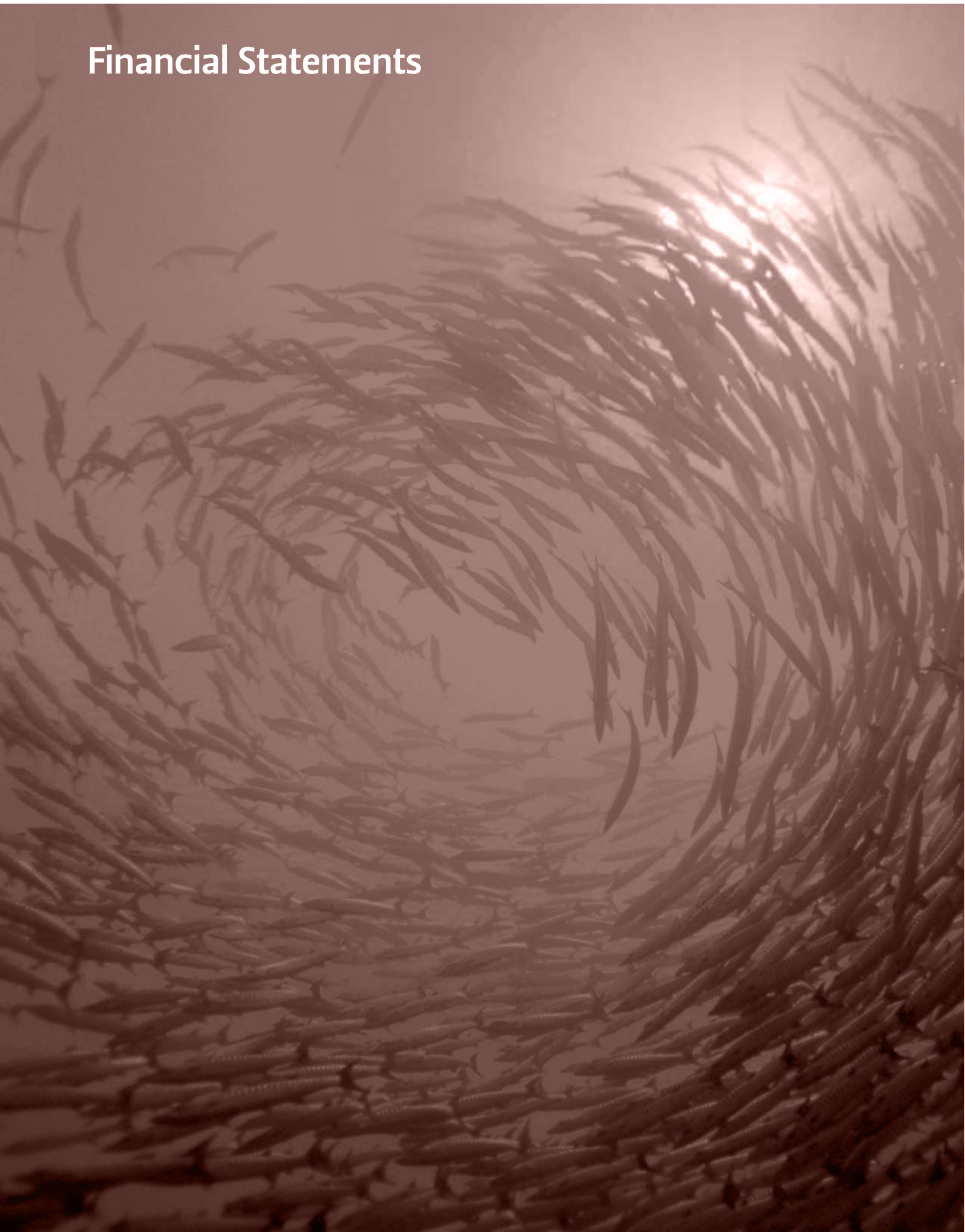
Ref	Title	Project Leader	Organisation	Grant Award
INF-11-17-TRI	Coastal Seabed Observatory Platform (COSOP)	Phillip Trickett	Techworks	30,000
INF-11-21-FLA	Scaling Hydrographic Education & Training through Interactive E-learning and Scenario-Based Operational Simulation Integrated with INSS/INFOMAR Datasets and Operational Procedures	Francis Flannery	SonarSim	28,435
INF-11-32-TOA	Smart Event Triggered Ocean Monitoring Platform, (lander/mooring/databuoy)	Dan Toal	UL	21,380
INF-11-25-RIO	Delivery of a Real-time Survey Planner for Online Multibeam Quality Control	James Riordan	SonarSim	20,130

Glossary of Abbreviations

ACSTI	Advisory Council for Science Technology and Innovation	EU	European Union
AMS	Advanced Mapping Services	EUSA	European Union Strategy for the Atlantic
ARCOPOL	Atlantic Regions Coastal Pollution Response	FAO	Food and Agricultural Organisation
ASIMUTH	Applied simulations and integrated modelling for the understanding of toxic and harmful algal blooms	FÁS	Training and Employment Authority
BA	Bachelor of Arts	FEAS	Fisheries Ecosystems Advisory Services (Marine Institute)
BGR	Bundesanstalt Geowissenschaften Rohstoffe	FP7	Framework Programme
BIM	Bord Iascaigh Mhara (Irish Sea Fisheries Board)	FSAI	Food Safety Authority of Ireland
BIVALIFE	Improving European aquaculture: disease detection and management	GES	Good Environmental Status
BENTHIS	Benthic Ecosystem Fisheries Impact Study	GLEON	Global Lake Ecological Observation Network
BSc	Bachelor of Science	GMES	Global Monitoring for Environment and Security
BSH	German Federal Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt & Hydrographie)	GMIT	Galway Mayo Institute of Technology
CEO	Chief Executive Officer	GSI	Geological Survey of Ireland
CHAS	Civil Hydrographic Annual Seminar	HAB	Harmful Agal Bloom
CFER	Centre for Fisheries and Ecosystems Research	HEA	Higher Education Authority
CFP	Common Fisheries Policy	HEAnet	Ireland's National Education and Research Network
COCIOEC	Socio-economic effects of management measures of the future common fisheries policy	IBEC	Irish Business and employers confederation
COSOP	Coastal Seabed Observatory Platform	ICES	International Council for the Exploration of the Sea
DAFM	Department of Agriculture, Food and Marine	ICT	Information Communications Technology
DCENR	Department of Communications, Energy and Natural Resources	IDA	Industrial Development Authority
DCF	Data Collection Framework	IFI	Inland Fisheries Ireland
DCU	Dublin City University	IMDO	Irish Maritime Development Office
DECLG	Department of Environment, Community and Local Government	INFOMAR	Integrated Mapping for the Sustainable Development of Ireland's Marine Resources
DEEPFISHMAN	Managing the Deep Water Ecosystem	IOSEA4	Irish Offshore Strategic Environmental Assessment Phase 4
DGMARE	Directorate-General for Maritime Affairs and Fisheries	IRCSET	Irish Research Council for Science Engineering and Technology
EASYCo	Infrastructure for Operational Ocean Modelling in the Atlantic Space	IS&D	Information Services and Development
EC	European Commission	ISEAS	Irish Seafarers Educational Assistance Scheme
EIFAAC	European Inland Fisheries Aquaculture Advisory Commission	IUCN	International Union for Conservation of Nature
ENVIROFI	The Environmental Observation Web and its Service Applications within the Future Internet	MARIFISH	An ERA-NET FP6 project to strengthen the links between fisheries science and fisheries management
EPA	Environmental Protection Agency	MBA	Master of Bachelor of Arts
ETP	Excellence Through People Accreditation	MEFEPO	Making the European Fisheries Ecosystem Plan Operational
		MEFS	Marine Environment and Food Safety Services (Marine Institute)
		MSc	Master of Science
		MSFD	Marine Strategy Framework Directive

MSR	Marine Science Research
MyFISH	Maximising yields of fisheries while balancing ecosystem, economic and social concerns
NATURA	NATURA 2000 sites are protected habitats for flora and fauna of European importance
NPWS	National Parks and Wildlife Service
NDP	National Development Programme
NGO	Non Governmental Organization
NUI Galway	National University of Ireland, Galway
NUI Maynooth	National University of Ireland, Maynooth
NUJ	National Union of Journalists
OJEU	Official Journal of the European Union Communities
OSIS	Ocean Science and Information Services (Marine Institute)
OSPAR	Oslo and Paris Convention (1992)
PhD	Doctorate
PRSI	Pay Related Social Insurance
R&D	Research and Development
RAC	Regional Advisory Council
RTDI	Research, Technology, Development and Innovation
ROV	Remotely Operated Vehicle
RV	Research Vessel
RVops	Research Vessel Operations
SALSEA	International Salmon At Sea research programme
SEAI	Sustainable Energy Authority of Ireland
SFI	Science Foundation Ireland
SFPA	Sea Fisheries Protection Authority
SINTEF	Norway – Stiftelsen for Industriell og Teknisk forskning
SPDS	Strategic Planning and Development Services (of the Marine Institute)
STRATAG	Strategic Research in Advanced Geotechnologies
TAC	Total Allowable Catch
UCD	University College Dublin
UCC	University College Cork
UK	United Kingdom
US	United States
VENTuRE	Vent and Reef
WFD	Water Framework

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 2011 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 reporting framework that has been applied in their preparation is applicable law and 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 all the financial and non-financial information in the annual report to identify any 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 2011 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 moneys have 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 for the year for which the financial statements are prepared 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

28 March 2013

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, Fisheries and Food. 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.



Board Member
29 January 2013



Board Member
29 January 2013

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 2011 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 2011 was endorsed by the Audit Committee and approved by the Board. The Audit Committee has received the report of internal audit activity in 2011, 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 2011.

On behalf of the Board:



Chairman
29 January 2013

Accounting Policies

Year ended 31 December 2011

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 Reft	20%
Motor Vehicles	20%
Land is not depreciated	

5. Leased Assets

Payments under operating leases (Note 19) 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 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 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 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 Marine.

Income and Expenditure Account

Year ended 31 December 2011

	Note	2011 €'000	2010 €'000
Income			
Oireachtas Grants	2	25,115	25,065
Other Income	3	11,179	9,318
Net Deferred Funding For Pensions	18	3,184	3,275
		39,478	37,658
Transfer (to)/from Capital Account	12	2,640	2,744
		42,118	40,402
Expenditure			
Corporate Services	4	4,218	3,973
Strategic Planning and Development Services	5	2,759	2,445
Marine Environment and Food Safety Services	6	6,307	6,548
Fisheries Science Services	7	5,005	4,145
Aquaculture and Catchment Management Services	8	0	2,065
Ocean Science Services	9	9,521	8,980
Irish Maritime Development Office	10	807	936
Marine RTDI and SSTI Programme	14	8,933	9,050
Pensions Costs	18	3,153	3,080
Total Expenditure		40,703	41,222
Surplus/(Deficit) for the year		1,415	(820)
Surplus at 1 January		1,049	1,869
Surplus at 31 December		2,464	1,049
Statement of Total Recognised Gains and Losses			
Surplus/(Deficit) for the year		1,415	(820)
Actuarial Gains/(Losses) on Pension Scheme Liabilities		3,080	(2,075)
Changes in Assumptions			
Adjustment to Deferred Pension Funding		(3,080)	2,075
Total Recognised Gains and Losses for the year		1,415	(820)

The results for the year relate to continuing operations.

The Statement of Accounting Policies and Notes 1 – 24 form part of these financial statements.



Board Member
29 January 2013



Board Member
29 January 2013

Balance Sheet

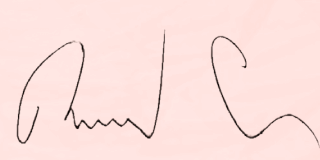
As at 31 December 2011

		2011		2010	
	Note	€'000	€'000	€'000	€'000
Fixed Assets	13		23,290		25,930
Current Assets					
Debtors and Prepayments	16	6,560		4,730	
Banks and Cash		596		1,004	
		7,156		5,734	
Current Liabilities					
Creditors and Accruals	17	4,692		4,685	
Net Current Assets			2,464		1,049
Total Assets Less Current Liabilities before Pensions					
Deferred Pension Funding		26,004		25,900	
Pension Liabilities		(26,004)		(25,900)	
Total Assets less Current Liabilities			25,754		26,979
Financed By:					
Capital Account	12	23,290		25,930	
Income and Expenditure Account		2,464		1,049	
			25,754		26,979

The Statement of Accounting Policies and Notes 1 – 24 form part of these financial statements.



Board Member
29 January 2013



Board Member
29 January 2013

Cash Flow Statement

For the Year ended 31 December 2011

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

	Note	2011 €'000	2010 €'000
Surplus/(Deficit) per Income and Expenditure Account		1,415	(820)
Interest received		0	
Transfer to/(from) Capital Account	12	(2,640)	(2,744)
Depreciation	13	4,440	5,219
(Increase)/Decrease in Debtors and Prepayments		(1,830)	(1,314)
Increase/(Decrease) in Creditors and Accruals		7	742
Profit on Disposal of Assets	13	0	(7)
Net cash inflow from operating activities		1,392	1,076

Cash Flow Statement

	Note	2011 €'000	2010 €'000
Net cash inflow from operating activities		1,392	1,076
Returns on investments and servicing of finance			
Interest received		0	0
Net capital expenditure			
Acquisition of fixed assets	13	(1,800)	(2,475)
Proceeds from disposal of assets	13	0	7
Increase / (Decrease) in cash		(408)	(1,392)

Reconciliation of net cash flow to movement in net funds

	2011 €'000	2010 €'000
Increase / (Decrease) in cash	(408)	(1,392)
Net funds at 1 January	1,004	2,396
Net funds at 31 December	596	1,004

Notes to the Financial Statements

Year Ended 31 December 2011

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 2011

2. Grant in Aid

	2011		2010	
	€'000	€'000	€'000	€'000
Current purposes				
Marine Institute	14,772		15,229	
Less Superannuation contributions repayable*	<u>(446)</u>	14,326	<u>(420)</u>	14,809
Capital purposes				
National Seabed Survey	1,441		1,257	
Marine Institute	1,770		1,900	
Beaufort	1,793		2,504	
Research and Technical Development Infrastructure (RTDI) (Note 14)	5,785	10,789	4,595	10,256
		<u>25,115</u>		<u>25,065</u>

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

3. Other Income

	2011		2010	
	€'000	€'000	€'000	€'000
EU Contract Research				
Data Directive (see note below)	2,948		2,900	
Other	<u>1,234</u>		<u>762</u>	
		4,182		3,662
Other Income				
Research Vessel Charterage	3,242		1,546	
Databuoy – Department of Transport	583		610	
Natura (DAFM)	899		1,378	
Water Framework Directive (DAFM)	745		0	
Marine NDP project co-funded by EPA	213		0	
Sundry and Other Contract Income	1,315	6,997	2,122	5,656
TOTAL		11,179		9,318

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 2011

4. Corporate Services

	2011 €'000	2010 €'000
Wages and Salaries	1,186	1,146
Administration	2,619	2,462
Depreciation	413	365
TOTAL	4,218	3,973

Administration costs include an audit fee of €19,270 in 2011 (2010: €19,270)

5. Strategic Planning and Development Services

	2011 €'000	2010 €'000
Wages and Salaries	969	981
Research & Development Programmes	1,484	1,072
Depreciation	306	392
TOTAL	2,759	2,445

6. Marine Environment and Food Safety Services

	2011 €'000	2010 €'000
Wages and Salaries: Core staff	2,622	2,268
EU Contract Staff	0	0
	2,622	2,268
Research & Development Programmes	3,450	4,014
Depreciation	235	266
TOTAL	6,307	6,548

7. Fisheries Science Services

	2011 €'000	2010 €'000
Wages and Salaries: Core staff	1,958	1,149
EU Contract Staff	1,379	1,227
	3,337	2,376
Research & Development Programmes	1,465	1,635
Depreciation	203	134
TOTAL	5,005	4,145

Notes to the Financial Statements

Year Ended 31 December 2011

8. Aquaculture and Catchment Management Services

	2011 €'000	2010 €'000
Wages and Salaries: Core staff	0	1,249
EU Contract Staff	0	0
	0	1,249
Research & Development Programmes	0	656
Depreciation	0	160
TOTAL	0	2,065

There was an internal reorganisation resulting in expenditure under Aquaculture and Catchment Management Services no longer being reported under the service area in 2011. This expenditure is now included under Fisheries Science Services and the Marine Environment and Food Safety Services.

9. Ocean Science Services

	2011 €'000	2010 €'000
Wages and Salaries	557	548
Administration & Development Programmes	6,782	6,088
Depreciation	2,182	2,344
TOTAL	9,521	8,980

Included in Administration & Development Programmes is an amount of €0.2m in respect of a vat settlement (including penalties and interest of €28,087)

The total running costs of the Research Vessels which are included under Ocean Science Services was €7.549m for 2011 (2010 €7.328m). €2.5m of this expenditure is included under the Marine NDP (ship-time programme) for 2011 (2010 €2.5m). The running costs include any capital equipment costs incurred before adjusting for depreciation.

10. Irish Maritime Development Office

	2011 €'000	2010 €'000
Wages and Salaries	299	297
Administration & Development Programmes	506	636
Depreciation	2	3
TOTAL	807	936

11. Salary Costs

	2011 €'000		2010 €'000	
Wages and Salaries: Core staff	140	7,594	142	7,638
Pensioners and Pension Costs	12	417	10	224
Contract Staff and other payroll costs	50	3,333	49	3,258
	202	11,344	201	11,120

Pension lump sums were paid to two staff in 2011 included under the pensioners and pension costs.

Pension related deductions of €0.446m were made from salaries and remitted to the Department of Agriculture, Food and the Marine.

Notes to the Financial Statements

Year ended 31 December 2011

12. Capital Account

	2011		2010	
	€'000	€'000	€'000	€'000
Balance at 1 January		25,930		31,132
Transfer (to) /from Income and Expenditure Account Capital funding	1,800		2,475	
Amortisation in line with asset depreciation	(4,440)	(2,640)	(5,219)	(2,744)
Asset Adjustment Cost (Note 13)	0		(9,166)	
Asset Asset Depreciation (Note 13)	0		6,708	
		0		(2,458)
Balance at 31 December		23,290		25,930

13. 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 2011	3,672	31,258	3,400	18,732	7,608	350	65,020
Additions at cost	0	26	504	1,057	205	8	1,800
Cost at 31 December 2011	3,672	31,284	3,904	19,789	7,813	358	66,820
Depreciation							
Balance at 1 January 2011	778	12,072	2,947	15,838	7,247	208	39,090
Charge for the year	73	1,410	353	2,250	303	51	4,440
Balance at 31 December 2011	851	13,482	3,300	18,088	7,550	259	43,530
Net Book Value							
At 31 December 2011	2,821	17,802	604	1,701	263	99	23,290
At 31 December 2010	2,894	19,186	453	2,894	361	142	25,930

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 2011

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

The total funding and amounts applied in 2011 was as follows:

	2011 €'000 NDP 2007–2013	2011 €'000 NDP 2000–2006	2011 €'000 Total
Oireachtas Income (Note 2)	7,578		7,578
Other Income (Note 3)	213		213
Total Income	7,791		7,791
Expenditure:			
Amounts paid and awarded to third parties	6,514		6,514
Amounts paid and awarded to the Marine Institute	967		967
Administration	352		352
Total Programme Expenditure	7,833		7,833
Surplus / (Deficit) in year	(42)		(42)

The total programme expenditure of €7.833m includes both research expenditure and administration costs. €0.967m of the €7.833m total expenditure was incurred and awarded to the Marine Institute in 2011 where the balance of €6.514m represents amounts awarded and paid to other parties.

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

	2011 €'000	2010 €'000
Marine RTDI Programmes Expenditure	7,514	7,514
Assets purchased under the ERDF Fund		0
Depreciation on ERDF assets	1,100	1,536
TOTAL	8,933	9,050

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 2011

Note 14 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 her 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 65 projects have been supported up to 2011 under the Marine Research Sub-Programme of the NDP with 40 of these projects still ongoing.

The total commitments entered into at 31 Dec 2011 for Marine Research Sub-Programme of the NDP were €60.3m of which the outstanding commitments of €17.3m represent the remaining payments.

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 2011 payments were outstanding on amounts charged to the financial statements as follows (note 17).

	2011 €'000	2010 €'000
Amounts Outstanding	190	125

At 31st December 2011 commitments entered into but not yet charged to the financial statements in respect of RTDI projects were €17.3m with the following breakdown.

	NDP and SSTI 2007–2013 €'000	NDP 2000–2006 €'000	Total €'000
Commitments as at 01 January 2011	20,718	373	21,091
Committed in 2011	4,529		4,529
Decommitted in 2011	(107)	(373)	(480)
Paid in 2011	(7,833)	0	(7,833)
Commitments as at 31 December 2011	17,307	0	17,307

Notes to the Financial Statements

Year Ended 31 December 2011

15. Expenditure

	2011 €'000	2010 €'000
Payroll Costs	10,710	10,623
Pension Costs	3,153	3,080
Board Costs	76	76
Annual Audit Fee	19	19
Insurance	256	225
Rent, Rates and Service Charges	357	363
Facility Costs	1,555	1,693
Telephone and Data Communications	188	214
IT Costs	757	611
Laboratory and Field Costs	833	940
Other Admin Costs	1,477	986
Travelling Expenses	892	849
Statutory Testing, Research and Surveys	2,728	3,931
Marine NDP (2007-2013)	5,333	5,014
NDP Shiptime Programme	2,500	2,500
Vessel Operation Costs	5,058	4,684
Other Sundry Equipment	154	16
Hire of Equipment	217	172
Depreciation (Note 13)	4,440	5,219
Disposal of Motor Car	0	7
Total Expenditure Per Income and Expenditure Account	40,703	41,222

The figures in the note exclude capital expenditure of €1.8m and pension payments of €0.417m for 2011.

Foreign travel costs included under travelling expenses in 2011 amounted to €359,359

16. Debtors and Prepayments

	2011 €'000	2010 €'000
Trade Debtors	3,913	2,667
Contract Income	2,526	1,993
Prepayments	121	70
	6,560	4,730

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

17. Creditors and Accruals

	2011 €'000	2010 €'000
Trade Creditors	2,092	2,460
Deferred Income	1,514	1,355
RTDI Accrual (Note 14)	190	125
Accruals	325	405
Payroll and Revenue Accruals	571	340
	4,692	4,685

Notes to the Financial Statements

Year ended 31 December 2011

18. 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 2011.

The major actuarial assumptions are as follows:

	2011	2010	2009
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:

	2011	2010
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:

	2011	2010
Total accrued pension liability	€26.0m	€25.9m

- (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.

	2011 €'000	2010 €'000
Analysis of the Total Pension Costs charged to Expenditure		
Current Service Cost	2,200	2,100
Interest on pension scheme liabilities	1,400	1,400
Employee Contributions	(447)	(420)
	3,153	3,080
Analysis of the amount recognised in a statement of total		
recognised gains and losses (STRGL)	€'000	€'000
Experience gains and (losses)	3,080	2,075
Changes in assumptions underlying the present value of scheme	0	0
Actuarial gain and (loss) recognised in STRGL	3,080	2,075

Notes to the Financial Statements

Year Ended 31 December 2011

Note 18 Cont'd

Net Deferred Funding for Pensions Recognised in the year	2011 €'000	2010 €'000
Current Service and Interest Cost	3,600	3,500
Less benefits paid in the year	(416)	(225)
	3,184	3,275

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 2011 amounted to €26.0 million (2010: €25.9million) .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	2011 €'000	2010 €'000	2009 €'000	2008 €'000	2007 €'000
Deficit at the beginning of the year	25,900	24,700	19,300	18,300	16,000
Current Service Cost	2,200	2,100	1,900	1,900	1,850
Interest on Scheme Liabilities	1,400	1,400	1,100	1,000	900
Actuarial (Gain) Loss recognised in the STRGL	(3,080)	(2,075)	2,625	(1,679)	(237)
Benefits paid in the year	(416)	(225)	(225)	(221)	(213)
Deficit at the end of the year	26,004	25,900	24,700	19,300	18,300

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

The cumulative actuarial gain recognised in the statement of total recognised gains and losses amounts to €2,737,000.

19. Lease commitments

Operating Leases

The Marine Institute has entered into the following lease agreements:

Obligations under operating leases comprise

	2011 €	2010 €
Expiring within 1 year	0	46,555
Expiring during the years 2 to 5	0	0
Expiring thereafter	0	0

The Marine Institute occupies leased premises at the following locations:

- Lease 1: 80 Harcourt Street, Dublin 2 commenced in 1993 for a period of 22 years with five yearly rent reviews. There is a rent review every 5 years, with no more lease breaks until the conclusion of the lease in 2015.
- Lease 2: Parkmore Office Park, Galway, commenced in 1999 for a period of 25 years with five yearly rent reviews
- Lease 3: 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 2011

Note 19 Cont'd

The current annual rental charge of these leases amounts to €328,589 (2010 €325,652)

	2011	2010
Expiring within 1 year	0	0
Expiring during the years 2 to 5	235,735	0
Expiring thereafter	92,854	325,652

20. 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.

21. Joint Venture – Marine Technical and Development Services Ltd. (MTDS)

The Marine Institute is a partner in a joint venture company, Marine Technical and Development Services Ltd., which was incorporated in 1998. It holds 51% of the equity capital with the remainder held by Marine Technology Ltd (25%) and another shareholder (24%). MTDS is located in Galway and its primary business is the management, crewing and operation of the research vessels 'Celtic Voyager' and 'Celtic Explorer'. MTDS ceased to trade on the 5th March 2006 and a voluntary wind-up commenced in Dec 2010 and the company was dissolved on the 14th Oct 2011. This had no impact in the accounts of the Institute as a result of the winding up.

22. Register of interests

The Institute has adopted procedures in accordance with the guidelines issued by the Department of Finance 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.

23. 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 2011 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 2011 Marine Institute Board members were as follows.

Board Member	Category 3	Gross Fees 2010	Expenses 2010	Total 2010
Jim Fennell	Chairperson	9,975	1,329	11,304
Richard Flynn	Director	7,695	854	8,549
Michael Walsh	Director	7,695	3,640	11,335
Bernie Hannigan	Director	7,695	1,843	9,538
Eleanor O Higgins	Director	6,412	65	6,477
Emer Rogan	Director	6,412		6,412
Lorcan O Cinneide	Director	7,695	2,046	9,741
Francis Coyle	Director	7,695	4,818	12,513
		61,274	14,595	75,869

Board Member	Category 3	Board Meetings 2011	Board Meetings Attended 2011
Jim Fennell	Chairperson	10	10
Richard Flynn	Director	10	7
Michael Walsh	Director	10	6
Bernie Hannigan	Director	10	10
Eleanor O Higgins	Director	10	9
Emer Rogan	Director	10	6
Lorcan O Cinneide	Director	10	10
Francis Coyle	Director	10	10

24. Board Approval

The financial statements were approved by the Board on the 29th January 2013.

Notes

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

www.vermilliondesign.com

www.marine.ie



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