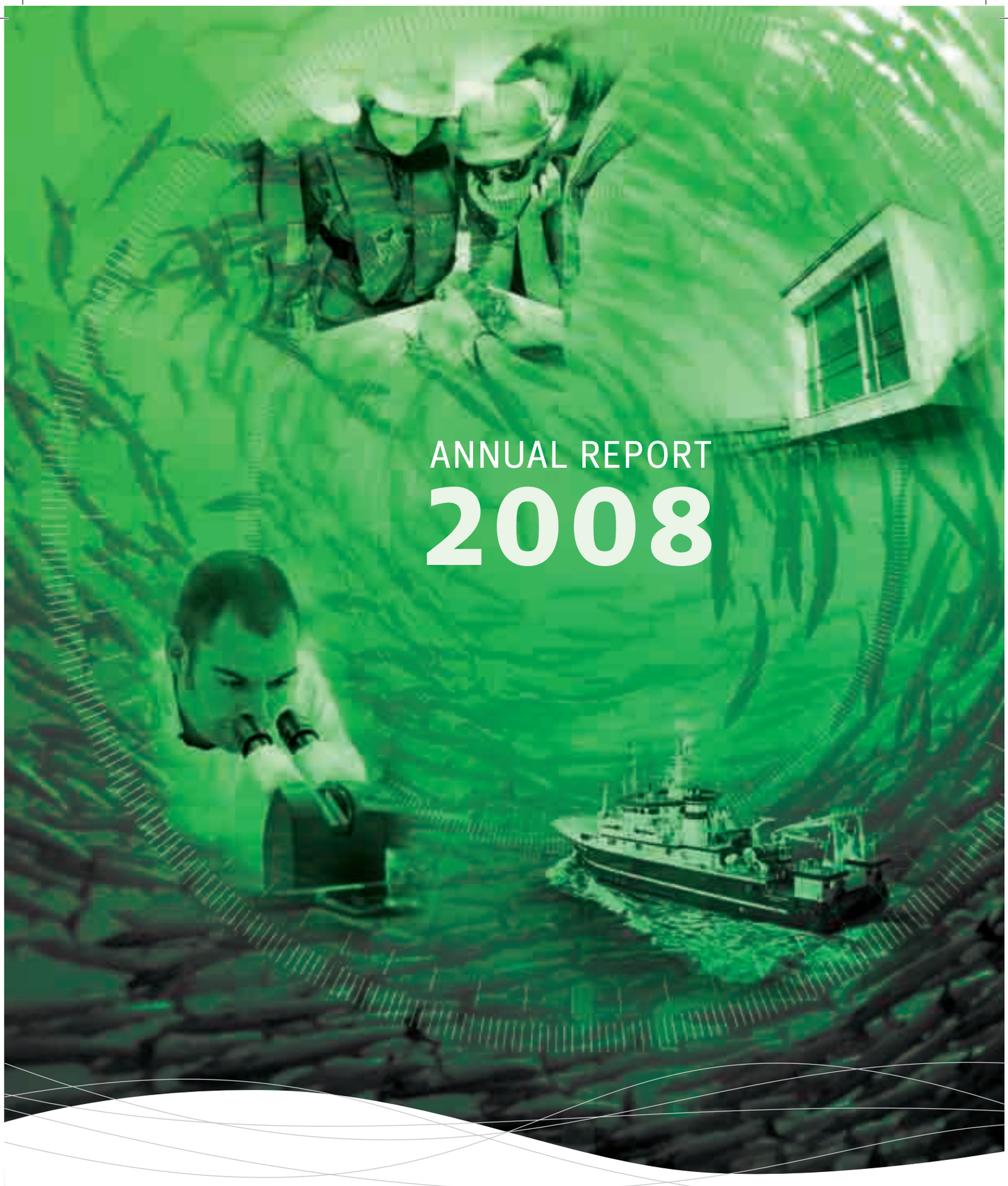


ANNUAL REPORT
2008

Marine Institute
Foras na Mara

Serving Science and The Sea

To the Minister for Agriculture, Fisheries and Food,

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 2008

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

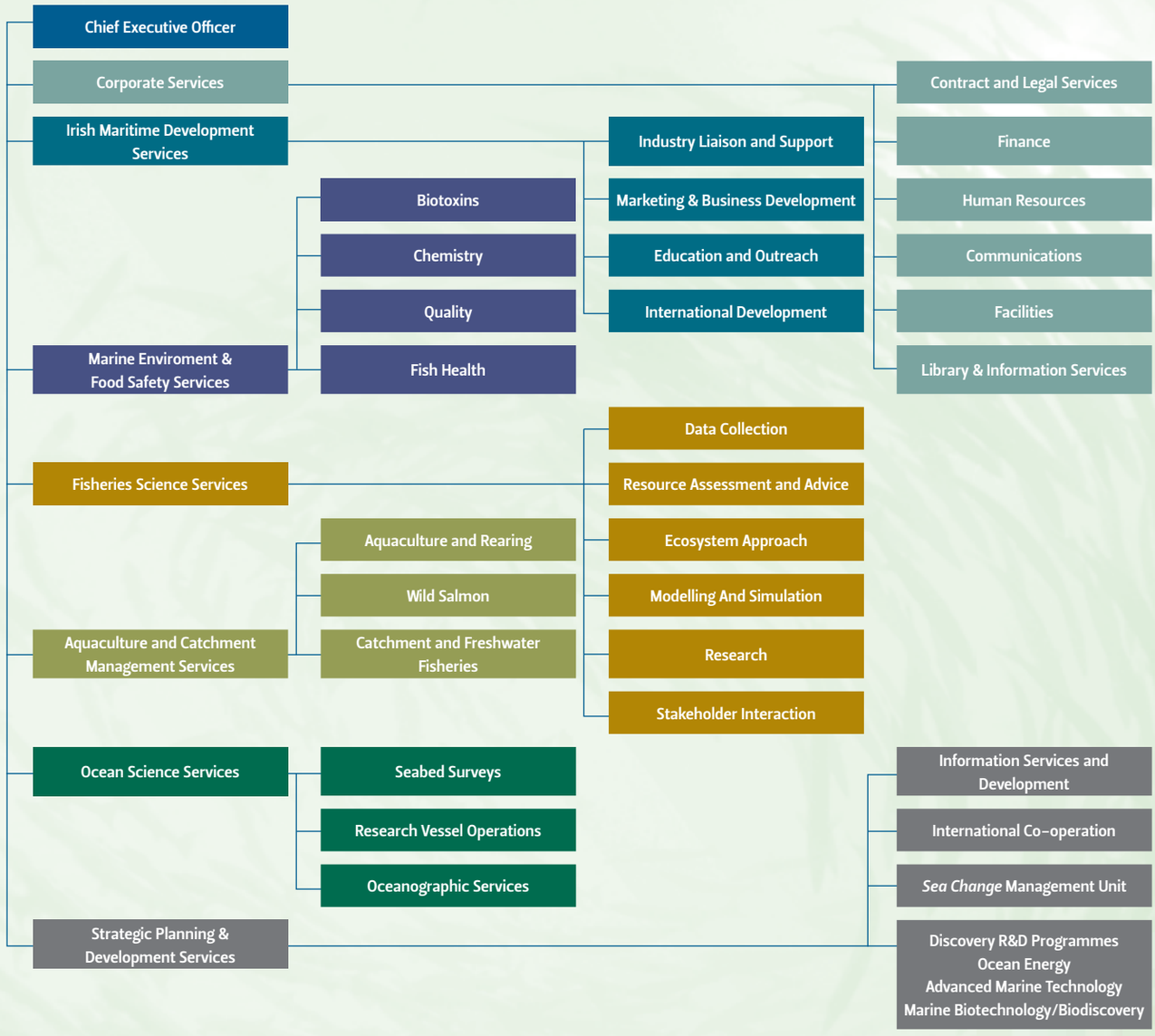
Our Vision

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

Contents

Marine Institute
Foras na Mara

Marine Institute Organogram 2008



Introduction and Organisation 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 vast 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 undiscovered. We promote 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 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

To provide these services to the highest degree of excellence, and to plan for future developments, the Institute is structured into seven Service Teams, as outlined in the organogram opposite.

This report highlights the key deliverables and progress made towards our vision during 2008.

Board Members

Mr. Jim Fennell – Incoming Chairman (2008–2013)
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; Treasurer of Galway Chamber of Commerce, Galway Technology Centre, An Chéim (Collaborative Higher Education Information Management), Chairman of Audit Committee HEAnet (Ireland's National Education and Research Network), Chairman of the HEAnet Finance Sub-committee and Mayo County Council Audit Committee

Mr. Kevin Bonner – Outgoing Chairman (2005–2008)
Kevin Bonner was educated at University College Dublin (BA), Trinity College Dublin (MSc Econ) and the King's Inns (Dip Legal Studies) and has spent most of his career in the Irish civil service, which he joined in 1967. He retired in 1997 as Secretary General of the Department of Enterprise, Trade and Employment – a Department with a budget of € 1.5 billion, and 1,000 policy-oriented staff employed directly and 4,000 indirectly in the Department's agencies – IDA, Enterprise Ireland, Forfas, FAS (Training Agency), Competition Authority, Patents Office, Labour Court, Labour Relations Commission, Health and Safety Authority, etc. Mr. Bonner has been a member of National Economic and Social Council and the Council of the Economic and Social Research Institute.

Ms. Terry Fleming (2004–2009)
A Tax and Financial consultant, Terry Fleming has over 20 years' experience as a corporate tax adviser with PricewaterhouseCoopers. She has worked on a wide variety of tax consulting, due diligence and corporate restructuring projects for a portfolio of major Irish and multinational clients, both publicly quoted and privately owned. Educated at UCD and DCU, she is a member of the Irish Taxation Institute. She is currently working as an independent consultant.

Mr. Richie Flynn (2007–2012)
Mr. Flynn is currently the executive secretary of the IFA'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 EU Commission's Aquaculture Advisory Committee. Mr Flynn holds a Batchelor of Arts degree in Communications Studies from Dublin City University and is a former member of the Irish Executive Council of the National Union of Journalists (NUJ).

Prof. Bernie M Hannigan (2007–2012)
Professor Hannigan is Pro-Vice Chancellor (Strategic Projects) at the University of Ulster, Northern Ireland. On a part-time basis, Bernie is seconded to the position of 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, also at Ulster. Professor Hannigan is an Immunologist with particular interest 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. Externally she is, or 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.

Ms. Dairine MacFadden (2005–2010)
Dairine Mac Fadden is a solicitor originally from Donegal but now based in Dublin. She graduated from UCD with a law degree (B.C.L) and returned there later to do a Diploma in European Law, followed by a Masters Degree in Law by thesis on the Common Fisheries Policy. She has worked as In-house Solicitor for RTÉ and also for TG4 and has represented commercial fishermen throughout Ireland while in general practice. She is currently engaged as a consultant in a solicitor's practice in Dublin.

Mr. Joey Murrin (1998–2008)
Formerly Chairman of the Irish Fishermen's' Organisation 1973-1979, Mr Murrin was also one of the founding members of the Killybegs Fishermen's Organisation and served as Chief Executive from 1979 until his retirement in 2001. He has served two terms in office with An Bord Iascaigh Mhara (BIM), one as Director and one as Chairman. He was appointed by the government in 2006 as a member of the Sea Food Strategy Review Group, which produced what is known as the "Cawley Report" on the industry. Mr. Murrin is the current Chairman of the National Salmon Commission, a position he has held since 2001.

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. She is a director of Transparency International Ireland and a member of the Press Council of Ireland 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, a clinical psychologist in the Irish health services and as staff development manager in RTÉ. She has served on the board of directors of IDA Ireland and of the Well Woman Group of health clinics, and had held various leadership positions in the US Academy of Management.

Dr. Emer Rogan (2007–2012)
Emer Rogan is a lecturer in the Dept. of Zoology, Ecology and Plant Science, 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 ecosytems, relating dietary analysis to bioaccumulation, migratory patterns and oceanographic and bathymetric parameters. She has supervised over 20 MSc and PhD students in marine mammal and fisheries ecology and has authored many papers in academic and professional journals, press articles and book chapters. Dr Rogan is a member of the Scientific committee (and convener and chair of the small cetacean sub-committee) of the International Whaling Commission, the IUCN Cetacean Specialist Group and ICES working group on Marine Mammal Ecology.

Mr. Michael Walsh (2007–2012)
Michael Walsh was one of the founders of the Irish South & East Fishermen's Organisation, which was formed in 2002. He then worked at setting up the Irish South & East Fish Producers' Organisation which received recognition in December 2004. He currently holds the position of CEO of the Irish South & East Fish Producers' Organisation and is Chairmanship 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 BIM Fisheries School in Greencastle, County Donegal.

Chairman's Statement

The latter part of 2008 saw a worsening global economic situation that called not only for economies in operating costs but also for new ideas and innovative solutions to address the challenge of falling employment and economic instability in Ireland. In December 2008, the Irish Government responded by publishing a *Framework for Sustainable Economic Renewal* entitled *Building Ireland's Smart Economy*. This framework sets out an ambitious set of actions to reorganise the economy over the next five years and to secure the prosperity of current and future generations. A key element of the Government's Strategy is to "continue to invest heavily in research and development, incentivise multinational companies to locate more R&D capacity in Ireland and to ensure the commercialisation and retaining of ideas that flow from that investment." Important aspects of the Strategy include the greening of the economy, the development of green enterprise and the emergence of Ireland as an 'Innovation Island', a country that "combines the features of an attractive home for innovative multinationals while also being a highly-attractive incubation environment for the best entrepreneurs from Ireland and overseas."

Sea Change – A Marine Knowledge Research and Innovation Strategy for Ireland (2007-2013) aims to drive the development of the marine sector as a dynamic element of Ireland's knowledge-based 'Smart' Economy. By positioning the marine sector in this knowledge economy, market-led opportunities and high value-added outputs continued to be explored during 2008. The Government's strategy to build a 'Green Economy' is in line with key opportunities that are being actively progressed in the marine sector e.g. in the areas of renewable ocean energy and marine environmental technologies.

Guided by a High Level Steering Group and managed by a dedicated *Sea Change* Management Unit within the Marine Institute, a number of research programmes in the *Sea Change Strategy* have already made significant progress in addressing new opportunities for sustainable wealth creation through the application of technology in the marine sector. Three new national programmes in Marine Biotechnology, Advanced Technology Research and Ocean Energy gained momentum during the year. 2008 also brought with it significant progress on the SmartBay project, which leveraged a major R&D investment by IBM to establish a Centre for Water Quality Management and Monitoring in Ireland.

Other *Sea Change* highlights on a national level during 2008 include the announcement by Enterprise Ireland of an Industry-Led Research Programme which resulted in an assessment of innovation needs of firms in Ireland's seaweed sector, led by the Marine Institute in collaboration with BIM and Enterprise Ireland.

Overall, approximately €100 million has been committed to R&D projects associated with marine resource development over the first two years of the implementation of the *Sea Change Strategy*, (50% of which comes from Marine Institute managed NDP funds, 36% from other national funding bodies and 14% from international funding secured by Irish researchers).

During 2008, the Marine Institute continued to actively participate in defining the European marine research agenda. Following the highly influential *Galway Declaration* (2004) and the announcement of an Integrated Marine Policy for the European Union (2007), Ireland participated at a high level in key discussions across Europe in 2008 which led to the publication of a European Strategy for Marine and Maritime Research in September.

The Institute continued to focus on its practical role in support of our marine industries. With the fishing industry continuing to navigate a difficult period due to reduced quotas, increased fuel prices and tighter EU controls, the role of our Fisheries Science Services team in providing scientific advice that would meet the needs of its stakeholders in industry, in government and at international meetings such as the International Council for the Exploration of the Sea (ICES) was never more important. As well as undertaking the various surveys and data collection that culminated in the annual Stock Book 2008, FSS also worked directly with industry though the Irish Fisheries Science Research Partnership at providing the answers to long-standing questions of economic and environmental sustainability.

The challenges of the aquaculture industry were also met in partnership through research projects, site visits and meetings with fish farmers and their representatives.

The awarding of responsibility to the Institute for implementation of the EU Fish Health Directive in 2008, put our expert staff and technical facilities at the service of national responsibilities to both farm operators and consumers in the production of high quality marine food products.

The Institute is also researching the possible impacts of global climate change on our marine environment and the industries it supports through our Ocean Science Services team, using detailed data-gathering and computer modelling. The national research vessel fleet – the RV *Celtic Explorer* and RV *Celtic Voyager* – provided world-class infrastructure for a diversified programme of marine research and development as well

as expanded training opportunities for the next generation of marine scientists. In 2008, the Institute's capability for deep sea research was considerably enhanced with the acquisition of the Remotely Operated Vehicle (ROV) *Holland 1*.

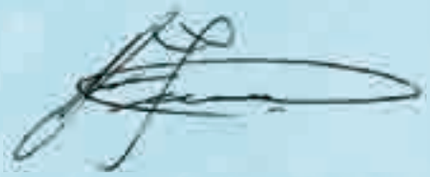
The Institute's Integrated Marine Exploration Programme (IMEP) provided seagoing experience to students at all levels. Similarly, our *Explorers* primary education project, in collaboration with Galway Atlantaquaria and the Forfas Discover Primary Science scheme brought the wonders of marine science to schools in the Galway area.

While 2008 saw the end of one of the longest periods of sustained growth in the shipping sector worldwide, the Irish Maritime Development Office (IMDO) of the Institute could still report an expansion of the Irish merchant fleet and over forty development projects during the year. IMDO consider that Ireland is extremely well positioned to survive the current market downturn and indeed, some 27 vessels are expected to be delivered here during 2009 and 2010.

All this work continued to be underpinned by constant focus on our own corporate governance, and I am indebted to the Board Internal Audit Committee, who ensured that an effective system of internal financial controls was maintained that provided a solid foundation for the Institute's achievements in 2008.

On behalf of the Board I wish to express our sincere appreciation for the work of Dr Peter Heffernan CEO, senior management and all staff at the Marine Institute for their dedication and commitment throughout the year under review. I also wish to thank my colleagues on the Board for their expertise and commitment, and to acknowledge the immense contribution made by Mr Joey Murrin, who retired from the Board during the year.

Finally, I would like to pay tribute to our outgoing Chairman Mr. Kevin Bonner, who guided the Institute so well through this exciting period of achievement in the service of science and the State. I am confident that, by harnessing the talents of the Irish marine community in a strategy that adapts to each challenge of the present, we will go on to reach even greater goals in the future.



Jim Fennell
Chairman

During 2008, the Marine Institute continued to actively participate in defining the European marine research agenda.

Chief Executive's Report

2008 saw the Institute continue to apply the best of Irish science and technology to the sustainable development of our marine sector in support of the economy. This was accomplished through partnerships with a wide variety of stakeholders in industry and in the Third Level and State Sectors, including our parent Department of Agriculture, Fisheries and Food, as well as through networking and funding opportunities from abroad which had been leveraged by our continued attention to relationships with colleagues all over the world.

Partnership is also a vital component of achieving the *Sea Change Strategy*, which is managed by the Institute on behalf of Government and which achieved record levels of investment in marine research, technology development and innovation in 2008. This programme has achieved all major milestones in its first two years of implementation and enjoys a high regard both nationally and internationally.

Partnership on an international level has also played a key role in establishing respect for Ireland's capabilities in marine science across Europe, to the point where we can not only influence the marine science agenda, but also gain support for our researchers by way of EU grant aid to underpin our *Sea Change* programme to develop our marine sector. The publication by the CEC of an integrated marine research strategy in 2008, an initiative that the Marine Institute had called for over a number of years, was a welcome development in this regard.

Our partnership with the Geological Survey of Ireland on the INFOMAR project, to accurately map the inshore areas of Ireland's 220 million acre seabed, has produced surveys off the North West, South and East coasts, as well as cross-border collaboration on the Joint Irish Bathymetric Survey. The successful conclusion of the initial 3-year phase of INFOMAR was acknowledged by the Government decision to support the next phase commencing in 2009.

Partnerships with industry are particularly important in the marine food producing sectors. The changing nature of fisheries science towards a more holistic and 'ecosystem based' approach which takes into account the needs, not only of the fish stocks and the environment in which they live but also the real economic needs of the fishermen themselves, calls for meaningful dialogue with industry. In 2008, this dialogue was enhanced by the Ministerial initiative to establish the Irish Fisheries Science Research Partnership and I am privileged to serve as Chairman for this initiative.

2008 saw us play a key role in assisting the transposition into national law of the EU Fish Health Directive 2006/88/EC and the subsequent designation of the Marine Institute as the National Reference Laboratory for the implementation of this legislation. Our broad remit in the delivery of scientific services in the national marine food safety arena was further expanded in 2008 with the responsibility to implement monitoring programmes to satisfy the Shellfish Waters Directive 79/923/EC.

The Irish Maritime Development Office (IMDO) played a significant role in supporting the development of new investments by foreign shipping groups into Ireland as well as a number of fleet capacity and new overseas market developments by Irish companies, albeit against the backdrop of difficult downturn forces in the market due to global economic conditions. Investment in new and second-hand Irish vessels amounted to just over €635 million in 2008 and, by the end of the year, 21 companies had elected to the Irish Tonnage Tax regime. IMDO fully expects that, in the current global and economic downturn, international shipping groups will continue to consolidate and seek locations such as Ireland, which can provide a stable and cost efficient operating base.

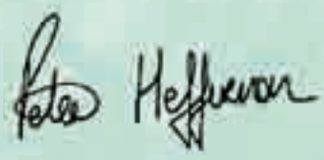
Work at the Institute's Newport facility on the Burrishoole catchment area continued to focus on aquaculture, environmental research and the behaviour of migratory fish such as salmon, sea trout and eels. Projects to develop a national brood stock capability for cod farming, to prevent the escape of farmed fish from aquaculture installations and to evaluate the impact of human activities on lakes, as well as the effect of forestry on freshwaters, continued. In addition, a number of major international endeavours, including the SALSEA Merge project to research the decline in marine survival rates of salmon stocks, and the EELIAD project to improve our knowledge of the life history of eels, may provide answers to very immediate problems for our food and recreational fishing industries at home.

Our research vessels RV *Celtic Explorer* and RV *Celtic Voyager* facilitated projects ranging from seabed mapping, fisheries surveys and environmental sampling, to deep sea coring, educational missions and multibeam mapping of the mid-Atlantic Ridge. New technologies, such as the ROV *Holland 1* – Ireland's first Remotely Operated Vehicle – and the University of Bremen's MEBO robotic drill rig were successfully deployed in deep water in the service of marine science. Work also continued on the vital subject of ocean climate change. As an island on the western edge of Europe, adjacent to the global 'weather machines' of the Gulf Stream and the Atlantic Ocean, Ireland is uniquely positioned to study this phenomenon and to predict what might happen in the years ahead with the aid of an advanced computer cluster installed at our Oranmore HQ in 2008. This information is of enormous interest to those at our

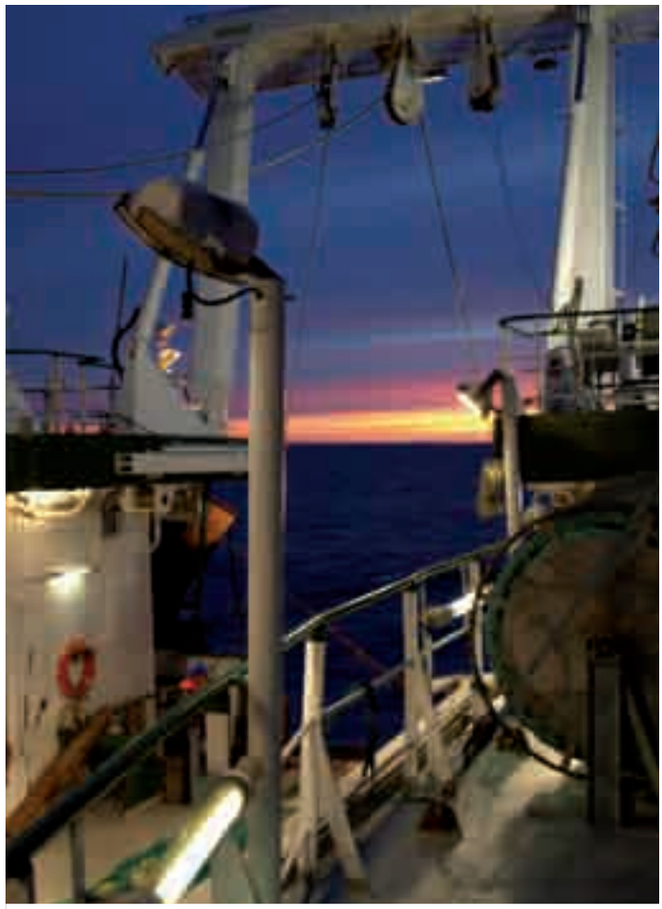
Newport facility who are studying the decreased marine survival of Atlantic salmon as part of the international SALSEA Merge project, as well as those in our Fisheries Science Services team

On the other side of the climate change question, our partnership with Sustainable Energy Ireland continues at the wave energy test site in Galway Bay and with plans for a larger site to test larger scale prototypes off the west coast of Ireland. Advanced technology is also being deployed in the form of the remote coastal sensing systems in SMARTBAY, a programme to place environmental and oceanographic sensors in Galway Bay. The project, supported by the Marine Institute and the Environmental Protection Agency, is catalysing new research collaborations between third level institutes and companies ranging in size from multinational corporations (IBM and Intel) to SMEs to develop leading edge marine, environmental and communications technologies and approaches to environmental management targeting emerging global markets for green technology. This ambitious project enables multiple objectives supporting new technology, development and commercial innovation, allowing us to maintain constant monitoring in the coastal environment without the need to take samples in situ. It is also a forerunner of planned developments including SMARTCOAST and eventually ESONET – a plan to place sensors on the deep ocean floor off Ireland's continental shelf.

The decline in the state of the exchequer resources in 2008 brought unprecedented fiscal cutbacks for the Institute. This coupled with the expanded service delivery portfolio as outlined above required major adaptive strategy development by the management team and staff with the support of the Board. These challenges were met head-on and the active participation of staff at all levels was required to make the necessary mid-year adjustments. Thanks to the professionalism and enthusiasm of our staff we achieved the speedy implementation of our adaptive strategy and were able to protect all major frontline services through 2008. A continued focus on maximising the efficiency of our programme delivery models will be required given the downward pressures on exchequer resources into 2009.



Peter Heffernan
Chief Executive



As an island on the western edge of Europe, adjacent to the global 'weather machines' of the Gulf Stream and the Atlantic Ocean, Ireland is uniquely positioned to study ocean climate change and to predict what might happen in the years ahead...

Corporate Services

Director's Statement

Our focus in 2008 was strongly on organisational efficiencies and cost savings, while maximising value for money to our stakeholders through a customer focussed service with an emphasis on high quality service delivery, innovation and strong corporate governance. Highlights of 2008 included:

- The publication of the Marine Institute's first Human Resources Charter. This was developed in partnership with management and staff of the Institute and presents a best practice approach with clear and measurable goals for the next five years.
- The positive profile of the Marine Institute and the *Sea Change* strategy was communicated with important stakeholders through a vigorous media campaign culminating in significant coverage on both radio and the print media.
- A five-year plan to develop the "Explorers" marine education programme for primary schools commenced in 2008 supported by the now annual five-day primary teacher training course on marine subjects held at the Institute's Oranmore headquarters in July.
- The implementation of a human resource, pensions and payroll management information system which will deliver faster, more accurate and more user friendly systems for both staff and management.
- Efficiencies continued to be achieved through the award of key contracts through tender processes resulting in significant savings that were reinvested in core programmes.

Ms. Caroline Hepburn
Director: Corporate Services

Finance

Efficiencies, value for money and strong corporate governance remained key corporate objectives of the finance department, with all internal audits indicating a strong focus on adherence to public procurement procedures. The production of the annual financial accounts together with the continued delivery of best practice support, assistance and management information to staff, management and the Board to support the goals of the Marine Institute were an important focus. The joint implementation of a pensions and payroll management information system with the Human Resource team was an important and timely investment.

Facilities

The Facilities team, located in Galway, Newport and Dublin, continued to effectively manage the daily operations throughout the different offices and laboratories with in excess of 32,000 incoming telephone queries.

Facilities operating procedures were reviewed in response to the increase in services provided to staff, to undertake additional administrative duties which created a more efficient working environment for others and to make savings in the services purchased.

Cost efficiencies were gained through the tendering and award of contracts for the supply of mechanical and electrical services, electricity, consumables and specialist contractors. An energy review was undertaken and plant and equipment operating times have been altered to maximise energy efficiency. New systems have been introduced to recover heat loss and reduce energy consumption as much as possible.

Library Services

The library focussed on utilising the capacity of the new library management system to enhance the administration and management of core library functions and to improve the quality of services to our users. A comprehensive stock-take of the 6,000 book collection was undertaken which delivers a measure of quality control to our library collection, ensuring that only up-to-date material remains on the library book shelves and relevant historic reports and documents are catalogued and stored in the Archives. As a result of the new system and improved catalogue management, staff are now facilitated with 24-hour online access to the library catalogue.

Communications

Following its mandate "to address the national blind spot regarding Ireland's marine resources" the communications team continued with its co-ordinated plan to reach its identified key audiences of decision makers at national and EU level, industry, the education sector, coastal communities and the general public. Media coverage in the print and broadcast media continued to rise and an increase in the number of hits on the Institute's web site at www.marine.ie to 838,197 page views during the year.

A five-year plan to develop the "Explorers" marine education programme for primary schools commenced in 2008, resulting in an expansion of scope to include a wider catchment area reaching as far north as Mayo. The annual five-day primary teacher training course on marine subjects was held at the Institute's Oranmore headquarters in July.

Human Resources

2008 saw the publication of the first Marine Institute Human Resources Charter. This clearly lays out the main goals and focus for the HR team over the next five years and was developed in partnership with management and staff of the Institute to ensure a continued best practice support service is delivered.

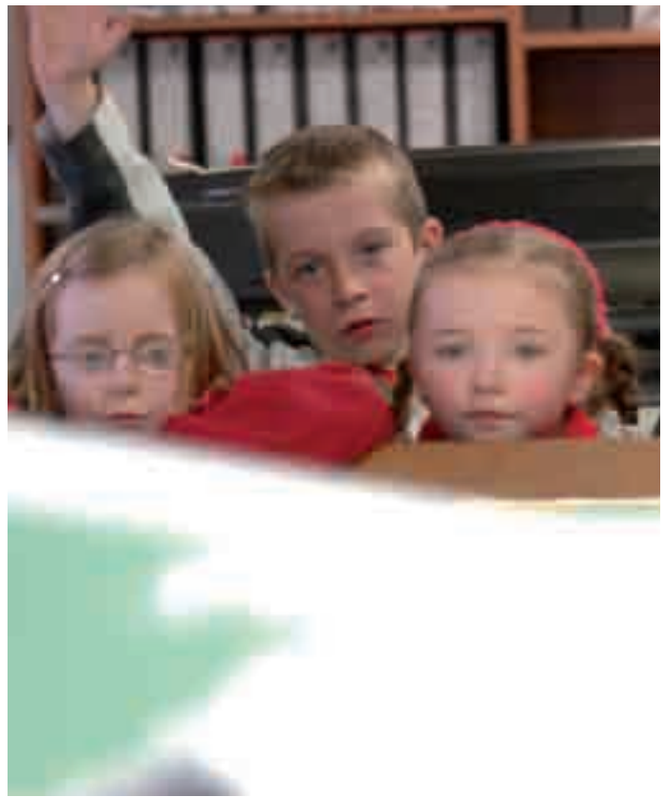
42 positions were recruited during 2008 with the HR team processing a total of 579 applications and co-ordinating 46 interviews panels. The Health & Safety Committee held 7 meetings highlighting the importance of H&S across all Marine Institute facilities. Health, Safety and Employee Wellbeing Awareness was promoted in early September 2008, focusing on general health and wellbeing and managing stress and work-life balance.

The Learning & Development focus for 2008 was Management Development and Personal Development. A successful pilot programme for eLearning was carried and some investment made in this area in an effort to reduce the cost of training expenditure without diminishing the training available.

Accessibility

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

The role of Corporate Services is to provide a quality support service that promotes, advises, communicates and assists work across the organisation in a friendly and efficient manner.



Irish Maritime Development Office (IMDO)

Director's Statement

The perfect economic storm that appeared on the horizon during the last quarter of 2007 eventually hit Ireland's shores in 2008. The ensuing tidal wave of bad news brought to an end the longest period of sustained economic expansion and growth in the history of the State. The resulting market conditions provided a stern test for Irish-based shipping companies active in the maritime cluster.

In its own right, the Irish shipping market is a very reliable barometer of activity in the real economy, with a strong correlation between GDP and shipping activity. A problem that appeared remote and specific to the US housing market, spread sector by sector and economy by economy, taking down with it major blue chip firms that had previously seemed impervious to most market shocks. The first signs of a slowdown in Irish economic activity became apparent during last quarter 2007 when shipping volumes started to show signs of weakness. This steady decline then became evident elsewhere in the economy and, by the end of second quarter of 2008, Ireland eventually slipped into recession.

Our initial estimates for the full year in 2008 indicate that the market shrank by 5% in roll on/roll off (ro/ro) trades and by approximately 10% in load on/load off (lo/lo) container routes, while bulk volumes declined by about 5%t for the year. The IMDO will publish a full analysis of 2008 trends and developments in the Irish and Global shipping markets in April 2009, with its 6th Annual Maritime Transport Economist bulletin.

While the full year picture looks particularly gloomy there were still some room for optimism with several notable developments during 2008, including significant fleet expansion and also our hosting of two important International conferences.

Mr. Glenn Murphy
Director: Irish Maritime Development Office (IMDO)

Focus on Business Development

After the longest 'Bull Run' in its history, the global shipping markets' five-year party ended abruptly in 2008. In spite of the difficult global conditions, the IMDO pursued more than 45 development projects which included supporting new investment by foreign groups into Ireland, assisting the creation of new shipping funds while also supporting Irish companies to win new contracts in overseas markets.

In June, 7 Irish-based shipping companies, assisted by IMDO, announced total investments in new and second-hand vessels of just over €635 million. In the first six months of 2008, 21 new and second-hand vessels had already been acquired, with a further 27 vessels expected to be delivered over the next 2 years, most of which will be newly built. The investment should assist in sustaining the existing onshore employment of some 300 people in Ireland. By the end of 2008, 21 companies had elected to Irish Tonnage Tax regime with a further 9 applications pending at the beginning of 2009.

The current global and economic downturn are likely to see international shipping groups continue to consolidate and seek locations that provide a stable and cost efficient operating base. The IMDO believe that Ireland is extremely well positioned to capitalise on this current market downturn. Indications are positive that if a sustained effort is made to continue to target and support these developments, Ireland is well positioned to continue to attract and secure fresh investment into its international maritime services sector.

The IMDO also provided business direct support to two foreign companies that established new shipping lines between Ireland and Continental Europe in 2008.

Supporting Education Development

The IMDO manages the administration the government's Seafarer Training Grant scheme. In 2008, more than 65 cadet students benefited from seagoing training payments and company support. A further 14 graduate engineering cadets were provided with funding that enabled them to complete their OOW Engineering degrees. The office also provided direct funding support for the upskilling of 20 qualified Irish seafarers to gain higher certificates of professional competency. In 2008 the office also agreed to provide direct financial support to the establishment of NMCI services. We hope this initiative will support additional third party training at the College while also maximising its overall utility potential.

Last year the IMDO partnered the Institute of Chartered Shipbrokers (ICS) to establish a new lectureship program which was held at DCU in Dublin. As a result of this latest initiative, the ICS has confirmed record numbers of students registered to undertake exams in 2009.

The Follow the Fleet program continued to grow with 150 schools and 9,000 students around the country participating in the programme. We aim to double the numbers of schools participating in the program in 2009.

Market Publications and Events

In April the IMDO published its Fifth Annual Irish Transport Economist. The Office carries out fundamental/technical analysis and also publishes traffic data on a quarterly basis which is available directly via our e-Zines. Over the course of 2008 we also published eight new Ireland to Europe shipping market reviews while also revising eight previously published market reviews. The in-house research includes regular market analysis and commentary. All IMDO publications are now published on-line via our new e-reader format which reduces our print and distribution overheads.

In May we submitted a review of Irish maritime sector to the Department of Transport. We were also appointed as a member of the Government's expert steering group overseeing the Dublin Port Study.

The office hosted and organised two major shipping conferences in Ireland in 2008. In June we hosted the inaugural European Shortsea Congress and, in November, the Second Marine Money Dublin Ship Finance Forum. The IMDO was again pleased to sponsor the Irish Exporters' Shortsea Shipping Award, which was won last year by the company Containership.

Traffic through our web based e-platforms increased by more than 33% in 2008, with more than 1.3 million hits for the year.

The Irish Maritime Development Office has a statutory mandate to promote and develop growth in the Irish shipping sector and to attract to Ireland additional marine related operations, along with key players in international shipping and ancillary services.

Marine Environment & Food Safety Services

Director's Statement

In 2008 scientists in the Marine Environment and Food Safety (MEFS) team carried out a full programme of monitoring and applied research in the areas of shellfish safety, fish health and the marine environment. This was done in order to provide scientific services on food safety and marine environment to the seafood sector, to the Department of Agriculture, Fisheries and Food (DAFF), and to State agencies such as the Food Safety Authority of Ireland (FSAI) and the Environmental Protection Agency (EPA) and the Sea Fisheries Protection Authority (SFPA). This work forms the basis for the Marine Institute's advice to government and the EU on seafood safety, marine environment, marine licensing, spatial planning and fish health.

The MEFS team continued to demonstrate its commitment to achieving high quality and to providing excellent services to our clients by increasing to thirty the number of test methods accredited in accordance with ISO 17025 by the Irish National Accreditation Board (INAB). These accredited tests cover the full range of monitoring in Shellfish Safety, Residues, Fish Health and Marine Environment Chemistry.

In July, after nine years of service to the Marine Institute, Micheál O'Cinnéide stepped down as Director of MEFS upon his appointment to the executive board of the Environmental Protection agency.

Mr. John Evans
Director: Marine Environment and Food Safety Services

Research

The MEFS team carried out a programme of applied research closely linked to its monitoring activities and in support of the requirements of its government and industry customers. Work continued on NDP, EU and INTERREG funded projects. The Marine Institute and DIT continued to collaborate on the project "Integrated Approach to Toxicity Valuation of Irish Marine Sediments". The "Irish Sea Marine Aggregates Initiative (IMAGIN)" – an INTERREG IIIA project carried out by an Ireland/Wales consortium – concluded. The following projects commenced in 2008:

- "Impacts of increased atmospheric CO_2 on Ocean Chemistry and Ecosystems" with NUIG.
- "Biological Effects and Chemical Measurements for the Assessment of Pollution in Irish Marine Waters" with TCD, DIT, Enterprise Ireland Shannon Aquatic Toxicology Lab.
- "Azaspiracids: Toxicological Evaluation, Test Methods and Identification of the Source Organism (ASTOX II)" with DIT, IFREMER (France), National Research Centre (Canada), NOAA (US), Alfred Wegener Institute (Germany) and the Norwegian School of Veterinary Science.
- GillPath: This project will provide information on the underlying causes of gill pathologies in salmon in Ireland. This will result in increased awareness at industry level and the adoption of suitable management and mitigation procedures on marine sites.
- AquaPlan: This project will assist the Irish finfish sector to adapt to the requirements of the new Fish Health Directive 2006/88/EC, which came into force in 2008. It will result in the publication of a series of protocols, leaflets and a risk assessment framework in order to increase the ability of the Irish finfish aquaculture industry and regulatory agencies to manage fish health issues.

In addition, during the course of the year, three PhD and two MPhil degrees were awarded based on research carried out in the Marine Institute in the area of shellfish toxins.

Advice & Monitoring

The MEFS team provided advice to the Department of Agriculture, Fisheries and Food, dealing with Foreshore Lease and Licence Applications, Dumping at Sea applications, aquaculture licences and monitoring. Team members continued to take part in the second Strategic Environmental Assessment of Oil & Gas licensing in the Porcupine Basin.

While continuing discussions with EPA and Government on the resourcing of the Monitoring programme for plants, benthic organisms and chemistry in transitional and coastal waters to meet the needs of the Water Framework Directive (2000/60/EC), the team continued to provide scientific advice to the EPA and to River Basin Districts.

A comprehensive quality controlled dataset on contaminants in the Irish marine environment was submitted for assessment under the OSPAR (Oslo and Paris 1992) Convention. MEFS staff have been actively involved in contributing to the preparation of the OSPAR Quality Status Report 2010 which is expected to be an important contribution to the initial assessment required under the EC Marine Strategy Framework Directive that entered into force during the year. The team have participated in the preparation of the OSPAR-wide assessment of marine pollution trends for incorporation in the report.

The Fish Health Unit (FHU) within MEFS is the designated National Reference Laboratory (NRL) for Fish Diseases as well as the designated National Reference Laboratory for Mollusc Diseases, and more recently the NRL for diseases in crustacea. It supports the aquaculture industry and inland fisheries in maintaining Ireland's fish health status through the provision of statutory services and diagnostic support. In 2008 the Fish Health Directive was successfully transposed into Irish Law with scientific and technical advice from the Marine Institute fully incorporated. In addition to its NRL role, the Fish Health Directive requires the Marine Institute to authorise aquaculture operators, on foot of their submission of application forms and appropriate Fish Health Management plans detailing their record keeping, risk-based health surveillance and biosecurity regimes.

Significant progress was made by the Institute in developing skills in the area of molecular biology and virology in preparation for developments in European legislation. This included developing methods for the detection of Norovirus Koi Herpes Virus, Oyster Herpes Virus and Infectious Salmon Anemia.

Seafood Safety

The Marine Institute is the EU Designated Irish National Reference Laboratory for Marine Biotoxins and National Reference Laboratory for monitoring bacteria and viruses in bivalve molluscs. The Biotoxin Unit provides a weekly monitoring service, which includes monitoring of phytoplankton and biotoxins in shellfish flesh, for over 50 shellfish production areas. The programme ensures Irish compliance with EU regulations on shellfish safety.

Targets to have over 95% of results published within 3 working days were met by the Institute. Results of over 2,200 analyses were issued by fax, e-mail and SMS text messages to regulators including the FSAI, the SFPA and the shellfish industry and published on the Institute's Web site at http://www.marine.ie/habsdatabase. Shellfish toxins present throughout the summer and into the winter months were identified and advice on management action provided in liaison with the regulatory authorities. Ongoing microbiological testing of shellfish production areas was used to update the classification of shellfish production areas, and advice was provided to regulatory authorities.

The Marine Institute is also the EU Designated Irish National Reference Laboratory for a number of chemicals in use in aquaculture and participated in the national residues monitoring programme as required under the Residues Directive, as it has done since 1999. Results of the previous year's finfish aquaculture monitoring were reported to DAFF, FSAI, and SFPA on time in March 2008 for onward transmission to the EC. For the second year running no non-compliant samples were detected—a very positive message for the industry. Following reporting to clients, annual results from individual fish-farms are compiled and transmitted to the farms.

Monitoring under the national programme for chemical contaminants in shellfish, to assist in meeting national obligations under the Shellfish Waters Directive, 79/923/EC was carried out. Oysters and mussels from 31 locations were tested for trace metals, PCBs and pesticides while sampling commenced in an expanded range of shellfish production areas. A range of fin-fish species landed at four major Irish ports were also tested for trace metals, PCBs and pesticides.

The MEFS team carries out a wide range of research and monitoring tasks in the areas of marine environment and seafood safety.

The Marine Institute's food safety programmes provide a solid basis for the Irish seafood sector to meet EU regulations and to ensure full consumer safety for the Irish and export markets.

Fisheries Science Services

Director's Statement

Fisheries science is changing. It continues to evolve as managers seek new forms of scientific advice that meet the new and wider demands of marine policy makers (e.g. for greater environmental integration). Against this background, the fishing industry continued to go through a very difficult period as reduced quotas, fuel price uncertainty, fleet decommissioning, greater environmental awareness and tighter EU controls impacted on their profit margins. The role of Fisheries Science Services (FSS) is to provide the research, assessments and advice that underpin the sustainable exploitation of living marine resources in the waters around Ireland.

Meeting the needs of our major client (DAFF) was the major objective for 2008 and FSS provided it with a broad range of scientific services. The poor state of the fisheries resource, the demand for increased interaction with stakeholders, the need for improved data quality, the development and testing of management plans and the integration of environmental considerations into fisheries advice were all key drivers for our scientific services.

FSS also paid close attention to meeting the future needs of our clients and stakeholders. A major achievement for FSS in 2008 was to implement a set of highly relevant and applied research projects through the *Sea Change* and the EU funding frameworks. Great care was taken to ensure that these projects would fully complement, enhance and evolve our core activity—that of delivering the scientific advice decision makers need for the sustainable exploitation of our living marine resources.

Dr. Paul Connolly
Director: Fisheries Science Services

Data Collection Regulation

Data are the raw materials FSS use to produce scientific advice. The EU data collection framework is a very important funding source for FSS and, in 2008; €2.4 million was secured to conduct the data collection and data management programmes that provide the scientific data needed to support the Common Fisheries Policy. A total of 13 research surveys were undertaken on RV *Celtic Explorer*, RV *Celtic Voyager* and on chartered commercial fishing vessels, yielding a total of 1,124 scientist sea days. These surveys focused on Rockall haddock, acoustic estimates for herring and blue whiting, cod tagging, a groundfish survey of the shelf waters around Ireland, a deep water trawl survey of the slope area to the west of Ireland and a survey of monkfish stocks off the west of Ireland. These surveys involved close collaboration with UK, Russian, Norwegian, Spanish and French scientists. FSS also continued to develop its underwater TV survey programme on the Nephrops prawn grounds off the Aran Islands, in the Celtic Sea and Irish Sea.

Sampling of landings in the ports, sea sampling of discards and analysis of fleet activity and fishing patterns were also important components of the DCR work programme. A total of 595,789 fish were measured and 52,620 aged during these 2008 programmes. A considerable amount of time was devoted to the management (e.g. quality and data base updates) of these data sets. The annual DCR cost statement and technical reports for 2007 were completed and submitted to the EU. A new DCR covering the period 2009–2013 was established by the Commission and Ireland submitted a new two year programme covering the period 2009 and 2010.

This new DCR programme will be more complex than the old DCR and will deal with a new type of sampling (fleet-based as opposed to stock-based) and will also cover the provision of scientific advice. Working closely with BIM, FSS also completed major sampling programmes on inshore stocks (e.g. crab, lobster, cockles and shrimp). These inshore stocks are very important economically to the coastal communities of Ireland.

Scientific Advice

Scientific advice is the main product of FSS. The International Council for the Exploration of the Seas (ICES) provides an international platform for marine science where independent scientific advice is formulated for the EU Commission and EU Member States. FSS participated in over 40 ICES meetings in 2008 (see Appendix 9) and they remain the primary discussion groups used by FSS for international stock assessment and advice. FSS staff held a number of key posts within ICES during 2008, including chair of the review group on deep water species; the expert group on assessment of southern shelf demersal stocks, and the planning group for north Atlantic slope surveys.

FSS staff also participated at various meetings of the Scientific, Technical and Economic Committee for Fisheries (STECF), chairing a sub group on reducing discards. FSS also provided scientific support for DAFF staff at several international meetings including the EU-Norway fisheries agreements and the December Council of fisheries ministers that set the fishing opportunities for 2009. The FSS modelling and simulation group further developed the FPRESS tool which has received international praise. Working with stakeholders, this tool was used in formulating management plans for Celtic Sea herring, mackerel and horse mackerel. The annual Stock Book, which provides all the latest scientific advice on the fisheries resource of interest to Ireland was delivered to DAFF, and used in negotiations with the EU on fishing opportunities for 2009. A major review of the future format of the Stock Book was completed.

Stakeholder Interaction

Working with industry is a key aspect of FSS work programmes. This was undertaken at a national (e.g. Federation of Irish Fishermen) and international (e.g. The Regional Advisory Councils) level. There was extensive engagement in relation to the development of management plans (e.g. Celtic sea herring; mackerel), cod recovery measures, effort regulations and explanation and discussion on scientific advice on the resource. The Minister established the Irish Fisheries Science Research Partnership (IFSRP) in August 2008 and an active engagement with industry highlighted several key areas that future joint work should focus on (e.g. improved data for Celtic sea cod stocks). The work of this group will continue in 2009. FSS also participated at the sea fisheries consultative meetings with DAFF and industry representatives. Trade press articles are an important part of FSS outreach work and in 2008, 15 trade press articles, covering a broad range of issues, were submitted by various FSS staff and published.

Research

Research is key to evolving scientific advice. FSS spent a considerable amount of time implementing a set of applied research projects that will enhance and evolve our scientific advice. These research projects were both nationally (e.g. *Sea Change*) and internationally funded (e.g. FP7). FSS commenced several key projects funded under the *Sea Change* programme. These projects were developed with stakeholders and considerable time was devoted to the recruitment of eight international scientists that will work on them, focussing on depleted fish stocks, data integration, using fishers' knowledge in scientific advice, data signal detection methods, biology of Nephrops, black scabbard fish, and herring. FSS also secured funding under the Beaufort Marine Research Award and together with University College Cork, and Queens University Belfast have established a team to develop the Ecosystem Approach to Fisheries Management over the next seven years.

FSS also participated in a number of EU-funded projects including MARIFISH (EU Fisheries ERANET aimed at increased national co-operation), DEEPNET (recuperation of fishing nets lost or abandoned at sea), and EASE (European Advisory System Evaluation). The DEEP CLEAN (retrieval of abandoned deep water gill nets) and EFIMAS (Operational Evaluation Tools for Fisheries Management Options), LOT (incorporating fishermen's' knowledge into science) projects were also successfully completed. Funding was secured for two new FP7 projects; MEFEPO (making the European Fisheries Ecosystem Plan Operational) and DEEPFISHMAN (managing the deep sea ecosystem). These projects are built around the concept of sustainable development and are focussed on delivering pragmatic management plans to ensure a viable fishing industry into the future.

The Marine Institute also help organise the ICES Symposium Linking Herring in the Ecosystem (Galway, August 2008) in which over 100 scientists from 16 countries participated. The proceedings are to be published in a special edition of the ICES Journal of Marine Science.

The primary role of the Fisheries Science Services is to research, assess and advise on sustainable development of living marine resources in the waters around Ireland.

The primary customers of FSS are DCENR, EU, industry and third level sectors. The main product of FSS is scientific advice on stocks of interest to ireland and this is encapsulated in the annual FSS Stock Book produced by the team each December.

Aquaculture & Catchment Management Services

Director's Statement

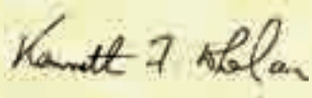
During the past year the ACMS team was involved in a broad range of monitoring and research work in support of national objectives in the areas of aquaculture, environmental research and migratory fish species. Service delivery in the aquaculture area focused on the implementation of the national sea lice monitoring programme and on a series of research projects centred on novel species development and bay management initiatives.

ACMS actively supported the formulation and implementation of the new DAFF sea lice pest control strategy, launched in May 2008 and provided a wide range of technical advice on issues relating to fin fish aquaculture management and development. On the research front work was completed on the very successful Aquareg programme, which has been nominated for a prestigious EU excellence award.

The final report of the Offshore Aquaculture Technology Platform was published in December. Supported by the findings of the 2007 Cawley Report whose stated objectives are to 'transfer technology and commercialise hatchery, juvenile production and on-growing capabilities for char, cod, turbot and halibut', a consortium consisting of the Carna laboratory of NUIG, industry, Taighde Mara Teo., BIM and the Marine Institute have together initiated a programme to investigate cod hatchery and farm production methods. The overall objective of the EIRCOD project, which is funded under *Sea Change*, is to design, establish and operate a cod broodstock and breeding programme, customised for the Irish environment and underpinning the native fish farming industry. Work is progressing well and over 40 tonnes of cod were harvested during 2008.

The Beaufort fish population genetics research programme is well underway and it is planned that work on associated projects will intensify during the coming year. The programme includes research on salmon, cod, trout and lobster. The programme is designed to predict the effects of naturally and man induced evolutionary change, including the impact of climate, on the productivity, sustainability and resilience of salmon, trout, cod and lobster stocks.

Climate change-related work in the Burrishoole catchment, is proving to be particularly successful. The RESCALE project, funded under SSTI and with partners in NUI Maynooth and TCD, has made significant progress in downscaling national climate models to a catchment level. This seminal work will lay the foundations for climate change impact predictions at a local area scale, which could have direct relevance to future forestry and agricultural policy in exposed west of Ireland catchments.



Dr. Ken Whelan
Director: Aquaculture and Catchment Management Services

Research Projects

EU FP7 Prevent Escape Project

The FP7 funded Prevent Escape Project, will conduct fundamental biological and technological research to improve recommendations and guidelines for technologies and operational strategies that will prevent escapes from fin fish facilities. Furthermore, it will provide knowledge that will advance our understanding on how escapees could be recaptured in an efficient manner and how farms should be sited to reduce the extent and effect of escapees on wild populations when and where they inevitably occur. It involves twelve partners from Norway, Ireland (Marine Institute), Spain, Malta, Greece, UK, and Italy.

Climate Change

As part of the Strategy for Science Technology and Innovation (SSTI) Climate Change Initiative, ACMS is engaged in work packages on fish growth and survival, the analysis of climate and environmental datasets collected from the Burrishoole catchment, the RESCALE project and forecasting future local climate scenarios using downscaled climate models. An automatic water monitoring station has been installed on a buoy in Lough Furnace, and this has commenced monitoring the tidal influxes and stratification in this unique sea lough.

Illuminate

Illuminate is an EPA funded project looking at past, current and future interactions between anthropomorphic pressures, chemical status and biological quality elements for lakes in two contrasting instrumented catchments in Ireland (Lough Feeagh in Co. Mayo and Lough Lean near Killarney). It complements the RESCALE programme and is due for completion in autumn 2009.

Red Areas Project

The first phase of the Regeneration Options for Forestry on Western Peat lands (Red Area Project) commenced in June 2005. ACMS's role was to monitor the water quality and a range of biological indices on four selected forested streams for one year pre-felling, during felling (summer of 2006) and one year post-felling. A detailed final report was submitted to Coillte in autumn 2008. The study concluded that while there were significant changes to water discharge, sedimentation and water chemistry within the experimental sites, these changes did not seem to have impacted adversely on the ecological quality of the receiving water body, apart from short term effects.

EU EELIAD

The FP7-funded EELIAD Programme focuses on improving our knowledge of the life history of eels both in the marine and freshwater environments. The project will assess the possible reasons for recruitment failure in eels and the will facilitate the development of models that can be used by managers to identify measures to improve the quality of silver eel escapement. Approximately 50 adult eels were released from Galway, 25 from the mouth of the Loire and 25 from the Bay of Biscay in 2008. They were tagged with pop-off satellite tags programmed for various pop off dates and initial data are already to hand.

SALSEA Merge

SALSEA Merge (see www.salmonatsea.com) is an international programme of research into the decline in marine survival of salmon stocks. A sixteen-day post-smolt sampling cruise was carried out on board the RV *Celtic Voyager* and the RV *Celtic Explorer* in May 2008. This was followed by a 15 day cruise carried out by the Faroese research vessel, the RV *Magnus Heinason*. A total of 797 post smolts and older salmon were collected over the course of the two cruises. A Norwegian cruise took place from the 26th July to the 9th August, 2008 aboard the RV *Eros*. A total of 88 salmon were taken in 31 net hauls, providing a total of 885 samples from the three ocean cruises. The areas fished had not previously been surveyed systematically for post smolts. The westerly distribution of the smolts was of particular interest.

A full update on the three cruises is available on www.salmonatsea.com . At present analysis is underway to determine the origin of each individual salmon captured at sea. Work is also ongoing on the growth of the salmon at sea. Work has also begun on mapping the migration routes of the salmon post smolts at sea.

Migratory Fish

International Salmon Management

ACMS has continued to provide technical advice to DCENR on wild salmon issues. 2008 saw the completion of the NASCO Focus Area Report on Salmon Management by contracting parties. Ireland was highly commended for their recent management initiatives and their current salmon management policies and strategy.

The NASCO Review stated:
"The Group congratulates Ireland on the major improvements in the management of their salmon fisheries in recent years. Consistent with the scientific advice, the coastal mixed-stock fishery was closed at the beginning of 2007, and exploitation is now restricted to estuary netting and angling on stocks that are above their conservation limits. These procedures fully comply with NASCO's agreements and guidelines."

Eels

ACMS were involved in the provision of scientific advice on eels to DCENR and the National Eel Working Group. This work included the development of a national model to determine pristine eel production and estimates of current escapement. The model also provided a range of management scenarios and options to meet EU requirements.

Aquaculture and Catchment Management Services comprises three service teams located in Newport Co. Mayo, Galway and Dublin.

The main functions of ACMS are to research, monitor, analyse and advise in the areas of finfish aquaculture, salmonid rearing, wild salmon and eel stock dynamics, and freshwater catchment studies.

Ocean Science Services

Director's Statement

In 2008 the Ocean Science Services Group (OSS) continued to widen its range of activities through the SSTI-funded climate change and marine exploration programmes, in addition to its normal wide range of activities at national and international level. OSS contributed significantly to the national Marine RTDI Strategy (Sea Change) implementation process through project support, technical advice and management input.

Notable highlights are included here and in Appendix 6 on the Research Vessel Programme 2008:

The mandatory 5 year refit of the RV *Celtic Explorer* was completed by the end of February 2008. 255 scientific days were completed onboard the RV *Celtic Explorer* from March to December and 268 days on the RV *Celtic Voyager*.

- P&O Maritime services completed a third year of providing ship management, operation and maintenance services for the national research fleet, working closely with the R.V. Ops team to complete a demanding programme of activity for both vessels.
- An intensive fisheries programme which included; three acoustic survey programmes, a deepwater fisheries survey and an annual groundfish survey. A new fibre optic underwater TV system was commissioned and installed on the RV *Celtic Voyager* which delivered 28 days of UWTV surveys for Nephrops prawn stock assessment.
- The annual 'Bright Sparks' competition for 5 days ship-time on the RV *Celtic Voyager* was won by a group from QUB, UCC and NUI, Galway. The successful students completed a survey on the occurrence of algal rafts in offshore waters.
- Two SALSEA surveys were completed on the RV *Celtic Explorer* and RV *Celtic Voyager* which saw both vessels completing an innovative trawling survey for salmon smolt in Faroese, Scottish and Irish waters.
- The new deepwater ROV system was successfully delivered on time and on budget, and was mobilised and integrated with the RV *Celtic Explorer* prior to planned offshore trials in early 2009.
- The University of Bremen's "MEBO" robotic drill rig was installed and operated once again from the RV *Celtic Explorer* for the INFOMAR deep drill survey which took place during August/September.
- Open days were held in Killybegs on the RV *Celtic Explorer* and the RV *Celtic Voyager*, and on the RV *Celtic Explorer* in Dublin, providing excellent opportunities to showcase the activities of the vessels to key stakeholders in the fishing community, other state bodies, secondary level schools and to the general public.
- The EMSO project (European Multidisciplinary Seafloor Observatory) kicked off in April 2008. Both EMSO and the larger ESONET are concerned with the development of cabled seafloor observatories at twelve sites on the European margin.
- 2008 also saw the first deployment of four Argo data floats in Irish waters in the Rockall Trough in spring 2008 funded by the NDP. Oceanographic information from these floats is now being successfully transmitted via satellite to Data Management Centres around the world.
- Stakeholders from third level institutes attended two IMEP meetings hosted in Dublin and Limerick in July 2008 to advance a strategic approach to deep sea research in Ireland.

Mr. Michael Gillooly
Director: Ocean Science Services

Research Vessel Operations

A strong multidisciplinary and diversified programme of research vessel activity was delivered on both the RV *Celtic Explorer* and the RV *Celtic Voyager* in 2008 as detailed in Appendix 6.

In late 2008 the new Integrated Marine Exploration Programme (IMEP) commenced, funded under the Government's Strategy for Science, Technology and Innovation (SSTI) to provide experience at sea for second and third level students through a number of programmes including the Training Through Research Surveys and Science@Sea schemes. The IMEP field-team also provided over 300 days of ship-based support for eight integrated research missions including; a bathymetric survey Of the Mid-Atlantic Ridge, annual nutrients, deepwater, groundfish and SALSEA surveys, eleven dedicated training surveys (institutes include TCD, UCC, CMRC, NMCI, NUIG, GMIT, UL, UU, QUB) and work for CEFAS.

IMEP also provided funding for mandatory Personal Sea-survival Techniques (PST STCW 95) certification for over one hundred undergraduate and postgraduate students participating in seagoing programmes. Participation was continued in the ESONET NoE (European Seas Observatory Network – Network of Excellence) project and organized a WP5 (Implementation Strategies) workshop in March 2008 for European partners from ten participating institutes.

Oceanographic Services

This section provided comprehensive oceanographic services underpinning many national programmes including; the management of the national equipment pool as well as management and operations of the Irish Marine Data Buoy Network. Oceanographic Services also provided significant input to the provision of a data service to the marine community. It was also active in ocean modelling and coastal oceanography, including the development of the Irish National Tide Gauge Network.

Marine Climate Change Section

Established in late 2007 and funded under the Government's Strategy for Science, Technology and Innovation (SSTI) the Marine Climate Change Section has an ambitious 2 year multi-disciplinary programme building on historic datasets and current surveys across the Marine Institute and also relevant national and international activities, as well as conducting a detailed analysis of key marine and freshwater data sets in 2008. Considerable capacity has been built in climate and ecosystem modelling, supported through the procurement of a dedicated High Performance Computing Cluster. This new infrastructure allows Marine

Institute scientists to produce predictions of Ireland's marine climate under various greenhouse gas emission scenarios for the 21st century.

A detailed programme to address key service and output demands in the Marine Climate Change arena is under preparation for the post-2009 period.

Key outputs from the current programme for delivery in 2009 include:

- an Ocean Climate Status Report for Ireland (due for publication in 2009)
- a report on optimisation of current and planned future survey activities to acquire data critical for climate change assessment (due in April 2009)
- continued close liaison with EPA, Met Eireann, NUIM, NUIG and other key players in climate change research to ensure complimentarity between programmes and develop an integrated work programme with these and other partners
- publication of a National Ocean Climate Change Research Plan 2009 to 2013.

Advanced Mapping Services

In line with the decision arising out of the original 2005 memo to government – to approve INFOMAR in principal for 20 years subject to a project review – PricewaterhouseCoopers (PWC) were commissioned by the Department of Communications, Energy and Natural Resources (DCENR) to conduct an appraisal of the INFOMAR programme and to make recommendations for the future. The review, which was submitted to DCENR in July 2008, identified and appraised a range of options for the INFOMAR programme in both financial and qualitative terms. All of the options for continuation of the INFOMAR programme returned positive Benefit to Cost ratios ranging from 4.41 to 5.79. Accordingly, a Memorandum to Government was prepared, which sought and received approval for continuation of the programme for five years, from 2009–2013, with a review of the programme in 2012.

INFOMAR Survey Operations during 2008 included data acquisition in Galway, Sligo, Donegal, and Blacksod Bays as well as the South Coast Priority Area between Kinsale and Youghal on the R.V. *Celtic Voyager*. Additionally LiDAR survey operations were undertaken in Donegal, Sligo, Blacksod, Galway, and Tralee Bays, as well as Lough Foyle.

The Joint Irish Bathymetric Survey Project (JIBS) commenced on 10 April 2007 and was completed on 31 October 2008. This project was lead by the Maritime and Coastguard Agency (MCA) with the Marine Institute of Ireland as project partner funded through the INTERREG IIIA programme. Priority areas of a 3 nautical mile coastal strip between Inishowen Head and Melmore Head were surveyed on the R.V. *Celtic Voyager* totalling 420 km^2.

Ocean Science Services underpins marine research programmes by providing efficient and cost-effective services, which facilitate and add value to marine research activities

Strategic Planning & Development Services

Director's Statement

2008 saw significant achievements by SPDS across its three major programmes.

The Information Services & Development Group delivered a number of new systems/initiatives, including support for evaluation of ePMDS and payroll systems; commissioning of a new high performance computing environment and server room with advanced heat recycling; implementing the Oceanographic Model Data Delivery System for OSS and the Database on Oceanography and Marine Ecosystems (DOME) reporting for MEFS to help meet OSPAR requirements. In October Minister Power launched the Irish Spatial Data Exchange (ISDE) project which is a web based catalogue providing easy access to marine data held by various agencies including DCENR (GSI and PAD), EPA, UCC and the Marine Institute. ISDE has since been awarded Ireland's cross agency e-Government award.

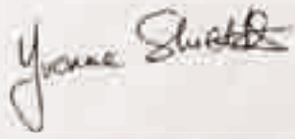
The International Co-operation Programme team continued to work closely with Irish researchers around the country. At the close of the year, Irish marine researchers were participating in 22 FP7 (grant-aid €9 million) and 15 INTERREG-IV Projects (grant-aid €4.5 million) (Appendix 2). To support Irish researchers, seminars and workshops were held in 10 venues around the country in 2008 (Appendix 4).

2008 saw significant progress being made on the implementation of the *Sea Change* Strategy. Building upon the 2007 investment commitments by the Marine Institute of €43.8m via NDP funds, 2008 saw additional commitments of just under €6.2m. The total investment in *Sea Change* over the first two years of its implementation totals approximately €100m (50% of which comes from Marine Institute NDP funds, 36% from other national funding bodies and 14% from international funding.)

In addition to significant project management activities, members of the *Sea Change* Management Unit progressed a number of new initiatives. Highlights include an innovation initiative in the seaweed sector which resulted in the announcement by Enterprise Ireland of a €2m research fund as part of its Industry-Led Research Programme.

The *Sea Change* team were also engaged directly in developmental aspects of 3 major new national programmes in Marine Biotechnology, Advanced Technology Research and Ocean Energy:

- The National Marine Biosdiscovery programme led by NUIG, UCC and Queens University Belfast is creating core research capabilities in natural products chemistry, chemogenomics and bioinformatics and the isolation and identification of novel chemical compounds or proteins for use by the biopharma sector and the medical device industry (e.g. adhesives, biofilms and sensors). In 2008 the Marine Institute, in partnership with the lead Institutions, established a fully equipped National Marine Biodiscovery Laboratory and hosted the 1st National Marine Biodiscovery Workshop.
- The Marine Institute in collaboration with the EPA has supported sustained activity over the period 2005-2008 that has helped to build a multi-disciplinary, industry-oriented research capability in the area of sensors and environmental technologies. This partnership has now been strengthened by the active engagement of Enterprise Ireland and IDA with the Marine Institute leading the development of a flagship inter-agency research, test and demonstration platform for communications and sensor /environmental technologies to be deployed in Galway Bay. Smartbay is already attracting the interest of major multinationals and a number of industry partnerships have developed. As a direct result of engagement with Marine Institute researchers and of the SmartBay Initiative, IBM decided to locate its European Advanced Water Management Centre of Excellence in Ireland (announced by Minister for Finance on June 16th 2008). Other activity in the SmartBay project includes an alliance between Intel and Irish Broadband working on the testing of the feasibility of Wimax over the sea.
- Since January 2008, the pace of development of Ocean Energy has increased significantly following the announcement by DCENR of a €26million package of incentives for the sector. This includes the establishment of a dedicated Ocean Energy Development Unit in SEI supported by the Marine Institute, headed up by former SPDS colleague. Throughout 2008, SPDS staff continued to work in partnership with SEI to set up the OEDU, which culminated in a formal Service Level Agreement between both agencies. The agreement provides for ongoing technical support to be provided by the Marine Institute to support ocean energy developers in the use of the quarter scale test site off Spiddal and technical services related to the commissioning of an offshore grid connected text site at Belmullet in Mayo.



Ms. Yvonne Shields
Director: Strategic Planning and Development Services

Information Services and Development (IS&D)

During 2008, IS&D continued to provide day-to-day technical support across the Institute (servicing in excess of 3,400 requests for support covering technical, applications and data management queries), whilst also servicing in excess of 300 data requests from external parties. In addition to these support services, IS&D were involved in excess of 50 projects (focusing on Strategic Business and Technical Support, Operational and Marine Institute Service Group Support Projects). Highlights include:

- Establishment of the High Performance Computing Environment (HPC);
- A new environmentally controlled server room;
- Upgrading of OSPAR Database of Oceanographic and Marine Ecosystems (DOME) reporting;
- The Oceanographic Model Data Delivery System;
- Development of new systems for ePMDS and payroll;
- The inclusion of data from new oceanographic sensors in Marine Institute information systems;
- In partnership with the DCENR, including the GSI and PAD, the launch of the Irish Spatial Data Exchange (ISDE) which allows the discovery of marine data held by various agencies; and
- Significant progress in the Integrated Data Repositories project aimed at putting in place processes to promote better management of research data.

IS&D also provided support and guidance related to the *Sea Change Knowledge & Information Management Programme.*

International Co-operation

The International Co-Operation Programme continued to play a significant role in defining the European Marine Research Agenda. Following on the success of the Galway (2004) and the Aberdeen (2007) initiatives and the announcement of an Integrated Marine Policy for the European Union (October 2007), 2008 highlights included:

- Publication of a European Strategy for Marine & Maritime Research (September 2008).
- Marine Institute led Regional Marine Workshops in Tallinn (April), Oslo (May) and Athens (June).
- Presentation of Irish Seabed Mapping capabilities to the EU Member States Expert Group on Maritime Policy (June).
- Publication of a GIS based atlas of European Atlantic Marine Research Centres (September).
- Publication of a *Guide to Member State Marine Science and Technology Policies and Research Funding Programmes* (October 2008).
- Participation of Marine Institute CEO, Dr Peter Heffernan (Keynote Speaker) and Geoffrey O'Sullivan (Session Chair) in the EU-French Presidency BioMarine 2008 Forum (Marseille, October 2008).
- Input to the publication of a Vision Document on the European Marine Observation and Data Network (EMODN) and presentation of the Vision Document by Lars Horn (Research Council of Norway) and Geoffrey O'Sullivan (Marine Institute) to Commissioner Joe Borg (DG MARE) on behalf a Marine Board-ESF / EuroGOOS consortia (October).
- Election of Geoffrey O'Sullivan as a vice-chair of the influential Marine Board-ESF (October).
- The new European Desk continued to provide support to Irish marine researchers competing in competitive EU research funded projects. At the close of the year, Irish marine researchers were participating in 22 FP7 (grant-aid €9 million) and 15 INTERREG-IV Projects (grant-aid €4.5 million) (Appendix 2). To support Irish researchers, seminars and workshops were held in 10 venues around the country in 2008.

Sea Change Management Unit (SCMU)

Building upon the 2007 investment commitments by the Marine Institute of €43.8m via NDP funds, 2008 saw additional commitments of just under €6.2m aimed at addressing research and capacity gaps, the continuation of competitive funding scheme for the provision of ship-time for research and training programmes and the acquisition of priority national research infrastructure. Details of these investments are provided in Appendix 1.

In addition to the investment commitments in marine research, SCMU activity in 2008 focused on project management and monitoring, programme development initiatives and strengthening existing and building new partnerships with both the public and private sectors. 2008 also saw the publication of the first Annual Progress report for *Sea Change*. Key programme development activities took place in the following areas: Seaweed, Aquaculture and Fisheries, Maritime Transport Economics, Marine Biodiscovery and Functional Foods, SmartBay and in a number of policy support research initiatives.

The investment in marine research and innovation via competitive funding programmes (national and international) over the last two years (2007-08) is contributing significantly towards achieving the objectives of *Sea Change* of:

The role of strategic planning & development services is to stimulate and support the development of strategic research and development programmes and actions (at national and international level) to promote marine related economic development in Ireland.

- Strengthening the competitiveness of existing marine activities and adding value to their outputs (diversification in the aquaculture sector; marine 'functional' foods);
- Building research capacity and capability to create new sustainable commercial opportunities (isolation of new compounds, e.g. anti-microbials, from marine organisms; advanced marine technologies); and
- Informing public policy, governance and sustainable management of the marine environment and resources (e.g. taking an "ecosystem approach" to commercial fisheries management, in collaboration with the fishing industry).

In 2009 the Marine Institute will continue its engagement with industry and the public sector (i.e. government departments, development agencies and funding bodies) to assess the on-going relevance of research to commercial and market needs; promote and facilitate greater linkages between the target industry sectors and the higher education sector; exploit industrial and commercial development opportunities; and stimulate innovation and commercialisation of research.

Further information on SCMU activities in 2008 is provided in Appendix 1. Alternatively please refer to the *Sea Change* Annual Progress report for 2008.

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, Fisheries and Food, 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 up-dated all Health and Safety Statements. The Institute continues to implement appropriate measures to protect the safety and health of all employees and visitors to its premises.

Ethics and Public Office Act

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

Employment Equality

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

Code Of Practice (Reporting)

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

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


CELTIC EXPLORER
CELTIC VOYAGER

Appendices

APPENDIX 1: *SEA CHANGE* ACTIVITIES IN 2008

In 2008 the *Sea Change* Management Unit (SCMU) activity focused on project management and monitoring, programme development initiatives and strengthening existing and building new partnerships with both the public and private sectors.

2008 project management activities included:

- Implementing a Project Management and Reporting Framework for Marine Institute NDP funded programmes/projects.
- Hands-on interaction to assist in project start-up and ongoing input into projects through participation in project steering/advisory meetings; and
- Commissioning a Research Information Management System to support the management and administration of projects and reporting of data on the performance indicators and high-level impacts for *Sea Change*.

Sea Change programme development activity in 2008 included a number of new initiatives aimed at stimulating improvements in the competitiveness of marine firms and/or the creation of new firms through the application of scientific and technological driven innovations. Initiatives included the development of a marine industry database; an assessment of innovation needs of firms in Ireland seaweed sector which led to the development of an industry-driven research initiative for seaweed sector resulting in the announcement in December of a €2 million Enterprise Ireland Industry-Led Research Programme. Working in collaboration with the IMDO and consultants, a roadmap identifying new opportunities for research in the shipping and maritime economics sector was completed.

In 2008, SCMU continued to actively progress the building of a number of new initiatives linked to the Discovery Programmes in *Sea Change*. Activities focussed on the development of the National Marine Biotechnology/Biodiscovery Programme included the establishment of the National Biodiscovery Laboratory and the hosting of the 1st Annual Irish Marine Biodiscovery Researchers' Workshop. Initial steps have been taken to strengthen the links and create new synergies across a number of national marine biotechnology initiatives e.g. the Marine Functional Food and the Seaweed Industry-Led Research Programmes. SPDS continued to work closely alongside SEI colleagues supporting the development of Renewable Ocean Energy in Ireland. 2008 also brought with it significant progress in the SmartBay project (further information is available overleaf). Activity in support of the Policy Research Programmes included working collaboration with other Marine Institute service groups to consider the future research needs associated with the implementation of EU Directives.

Active participation by a range of stakeholders in the private and public sectors is a key element in the delivery of *Sea Change*. In 2008, the SCMU continued to build and strengthen relationships through both formal and informal interactions. This included two meetings of the Marine Food Advisory Group, one meeting of the Marine Biodiscovery Advisory Group and a meeting of the *Sea Change* High-Level Steering Group in November (attended by 42 representatives across 33 organisations – both from the public and private sector). Other activities aimed at enhancing co-operation and collaboration included:

- Developing collaborative initiatives to maximise funding opportunities from a wide range of public and private sources e.g. with the EPA, EI and HEA;
- Participation in the initiation of a strategic partnership between IBM and the IDA;
- Liaison with other national funding bodies to collate and report on marine-related research funded from other national funding sources; and
- Participation in a wide range of national working groups (e.g. National Food Research Advisory Group, National Functional Food Forum, HERG Capacity WG, IUA National Research Platform WG, IDA Environmental Technologies Initiative, ocean energy research and industry forums and various agency, government department and international working groups

For further information on the overall progress of the *Sea Change* Strategy please refer to the 2008 *Sea Change* Annual Progress Report (Available for download at http://www.marine.ie/NR/rdonlyres/0B355A50-4348-43E1-AE06-6A864C702391/0/Final_MarineInstituteSeaChangeAnnualReport2007Insidefinal_Lowres.pdf)

SmartBay Pilot Project

SmartBay is an R&D infrastructure project, designed to enable research, testing and demonstration of new technologies for monitoring and managing the marine environment. 2008 saw the development of strategic partnerships with Enterprise Ireland, IDA, EPA, IBM, Intel, Irish Broadband, Irish technology SMEs. Significant Progress was made in the SmartBay Pilot Project during 2008 including:

- The construction and deployment of two environmental monitoring buoys in Galway Bay;
- Installation of a test WiMax network working in collaboration with Intel and Irish Broadband;
- The development of a web portal for SmartBay by IBM, the pilot of which was completed in September;
- Preparations for the future development of SmartBay which included identification of potential sources of funding; completion of a geophysical and bathymetric survey report for the potential cable route, ongoing consultations with stakeholders including the hosting of a Marine Institute/Enterprise Ireland/Newfoundland Partnership joint workshop for SMEs and the commissioning of a global and regional market study for products and services in the field of intelligent real-time integrated water management and monitoring systems.

Marine Research Investment Managed by the Marine Institute in 2008

In 2008 additional research investment by the Marine Institute has been aimed at building on past achievements and addressing targeted research and capacity gaps. The total investment of just under €6.2m consists of;

- €3.94m for targeted projects and research programme management
- €0.7m for the provision of ship-time and
- €1.55m for priority national research infrastructure.

Details of these investments are provided below.

An additional ~€23.5m was committed to marine/marine-related research in Ireland via other national (e.g. HEA, SFI, EPA IRCSET) and international funding sources. This brings the total investment in marine/marine-related research in Ireland in 2007/08 to €100m; of which approximately 50% is managed by the Marine Institute.

A) NDP Marine Research Sub-Programme- Project-Based Awards

Investment under the Marine Research Sub-programme of the NDP during 2008 amounted to €3.94m and was targeted at a number of specific initiatives:

- A targeted suite of five projects (3-4 years in duration) aimed at addressing specific objectives within the Fisheries Resources and Aquaculture Research Programmes of *Sea Change*. The grant-aid (€2.24m) is spread across a total of 15 organisations—including industry, public and higher education sector partners—and includes support for six PhD and two post-Doctoral research positions.
  - 48 Networking Awards valued at €61,832
  - 4 International Workshops/Conferences (€24,000)
  - 7 Mobility/Training Grants (€8,709)
  - 31 Travel Grants (€25,173)
  - 6 Other networking Initiatives (€3,950)
- The Marine Institute entered into the second phase of a strategic collaboration with the Environmental Protection Agency aimed at fostering national RTDI capacity in the development of advanced technologies for, e.g., water quality monitoring. The initial activity within this collaboration consisted of joint funding of a project aimed at development/deployment of water quality sensors and sensor communications. (Marine Institute Contribution to Grant-Aid €164,000)
- €1.37m in Grant-aid was committed to support the national programmes in Marine Biotechnology and Advanced Marine Technology. This investment will ensure co-ordination and efficiency within these programmes and aim to add value, through securing additional funding, to the initial investments.
- Contracts totalling €110,000 were awarded to two commercial fishing vessel operators to undertake surveys in support of a project aimed at assessing the biomass of feeding aggregations of herring within the Malin Shelf stock complex.
- Additional investment under the NDP Marine Research Sub-Programme is described below.

B) NDP Marine Research Sub-Programme – Research Infrastructure Awards

- **Acquisition of Research Infrastructure**

  A significant programme of investment in priority research infrastructure, begun in 2007, was completed in 2008. During 2008 a total of €1.55m was committed, bringing the total invested to just under €5.97m. The infrastructure acquired over the two-year period has been commissioned and/or deployed at sea and will support a number of funded projects and contribute significantly to the delivery of a range *Sea Change* research programmes—most notably Climate Change, Seabed & Resource Mapping, Marine Biodiscovery and Renewable Ocean Energy—over the coming years. This investment is funded through the Marine Research Sub-Programme of the NDP with 40% co-funding from the European Regional Development Fund.

- **Access to Research Infrastructure**

  €1.4m, part funded by the HEA, was provided for research surveys and dedicated training programmes onboard the national research vessels. This provided for 85 survey days and 37 training days at sea; equating to a total of 1,400 scientist/student days at sea.

  Details of projects, grantees and grant-aid awarded for all of the above is provided in the following tables.

Appendices

NDP MARINE RESEARCH PROGRAMME 2007–2013 – PROJECTS/ INITIATIVES FUNDED IN 2008

NDP Marine Research Sub Programme 2007–2013 – Funded Projects 2008

Sea Change Research Measure	***Sea Change*** Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant-Aid
Industry	Aquaculture	Project-Based Award	PBA/AF/08/001(01)	Azaspiracids: Toxicological Evaluation, Test Methods and Identification of the Source Organism	Marine Institute	€1,020,699
Industry	Aquaculture	Project-Based Award	PBA/AF/08/003(01)	Development of an AquaPlan for Irish Finfish Aquaculture	Marine Institute	€331,174
Industry	Aquaculture	Project-Based Award	PBA/AF/08/002(01)	Investigations of Increased Mortalities on Marine Salmon Sites due to Gill Pathologies	Marine Institute	€452,474
Industry	Fisheries	PhD Scholarship	PhD/FS/08/001(01)	Spatial and temporal trends in discarding practices of the Irish Sea demersal trawl fishery – application in discard mitigation plans	TCD	€105,000
Industry	Fisheries	Project-Based Award	PBA/FS/08/001(02)	The Establishment and Application of Protocols to Capture, Collate and Integrate the Tacit Knowledge in the Fishing Industry for Use in the Scientific Assessment, Advisory and Fisheries Management Process	NUIG	€332,152
Industry	Fisheries	Tender	MI08/SC/003	Pair trawl scouting survey for summer aggregations of herring along the West and Northwest coasts of Ireland (ICES Divisions VIIb & VIaS)	Various	€110,000
Discovery	Marine Technology	Project-Based Award	–	MI/EPA Advanced Technology Collaboration Phase II	DCU	€164,000*
Discovery	Marine Biodiscovery/ Biotechnology	Capacity-Building	–	National Coordinator	NUIG	€688,141
Discovery	Marine Technology	Capacity-Building	n/a	National Coordinator	DCU	€678,397
Innovation	–	Networking Awards	Various	Various	Various	€61,832
TOTAL						€3,943,869

* This represents 50% of the project cost. The balance is contributed by EPA.

NDP Marine Research Sub Programme 2007–2013 & ERDF – Funded Infrastructure 2008

Sea Change Research Measure	***Sea Change*** Research Programme	Project Type	Project Reference	Project Title	Grantee / Lead	Total Grant-Aid
Infrastructure Supporting	Various	Infrastructure Acquisition (Tender awards)	Various	Automatic Water Quality Monitoring Station Offshore CTD Instruments Offshore MetOcean Buoys Computer Cluster Upgrade Server Room	Various	€1,554,837

NDP Marine Research Sub Programme 2007–2013 / SSTI –Ship–Time Programme 2008						
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	RV–ST–08–01	Advanced techniques in oceanography; a joint NUIG/GMIT training cruise for early stage postgraduate and final year undergraduate students	NUIG	€16,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV–ST–08–02	Undergraduate basic training in oceanographic and fisheries sampling at sea	NUIG	€42,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV–ST–08–03	Undergraduate training in basic fisheries and oceanographic sampling at sea	GMIT	€14,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV–ST–08–04	Advanced techniques in oceanography; a joint NUIG/GMIT training cruise for final year undergraduate students	GMIT	€64,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV–ST–08–05	NMCI Vessel familiarisation 2008	NMCI	€80,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV–ST–08–06	Student Training in Dublin Bay	TCD	€42,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV–ST–08–07	Student Training in benthic survey & sampling techniques	QUB	€7,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV–ST–08–17	21st Century Graduate: Integrated Marine training for the next generation of marine scientists	UU	€112,000
Infrastructure Supporting	Research Vessel Ship–Time	Dedicated Training Programme	RV/ BRIGHTSPARKS/08/02	Rafts, plankton and jellyfish: their value as biological indicators of different water masses?	QUB	€40,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	RV–ST–08–09	Detailed Bathymetric Mapping & Seabed Sampling of North Atlantic V–Shaped Ridge 'VSR–2W': Constraints on temporal variation in Mantle Convection	TCD	€400,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	RV–ST–08–13	Integrated National Strategic Deep–Water Seabed Drilling Campaign (INS DeepDrill)	UCC	€272,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	RV–ST–08–14	Standard Oceanographic Section cruises (1. Irish Offshore waters Jan 2008 & 2. Irish Shelf Region) – May 2008	NUIG	€80,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	RV–ST–08–15	SALSEA Merge	Marine Institute	€100,000
Infrastructure Supporting	Research Vessel Ship–Time	Integrated Research Survey	RV–ST–08–16	Reconstruction of the extent & dynamics of the British–Irish Ice Sheet on the continental margin off North West Ireland	Marine Institute	€128,000
TOTAL						€1,397,000

NOTE: €700k of this funding was contributed by the Higher Education Authority.

Appendices

APPENDIX 2: IRISH PARTICIPATION IN EU RTD PROJECTS

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

In 2007, 10 EU FP7 and one INTERREG—IV projects with Irish participation were awarded grant-aid in excess of €5.7 million (2007 Annual Report).

In 2008, a further 12 FP7 (grant-aid: €4.1 million) and 14 INTERREG-IV (grant-aid: €3.7 million) projects with Irish participation were approved for funding subject to final contract negotiation, are listed below.

Details of EU Research Funding opportunities are described on the Marine Institute Internal Funding Opportunities web-page: http://www.marine.ie/home/funding/InternationalFunding/.

A useful on-line directory of EU funded marine research projects can be found at the European Centre for Information on Marine Science and Technology EurOCEAN_Map website

(http://euroceanmrfp.addition.pt/).

EU FP7 Projects

HERMIONE: Hotspot Ecosystem Research and Man's Impact on European Seas.
National University of Ireland, Galway, University College Cork.

MESMA: Monitoring and Evaluation of Spatially Managed Areas.
University College Cork.

KNOWSEAS: Knowledge-based Sustainable Management for Europe's Seas.
University College Cork.

DeepFishMan: Management and Monitoring of Deep-Sea Fisheries and Stocks.
Marine Institute.

Prevent Escape: Assessing the causes and developing measures to prevent the escape of fish from sea-cage aquaculture.
Marine Institute.

MABFUEL: Marine Algae as Biomass for Biofuel.
Datihi O'Murchu Marine Station, Green Biofuels (Ireland) Ltd., Dundalk Institute of Technology

E-Freight: European e-Freight Capabilities for Co-Modal Transport.
Nautical Enterprise Centre (Cork), Chartered Institute of Logistics & Transport, Port of Cork.

My OCEAN: Development and pre-operational validation of up-graded GMES Marine Core Services and Capabilities.
Techworks Marine Ltd.

Euro-Argo: European contribution to the global; array of ARGO ocean profilers.
Marine Institute.

EMSO: European Multidisciplinary Seafloor Observation
Marine Institute.

EUROFLEETS: Towards an Alliance of European Research Fleets
Marine Institute.

SUDEVAB: Sustainable Development of European SMEs engaged in Abalone Aquaculture
Tower Aquaculture Products (Ireland), National University of Ireland (Galway).

INTERREG-IV Projects

Ireland – Wales Programme

ECOJEL: Managing the Opportunities and Detrimental Impacts of Jellyfish in the Irish Sea.
University College Cork

Atlantic Area Programme

BIOTECMAR: Biotechnological Exploitation of Marine Products and By-Products.
Datihi O'Murchu Marine Station, Irish Seaweed Centre (NUIG).

ATLANTOX: Advanced tests about new toxins in the Atlantic area.
Cork Institute of Technology.

MAREN: Marine Renewable Energy – Energy extraction and hydro-environmental aspects.
National University of Ireland, Galway.

EASYCO: Collaborative Atlantic Space Biogeochemical Forecasting System.
Marine Institute.

ARCOPOL: Atlantic Regions Coastal Pollution, Response and Preparedness.
Marine Institute.

ANCORIM: Recherche Atlantique pour la prevention de la gestation des risques littoraux.
Udaras na Gaeltachta, National University of Ireland, Galway, Mayo Country Council.

PROPOSE: Promotion del Short Sea Shipping y Cooperation con Pymes.
Port of Cork.

CRUISE ATLANTIC EUROPE:
Port of Cork.

NEA2: Nautisme Espace Atlantique II
Mid-West Regional Authority.

Northern Peripheral Area Programme

ECOFISH: Organic Fish Production through Sustainable and Environmental Friendly Fish Farming in Northern Areas.
National University of Ireland, Galway, Datihi O'Murchu Marine Station

Climate Change Impacts.
University College Cork .

MBEO: Marine Based Employment Opportunities.
Teagasc.

Ireland – Northern Ireland – Scotland Programme

BioMara: Blue Energy – Sustainable Fuels from Marine Biomass.
Institute of Technology, Dundalk, Institute of Technology, Sligo.

APPENDIX 3: MARINE INSTITUTE PUBLICATIONS

Special Reports

The Stock Book. Annual Review of Fish Stocks in 2008 with Management Advice for 2009
Marine Institute (2008) ISBN: 978-1-902895-38-3. 420pp. CD ROM.

2007 *Sea Change* Annual Progress Report
Marine Institute *Sea Change* Management Unit (2008).
ISBN 978-1-902895-39-0.

The 5th Annual Irish Maritime Transport Economist,
IMDO, April 2008

2008 Shipping Review Series
(All e-documents)
See (http://www.imdo.ie/shipping/shipping-reviews/index.htm)

IMDO Corporate Communications
Domestic and International Corporate E-brochures – Ebro and Ibro.

International Co-operation Publications

The European Marine Observation and Data Network: A Marine Board/ EuroGOOS Perspective
Berthou, P, de Bruin, T., Cattle, H., Coljin, F., Dosdat, A., **Gillooly, M.**, Johannessen, J., Markku, J., Manzella, G., **O'Sullivan, G.**, Pouliquen, S., Proctor, R., Ryder, P., Schaap, D. A Marine Board-ESF/EuroGOOS Special Publication (Vision Document) . September 2008. 10pp.

Thermohaline Circulation in European Seas and Oceans
O'Sullivan, G and McDonough, N. (2008). MarineERA Publication 4.

Anthropogenic and Climate Impacts on Marine Biodiversity
O'Sullivan, G and McDonough, N. (2008). *MarineERA Publication 5. and Ecosystem Function.*

Report of the Meeting between the EU FP6-funded Networks of Excellence (NoEs) and the MarinERA Marine Research Funding Organisations
O'Sullivan, G and McDonough, N. (2008). *MarineERA Publication 6.*

A View from the Top: From Observation to Information: Four Marine Challenges Identified
O'Sullivan. G., and Wood, J. (2008). *Research Europe* 29th May 2008 P.8.

The 2008 MarinERA Guide to European Marine Science & Technology Policies & Research Funding Programmes
O'Sullivan, G and McDonough, N. *MarineERA Brochure No. 3. 11pp.*

Irish Fisheries Bulletin Publications

ISSN: 1649-5055

National survey of the sea lice (*Lepeophtheirus salmonis* Krøyer and *Caligus elongatus* Nordmann) on fish farms in Ireland – 2007
O'Donohoe, P., Kane, F., Kelly, S., Nixon, P., Power, A., Naughton, O. and Jackson, D. *Irish Fisheries Bulletin No. 31, 2008.*

Irish Fisheries Investigations Series

ISSN: 0578 – 7467

An atlas of fishing and some related activities in Ireland's territorial sea and internal marine waters with observations concerning their spatial planning Fahy, E., Healy, E., Downes, S, **Alcorn, T.**, and **Nixon, E.** *Irish Fisheries Investigation Series No.19*, 2008.

The Japanese bluefin tuna longline fishery in the northeast Atlantic: Report of an Irish observer.
Boyd, J. *Irish Fisheries Investigation Series No.20, 2008.*

Marine Environment & Health Series

ISSN No: 1649-0053

No. 32
Irish Sea Marine Aggregate Initiative (IMAGIN) Policy Report: Issues and Recommendations for the Development and Regulation of Marine Aggregate Extraction in the Irish Sea
O'Mahony C.,Sutton G., **McMahon T., Ó'Cinnéide M., Nixon E.**

No. 33
Proceedings of the 8th Irish Shellfish Safety Scientific Workshop, Galway, 5th December 2007
Edited by: **McMahon T., Deegan B., Silke J., Ó'Cinnéide, M.**

No. 34
Pancreas Disease in Farmed Salmon – Health Management and Investigations at Irish Farm Sites 2005–2008
Ruane N., Graham D. and Rodger H.

No. 35
Pilot Water Quality Monitoring Station in Dublin Bay–North Bank Monitoring Station (NBMS): MATSIS Project Report Part 1
O'Donnell G., Joyce E., Silke J., O'Boyle S., McGovern E.

APPENDIX 4: PUBLICATIONS

Scientific Papers

Considerations on sampling strategies for an holistic approach to stock identification: The example of the HOMSIR project
Abaunza, P., Murta, A.G., Campbell, N., Cimmaruta, R., Comesaña, A.S., Dahle, D., Gallo, E., García Santamaría, M.T., Gordo, L.S., Iversen, S.A., MacKenzie, K., Magoulas, Mattiucci, S., A., **Molloy, J.**, Nascetti, G., Pinto., A.L., Quinta, R., Ramos, P., Ruggi, A., Sanjuan, A., Santos, A.T., Stransky, C., Zimmermann, C. (2008). *Fisheries Research* 89, 104-113.

Stock identity of horse mackerel *(Trachurus trachurus)* in the Northeast Atlantic and Mediterranean Sea: Integrating the results from different stock identification approaches
Abaunza, P., Murta, A.G., Campbell, N., Cimmaruta, R., Comesaña, A.S., Dahle, D., García Santamaría, M.T., Gordo, L.S., Iversen, S.A., MacKenzie, K., Magoulas, A., Mattiucci, S., **Molloy, J.**, Nascetti, G., Pinto., A.L., Quinta, R., Ramos, P., Sanjuan, A., Santos, A.T., Stransky, C., Zimmermann, C. (2008). *Fisheries Research* 89, 196-209.

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Standards and protocols: Best practice for habitat mapping – acquiring high quality data for better maps. Title: Recommended operating guidelines in marine habitat mapping
Fitzpatrick, F. Session 3: *MESH Project Final Conference: A Framework to Support Sustainable Management.* Dublin, Ireland, 14-15th March 2007

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Sea-floor and benthic ecosystems integrity
Furey, T. Invited presentation at the Habitats Working Group of the European Marine Strategy thematic session, 2012 *Marine Targets: marine strategy and the high seas issues*, Brest, France - 9-11th December 2008

Dinophysis acuta and its toxins at low depths in the Celtic sea
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Advances in the passive sampling approach for the detection of Lipophilicmarine biotoxins
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Argo: the challenge of continuing 10 years of progress
Roemmich, D., M. Belbeoch, P.J.V. Belchi, H. Freeland, W.J. Gould, F. Grant, M. Ignaszewski, B. King, B. Klein, K.A. Mork, W.B. Owens, S. Pouliquen1, M. Ravichandran, S. Riser, A. Sterl, T. Suga, M.-S. Suk, P. Sutton, V. Thierry, P.-Y. LeTraon, S. Wijffels, J. Xu. *GODAE Final Symposium*, Nice, November 2008.

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Ocean Acidification- A baseline study in Irish Waters
McGrath T, Cave R, White M, Kivimae C, O'Dowd C, Ward B, **McGovern E.** Oceans in a high CO_2 world, Monaco October 2008

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Development and evaluation of passive sampling and LC-MS based techniques for the detection and monitoring of lipophilic marine toxins in mesocosm and field studies
Elie Fux PhD. Thesis 2008 (submitted to Dublin Institute of Technology).

An integrated approach to the toxicity evaluation of Irish marine sediment – chemical assessment
Michelle Giltrap PhD. Thesis 2008 (submitted to Dublin Institute of Technology).

Studies on the development of reference materials for phycotoxins, with a focus on azaspiracids
Pearse McCarron PhD. Thesis 2008 (submitted to University College Dublin).

Preparative isolation and purification of Azaspiracids and related toxins from blue mussels and characterization of new toxin analogs
Nils Rehmann PhD. Thesis 2008 (submitted to University College Dublin).

Matrix effects, development of clean-up and LC-techniques contributing towards a reference LCMS method for the analysis of lipophilic marine toxins.

Mairead McElhinney M.Phil. Thesis 2008 (submitted to Dublin Institute of Technology).

Appendices

APPENDIX 5: CENSUS DATA FROM THE BURRISHOOLE SYSTEM, 2008

Burrishoole Fish Census 2008

Upstream census data for the Burrishoole system, 2008

(DATA FOR 2008 is PROVISIONAL)

Species	Salmon Leap Upstream 2008	Mill Race Upstream 2008	Totals Upstream 2008	Totals Upstream 2007	Totals Upstream 2006
Wild Grilse	492	59	551	981	360
Wild Spring Salmon	22	1	23	12	32
Reared Grilse	1426	324	1750	2040	685
Wild Sea Trout	10	1	11	12	6
Wild Finnock	21	3	24	61	24
Wild Brown Trout	44	28	72	91	49

Downstream census data for the Burrishoole system, 2008

Species	Salmon Leap Downstream 2008	Mill Race Downstream 2008	Totals Downstream 2008	Totals Downstream 2007	Totals Downstream 2006
Wild Salmon Smolt	2729	4180	6909	6685	7926
Wild Sea Trout Smolt	345	50	395	593	628
Silver Eel	1731	526	2257	2549	2158

APPENDIX 6: RESEARCH VESSEL PROGRAMME 2008

	Days at sea	No. of Surveys	Scientist Days	Student Days
RV Celtic Voyager	268	41	1500	454
*RV Celtic Explorer**	255	16	3458	440
Total	523	57	4958	994

* Reduced programme due to 5 year mandatory refit Jan – Feb 2008.

RV Celtic Voyager

Chief Scientist	Organisation	Description	Start Date	End Date
Alan Hopkins	Marine Institute	Commercial Site Survey	4th January	24th Jan
Dr. Evin McGovern	MEFS, Marine Institute	Annual Nutrients Survey	29th January	10th Feb
Dr. David McGrath/ Dr. Rachel Cave	NUI, Galway /GMIT	Student Training	12th Feb	13th Feb
Dr. Rachel Cave	NUIG, Galway	NUIG Student Training	16th Feb	21st Feb
Hans Gerritsen	FSS, Marine Institute	Annual Biological Survey	22nd Feb	2nd March
Dr. Mike Armstrong	CEFAS	CEFAS Survey	5th March	16th Mar
Steve Milligan	CEFAS	CEFAS Survey	24th March	4th April
Dr. Graham Savidge	QUB	QUB Student Training	5th April	5th April
Fergal McGrath	AMS, Marine Institute	Joint Irish Bathymetric Survey "JIBS"	10th April	9th May
Dr. Niall Ó Maoiléidigh	ACMS, Marine Institute	SALSEA Survey	10th May	14th May
Thomas Furey	AMS, Marine Institute	INFOMAR Bathymetric Survey	18th May	14th June
Sheena Fennell	OSS, Marine Institute	M4 Databuoy service	15th June	17th June
Dr. David McGrath	GMIT	Dave McGrath Training	20th June	20th June
Dr. Colm Lordan	FSS, Marine Institute	UWTV Survey Aran Grounds	24th June	1st July
Fabio Sacchetti	AMS, Marine Institute	Smart Bay Bathymetric Survey	4TH July	4th July
Dr. Colm Lordan	FSS, Marine Institute	Aran/Celtic Sea UWTV	8TH July	17th July
Sheena Fennell	OSS, Marine Institute	M4 Databuoy Service	19th July	21st July
Prof. Jim Wilson	TCD	TCD Student Training	26th July	27th July
Prof. Jim Wilson	TCD	TCD Student Training	24th July	25th July
Richard Keast	Marine Institute	Bathymetric surveys	29th July	9th August
Stephanie Long	Radiological Protection Institute of Ireland	Radiation survey	15th August	
Dr. Colm Lordan	FSS, Marine Institute	UWTV Survey Irish Sea	20th August	29th August
Emmett Clarkin	QUB	Bright Sparks Survey	4th Sept	8th Sept
Dr. David McGrath	GMIT	Dave McGrath Training	15th Sept	22nd Sept
Kevin Sheehan	AMS, Marine Institute	INFOMAR Bathymetric Survey	23rd Sept	8th Oct
Dr. Pauhla McGrane	Marine Institute	IME Training	10th Oct	10th Oct
Dr. Pauhla McGrane	Marine Institute	IME Training	11th Oct	12th Oct
Dr. Pauhla McGrane	Marine Institute	IME Training	13th Oct	14th Oct
Prof. Jim Wilson	TCD	TCD Student Training	17th Oct	18th Oct
Dr. Pauhla McGrane	Marine Institute	UCC/IME Training	20th Oct	21st Oct
Dr. Pauhla McGrane	Marine Institute	IME Training	24th Oct	25th Oct
Dr. Pauhla McGrane	Marine Institute	IME Training	26th Oct	27th Oct
Sheena Fennell	OSS, Marine Institute	M3 Databuoy Service	29th Oct	31st Oct
Dr. Pauhla McGrane	Marine Institute	IME Training	1st Nov	2nd Nov
Dr. David McGrath	GMIT	Dave McGrath Training	4th Nov	5th Nov
Sheena Fennell	OSS, Marine Institute	M3 Databuoy Service	8th Nov	10th Nov
Sheena Fennell	OSS, arine Institute	M3 Weather buoy recovery	13-Nov	15-Nov
Sheena Fennell	OSS, Marine Institute	M2 Weather Buoy Service	3-Dec	5-Dec
Dr. Rob McAllen/ Dr. Pauhla McGrane	Marine Institute I/UCC	UCC Training	12-Nov	12-Nov
Dr. Pauhla McGrane	Marine Institute	IME Training	17-Nov	18-Nov
Fergal McGrath	AMS ,Marine Institute	INFOMAR Bathymetric Survey	19-Nov	2-Dec

Appendices

RV CELTIC EXPLORER

Chief Scientist	Organisation	Description	Start Date	End Date
Derek Sheridan	Providence Resources	Hook/Dunmore Site survey	3rd March	30th March
Ciaran O'Donnell	FSS, Marine Institute	Blue Whiting Acoustic Survey	31st March	20th April
Prof. Steve Jones	TCD	Bathymetric Mapping	21st April	15th May
Dr. Niall Ó Maoiléidigh	ACMS, Marine Institute	SALSEA Survey	16th May	25th May
Dr. Martin White	NUI, Galway	Oceanographic survey	26th May	30th May
John Rothwell	Island Oil and Gas	Seismic Survey	31st May	14th June
Ciaran O'Donnell	FSS, Marine Institute	NW Herring Acoustic	19th June	8th July
Dr. Sarah Benetti	AMS, Marine Institute	Vibrocoring survey	9th July	16th July
Dr. Andy Wheeler	UCC	INSS Deep Drill Survey	11th August	8th September
Brendan O'Hea	FSS, Marine Institute	Deepwater Survey	9th Sept	22nd Sept
Dave Stokes	FSS, Marine Institute	IGFS Leg 1	23rd Sept	4th Oct
Ciaran O'Donnell	FSS, Marine Institute	Celtic Sea Herring Acoustic	5th Oct	25th Oct
Dave Stokes	FSS, Marine Institute	IGFS Legs 2 & 3	26th Oct	29th Nov
Roddy Cooke	NMCI	NMCI Student Training	1st Dec	5th Dec
Dr. Pauhla McGrane	Marine Institute	IMEP Science at Sea	9th Dec	10th Dec
Dr. Craig Brown	University of Ulster	Student Training	11th Dec	17th Dec

Highlights for the year 2008 included:

- 255 scientific days were completed onboard the RV *Celtic Explorer* from March to December.
- The vessels mandatory 5 year refit was completed by the end of February 2008. These works were carried out by A&P in Falmouth dockyard. These refit works saw several modifications, repairs and renewals of equipment and machinery on the vessel which will allow more efficient operations in future years, as well as keeping the vessel in top class condition.
- A very busy survey year was completed on the RV *Celtic Voyager* with a total of 268 scientific days completed.
- P&O Maritime services completed a third year of providing ship management, operation and maintenance services for the national research fleet during the period, and the R.V. Ops team have worked closely with the shore and seagoing teams in P&O Maritime Services to complete a very demanding programme of activity for both vessels.
- 2008 saw the completion of a very intensive fisheries programme which included: three acoustic survey programs, a deepwater fisheries survey as well as the annual groundfish survey. A new fibre optic underwater TV system was commissioned and installed on the RV *Celtic Voyager* which was utilised for the delivery of 28 days of UWTV surveys for Nephrops stock assessment.
- A very successful program of activity was completed under the INFOMAR program comprising a total of 58 days survey on the RV *Celtic Voyager* off the North West, South and East coasts. The RV *Celtic Voyager* also completed a 30 day survey off North Donegal as part of the Joint Irish Bathymetric project (JIBS) These surveys utilised the very successful EM3002 shallow water multibeam which is now a permanent fit on the RV *Celtic Voyager*. The RV *Celtic*

Explorer also completed a vibrocoring and piston coring survey in deeper waters off the West Coast.

- Two successful external charters were carried onboard the RV *Celtic Explorer* which provided valuable external contribution to the operational budget. A 26-day site geo hazard survey was carried out in the Celtic Sea which included the acquisition of analogue and high-resolution digital data, as well as grab sampling and video /stills data acquisition for an environmental baseline study. A very successful 12 day high-resolution seismic survey was also completed in the Celtic Sea on behalf of another client. R.V. Ops and P&OMS worked closely to deliver these turn-key survey solutions to two Irish companies. The RV *Celtic Voyager* completed a number of external charters including a rig site survey, a pipeline inspection, as well as two charters on behalf of CEFAS in the Irish Sea
- The RV *Celtic Explorer* completed a deepwater multi-beam and dredging survey on the mid-Atlantic ridge which was funded under the ship-time funding program. This survey was led by a researcher from TCD and involved the installation of a deepwater multi-beam on the vessel for the duration of the survey and the successful recovery of deepwater geological samples in up to 2500 metres water depth.
- The annual 'Bright Sparks' competition for 5 days ship-time on the RV *Celtic Voyager* was won by a group from QUB, UCC and NUI, Galway. The successful students completed a survey on the occurrence of algal rafts in offshore waters.
- Two "SALSEA" surveys were completed on the RV *Celtic Explorer* and RV *Celtic Voyager* which saw both vessels completing an innovative trawling survey for salmon smolts in Faroese, Scottish and Irish waters as part of the internationally co-ordinated "SALSEA" study on the movement of salmon at sea.
- The New Deepwater ROV system was successfully delivered on time and on budget, and was mobilised and integrated with the RV *Celtic Explorer* prior to planned offshore trials in early 2009.
- The University of Bremen's "MEBO" robotic drill rig was installed and operated once again from the RV *Celtic Explorer* for the INFOMAR deep drill survey which took place during August/September.
- Open days were held in Killybegs on the RV *Celtic Explorer* and the RV *Celtic Voyager*, and on the RV *Celtic Explorer* in Dublin. These opportunities provided an excellent opportunity to showcase the activities of the vessels to members of the fishing community, other state bodies, secondary level schools and the general public.
- The Integrated Marine Exploration Programme (IMEP) field-team provided over 300 days of ship-based support for eight integrated research surveys (including Bathymetric Survey Of the Mid-Atlantic Ridge, Annual Nutrients, CEFAS, Deepwater, Groundfish and SALSEA) and eleven dedicated training surveys (institutes include TCD, UCC, CMRC, NMCI, NUIG, GMIT, UL, UU, QUB).
- The IMEP's two-day Science@Sea ship-based training programmes delivered to 60 final year undergraduate and postgraduate students onboard the RV *Celtic Voyager*, with advanced training on the RV *Celtic Explorer*. Science@Sea is recognised by the Institute of Marine Engineering, Science and Technology (IMarEST) as contributing towards the continuous professional development of marine scientists.
- Four half-day Discover Science@Sea training courses provided for 96 transition year students demonstrating career opportunities available in marine science to future generations of marine scientists.
- The Training through Research Surveys Scheme, which utilises the national research vessels to their full capacity by matching spare berths on existing surveys to third-level marine science students, provided 52 student training days on surveys of international importance.
- Provision of funding for Personal Sea-survival Techniques (PST STCW 95) certification for over one hundred undergraduate and postgraduate students participating in Science@Sea or engaged in other research and training surveys.
- The IMEP continued to participate in the ESONET NoE (European Seas Observatory Network – Network of Excellence) project and organized a WP5 (Implementation Strategies) workshop in March 2008 for European partners from ten participating institutes.
- The EMSO project (European Multidisciplinary Seafloor Observatory) kicked off in April 2008 and the IMEP are work package leaders for business planning and legal work. Both ESONET and EMSO are concerned with the development of cabled seafloor observatories at twelve sites on the European margin.
- 2008 also saw the first deployment of four Argo floats in Irish waters. Twelve floats were procured through an ERDF grant (European Regional Development Fund). Four of these were deployed in the Rockall Trough in spring 2008 from the RV *Thalassa* and data is successfully being transmitted via satellite to Data Management Centres around the world. IMEP are also supporting the Euro Argo Preparatory Phase with NDP funding under *Sea Change* and part funding from the ERDF, the aim of which is to secure long term funding for the global Argo array.
- Stakeholders from third level institutes attended two IMEP meetings hosted in Dublin and Limerick in July 2008 to advance a strategic approach to deep sea research in Ireland.

Appendices

APPENDIX 7: FOREIGN MARINE SCIENTIFIC RESEARCH (FMSR) ACTIVITIES IN IRISH WATERS IN 2008

Scientist Days Ireland	Scientist Days Foreign
4647	7735

Foreign Vessel Activity YTD:

Scientist Days Ireland	Scientist Days Foreign
4958	7232

Country	Vessel Name	Days	No. Scientists	Scientist Days
Britain	Cefas Endeavour	14	10	140
Britain	Cefas Endeavour	15	14	210
Britain	Benaiah IV	15	2	30
Britain	Cefas Endeavour	10	14	140
Britain	FRV Scotia	22	12	264
Britain	Cefas Endeavour	14	18	252
Russia	Fridtjof Nansen	32	15	480
Netherlands	Tridens	19	6	114
Britain	RRS Discovery	19	28	532
Britain	FRV Scotia	14	7	98
United States	RV Knorr	19	34	646
Britain	Cefas Endeavour	15	8	120
Norway	MV Rottingoy	32	3	96
Belgium	BNS Belgica	16	15	240
Britain	RV Madog	6	10	60
Netherlands	RV Pelagia	37	15	555
Britain	RRS James Cook	22	32	704
Britain	MFV Alison Kay	18	4	72
Britain	RRS Discovery	37	28	1036
Britain	FRV Scotia	19	12	228
Spain	Vizconde de Eza	27	13	351
Britain	Corystes	20	7	140
France	Thalassa	17	20	340
Britain	Cefas Endeavour	32	12	384
Britain	FRV Scotia	22	12	264
TOTAL		545	351	7232

APPENDIX 8: CONFERENCES, EVENT AND WORKSHOP SPONSORSHIP IN 2008

Month	Event	Dates
March	WGHABD (ICES/IOC Working Group on Harmful Algal Bloom Dynamics) Annual Meeting, Galway	10–13 March 08
May	European Maritime Heritage Day, Killybegs	16th May
June	11th International Conference Applied Phycology and 3rd Congress of the International Society for Applied Phycology (ISAP) "Applied Phycology in the 21st Century: Novel opportunities in a changing world" at NUI Galway	12th – 27th June
July	Presentation on Irish expertise in Seabed Mapping to EU Member States Expert Group on Maritime Policy, Brussels	17th June
August	International Agricultural Biotechnology Conference (ABIC) 2008 at University College, Cork	24th – 27th August
September	"Muc Mhara – Ireland's Smallest Whale". Seminar by Irish Whale & Dolphin Group	19th–21st September
October	11th Annual Conference of the Association of Irish Regions Ireland's Water: an Untapped Resource, Inchydoney. Connemara Sea Week, Letterfrack, Co. Galway EU French Presidency BioMarine Forum, Toulon/Marseille	17th October 20th – 26th October 20th – 24th October 20th – 24th October
November	2nd Irish Earth Observation Symposium, arranged by University College, Cork at the National Maritime College at Ringaskiddy, Cork.	6th & 7th Nov
	International Conference on Shellfish Restoration, Charleston, SC, USA (partial sponsorship)	19th – 22nd Nov

Other events / Workshops

EU FP6 MarinERA Workshops organized by the Marine Institute (Ireland) in association with local hosts:

Baltic Sea Workshop	Tallinn, Estonia	15 – 16th April 2008.
Atlantic Workshop	Oslo, Norway	27 – 28th May 2008.
Mediterranean/Black Sea Workshop	Athens, Greece	4 – 5th June 2008.

The **Marine Institute European Desk** organized a formal training day on European Marine Research Funding Opportunities on 29th April (Galway) and made presentations on EU Marine Research Funding Opportunities to researchers at: UCC (23 January); NUIG (13 February); UCD (7 March), TCD (3 April); DIT (1 May); GMIT (13 May). Presentations were also made at the Teagasc Functional Foods Seminar (7 April), the National FP7 Information Day (22 September) and the 1st Irish Biodiscovery Researchers' Workshop (11 December.

Appendices

APPENDIX 9: NATIONAL AND INTERNATIONAL SCIENTIFIC WORKING GROUPS AND ADVISORY BODIES CHAIRED BY MARINE INSTITUTE STAFF

International Bodies

International Council for the Exploration of the Seas (ICES)

Working Group (jointly hosted by Intergovernmental Oceanographic Commission) on Harmful Algae Bloom Dynamics (WGHABD)	Joe Silke	Chair
RG DEEP Review Group for WGDEEP, WGDEC and WGEF	Ciaran Kelly	Chair
Marine Chemistry Working Group	Evin McGovern	Chair
Working Group on the assessment of Southern Shelf Demersal Stocks (WGSSDS)	Colm Lordan	Chair
Planning Group for Northeastern Atlantic Continental Slope Surveys (PGNEACS)	Leonie Dransfeld	Chair
Joint EIFAC/ICES Working Group on Eel	Russell Poole	Chair
Working Group on Environmental Interactions of Mariculture (WGEIM)	Francis O'Beirn	Chair
Annual Science Conference Theme Session N – Problems and solutions for the assessment, conservation and restoration of rare, threatened and endangered fish species.	Niall O'Maoiléidigh, Jonathan White	Convenor and participant
Working Group on Marine Chemistry (MCWG)	Evin McGovern	Chair
Study Group on Effort Metrics	Norman Graham	Co-Chair
ICES Workshop on Use of Underwater TV Survey	Colm Lordan	Chair
Management Committee on the Advisory process (MCAP)	Paul Connolly	Chair
ICES Working Group on Ocean Hydrography	Glenn Nolan	Chair

The Marine Institute also provides expert staff as members of the following ICES committees and working groups:

- ICES Council – Paul Connolly and Eugene Nixon (National Delegates)
- Advisory Committee (ACOM)
- Mariculture Committee
- Marine Habitats Committee (MHC)
- Resource Management Committee (RMC)
- Living Resources Committee (LRC)
- Marine Chemistry Working Group (MCWG)
- Working Group on Marine Shellfish Culture
- Working Group on Marine Sediments
- North Atlantic Salmon Working Group (WGNAS)
- ICES/EIFAC Working Group on Eel
- Working group on Oceanic Hydrography
- Workshop on Salmon historical information – new investigations from old tagging data (WKSHINI)
- ICES Working Group on Integrated Coastal Zone (WGICZM)
- Workshop and training course on *Nephrops* burrow identification (WKNEPHBID)
- Study Group on Management of Integrated Data
- Iberian-Biscay-Irish Regional Ocean Observing System Technical Task Team.
- Working Group on Application of Genetics to Fisheries Management and Mariculture
- Working Group on Widely Distributed Stocks (WGWIDE)
- Working Group on Southern Shelf Demersal Seas (WGSSDS)
- Working Group on Northern Shelf Demersal Seas (WGNSDS)
- Working Group on Hake, Monk and Megrim Stocks (WGHMM)
- Working Group for the Assessment of Deepwater Fisheries (WGDEEP)
- Working Group on Elasmobranch Fishes (WGEF)
- Working Group on Deepwater Ecology (WGDEC)
- Working Group of Ecosystems (WGECO)
- ICES Advise Drafting Group on Climate (ADGCLIM)
- Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS)
- Herring Assessment Working Group for the Area South of 62°N (HAWG)
- Advice Drafting Group on Elasmobranchs, deepwater fish and deep water ecosystems (ADGDEEP)
- Advice Drafting Group for North Sea Stocks (ADGNS)
- Advice Drafting Group for Widely Distributed Stocks
- Study Group on Effort Metrics (SGEM)
- Planning group for northeast Atlantic continental slope surveys (PGNEACS)
- ICES Ad Hoc EG on developing options for a mackerel management plan
- Planning group on herring surveys PGHERS
- Planning group on north Atlantic pelagic ecosystem surveys (PGNAPES)
- The Workshop on methods to evaluate and estimate the accuracy of fisheries data used for assessment (WKACCU)
- Planning Group on Commercial Catch, Discards and Biological Sampling (PGCCDBS)
- Workshop on Concurrent Sampling Working Group on the Biology and Life History of Crab (WGCRAB)
- Workshop on using fishers to sample catch

- International Bottom Trawl Survey WG (IBTSWG)
- Advice Drafting Group for Celtic Sea (ADGCS)
- Review Group and Advice Drafting Group on *Pandalus* stocks (RGPAND)
- Study Group on Management Strategies (SGMAS)
- Methods Working Group (WGMG)
- Workshop on methods to evaluate and estimate the accuracy of fisheries data used for assessment (WKACCU)
- Workshop on Maturity Ogive Estimation for Stock Assessments (WKMOG)
- Study Group on Climate Change
- Working Group on Harmful Algal Bloom Dynamics
- Working Group Marine Habitat Mapping
- Working Group on Implementing Legislation pursuant to Council Directive 2006/88/EC on Aquatic Animal Health
- Working Group on the Pathology of Marine organisms (WGPMO)

EuroGOOS

Board of Directors	Glenn Nolan	Board Member and National Representative

The Marine Institute also provides experts as members of:

Steering group for the North West shelf Ocean Observing System (NOOS)

Steering group for the Iberia Biscay Ireland regional OOS (IBI-ROOS).

European Inland Fisheries Advisory Commission (EIFAC)

25th Session Turkey	Russell Poole	National Delegation Leader and National Correspondent

EIFAC is a Commission of FAO responsible for the provision of advice on inland waters and fisheries.

The Marine Institute also provides expert staff as part of the Irish Delegation to EIFAC

European Scientific and Working Groups

The Marine Institute provides experts as members of the following groups:

European Committee for Standardisation (CEN), Technical Committee 275, Working Group 5)

	Philipp Hess (until September)	Also representing National Standards Authority of Ireland

European Committee for Standardisation (CEN); Technical Committee 275 (Food analysis, horizontal methods); Working Group 6 (Microbial contamination); Technical advisory group 4 – Detection of viruses in food

	Sinead Keaveney	Also representing National Standards Authority of Ireland

European food Safety Authority (EFSA): Contam Panel, Marine Biotoxin Working Group

	Philipp Hess (until September)	Drafting of 8 opinions 2006 – 2008

EU Marine Strategy

(EMMA) Working Group (European Marine Monitoring and Assessment)

	Evin McGovern	Chair

AMPERA (Accidental marine pollution) EU Co-ordination Action project

	Evin McGovern	Executive Board Member

EU 7th Framework Programme Environment – including Climate Change – Programme Committee

	Geoffrey O'Sullivan	National Expert

EU 7th Framework Programme Collaborative Working Group: Marine Biotechnology

	Dermot Hurst	Member

EU-Mauritania Joint Scientific Committee (JSC)

	Ciaran Kelly	Member

The Scientific, Technical and Economic Committee for Fisheries (STECF)

	Norman Graham	Member (also Chair of Sub-Group on Reduction of Discarding Practices)
	Sarah Davie	Expert (SGRST)
	Helen McCormick	Expert (SGRN)
	Gráinne Ni Chonchuir	Expert (SGRN)
	Ross Fitzgerald	Expert (SCMOS)
	Afra Egan	Expert (SGRST)

EU Fish Health Council Working Group

	Fiona Geoghegan	National Representative

Member State Expert Group on Maritime Policy

	Eugene Nixon	National Expert

European Research Vessel Operators (ERVO)

	John Breslin	Chairman

EU MarinERA Project Co-ordination of National and Regional Marine Research Activities in Europe (2004-2008)

Technical Committee	Geoffrey O'Sullivan	Committee Member Work Package Leader

Appendices

INTERREG–IIIA (Ireland / Wales) Programme

Programme Committee	Geoffrey O'Sullivan	Committee Member

Marine Board – European Science Foundation (Oostende)

Marine Board	Geoffrey O'Sullivan	Vice–Chair
Marine Science Communications Panel	John Joyce	Chair
Working Group on Marine Pollution	Margot Cronin	Member

European Centre for Information on Marine Science and Technology (Lisbon)

	Geoffrey O'Sullivan	Board Member

EU FP7 Environment Programme Committee (Brussels)

	Geoffrey O'Sullivan	National Expert

EPOCA European Project on Ocean Acidification

	Evin McGovern	Member of Reference User Group

The Marine Institute also provides expert members of staff to serve on the EU Technical Group on Implementing Rules for Alien Species in Aquaculture (for DG Fish)

Community Reference Laboratory Network (CRL) / NRL

Marine Biotoxins	Terry McMahon Conor Duffy (from September) Philip Hess (to September)	Representatives of the Marine Institute in its role as EU National Reference Laboratory on Marine Biotoxins
Bacteria and Viruses in Shellfish	Bill Dore Sinead Keavney	Representatives of the Marine Institute in its role as EU National Reference Laboratory on monitoring Bacteria and Viruses in Shellfish
Diseases of fish and Shellfish	Fiona Geoghegan Deborah Cheslett Neil Ruane	Representatives of the Marine Institute in its Role as National Reference Laboratory for Fish & Mollusc Diseases.

North Atlantic Salmon Conservation Organisation (NASCO)

NASCO	Ken Whelan	President to June 2008
NASCO	Ken Whelan	Chairman International Atlantic Salmon Research Board

North East Atlantic Fisheries Commission (NEAFC)

Coastal States and Russia Blue Whiting Quota Negotiations	Maurice Clarke	National Expert
Coastal States and Russia Blue Whiting Management Plan WG	Afra Egan	National Expert
Coastal states meeting on Mackerel	Ciaran Kelly	EU scientist, advisor to Irish Delegation

International Commission for the Conservation of Atlantic Tunas (ICCAT)

ICCAT Standing Committee for Research and Statistics	Ryan Saunders	National Representative

OSPAR Commission for the Protection of the Marine Environment of the North–East Atlantic and London Convention on Dumping at Sea

Assessment & Monitoring (ASMO) Working Group	Evin McGovern	Irish Head of Delegation
Management Group for QSR2010 (MAQ)	Evin McGovern	Irish Head of Delegation
Substances in the Marine Environment (SIME) Working Group	Evin McGovern	Irish Head of Delegation
Environmental Impacts of Human Activities (EIHA) Committee	Eugene Nixon	Irish Head of Delegation

The Marine Institute also provides expert staff as members of the Biodiversity Committee

Offshore Industry Committee	Margot Cronin	Delegate
Monitoring Working Group (MON)	Brendan McHugh	Irish Head of Delegation
London Convention on Dumping at Sea Scientific Group	Margot Cronin	National Representative/ Delegate

European Scientific and Working Groups

Conservatoire National du Saumon Sauvage	Ken Whelan	Co-Chairman
European Research Vessel Operators (ERVO) Group	John Breslin	Chair
GRISAM workshop on Eel Management Plans, Rennes	Russell Poole/ Cedric Briand	Co-Chairs
Working Group on Implementing Legislation pursuant to Council Directive 2006/88/EC on Aquatic Animal Health	Fiona Geoghegan	Working Group Member

Marine Institute staff were invited experts contributing to various marine fisheries Regional Advisory Committees (RACs) initiatives and meetings in 2008.

Coastal states meetings

Coastal states meetings on Pelagic fish	Maurice Clarke Ciaran Kelly	Invited as Irish scientific experts

Regional Advisory Committees (RACs)

North Western Waters RAC	Symposium of the Cod Recovery Programmes	Paul Connolly Norman Graham Ciaran Kelly
North Western Waters RAC	MSY Meeting	Colm Lordan Sarah Davie
Pelagic RAC	Draft Management Plan for Western Horse Mackerel	Andrew Campbell Ciaran Kelly Maurice Clarke
North Western Waters RAC	Gill net sub-group	Norman Graham
North Western Waters RAC	Irish Sea sub-group	Norman Graham
North Western Waters RAC	West of Scotland sub-group	Norman Graham
North Western Waters RAC	Cod avoidance plans sub-group	Norman Graham

National Bodies

Department of Agriculture, Fisheries & Food

Department of Communications, Energy & Natural Resources

Marine Licence Vetting Committee	Terry McMahon Francis O'Beirn Margot Cronin	Chair Member Member
Natura 2000 DAFF/DEHLG technical working group	Terry McMahon Francis O'Beirn Oliver Tully Leonie Dransfeld	Chair Member Member Member
Standing Scientific Sub-Committee of the Department of Communications, Energy and Natural Resources (formerly of the National Salmon Commission)	Niall O'Maoileidigh, Jonathan White, Elvira De Eyto	Chair and participants
Irish Science Industry Partnership (for the fishing industry)	Peter Heffernan Norman Graham Paul Connelly	Chairman Member Member
Cod Management Advisory Group	David Jackson	Chair
National Eel Working Group	Russell Poole, Jonathan White	Participants
National Eel Scientific Committee	Russell Poole	Chair

Food Safety Authority of Ireland

The Marine Institute provides expert staff to serve on:

- Scientific Committee
- FAC Subcommittee
- Biotoxin Working Group
- Molluscan Shellfish Safety Committee
- Food Safety Promotion Board Research Network on Natural Toxins and Anti-Nutritional Compounds

***Sea Change* Advisory Groups**

Biodiscovery Advisory Group	Eoin Sweeney	Chair
Marine Food Advisory Group	Dermot Hurst	Chair

Appendices

Other Bodies

The Marine Institute also provides expert members of staff to serve on:

- Sea Food Liaison Group (SFLG)
- Technical Advisory Group to the Irish Quality Salmon Scheme
- Sea Lice Working Group
- Shellfish Waters Management Committee
- ICZM Steering Committee
- AquaReg Steering Committee
- DAFF Implementation Group for national Pest Management Strategy
- International Council for Offshore Aquaculture Development
- Irish Offshore Oil and Gas Strategic Environmental Assessment (SEA) Steering Group

National Salmon Commission

Standing Scientific Committee	Niall O'Maoileidigh	Chairman

Scientific Journals

Marine Institute staff also serve as reviewers on the following scientific journals:

- Analytical and Bioanalytical Chemistry
- Aquaculture – Proceedings of the 7th International Workshop on Smoltification,
  Tono, Japan, 2005.
- Aquatic Living Resources
- Biology and Environment: Proceedings of the Royal Irish Academy
- Canadian Journal of Fish Biology
- Chemical Research in Toxicology
- Conservation Biology
- Ecology
- Fisheries Research
- Fisheries Management and Ecology
- ICES Journal of Marine Science
- Journal of Agricultural and Food Chemistry
- Journal of the Association of Official Analytical Chemists International
- Journal of Chromatography
- Journal of Fish Biology
- Journal of Mass Spectrometry
- Journal of Theoretical Biology
- Journal of Shellfish Research
- Journal of Sea Research
- Journal of Experimental Marine Biology and Ecology
- Oecologia
- Toxicon

Marine Institute expert staff also serve on the following national and international groups:

- International Atlantic Salmon Research Board
- Various national Water Framework Directive committees and working groups
- Cross agency residue management group
- European Food Safety Authority (EFSA) working group on Marine Biotoxins (Contam Panel)
- Celtic Sea Herring Management Advisory Committee
- National Salmon Commission, Standing Scientific Committee
- Loughs Agency (Cross Border)
- Western Region Tourism Development Board
- Irish Tourism Industry Confederation – Executive Council
- Marine Leisure Infrastructure Strategy for the Western Division of Cork County Council
- Failte Ireland – Inland Cruising Strategic Review Committee
- Failte Ireland – Angling Marketing Coordination Committee
- Forest and Water Steering Group – Western River Basin District
- International Ship Operators Meeting (ISOM)
- ICMSS International Committee on Molluscan Shellfish Safety
- National Maritime College Advisory Board.
- Ports Capacity Steering Group.
- Waterborne Technology Platform
- Transport Research Committee
- North Atlantic Task Force
- European Shortsea Network
- Marco Polo Evaluation Committee
- Trade Facilitation Ireland
- Manpower Committee
- National Academy of Sciences: Committee on Best Practices for Shellfish Mariculture and the Effects of Commercial Activities in Drake's Estero, Pt. Reyes National Seashore, California

Glossary of Abbreviations

AC	Alternating Current
ACFM	Advisory Committee on Fisheries Management
ACMS	Aquaculture and Catchment Management Services (of the Marine Institute)
ALO	Aquaculture Liaison Officer
AQUAREG	Promotion of interregional co-operation in aquaculture
ARC	Aquaculture Research Committee
ARGO float	Temperature/salinity profiling floats
ASP	Amnesic shellfish poisoning
AZP	Azaspracid poisoning
AZIPILOT	An FP7 project on the development and pre-operational validation of upgraded GMES Marine Core Services and Capabilities
BGS	British Geological Services
BIM	Bord Iascaigh Mhara (the Irish Sea Fisheries Board)
BIOTOX	Project on validation of alternative methods for marine biotoxins
BMW	Border, Midlands & Western Region
CEFAS	Centre for Environment, Fisheries and Aquaculture (UK)
CEH	Centre for Ecology and Hydrology
CETMAR	Centro Tecnológico del Mar, Vigo, Spain
CEO	Chief Executive Officer
CFP	Common Fisheries Policy
CMA	Connecticut MaritimeAssociation
CMRC	Coastal & Marine Resources Centre, Cork
CORALFISH	Interactions between fisheries and the management of deep sea corals
CORES	FP7 Project on Components for Renewable Energy System
CZM	Coastal Zone Management
CTD	Conductivity, Temperature and Depth
DAFF DAF –	Department of Agriculture, Fisheries and Food (Formerly Department of Agriculture and Forestry)
DARDNI	Department of Agriculture and Rural Development, Northern Ireland
DAS	Data Acquisition System
DCMNR	Department of Communications Marine and Natural Resources
DCU	Dublin City University
DEHLG	Department of the Environment, Health and Local Government
DG SANCO	European Commission Health and Cosumer Protection Directorate
DIT	Dublin Institute of Technology
DOME	Database on Oceanography and Marine Ecosystems. A ICES database that the Marine Institute (via MEFS) are required to make returns to periodically, and has been made a requirement under OSPAR.
DSP	Diarrhetic Shellfish Poisoning
DTX-2	Dinophysistoxin -2
EAF	Ecosystem Approach to Fisheries Management
EC	European Commission
EEC	European Economic Community
EELIAD	European Atlantic Eels and an Assessment of their Decline
EEZ	European Economic Zone
EFIMAS	Operational Evaluation Tools for Fisheries Management Options
EIFAC	European Inland Fisheries Advisory Commission
EPA	Environmental Protection Agency
ePMDS	Electronic Performance Management Development System
EQUIMAR	FP7 Project on Pre-normative Research for Ocean Energy
ERA	European Research Area
ERDF	European Regional Development Fund
ESF	European Science Foundation
ESF-MB	European Science Foundation – Marine Board
ESONET	European Seafloor Observatory Network
ESONIM	Seafloor Observatory project managed by the Marine Institute
EU	European Union
EurOcean	A European Centre for Information on Marine Science and Technology
FAS	Foras Aiseanna Saothair (Training and Employment Authority)
FATS	Fisheries Assessment Technicians
FHU	Fish Health Unit
FIRM	Food Industry Research Measure
FP6	Sixth Framework Programme
FP7	Seventh Framework Programme
FRS	Fisheries Research Service Scotland
FSAI	Food Safety Authority of Ireland
FSS	Fisheries Science Services
GIS	Geographic Information System
GDP	Gross Domestic Product
GMIT	Galway Mayo Institute of Technology
GSI	Geological Survey of Ireland
HABS	Harmful Algal Blooms Service
HEA	Higher Education Authority
HMRC	Hydraulics and Maritime Research Centre
HR	Human Resources
ICES	International Council for the Exploration of the Seas
ICT	Information Communications Technology
ICZM	Integrated Coastal Zone Management
IDA	Industrial Development Authority
IFA	Irish Farmers Association

Glossary of Abbreviations

IFREMER	Institut français de recherché pour l'exploration de la mer (French Research Institute for the Exploration of the Sea)
IFSHAC	Irish Fish and Shellfish Advisory Committee
IHO	International Health Organisation
ILAB	Irish Accreditation of Laboratories
IMAGIN	Irish Sea Marine Aggregates Initiative
IMCORE	Innovative Management For Europe's Changing Coastal Resource
IMDO	Irish Maritime Development Office
IMEP	Integrated Marine Exploration Programme
INAB	Irish National Accreditation Board
INTERREG	EU Inter-Regional Co-operation Programme
IPNV	Infectious Pancreatic Necrosis Virus
IRCSET	Irish Research Council for Science, Engineering and Technology
ISA	Infectious Salmon Anaemia
ISAV	Infectious salmon anaemia virus
IS&D	Information Services and Development
ISDE	Irish Spatial Data Exchange
ISEAS	Irish Seafarers Educational Assistance Scheme
ISPG	Irish Seafood Producers Group
IT	Information Technology
JIBS	Joint Irish Bathymetric Survey
JNCC	Joint Nature Conservation Committee
LC/MS	Liquid Chromatography – Mass Spectrometry
LiDAR	A method of surveying shallow water using airborne laser beams
MARIFISH	An ERA-NET FP6 project to strengthen the links between fisheries science and fisheries management
MarinERA	Project funded by the ERA-Net scheme of the EU FP6 (2004-2008)
MARLAB	Fisheries Research Services Marine Laboratory
MATIS	Methods of Assessment of Trophic status in the Irish Sea
MBP	Marine Biodiscovery Programme
MCA	Maritime and Coastguard Agency
MEFEPO	Making the European Fisheries Ecosystem Plan Operational
MEFS	Marine Environment and Food Safety Services (of the Marine Institute)
MESH	Mapping European Seabed Habitats
MHC	Major Histocompatibility Complex
MI	Marine Institute
MIDTAL	Microarrays for the detection of toxic algae
MOU	Memorandum of Understanding
MSR	Marine Scientific Research
MSY	Maximum Sustainable Yield
MTDS	Marine Technical and Development Services
NAB	National Accreditation Board
NASCO	North Atlantic Salmon Conservation Organisation
NDP	National Development Programme
NEAFC	North East Atlantic Fisheries Commission
NMCI	National Maritime College of Ireland, Cork
NOAA	National Oceanic and Atmospheric Administration
NPWS	National Parks and Wildlife Service
NSC	National Salmon Commission
NUIC	National University of Ireland, Cork
NUIG	National University of Ireland, Galway
NUIM	National University of Ireland, Maynooth
NUJ	National Union of Journalists
NZ	New Zealand
OIE	Office International des Epizooties (World Organisation for Animal Health)

OOW	Officer of the Watch
OSPAR	Oslo and Paris Convention (1992)
OSS	Ocean Science Services (of the Marine Institute)
OST	Office of Science and Technology
PAD	Petroleum Affairs Division
PCB	Polychlorinated biphenyls
PCR	Polymerase Chain Reaction
PHYTOTEST	Project to develop gene probes for harmful phytoplankton species
PMDS	Performance Management Development Systems
PROPS	FP7 Project to develop gene probes for harmful phytoplankton species
PSP	Paralytic Shellfish Poisoning
PST	Personal Survival Training
QUASIMEME	Quality Assurance of Information for Marine Environmental Monitoring in Europe
QUB	Queen's University of Belfast
R&D	Research and Development
RAC	Regional Advisory Council
RASATA	Rapid Azapriacid Shellfish Toxin Analysis
RDS	Royal Dublin Society
ROV	Remotely Operated Vehicle
RPII	Radiological Protection Institute of Ireland
RTD	Research, Technology and Development
RTDI	Research, Technology, Development and Innovation
RTÉ	Radio Telifis Éireann
RV	Research Vessel
SALSEA	International Salmon At Sea research programme
SCOFCAH	Standing Committee on the Food Chain and Animal Health
SCMU	Sea Change Management Unit
SDMS	Ships Data Management System
SFI	Science Foundation Ireland
SINTEF	Stiftelsen For INdustriell og TEknisk Forskning – Norwegian research organisation
SIP	Science–Industry Partnership
SKEMA	An FP7 Project to create a Sustainable Platform for the European Maritime and Logistics Industry
SMEs	Small to Medium Sized Enterprises
SMS	Short Message Service
SPDS	Strategic Planning and Development Services
STECF	Scientific, Technical and Economic Committee on Fisheries
STCW	
SSTI	Strategy for Science Technology and Innovation
TAC	Total Allowable Catch
TCD	Trinity College Dublin
UCC	University College Cork
UCD	University College Dublin
UETP	University Enterprise Training Partnership
UK	United Kingdom
UL	University of Limerick
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNICPOLOS	United Nations Informal Consultative Process on the Oceans and the Law of the Sea
US	United States
USA	United States of America
UU	University of Ulster

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 this year ended 31 December 2008 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.

Respective Responsibilities of the of the Institute and the Comptroller and Auditor General

The Institute is responsible for preparing the financial statements in accordance with the Marine Institute Act 1991, and for ensuring the regularity of transactions. The Institute prepares the financial statements in accordance with Generally Accepted Accounting Practice in Ireland. The accounting responsibilities of the Members of the Board are set out in the Statement of Responsibilities of the Board.

My responsibility is to audit the financial statements in accordance with relevant legal and regulatory requirements and International Standards on Auditing (UK and Ireland).

I report my opinion as to whether the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland. I also report whether in my opinion proper books of account have been kept. In addition, I state whether the financial statements are in agreement with the books of account.

I report any material assistance where moneys have not been applied for the purposes intended or where the transactions do not conform to the authorities governing them.

I also report if I have not obtained all the information and explanations necessary for the purposes of my audit.

I review whether the Statement on Internal Financial Control reflects the Institute's compliance with the Code of Practice for the Governance of State Bodies and report any material instance where it does not do so, or if the statement is misleading or inconsistent with other information of which I am aware from my audit of the financial statements. I am not required to consider whether the Statement on Internal Financial Control covers all financial risks and controls, or to form an opinion of the effectiveness of the risk and control procedures.

I read other information contained in the Annual Report, and consider whether it is consistent with the audited financial statements. I consider the implications for my report if become aware of any apparent misstatements or material inconsistencies with the financial statements.

Basis of the Audit Opinion

In the exercise of my function as Comptroller and Auditor General, I conducted my audit of the financial statements in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board and by reference to the special considerations which attach to State bodies in relation to their management and operation. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures and regularity of the financial transactions included in the financial statements. It also includes examination, on a test basis, of evidence relevant to the amounts and disclosures and regularity of the financial transactions included in the financial statements. It also includes an assessment of the significant estimates and judgements made in the preparation of the financial statements, and of whether the accounting policies are appropriate to the Institute's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations that I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming my opinion I also evaluated the overall adequacy of the presentation of the information in the financial statements.

Opinion

In my opinion, the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland, of the state of the Institute's affairs at 31st December 2008 and of its income and expenditure for the year then ended.

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

John Buckley
Comptroller and Auditor General

5th November 2009

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.

Jim Fennell, Chairman
27th October 2009

Board Member
27th October 2009

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 2008 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 2008 was endorsed by the Audit Committee and approved by the Board. The Audit Committee has received the report of internal audit activity in 2008, 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 2008.

On behalf of the Board:

Jim Fennell, Chairman
27th October 2009

Accounting Policies

Year ended 31 December 2008

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. 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%
Fixtures & Fittings	25%
Computers	33%
Research Vessel	4%
Research Vessel Equipment	25%
Research Vessel Refit	20%
Motor Vehicles	20%
Land is not depreciated	

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

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

6. 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.

7. 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.

8. 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, Fisheries and Food.

   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, Fisheries and Food. 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, Fisheries and Food.

   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, Fisheries and Food.

Income and Expenditure Account

Year ended 31 December 2008

	Note	2008 €'000	2008 €'000	2007 €'000	2007 €'000
Income					
Oireachtas Grants	2		32,113		31,927
Other Income	3		10,836		7,069
Net Deferred Funding For Pensions	16		2,679		2,537
			45,628		41,533
Transfer (to)/from Capital Account	11		(2,471)		1,084
			43,157		42,617
Expenditure					
Corporate Services	4	5,981		5,702	
Strategic Planning and Development Services	5	2,752		2,941	
Marine Environment and Food Safety Services	6	5,302		5,358	
Fisheries Science Services	7	5,372		4,087	
Aquaculture and Catchment Management Services	8	2,642		2,583	
Ocean Science Services	9	10,347		11,174	
Irish Maritime Development Office	10	1,217		1,235	
Marine RTDI and SSTI Programme	13	10,250		7,365	
Pensions Costs	16	2,483		2,342	
Total Expenditure			46,346		42,787
Surplus/(Deficit) for the year			(3,189)		(170)
Surplus at 1 January			4,658		4,828
Surplus at 31 December			1,469		4,658

Statement of Total Recognised Gains and Losses

Surplus/(Deficit) for the year	(3,189)	(170)
Actuarial Gains/(Losses) on Pension Scheme Liabilities Changes in Assumptions	1,679	237
Adjustment to Deferred Pension Funding	(1,679)	(237)
Total Recognised Gains and Losses for the year	(3,189)	(170)

The results for the year relate to continuing operations.

The Statement of Accounting Policies and Notes 1 – 21 form part of these financial statements.

Jim Fennell, Chairman
27th October 2009

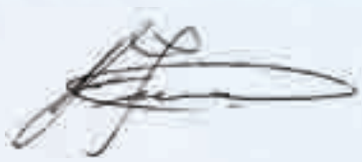
Board Member
27th October 2009

Balance Sheet

As at 31 December 2008

	Note	2008		2007	
		€'000	€'000	€'000	€'000
Fixed Assets	12		35,001		32,919
Current Assets					
Debtors and Prepayments	14	4,068		4,576	
Banks and Cash		3,344		4,612	
		7,412		9,188	
Current Liabilities					
Creditors and Accruals	15	5,943		4,530	
Net Current Assets			1,469	–	4,658
Total Assets Less Current Liabilities before Pensions					
Deferred Pension Funding		19,300		18,300	
Pension Liabilities		(19,300)		(18,300)	
Total Assets less Current Liabilities			36,470		37,577
Financed By:					
Capital Account	11	35,001		32,919	
Income and Expenditure Account		1,469		4,658	
			36,470		37,577

The Statement of Accounting Policies and Notes 1 – 21 form part of these financial statements.



Jim Fennell, Chairman
27th October 2009

Board Member
27th October 2009

Cash Flow Statement

For the year ended 31 December 2008

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

	Note	2008 €'000	2007 €'000
Surplus/(Deficit) per Income and Expenditure Account		(3,189)	(170)
Interest received		(41)	(132)
Transfer to/(from) Capital Account	11	2,471	(1,084)
Depreciation	12	5,573	4,911
Decrease/(Increase) in Debtors and Prepayments		508	237
(Decrease) /Increase in Creditors and Accruals		1,414	(1,942)
Net cash inflow from operating activities		6,736	1,820

Cash Flow Statement

	Note	2008 €'000	2007 €'000
Net cash inflow from operating activities		6,736	1,820
Returns on investments and servicing of finance			
Interest received		41	132
Net capital expenditure			
Acquisition of fixed assets	12	(8,045)	(3,827)
Increase / (Decrease) in cash		(1,268)	(1,875)

Reconciliation of net cash flow to movement in net funds

	2008 €'000	2007 €'000
Increase / (Decrease) in cash	(1,268)	(1,875)
Net funds at 1 January	4,612	6,487
Net funds at 31 December	3,344	4,612

Notes to the Financial Statements

Year Ended 31 December 2008

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 2008

2. Grant in Aid

	2007		2008	
	€'000	€'000	€'000	€'000
Current purposes				
Marine Institute	18,338		18,817	
Less Superannuation contributions repayable*	(417)	17,921	(408)	18,409
Capital purposes				
National Seabed Survey	1,462		3,288	
Marine Institute	2,400		1,500	
SSTI Programme (Note 13)	2,730		2,730	
Research and Technical Development				
Infrastructure (RTDI) (Note 13)	7,600	14,192	6,000	13,518
		32,113		31,927

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

3. Other Income

	2007		2008	
	€'000	€'000	€'000	€'000
EU Contract Research				
Data Directive (see note below)	2,258		2,251	
Other	1,931		1,161	
		4,459		3,412
Other Income				
Research vessel charterage				
Databuoy – Department of Transport	2,474		1,350	
Change Management Fund	606		515	
Sundry and Other Contract Income			121	
	3,297	6,377	1,671	3,657
TOTAL		10,836		7,069

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 2008

4. Corporate Services

	2008 €'000	2007 €'000
Wages and salaries	1,357	1,187
Administration	3,573	3,637
Depreciation	1,051	878
TOTAL	5,981	5,702

Included in the Wages and Salaries in Corporate Services are the employee contributions payable to the Department of Agriculture, Fisheries and Food in respect of the Marine Institute pension scheme.

Administration costs include an audit fee of €20,500 in 2008 (2007 : €20,500)

5. Strategic Planning and Development Services

	2008 €'000	2007 €'000
Wages and Salaries	1,124	1,196
Research & Development Programmes	1,108	1,006
Depreciation	520	739
TOTAL	2,752	2,941

6. Marine Environment and Food Safety Services

		2008 €'000	2007 €'000
Wages and Salaries:	Core staff	2,435	2,292
	EU Contract Staff	0	117
		2,435	2,409
Research & Development Programmes		2,661	2,709
Depreciation		206	240
TOTAL		5,302	5,358

7. Fisheries Science Services

	2008 €'000	2007 €'000
Wages and Salaries: Core Staff	1,028	1,000
EU Contract Staff	1,335	895
	2,363	1,895
Research & Development Programmes	2,779	1,946
Depreciation	230	246
TOTAL	5,372	4,087

Notes to the Financial Statements

Year Ended 31 December 2008

8. Aquaculture and Catchment Management Services

		2008 €'000	2007 €'000
Wages and Salaries:	Core staff	1,407	1,335
	EU Contract Staff	10	48
		1,417	1,383
Research & Development Programmes		1,028	1,004
Depreciation		197	196
TOTAL		2,642	2,583

9. Ocean Science Services

	2008 €'000	2007 €'000
Wages and Salaries	609	630
Administration & Development Programmes	7,723	8,198
Depreciation	2,015	2,346
TOTAL	10,347	11,174

10. Irish Maritime Development Office

	2008 €'000	2007 €'000
Wages and Salaries	318	249
Administration & Development Programmes	885	965
Depreciation	14	21
TOTAL	1,217	1,235

Summary of Salary Costs

At 31 December 2008, The Institute employed 215 staff at a cost of €9.843m (€9.164m in 2007), of which 136 are core staff and the balance of 79 are contract staff.

11. Capital Account

	2007		2008	
	€'000	€'000	€'000	€'000
Balance at 1 January		32,919		34,003
Transfer (to) /from Income and Expenditure Account	8,012		3,827	
Capital funding	(5,541)	2,471	(4,911)	(1,084)
Amortisation in line with asset depreciation		35,390		32,919
Fixed Asset adjustment (Note12)		(389)		0
Balance at 31 December		35,001		32,919

Notes to the Financial Statements

Year Ended 31 December 2008

12. 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 January2008	7,015	30,043	2,819	16,476	7,357	252	63,962
Adjustment			(327)	(847)	(700)		(1,874)
Additions at cost	21	840	210	5,705	1,208	61	8,045
Disposal						(34)	(34)
Cost at 31 December 2008	7,036	30,883	2,702	21,334	7,865	279	70,099
Depreciation							
Balance at 1 January 2008	1,264	7,834	2,388	13,085	6,300	172	31,043
Adjustment			(231)	(634)	(620)		(1,485)
Charge for the year	140	1,102	268	2,906	1,118	39	5,573
Disposal						(34)	(34)
Balance at 31 December 2008	1,404	8,936	2,425	15,357	6,799	177	35,098
Net Book Value							
At 31 December 2008	5,632	21,947	277	5,977	1,066	102	35,001
At 31 December 2007	5,751	22,209	431	3,391	1,057	80	32,919

Included in the gross balance of Land and Buildings is an amount of €1.206m which represents the professional valuation of the Fisheries Research Centre in Abbotstown, Dublin at 1 January 1996. Title is vested in the Minister for Agriculture, Fisheries and Food. The Institute remains in occupation of the Abbotstown facility and is in the process of making arrangements for the remaining staff to be accommodated in the Dublin area. It is anticipated that notice to vacate the site will be received from the Department of Agriculture in the course of 2009 or early 2010. As a result the professional valuation at 1 January 1996 has not been revised.

In 2008 the Marine Institute undertook a review of all its fixed assets as part of the process of establishing a Fixed Asset register for the Institute. The adjustment in Note 12 is to reflect assets and corresponding depreciation on those assets which were incorrectly categorized as fixed assets previously and which are not included on the fixed asset register of the Institute.

The remainder of the assets are stated at cost.

Notes to the Financial Statements

Year Ended 31 December 2008

13. Marine RTDI and Strategy For Science, Technology and Innovation (SSTI) Programme (2000–2006) (2007–2013), National Development Plan

The total funding and amounts applied in 2008 was as follows:

	2008 €,000 NDP & SSTI 2007–2013	2008 €'000 NDP 2000–2006	2008 €'000 Total	2008 €'000 NDP 2000–2006
Oireachtas Income (Note 2)	10,330		10,330	
Expenditure:				
Projects	11,864	1,728	13,592	1,728
Administration	292	154	446	154
Total Programme Expenditure	12,156	1,882	14,038	1,882
Surplus / (Deficit) in year	(1,826)	(1,882)	(3,708)	(1,882)

The total programme expenditure of €14.038m includes both research and capital expenditure.

Marine RTDI and SSTI Programmes Expenditure– ERDF expenditure

	2008 €'000	2007 €'000
Marine RTDI and SSTI Programmes Expenditure	14,038	7,981
Assets purchased under the ERDF Fund	(5,091)	(821)
Depreciation on ERDF assets	1,303	205
TOTAL	10,250	7,365

Under the Laboratory Infrastructure Sub-Measure of the Marine RTDI Measure the Marine Institute purchased fixed assets for €5.091m in 2008 (€0.821m 2007) which were funded though the ERDF programme. The depreciation on the assets was €1.303m for 2008 and €0.205m for 2007.

The primary objectives of the Marine RTDI Measure 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 of which the outstanding commitments of €1.006m represent the final payments.

Under the NDP Marine RTDI Measure 2007–2013 investment in marine research over the period 2007–2013, via the Marine Research Sub-Programme of the NDP, will be targeted at addressing the 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 54 projects have been supported to 2008 under the Marine Research Sub-Programme of the NDP with 44 of these projects still ongoing.

In late 2006, the Marine Institute secured funding of €7.41m over 24 months under the Governments Strategy for Science, Technology and Innovation (SSTI) for three research programmes:
a. Marine Functional Research Programme b. Marine Climate Change Programme c. Integrated Marine Exploration Programme.

The total commitments entered into at 31 Dec 2008 for Marine Research Sub-Programme of the NDP and SSTI were €48.1m of which the outstanding commitments of €29.9m represent the remaining payments.

Notes to the Financial Statements

Year Ended 31 December 2008

Marine RTDI 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 7.

At 31 December 2008 payments were outstanding on amounts charged to the financial statements as follows (note 15).

	2008 €'000	2007 €'000
Amounts Outstanding	885	397

At 31st December 2008 commitments entered into but not yet charged to the financial statements in respect of RTDI projects and SSTI programmes were €30.93m with the following breakdown.

	NDP and SSTI 2007–2013 €'000	NDP 2000–2006 €'000
Commitments as at 31 December 2007	16,172	2,830
Committed in 2008	25,616	
Decommitted	0	(96)
Paid in 2008	(11,864)	(1,728)
Commitments as at 31 December 2008	**29,924**	**1,006**

These figures exclude Marine Institute administration of NDP Projects.

14. Debtors and Prepayments

	2008 €'000	2007 €'000
Trade Debtors	2,257	2,178
Contract Income	1,729	2,315
Prepayments	82	83
	4,068	4,576

15. Creditors and Accruals

	2008 €'000	2007 €'000
Trade Creditors	2,393	1,677
Deferred Income	1,761	1,518
RTDI Accrual(Note 13)	885	397
Accruals	53	31
Payroll	851	907
	5,943	4,530

Notes to the Financial Statements

Year Ended 31 December 2008

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

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

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 – 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 2008.

The major financial assumptions used to calculate liabilities under FRS 17 are as follows:

	2008	2007	2006
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

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

	2008	2007
Total accrued pension liability	€19.3m	€18.3m

(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.

	2008 €'000	2007 €'000
Analysis of the amount charged to operating profit		
Current Service Cost	1,90	1,850
Interest on pension scheme liabilities	1,000	900
Employee Contributions	(417)	(408)
	2,483	2,342
Analysis of the amount recognised in a statement of total		
recognised gains and losses (STRGL)	**€'000**	**€'000**
Experience gains and (losses)	1,679	237
Changes in assumptions		
underlying the present value of scheme liabilities	0	0
Actuarial gain and (loss) recognised in STRGL	1,679	237

Notes to the Financial Statements

Year Ended 31 December 2008

Note 16. continued

	2008 €'000	2007 €'000
Net deferred funding for pensions in the year		
Current Service and Interest Cost	2,900	2,750
Less benefits paid in the year	(221)	(213)
	2,679	2,537

The Marine Institute recognises these amounts 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 backing for 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 2008 amounted to €19.3 million (2007: €18.3million) .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 , Fisheries and Food but are not formally agreed with the Department.

	2008 €'000	2007 €'000
Analysis of movement in liability during the year		
Deficit at the beginning of the year	18,300	16,000
Current Service Cost	1,900	1,850
Interest on Scheme Liabilities	1,000	900
Actuarial (Gain) Loss recognised in the STRGL	(1,679)	(237)
Benefits paid in the year	(221)	(213)
Deficit at the end of the year	19,300	18,300

17. Lease commitments

Operating Leases

The operating lease relates to the lease of the premises at 80 Harcourt Street, Dublin 2. The lease is for a period of 22 years from 1 September 1993. The annual rent is €300,374. There is a rent review every 5 years, with no more lease breaks until the conclusion of the lease in 2015.

18. Investment

The Marine Institute has a 5% 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.

19. 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 it is the intention of the Board of MTDS that a voluntarily wind-up of the company will be finalised during 2010. There will be no impact in the accounts of the Institute as a result of the winding up.

20. 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.

21. Board Approval

The financial statements were approved by the Board on the 27th October 2009.

Notes

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