

annual report

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serving science and the sea

To the Minister for Communications, Marine and Natural Resources

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 2002.

John P. Crowley, Chairman.

Do Aire Cumarsáide, Mara agus Acmhainní Náúrtha

Do réir na riachtanas atá leagtha síos san Acht um Fhoras na Mara, 1991, is cúis onóra dom an Tuarascáil Bliaintúil agus na Cúntais do Fhoras na Mara don bhliain dár chríoch 31u Nollaig, 2002 a thíolacadh.

Séan P. Ó Cruadhloich, Cathaoirleach.

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

Is é Foras na Mara an ghníomhaireacht náisiúnta a bhfuil na feidhmeanna ginearálta seo a leanas aici:

“taighde agus forbairt mara a ghabháil de lámh, a chomhordú, a spreagadh agus cuidiú leis sin agus cibé seirbhísí a ndáil le taighde agus forbairt mara a chur ar fáil ar seirbhísí iad, i dtuairim an Fhorais, a spreagfaidh forbairt eacnamaíoch agus a chruthóidh fostaíocht agus a chosnóidh an timpeallacht mhara.”

An tAcht um Fhoras na Mara, 1991

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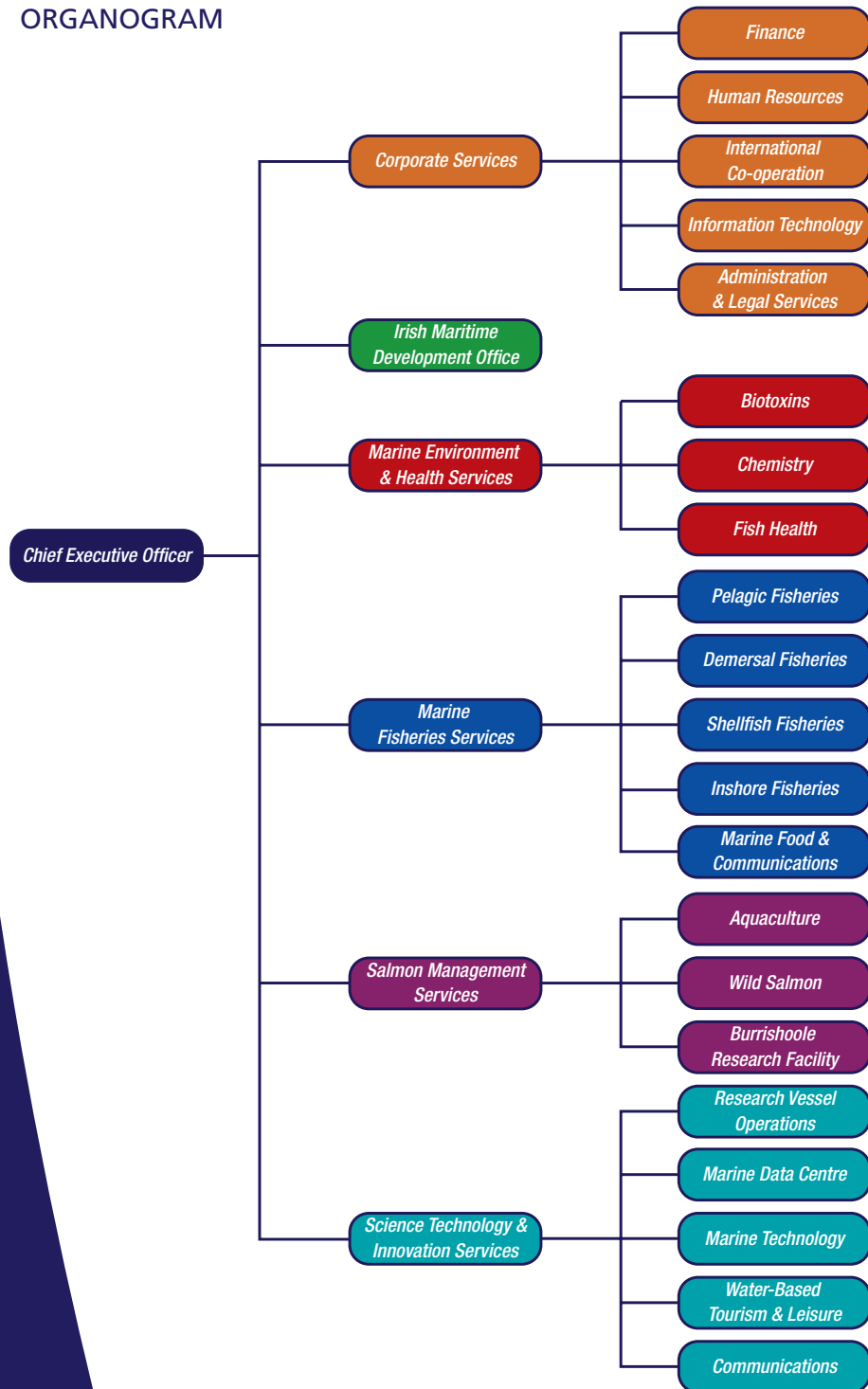
INTRODUCTION - ORGANISATION STRUCTURE

The potential exists to transform the Irish marine resource into a thriving and enduring maritime economy. The Marine Institute provides both government and industry with scientific services, conducts research, facilitates and participates in research partnerships, manages the national Marine RTDI Funding Measure and provides information on international marine RTDI funding opportunities.

In 2002, the Institute was structured into six service divisions focused on sustaining current momentum in RTDI and providing key operational capabilities. In late 2002, the effectiveness of these divisions was reviewed, and commencing in 2003 a new structure comprising seven services will be established to improve service delivery.

This report highlights the key deliverables of the Marine Institute in 2002.

ORGANOGRAM



DETAILS OF BOARD MEMBERS



1 Dr. J. P. Crowley (Chairman) (1998-2002)
M.V.B., M.R.C.V.S., B.Ag.Sc., Ph.D., Dr Crowley has had a distinguished career in agricultural research (An Foras Taluntais) and as general manager, South Western Services Co-Op, Bandon, Co. Cork. He also holds qualifications in Public Management (Institute of Public Administration), in Marketing (Harvard Business School) and in Co-Op Management (Irish Management Institute).



2 Mr. Fergus Cahill (1996-2006)
A former Naval Officer and Chief Executive Officer of the Irish National Petroleum Corporation (INPC), Mr. Cahill is currently Chairman of the Irish Offshore Operators' Association and Marine Technical Development Services Ltd.



3 Ms Mary Dooley (2002-2007)
A Fellow of the Institute of Chartered Accountants in Ireland, a member of the Financial Executives Association and of a number of commercial, cultural and charitable organisations. She has held senior management positions in the entertainment, pharmaceuticals, health and education industries in Ireland, working with Ryan Hotels Plc., Warner Communications Inc., Bristol Myers Inc., St. James Hospital and the National University of Ireland, Galway.



board members

4 Mr. Richie Flynn (2001-2006)
Mr. Flynn is currently the executive secretary of IFA's Fish Farming Section incorporating the Irish Salmon Growers' Association and the Irish Shellfish Association. He holds the position of Chairman of the EU Commission's Aquaculture Advisory Committee and of the Environment Committee, Federation of European Aquaculture Producers.

5 Capt. Dave Hopkins (2000-2006)
A master mariner since 1976, Capt. Hopkins is a director of Irish Mainport Holdings and Hopkins Communications Ltd. Vice President of the International Federation of Shipmasters, council member of the Irish Chamber of Shipping and the Emergency Rescue and Recovery Vessel Association and Chairman of the Irish Offshore Services Association.

6 Mr. Joey Murrin (1998-2003)
Formerly Chairman and Director of Bord Iascaigh Mhara and CEO of Killybegs Fishermens' Organisation. Chairman of the National Salmon Commission.

7 Mr. John O'Carroll (2001 - 2006)
Mr O'Carroll is currently a Director of the ISPG - the largest salmon export company



in Ireland and owns a salmon farm in the Connemara Gaeltacht area. As a Biology graduate, Mr O'Carroll has over 25 years experience in the aquaculture industry.

8 Dr. Brendan O'Connor (1998-2003)
Managing Director of Aqua-Fact International Services Ltd., an environmental consultancy company. Holds a B.Sc. (Hons) and Ph.D in Zoology from the National University of Ireland, Galway.

9 Sean O'Donoghue (2001-2006)
CEO of the Killybegs Fishermans Organisation and a key member of Ireland's Common Fisheries Policy Strategy Review Group. Mr O'Donoghue has a long established career in Fisheries Management working in the Department of the Marine and BIM. He played a key role during the Irish Presidency of the EU in 1996 and the implementation of the Whitefish renewal scheme. He has a key role in negotiations to establish Irish Total Allowable Catches.

chairman's statement



The year under review - 2002 - has been particularly eventful for the organisation.

To facilitate the relocation of the Headquarters to Galway, we established interim facilities at Galway Technology Park where a growing number of the staff now operate. During the year we achieved full planning permission for the new headquarters building designed by the Office of Public Works for the attractive site overlooking the Atlantic at Oranmore.

The international conference, 5th – 7th November 2002, arranged to mark the 10th Anniversary of our establishment was a big success. It was firstly an occasion for stocktaking in terms of what has been achieved. Secondly, the national and international presentations at the conference will be invaluable in planning for the years ahead. This conference was timely also as a mid-term review of the current National Development Plan (NDP) and in preparing for the next NDP.

The building of our second and larger research vessel, which will greatly enhance the national research capability, was completed, and before the year-end she arrived in her new home port in Galway. It is a tribute to our project team that they completed this major undertaking on time and within budget.

It was also a year of progress for the Irish Maritime Development Office (IMDO). The implementation of the new Tonnage Tax regime enabled them to formulate an attractive package for the promotion of shipping and shipping services based in Ireland.

In the midst of so much additional activity and while dealing with the demands associated with relocation to Galway, our staff continued to provide high quality services to our various customers. For all the achievements of 2002, on behalf of the Board, I wish to thank our dedicated staff and to acknowledge the leadership provided by our Chief Executive and senior management.

Finally, I again wish to pay tribute to my Board members who have guided the organisation through an eventful and successful year.

Dr. J.P. Crowley

chief executive's report



The occasion of the Marine Institute 10th Anniversary Conference "Taking Marine Research Further" afforded the broad marine community an excellent opportunity to gauge national and international progress in marine RTDI programmes and capacity building. Furthermore it afforded over 600 delegates an opportunity to be consulted on the progress achieved in recent years and to identify outstanding issues and new priority topics to be attended to.

The conference also marked the start of an important phase of consultation with the marine sector, which employs over 32,000 and contributes over €1 billion p.a. to the Irish economy, as the Marine Institute prepares for the midterm review of the Marine Research Measure of the NDP 2000-2006 and the preparation of the next NDP to commence in 2007.

Major advances in the implementation of the Government decision to relocate the Marine Institute to Galway were achieved in 2002 with the opening of the interim headquarters in Galway Technology Park (Parkmore), the securing (without any objections) of planning permission and the initiation of the tendering process for the development at Oranmore.

Service delivery and standards were strengthened in 2002 in spite of the significant challenges posed by the Change Management process involved in this major relocation of personnel and services. The generous and active participation of staff in a major strategy planning initiative, which culminated in the publication of Blue Print 2005 (A Strategy by and for the Staff of the Marine Institute), will guide us successfully through change with the vision of:

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

In addition to a very successful recruitment drive in 2002, and the continued upgrading of regional facilities (Newport; Castletownbere and Dunmore East), we are evolving our corporate structure to better support the delivery of excellence in our various service areas and the achievement of our corporate goals through 2005 (see summary goals from Blue Print 2005 in Appendix 9).

The successful delivery of the *Celtic Explorer* in December 2002 marked a truly historic increase in the marine RTDI capacity of the nation and the "on-time and on-budget" performance is a great credit to all involved in the management of this major project.

Key milestones achieved in 2002 included:

- Opening of interim offices Galway Technology Park - a major success ingredient in maintenance of service delivery in the relocation process.
- Planning approval for the Oranmore development without any objections was a credit to the design work of the Architectural Services of the OPW, with the input of an MI wide liaison team and to the general approach to open and transparent communication with all stakeholders in the planning process.

- The Performance Management Development System (PMDS) continues to prove a great asset to the organisation and has been very well supported by staff and management at all levels.
- Record scale of RTDI project activity supported in 2002 - €4.8 million worth of projects and infrastructures supported under the NDP Marine Research Measure.
- A major revamp of our website www.marine.ie was completed delivering a wide and significantly expanded range of information and services via a convenient one-stop-shop mechanism.
- EU State Aid approval in 2002 for the Tonnage Tax announced in the December 2001 budget was a great boost for the shipping sector and the work of the IMDO.
- IMDO Marketing campaign off to strong start.
- Service Level Agreement signed with Food Safety Authority of Ireland.
- ILAB accreditation was achieved (or is pending) in a suite of test methods.
- Major scientific service programmes delivered in support of the Irish Withdrawal Plan for Infectious Salmon Anaemia (ISA); Corrib gas pipeline; aquaculture licences; and Dumping at Sea applications.
- Delivery on schedule of the largest annual fisheries Stock Book.
- EU Data Directive - expansion of fisheries science services.
- Pelagic management committees - real time scientific advice into local fisheries management decisions.
- Scientific support for National Salmon Commission - 1st national Total Allowable Catch (TAC).
- Successes in major EU research programmes REFLECT - LIFE 2 - CLIME.
- Completion of the final phase in the current infrastructure investment programme at our Newport facilities.
- Major ramp up in RV Operations in preparation for the arrival of the *Celtic Explorer*.
- Seabed Surveying successfully undertaken on the *Celtic Voyager* in Donegal Bay as part of the National Seabed Survey.
- E-services development work undertaken on Harmful Algal Blooms (HABS) and Survey Data Management Systems.

Dr. Peter B. Heffernan



Caroline Hepburn
DIRECTOR

DIRECTOR'S STATEMENT

2002 presented considerable challenges in terms of both physical and human resources. Corporate Services responded to these, providing a wide range of services to all divisions to ensure efficient and effective operations during a time of significant change and to ensure delivery on a variety of dynamic and challenging projects.

- The interim offices in Galway were opened in March 2002 and the year saw a steady increase in staff moving west. These offices were designated the Institute's official headquarters in March. A staff information service was established to assist and support staff in their move to Galway, which was supported by a Staff Information Day and a Staff Information Handbook, *'Moving Towards the Future'*.

corporate services

- The Institute strengthened its commitment to compliance with government guidelines for State Bodies and the Ethics in Public Office Act 1995 by introducing a Procurement Handbook and full procurement training for all staff. We continue to be committed to excellence in our corporate governance.
 - The Institute successfully introduced a Performance Management Development System (PMDS) as part of the Partnership 2000 Agreement.
 - The Institute's 10th Anniversary Conference, *'Taking Research Further'*, was held in November 2002 in Dublin Castle. It attracted over 600 delegates, with a number of eminent keynote speakers from the US, France, the EU Commission, the UK and Ireland. It highlighted the achievements in science and technology in the last ten years, and allowed us, in partnership with industry, to review the challenges ahead.
 - The recruitment of 26 new staff supported and strengthened a wide range of services throughout the Institute and the development of service areas.
 - Under the open and competitive NDP Marine RTDI Measure, a suite of strategic projects, industry projects, Post-Doctoral Fellowships, Ph.D Scholarships, strategic desk studies, networking / technology transfer initiatives and infrastructure projects was approved for grant aid, with a total value in excess of €4.8m, of which €1.97m was paid out in 2002.
 - Relationships with international partners continue to be of immense importance to the Institute and are essential both in terms of collaborations and the exchange of knowledge. On-going partnerships include those with the USA, Europe, Canada and Australasia.
- Corporate Services will continue to provide a high level of service to support the organisation in facing the challenges and opportunities in 2003.

Caroline Hepburn
DIRECTOR - Corporate Services

ACCOUNTS

A full financial report and statement is contained in the second part of this report.

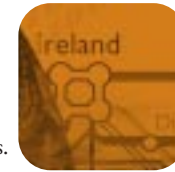
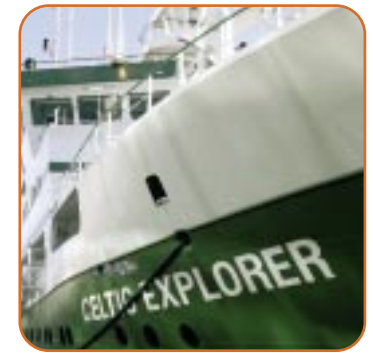
HUMAN RESOURCES

Recruitment

The recruitment and selection policy was updated in May 2002, and a very successful recruitment campaign saw the addition of 26 new staff and 17 internal appointments.

Performance Management Development System (PMDS)

PMDS, a requirement of the Partnership 2000 Agreement, is a major initiative in the Irish public service. It is aimed at all staff, at all levels and is currently being implemented throughout the public service. PMDS is intended to contribute to continuous improvement, to provide greater clarity of roles and requirements at individual and team level, with the emphasis on promoting learning and personal growth and the importance of team work. The Institute successfully implemented the system in 2002, and secured a pay award in October under the Programme for Prosperity and Fairness in recognition of this.



Training

Training continues to be a vital part of the Institute's investment in staff, with 2.8% of the annual salary budget committed to training. Both in-house courses and external courses were delivered on a regular basis, in response to needs identified through the PMDS process.

Health & Safety

Health and Safety was a major focus for 2002 with the transfer of staff to the new building at Galway Technology Park. Safety committee meetings have been established for all locations, and these meet every six weeks, with an annual meeting at the beginning of each year. Health and Safety Statements have been devised for all locations and appointed officers receive regular training appropriate to their work place.

INFORMATION TECHNOLOGY

The IT unit concentrated on supporting the movement of staff from the Institute's Dublin offices to the interim headquarters in Galway and ensured uninterrupted delivery of services to customers.

New infrastructure was put in place to support some 80 staff working in Galway together with improved communications infrastructure to support staff working together across the various sites, in addition to support for staff working from remote sites.

Work began on upgrading the Institute's network infrastructure in preparation for the impending move to the new headquarter facility in Oranmore.

INTERNATIONAL CO-OPERATION

EU RTDI Programmes

5th EU Research Framework Programme (1998-2002)

The Marine Institute up-dated its Directory (2nd edition) on Irish Marine RTD participation in the EU 5th Framework Programme identifying 34 projects involving 16 Irish marine research groups winning research funding in excess of €5 million over the period 1998-2001.

6th EU Research Framework Programme (2002-2006)

The €17.5 billion FP6 RTD Programme (2002-2006) was officially launched on 17th December 2002 and will provide many RTD funding opportunities for co-operative research. Areas of particular interest to the marine sector include: Global Change and Ecosystems, Food Quality & Safety, Maritime Transport, Fisheries & Aquaculture.

At the request of Forfás, the Marine Institute hosted and chaired the 1st CREST Meeting on "Opening Member State RTD Programmes - Marine Sciences" in Howth (20th - 21st November 2002). Marine science has been identified as one of five areas to be piloted in the context of developing the European Research Area (ERA). The meeting was attended by marine research directors from EU Member States and the new accession countries.

INTERREG IIC Atlantic Arc (1994-1999)

The Marine Institute published a directory of marine projects, with Irish participation supported under the INTERREG-IIC Programme. Eight marine projects are described, worth over €0.49 million to the Irish partners.

corporate services

INTERREG-III A Ireland/Wales (2000-2006)

The INTERREG-III A Programme was launched in the spring of 2002 with marine and coastal development and the environment being identified as a priority area (Priority 2/Measure 1). Three marine projects with Irish participation were successful, following the first call for proposals. Grant-aid to the Irish partners was €0.75m (Appendix 1).

European Science Foundation - Marine Board (ESF-MB)

The Marine Institute continued its active participation in the ESF-MB culminating in the publication of the strategic report "Integrating Marine Science in Europe" in November 2002. Copies of the report were presented to the Minister of State for the Marine by the chairman of ESF-MB, Dr J-F Minster (CEO, IFREMER) at the 10th Anniversary Conference.

Ireland/USA Co-Operation

Scientific collaboration with the US National Oceanic and Atmospheric Administration (NOAA), initiated in 1995, continued apace with the 3rd Annual MI/NOAA Workshop (8th - 10th May 2002) being held at the Northeast Fisheries Science Centre, Woods Hole, Massachusetts, USA.

Irish participants included representatives from the Marine Institute, Environmental Protection Agency and NUI-Galway. The co-operation is now moving to a more mature phase with exchanges of scientists, students and regulatory personnel, a focus on developing products such as models connecting oceanography with the occurrence of harmful algal blooms and conducting joint field research in fish stock assessments and salmon migration.

Highlights of 2002 included:

- Completion and publication of the joint retrospective study "Oceanographic Data Coverage of the Northeast Atlantic 1970-2000".
- The participation of the deputy assistant secretary of Commerce for International Affairs (NOAA), Dr W.J. Brennan, as a keynote speaker in the Marine Institute's 10th Anniversary Conference (Dublin Castle, November 2002).

United Nations Convention on the Law of the Sea (UNCLOS).

At the request of the Department of Communications, Marine and Natural Resources/Department of Foreign Affairs, Marine Institute representatives attended the UN Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS) in New York (May 2002) and participated in the successful re-election of Dr Peter Croker (PAD) for a second five year term on the UNCLOS Commission on the Limits of the Continental Shelf.

Marine RTDI Measure 2002

The Marine Institute, acting on behalf of the Department of Communications, Marine and Natural Resources, is the implementing body for the €52 million Marine RTDI Measure of the National Development Plan 2000-2006.

The Marine RTDI Measure consists of the following Sub-Measures:

- 1 Provision of enhanced research vessel capacity to cover outer continental shelf activities.
- 2 Upgrade of key national marine laboratories and facilities to provide necessary capacity and infrastructure to support planned activities.



- 3 Establishment of a Marine RTDI Fund to support project-based RTDI in key target areas.

- 4 Strategic Projects (€1,670,716).
- 5 Applied Industry Projects (€331,913).
- 10 Desk Studies (€508,305).
- 6 Ph.D Scholarships (€660,755).
- 8 Fellowships, including the prestigious Michael Manahan Fellowship (€1,385,048).
- 12 Sponsorship/Networking Awards (€39,060).

In the case of the Applied Industry Projects, the total value of the projects supported was €766,939 with €331,913 or 43% of costs being provided as grant-aid.

On 10th December 2002 the Border, Midland & Western Regional Assembly, in association with the Marine Institute, hosted an Information Seminar on "Supports available for the Marine Sector under the National Development Plan". The opportunity was taken at this Seminar to launch the Marine Institute's "Guide to the NDP Industry RTDI Grant Aid Programmes relevant to the Marine Sector".

A full list of projects grant-aided under the NDP Marine RTDI Measure is included in Appendix 2

PROGRESS TO DATE

Sub-Measure 1: RV Celtic Explorer

Following successful field trials and equipment testing, the Marine Institute took delivery in December 2002 (on schedule and within budget) of the new multi-purpose 65m research vessel *Celtic Explorer*.

Sub-Measure: Marine RTDI Infrastructure

Seven marine infrastructure/facilities proposals were supported in 2002 with a total grant-aid of €268,541. This included upgrades to the Fisheries Laboratories at Dunmore East (Co. Waterford) and Castletownbere (Co. Cork).

Sub-Measure 3: Marine RTDI Fund

Further to the opening of competitive calls for the Marine RTDI Fund in 2002, over €4.5 million has been allocated in grant-aid to marine RTDI research projects, desk studies, scholarships and fellowships. Grant-aid was awarded to:



Glenn Murphy
DIRECTOR

DIRECTOR'S STATEMENT

The approval of an Irish Tonnage Tax regime by the European Commission in December 2002 was the undoubted highlight of the year. The introduction of the Tonnage Tax regime, developed and guided by the Institute through the process of Government, Budget and Finance Acts in 2001 and finally state aid approval in Brussels, will have a resounding impact on the future landscape of the Irish shipping and shipping service sector.

- The introduction of the Tonnage Tax Regime has already seen a return to the Irish flag in the Short Sea, Ferry and Off-Shore Service Sectors, boosting industry confidence, improving market competitiveness and increasing shore and sea based employment.
- Ireland is now well placed to position itself as a credible location within Europe as an international shipping services base. The Irish Tonnage Tax will ensure that international-shipping groups have an opportunity to structure and locate their operations in the most tax efficient regime in Europe.

irish maritime development office

- In December, the European Commission approved a further tax measure (Seafarers Tax Allowance Scheme) proposed by the Irish Maritime Development Office (IMDO) that will benefit Irish seafarers.

Ireland has established a proven international track record in attracting and developing niche services such as Financial Services, ICT, Software Development and Shared Services Centres. This has been created through a strong commitment by successive Irish governments to ensure that the necessary fiscal and regulatory infrastructure was put in place to attract and develop these sectors. The same rationale is now being applied to the development of the Maritime Shipping Service sector. The IMDO will spearhead this initiative to develop the Irish Maritime Cluster commencing in 2003.

During 2002, the IMDO embarked on a number of new and exciting initiatives, these included;

- launch of E-Commerce strategy,
- Short Sea Shipping Campaign,
- promotion of Careers at Sea.

As a result of initiatives already activated in 2000 and 2001, combined with the fiscal package of incentives achieved in 2002, a positive sense of progress and development can clearly be charted.

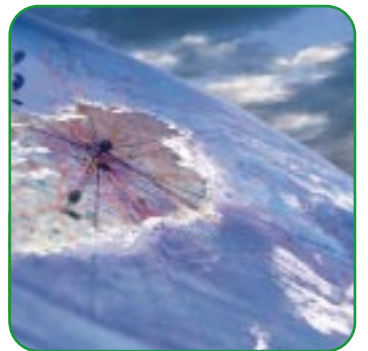
Ireland's quest for its own international shipping services cluster has truly begun.

Glenn Murphy
DIRECTOR - Irish Maritime Development Office (IMDO)

THE IRISH TONNAGE TAX

On the 11th of December, the European Commission endorsed the Irish Tonnage Tax Scheme. Ireland thus became the eighth EU Member State to be equipped with this type of fiscal incentive after Greece (pre-accession scheme), the Netherlands, Denmark, the UK, Germany, Spain and Finland. Tonnage tax was underlined as a best practice example in the Commission's White Paper on European Transport policy for 2010. The European Commission's endorsement gave a green light to Ireland and now enables the country to make its first significant step towards becoming a competitive European location to attract and develop its own maritime cluster for global shipping services.

During its research and development, the IMDO focused on a Tonnage Tax regime that delivered clarity and flexibility, something that other regimes had neglected, but above all else, competitiveness. These items had also been the corner stones of development of successful tax policy by Ireland in development of other niche services sectors during the previous decade. For example, Ireland is now the only EU Tonnage Tax regime approved that does not require an ownership interest in the vessels; hence ship management companies can qualify for the Irish tonnage tax.



E-COMMERCE

In January, the office began its year by officially launching its new website, www.imdo.ie. The Internet has become perhaps the most important and most cost-effective point of contact for companies today; from an IMDO perspective it is an invaluable and versatile tool. www.imdo.ie was developed as an interactive medium providing detailed and up-to-date information on Irish and international shipping markets and acting as an intrinsic part of the office's entire promotional strategy.



The official launch was supported by advertising and direct mail campaigns to over 3,500 national and international companies, from Irish exporters and maritime companies, to international conglomerates and global blue chips. In the second half of the year, the web portal was redeveloped and upgraded to facilitate navigation for visitors and offer new features such as an interactive menu system and a search engine. The web portal has been an immediate success and has welcomed over 32,000 international and national visitors. The site is managed and hosted in-house and is updated daily with various topical developments and news items from the national and international arenas.

irish maritime development office

SHORT SEA SHIPPING

In late 2001, the IMDO was delegated to undertake a pilot project on behalf of the Department of Communications, Marine and Natural Resources (DCMNR) to work as part of a trans-European Network specially established by the European Commission. Its purpose was to focus on the development of short sea shipping and motorways of the sea concept and encourage greater bilateral and multilateral co-ordination by European Member States in this regard.

Short sea shipping is a hugely important transport mode for the Irish Economy with 99% of our international trade volume being moved by sea. This represented goods to the value of €150 billion in 2001 moving via our ports and short sea networks that mainly connected via European hubs to international markets further afield.

Throughout 2002, the IMDO concentrated on the development of the short sea shipping services sector. A number of key developments took place during the year.

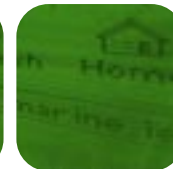
- In May 2002, together with the Irish Exporters Association, the IMDO organised a Trade and Short Sea Shipping Conference focused on one particular corridor: Ireland- France. This event was the first of its kind and was an overwhelming success with over 130 delegates travelling to Clontarf Castle in Dublin from France and Ireland. Representatives from the ports, shipping, and export sectors from both nations were well represented taking advantage of this unique networking opportunity.
- In June, in order to encourage greater industry participation and involvement, a Short Sea Steering Group was formed, which included members of the advisory group to undertake this challenge. The Steering Group, representing port representatives, liner companies, consultants, and agents, assisted the IMDO in evaluating the current status of the sector, identifying specific industry wide problems and providing possible solutions.
- In November 2002, the Steering Group provided strategic input and co-ordination to the IMDO for the programme for the seminar "Shipping Challenges for Ireland: 2002-2012" held in Dublin Castle on the 7th of November, as part of the Marine Institute 10th Anniversary Conference. The recommendations of the Steering Group and the output from the seminar were used as a basis for a further recommendation report presented to the Minister for Communications, Marine and Natural Resources.

CAREERS AT SEA

The promotion and support of seafarer training and education was a key activity in 2002. With the advent of the establishment of the National Maritime College in Cork, a Seafarer Training and Education Sub Group was established. A clear message from the industry and 3rd level sector was that greater national awareness of a career at sea needed to be achieved.

In October 2002, a comprehensive and interactive website (www.careersatsea.ie) providing information on careers at sea was launched. The launch was supported nationally by a promotional awareness campaign that included a poster and CD-rom video campaign. The IMDO targeted over 700 secondary schools and colleges nationwide and generated a great deal of interest with a large number of requests made by schoolchildren for further information and requests from guidance councillors for class presentations. The IMDO attended and exhibited at key careers seminars in co-operation with industry representatives.

The IMDO continued to monitor the progress made with the Irish Seafarers Educational Assistance Scheme recommendations (ISEAS report) at Department level. The report recommends an improvement of the Seafarer's Grants scheme in terms of level of funding and administration



INTERNATIONAL MARKETING AND DEVELOPMENT

The IMDO embarked on a campaign to raise its profile within the international market place motivated by the inclusion of the new Tonnage Tax regime in the Finance Act.

The IMDO undertook a programme of direct business development and marketing initiatives and indirect marketing campaigns throughout the year. The intention was to create awareness in the market of Ireland's ambitions to build an international maritime cluster. A more comprehensive and prolonged campaign will be undertaken in 2003 now that the Tonnage Tax regime has been endorsed in Brussels.

Throughout 2002, IMDO staff made presentations to major industry groups including those hosted by the Irish Ambassador to Norway in September and by the Irish Ambassador to Japan in May, along with the US Connecticut Maritime Association (CMA) in March. A number of significant business development meetings on behalf of interested groups from Japan, Europe and US were hosted by the IMDO.



Micheal Ó Cinnéide
DIRECTOR

DIRECTOR'S STATEMENT

The Marine Environment & Health Services (MEHS) team comprises 45 scientists, based in Dublin and Galway, who carry out a wide range of research and monitoring tasks in the areas of marine environment and seafood safety, in support of Ireland's €400 million seafood exports.

Highlights in 2002 included:

- The signing of a Service Contract with the Food Safety Authority of Ireland (FSAI). This contract means that the Institute becomes an official agency under the FSAI Act, 1998. The MEFS Division carries out a wide range of monitoring programmes for the seafood sector, including the testing of biotoxins in shellfish, trace metals in fish and shellfish and residue levels in farmed fish, which enable these sectors to meet EU regulations and to ensure full consumer safety for the Irish and export markets.
- The Food Safety Authority of Ireland (FSAI) carried out a detailed audit of the Irish biotoxin monitoring regime in Spring 2002. The published results showed that the Marine Institute carried out its duties as the National Reference Laboratory for Marine Biotoxins in an efficient and satisfactory manner.

marine environment & health services

- Ireland had its first case of Infectious Salmon Anaemia (ISA) in a trout farm in Mayo. Members of the fish health team worked with the Department of Communications, Marine and Natural Resources (DCMNR), the North West Regional Fisheries Board, with international laboratories and with the Irish aquaculture sector to manage the outbreak, in accordance with the protocols laid down in the Irish Withdrawal Plan for ISA.
- Marine Institute staff worked closely with the Environmental Protection Agency (EPA), Duchás, Radiological Protection Institute of Ireland (RPII) and with other agencies to prepare the first draft of an integrated Marine Monitoring Plan for Ireland. This document was presented to the Departments of Environment and Communications, Marine & Natural Resources in December 2002 and is intended to provide a basis for monitoring coastal waters under the EU Water Framework Directive.
- Scientific staff continued to provide an advisory role to the Department of Communications, Marine and Natural Resources, dealing with the approval of the Corrib gas pipeline, Dumping at Sea applications, aquaculture licences and monitoring, shellfish safety and fish health.
- Relocation of staff to the Galway Technology Park began in mid 2002. The Galway facilities include new laboratories for phytoplankton, bioassays and chemical testing of samples by the Biotoxin Unit, as part of the Institute's service to the shellfish industry.
- The MEHS team continued to make excellent progress in its Quality and Accreditation programme during 2002, led by the full time quality manager.

Commencing in 2003, the MEHS Division will be renamed Marine Environment and Food Safety Services.

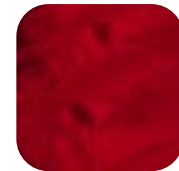
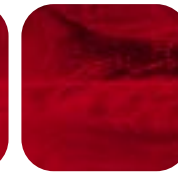
Micheal Ó Cinnéide
DIRECTOR - Marine Environment & Health Services

REVIEW OF ACTIVITIES, 2002

The division's primary role is to research and monitor the interactions between the range of human activities and the marine environment, in line with the mandate of the Marine Institute Act, 1991 and the requirements of EU regulations. The scientific staff in the MEHS Division provided essential services to the aquaculture industry, seaports, the Irish government and the European Union in the areas of biotoxin monitoring, fish health and marine chemistry.

SEAFOOD SAFETY - FISH AND SHELLFISH

The Institute monitors shellfish and wild-caught fish from Irish waters for the presence of contaminants such as mercury, cadmium, lead, polychlorinated biphenyls and organochlorine pesticides, to ensure that these seafood products are safe for human consumption in accordance with EU legislation.



In accordance with EU Directive 96/23/EC (Residues Directive), the chemistry team collected a total of 135 farmed Irish finfish for testing for the presence of residues such as veterinary drug treatments, and environmental contaminants. In March 2002, the annual monitoring report was submitted on time to Department of Communications, Marine and Natural Resources, Department of Agriculture and Food and the Food Safety Authority of Ireland (DCMNR/DAF/FSAI). A further 25 individual reports were provided to salmon and trout producers who had supplied the samples.

SEAFOOD SAFETY - BIOTOXINS

The Marine Institute is the EU Designated National Reference Laboratory for Marine Biotoxins in Ireland. The Biotoxin Unit provides a weekly monitoring service, which includes monitoring of toxin producing

phytoplankton and biotoxins in shellfish flesh, for all production areas from which shellfish are being harvested. The programme is carried out to ensure compliance with EU regulations on shellfish safety and ensures that product placed on the market is safe for human consumption. Results of all analyses are issued on a weekly basis by Fax, e-mail and SMS text messages to regulators including the Food Safety Authority of Ireland (FSAI), Government Departments and the shellfish industry.

BIOTOXIN MONITORING

The timely analysis and reporting of the results of all analysis is a key priority of the Biotoxin Unit. In 2002, some 413 individual DSP/AZP reports, 71 ASP reports and 224 phytoplankton reports were issued. In 84% of cases, the test results for DSP/AZP analysis were reported within three working days of the samples being taken.

Type of Analysis	Number of Tests in 2001	Number of Tests in 2002
Phytoplankton	2329	2141
DSP Bioassay	4039	2927
DSP/AZP Chemical (LCMS)	1951	2887
PSP Bioassay	322	128
ASP (Chemical, HPLC)	803	741
Total No. of Samples tested	9,444	8,824

In 2002, there was a decrease in the number of samples submitted for DSP/AZP analysis, due to the decrease in toxicity recorded in all areas, with a subsequent reduction in the need for twice-weekly testing, as well as the introduction of monthly testing of oysters during low risk toxicity periods (November - April).

In 2002, the number of samples testing positive by the Yasumoto 1984 bioassay was approximately 3% compared with approximately 17% during 2001. No oyster, cockle, clam or razor fish sample submitted gave a result above the permitted EU safety limits.

The results of the chemical analysis by LC-MS methods showed that Okadaic acid and DTX-2 were the main toxins detected in 2002. Only 1% of mussel samples tested had a level of AZP above the regulatory limit of 16 µg /100g of shellfish flesh.

A comparison of the results of samples tested by mouse bioassay and LC-MS showed that there was a 98% agreement between both methods.

In June 2002, Amnesic Shellfish Poisoning (ASP) toxicity above the regulatory limit (20 µg/g whole flesh) was recorded in a sample of mussels from Donegal. This was the first time that the ASP toxicity exceeded the regulatory limit in mussels in Ireland.

The 3rd Irish Marine Science Biotoxin Workshop was organised in association with the Food Safety Authority of Ireland and BIM. The Workshop was held on 14th November with over 140 attendees. Papers were presented by scientists from Ireland, the UK, France and Norway on biotoxin monitoring and research.

marine environment & health services

BIOTOXIN - RESEARCH PARTNERSHIPS

The Biotoxin Unit, in collaboration with Queens University, Belfast and the Veterinary Services Division of the Department of Agriculture and Rural Development in Northern Ireland, began a collaborative research project funded by the Food Safety Promotion Board. The main aim of the project, entitled "*Rapid Azaspiracid Shellfish Toxin Analysis*", is the development of a rapid immunoassay for the detection of azaspiracid in shellfish. As part of the project, azaspiracid was isolated from naturally contaminated mussels, which will be used for antibody production. The project team has isolated *Protoperdinium spp.*, suspected to be the biogenic source of azaspiracid, and has developed methods for maintaining isolates in laboratory culture.

The Institute is committed to international partnership in biotoxin research. This included participation in an ASP inter-comparison study organised by the EU Reference Laboratory Vigo, Spain and a study on the development of a multi-toxin method of sample analysis by LC-MS method, organised by the Cawthron Institute, New Zealand.

Biotoxin Unit staff, along with scientists from NUI Galway and Woods Hole Oceanographic Institution, USA, conducted a 10-day research survey on board the *RV Celtic Voyager*, focusing on the oceanography and phytoplankton distribution on the west coast of Ireland. *Protoperdinium spp.* were isolated from natural populations and samples of plankton were taken for toxin analysis. In contrast to 2001, no azaspiracid was detected in plankton samples taken along five transects between Malin Head in the north and Mizen Head in the south.

Between 20th and 24th May, a workshop entitled "*Molecular Probe Technology for the Detection of Harmful Algae*" was held at the Martin Ryan Institute, NUIG. The Workshop was sponsored by the Marine Institute and BIM and with support from GEOHAB. A total of 45 delegates from 15 countries participated. A website (www.geneprob.es.org), co-hosted by the Marine Institute, NUIG and Cawthron Institute, NZ, has been established.

Staff of the Biotoxin Unit participated in the annual meeting of European Network of National Biotoxin Reference Laboratories organised by the Community Reference Laboratory and also at the annual meeting of UK/Irish biotoxin testing laboratories in March 2002.



ADVISORY SERVICES ON MARINE ENVIRONMENT AND FISH HEALTH

The Institute continued to provide advice to key clients in a diverse range of areas.

Staff provided scientific advice and information on biotoxin monitoring and management to the FSAI and participated in regular meetings of the Molluscan Shellfish Safety Committee.

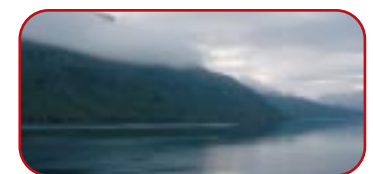
Scientific staff provided an active advisory role to the Department of Communications, Marine and Natural Resources, dealing with the approval of the Corrib gas pipeline. Staff took a lead role in an expert group addressing the issue of contaminated sediments, provided advice in the Marine Licence Vetting Committee, including advice to applicants and assessment of 'Dumping at Sea' permit applications.

Advice on Fish Health: Senior staff from the Fish Health Unit liaised closely with the DCMNR with respect to the presentation of reports and epidemiological data on the isolation of ISAV from two rainbow trout sites in the west of Ireland. Two Risk Analysis Reports were prepared for DCMNR, assessing the risks associated with the isolation of ISAV and outlining the risk management steps necessary to contain the virus and to prevent its spread either to wild fish or to other aquaculture facilities in the area.

Members of the Fish Health Unit coordinated the Irish Fish and Shellfish Health Advisory Committee (IFSHAC), which aims to facilitate communications between industry, government and university partners in fish health issues. Four meetings of the Committee were held in 2002. An additional six meetings of a specially-convened IFSHAC sub-group were held to manage the ISA cases as they developed during the summer of 2002.

The Fish Health Unit continued to provide regular advice to the DCMNR on the use of veterinary medicines (eight applications), finfish movements within the country (94 applications), shellfish movements within the country (24), finfish imports from abroad (35 cases) and shellfish imports from abroad (79 cases).

Advice was provided to the EU Commission, DG SANCO on the drafting of Commission Decisions on fish and shellfish health issues. Staff attended three working group meetings under the auspices of the Standing Committee on the Food Chain and Animal Health (SCOFCAH).



MARINE CHEMISTRY

The Marine Chemistry team carried out a range of monitoring and research in 2002, including detailed analyses and reporting on the levels of nutrients, contaminants and residues in a number of compartments of the Irish marine environment.

The Institute worked with the EPA and other statutory agencies to coordinate an integrated approach to a National Marine Monitoring plan which will address OSPAR and national requirements, as well as the needs of the Water Framework Directive, 2000/60/EC.

ENVIRONMENTAL MONITORING AND NUTRIENTS IN THE IRISH SEA

The Marine Institute carried out its 13th annual winter nutrients survey in the Irish and Celtic Seas, in accordance with monitoring requirements as part of the OSPAR Strategy on Eutrophication. The survey was done in January, on the *RV Celtic Voyager*. 43 CTD casts were carried out. 223 surface and 116 depth water samples were collected, all of which were analysed for nutrients and salinity. A review and assessment of a decade of nutrient data, "Winter Nutrient Monitoring of the Western Irish Sea - 1990 to 2000" was published in 2002 and presented at the Marine Institute 10th Anniversary Conference. Winter nutrients data were also reported to ICES, Copenhagen.

marine environment & health services

Comprehensive analyses for a range of environmental contaminants in sediments from Dublin Bay and the Shannon estuary were completed. Samples, including shellfish and plaice liver, were analysed according to OSPAR guidelines, as part of a time series to establish if contaminant trends are occurring in the marine environment.

QUALITY ASSURANCE

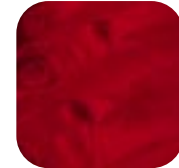
The National Accreditation Board (NAB) awarded ILAB accreditation to the Institute for the analysis of Ivermectin and Emamactin Benzoate in salmonids in June 2002. Accreditation is pending for a number of additional test methods, following a December audit.

As part of the quality policy, the Chemistry Unit continued to participate in the EU wide QUASIMEME (Quality Assurance of Information for Marine Environment Management in Europe) programme ensuring continued production of high standard quality assured data.

FISH HEALTH

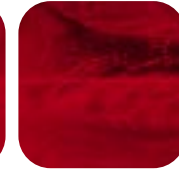
The primary role of the Fish Health Unit (FHU) is to support the aquaculture industry and the inland fisheries sector in maintaining Ireland's superior fish health status. The Marine Institute provides both statutory services (in line with EU Directives), and diagnostic support. Staff provide a range of services including bacteriology, virology, histology, parasitology and molecular biology.

In the capacity of National Reference Laboratory for both fish and shellfish diseases, members of the FHU participated in two Annual Reference Laboratory meetings in Brussels and in La Tremblade, France.



The main programmes in Fish Health during 2002 were:

- All marine and freshwater finfish sites were inspected and sampled as outlined in Council Directive 91/67/EEC. 3,803 finfish were tested for the presence of List Two and List Three diseases.
- All *Ostrea edulis* growing areas were tested twice per year (spring and autumn) for the presence of the List Two parasites *Bonamia ostrea* and *Marteilia refringens*. 1425 oysters were tested in the course of this screening programme. *Bonamia ostrea* was detected in a new area in Co. Mayo, during the autumn round of testing.



- 1157 finfish and 419 shellfish were examined for diagnostic purposes, generally as a result of mortality events at aquaculture facilities.
- The FHU carried out extensive testing and pre-movement clinical checks to facilitate the export of live fish and shellfish to other EU Member States and to Third Countries such as Chile. The value of such exports was over €6.5 million.
- The FHU carried out a national screening programme for ISA Virus on all marine finfish farms for the third year in succession, on the advice of the Irish Fish and Shellfish Health Advisory Committee. 2243 fish were examined, with ISA Virus being isolated from sub-clinically infected rainbow trout located on two sites in the west of Ireland. Members of the FHU worked with the Department of Communications, Marine and Natural Resources, the North Western Regional Fisheries Board, other international laboratories and the aquaculture industry to manage these cases, in accordance with the protocols set out in the Irish ISA Withdrawal Plan.
- The FHU jointly supervised a Ph.D project on diseases of clams, funded by the Institute, at the Department of Zoology in NUI-Cork. Collaboration was also established with DIT, through an M.Sc project on abalone.





Dr. Paul Connolly
DIRECTOR

DIRECTOR'S STATEMENT

The Marine Fisheries Services Division (MFSD) team assesses, researches and advises on the sustainable development of our living marine resources. In 2002, Irish fishing vessels landed 280,593 tonnes of fish, valued at 231 million. MFSD inform both Department of Communications, Marine and Natural Resources (DCMNR) and EU policy objectives, management and development strategies for marine fisheries through the pages of the Annual Stock Book.

In 2002, MFSD went through a period of great change in moving many of its core staff from Abbotstown in Dublin to the new Marine Institute headquarters in Galway. New key posts were filled using both national and EU funding. Against a background of serious concerns over the state of many key fish stocks in EU waters, MFSD forged a close working relationship with DCMNR, the EU Commission, industry and BIM was further consolidated.

marine fisheries services

MFSD continued to work with the Pelagic Management Committees in the north west and in the Celtic Sea. Real time scientific advice was incorporated into local management decisions, particularly in relation to the closure of areas in the Celtic Sea to protect juvenile herring. The industry also funded a major plankton survey aimed at studying the distribution of mackerel and horse mackerel eggs in areas outside the traditional areas used by ICES to assess these stocks. MFSD presence in the ports was also greatly strengthened through a long term lease for laboratory and office space in the new headquarters of the Irish South and west Fishermen's Organisation at Castletownbere. The Dunmore East Laboratory was extensively refurbished.

Other major achievements during 2002 included:

- The Implementation of the new EU Regulation (EU Council Regulation 1543/2000) on the collection of international fisheries data. A comprehensive Irish National Programme, established with the support of the DCMNR.
- A joint Irish – US (MI – NOAA) survey of the distribution of fish eggs and larvae in the Celtic Sea was undertaken using specially designed sampling equipment
- Development of an integrated database for fisheries data (STOCKMAN).
- Scientific support to the Irish National Strategy Review Group on the Common Fisheries Policy.
- A special survey of the prawn grounds off the Aran Islands was successfully carried out and showed the potential of underwater television survey as an assessment tool and a tool for wider ecosystem studies.
- Funding was secured under the NDP for 5 PhD studentships which will focus on improving our knowledge base of the fisheries resources
- Funding was secured under the NDP for a Post Doctoral position focused on simulation and modelling of fish stock dynamics in the waters around Ireland.

Commencing in 2003, the MFS Division will be renamed Fisheries Science Services.

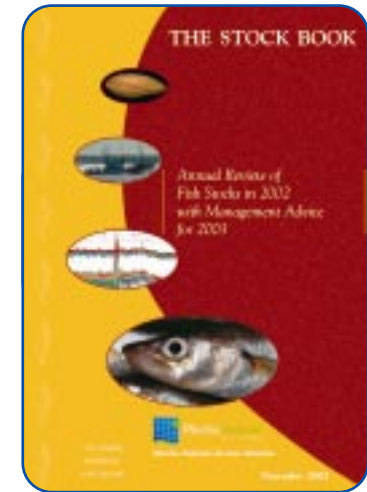
Dr Paul Connolly
DIRECTOR - Marine Fisheries Services

REVIEW OF ACTIVITIES 2002.

STOCK ASSESSMENT

The collection of fisheries data is fundamental to stock assessment. During 2002 the Institute recruited 14 staff to undertake work under the new EU regulation on data collection which includes modules on port sampling, discard monitoring, analysis of fleet activity, age estimation work, research surveys, biological studies and data management. These modules contain specific targets and quality standards which were pursued with renewed enthusiasm throughout the year.

During the fish stock data collection programme 450,000 fish were measured and the ages of over 13,000 fish were determined. Ten dedicated research surveys were carried out on the *RV Celtic Voyager* and chartered commercial vessels. These surveys consisted of groundfish, egg and larval and acoustic programmes, which provide independent estimates of fish stock abundance. MFSD staff spent a total of 790 person days



at sea on research surveys and on commercial vessels. MFSD scientific staff also participated in three foreign surveys on blue whiting acoustics (Norway), *Nephrops* underwater TV surveys (UK) and hake (Spain).

Staff presented Irish data and participated at over 12 meetings of the International Council for the Exploration of the Seas (ICES). These meetings assessed and provided scientific advice on herring, mackerel, horse-mackerel, blue whiting, cod, whiting, haddock, hake, monk, megrim, plaice, sole, *nephrops*, deep water fisheries, discards, bottom trawl surveys and the ecological effects of fishing.

Work continued on various inshore fisheries involving whelk, razor clams, brown crab, shrimp and sea bass. MFSD staff continued to work closely with the BIM as well as colleagues in DARDNI (UK), CEFAS (UK), MARLAB (UK), IFREMER (France), IEO (Spain) and IPIMAR (Portugal).

RESEARCH PROJECTS

Several research projects were undertaken in 2002 in order to deepen scientific knowledge and improve advice.

DELASS (January 2000 - December 2002)

Twelve partners from Ireland, UK, Holland, Denmark, Germany, France, Spain and Portugal collected new data that will facilitate the assessment of shark species in EU and north Atlantic waters.

Data Collection Regulation.

Funding was secured from the EU to establish a new data collection programme aimed at improving the data available for stock assessment.

Herring in the Celtic Sea

Several surveys were carried out in the Celtic Sea area to examine the distribution and abundance of herring during the 'closed season' when the fish move offshore. Large numbers of small fish, indicative of the fragile state of the stock, led to a temporary closure of the fishery on Institute advice in mid-February. The results from these surveys were used as a basis for establishing management measures with the EU.

marine fisheries services

Samfish

The SAMFISH project was completed in January 2002 and the final report was accepted by the EU. This project focussed on the co-ordination of sampling in western EU waters with eight partners from Ireland, UK, France, Spain and Portugal. The work concentrated on improved data collection, assessment of species not subject to Total Allowable Catch (TAC) (lemon sole), precision of data, database development and enhanced communication with industry.

New Projects

Funding was secured for several new EU projects where MFSD staff will work closely with international scientists from all over the EU. EASE will examine the cost of providing scientific advice on fish stocks to the EU and look at ways of improving quality of this advice. The WESTHER project will examine the stock structure of herring in EU waters.

ADVICE

The MFSD made vital contributions at the ICES Advisory Committee on Fisheries Management (ACFM), the EU Scientific Technical and Economic Committee on Fisheries (STECF) and the North East Atlantic Fisheries Commission (NEAFC) regarding scientific advice on the management of EU fish stocks and fish stocks in international waters.

The Annual Stock Book was produced in both hard copy, CD and web-based versions. This gives a comprehensive overview of the state of the fisheries resource of interest to the Irish industry and gives fisheries management advice for the coming year. It is an essential tool used by DCMNR and industry in the TAC negotiations with the EU and at other fisheries meetings. The MFSD provided scientific support to DCMNR at the EU Council of Fisheries Ministers in December 2002. Further scientific support was provided on the Cod and Hake Recovery Plans in the waters around Ireland at meetings in Brussels between the EU, DCMNR and industry. Irish policy on the management of valuable deep-water fisheries was supported with scientific advice from the MFSD, in close collaboration with BIM.



LIVING RESOURCES

As well as providing support for conventional fisheries, the Institute also undertook research into the sustainable development of other living resources. Three projects for research into seaweed development were approved under the NDP Marine RTDI Measure for work on seaweed aquaculture, use of seaweed products in biotechnology, and investigations into iodine uptake from seawater by seaweed as an input to medical research (post operative recovery).

The Institute provided funding for the National Seaweed Centre, based at NUI Galway, which in turn initiated surveys of kelp stocks with echo-sounders and other novel equipment in co-operation with Waterborne Geophysics Ireland.

In the area of marine food technology, the Institute also worked with the National Sensor Research Centre at Dublin City University to develop a working fish freshness meter and with the National Food Centre at Teagasc to investigate ways of preparing deep-water species for the table. The Institute continued to act as host for the Marine Food RTDI Liaison Group, representing semi-state and third-level bodies engaged in marine food research.



Ken Whelan
DIRECTOR

DIRECTOR'S STATEMENT

Salmon Management Services (SMS) provides scientific and technical support to both the National Salmon Commission and the Department of Communications, Marine and Natural Resources in the establishment of Total Allowable Catches in each of the 17 Salmon Fishery Districts. This is the first time that salmon fisheries in Ireland have been regulated in this way and marks a unique turning point in the scientific management of this important national resource.

Through its successful involvement in a number of EU-funded research programmes, the Institute has demonstrated the potential of using the Burrishoole Catchment as a focal point for European research into the effects of climate change on freshwater ecosystems. As a partner in the recently agreed EU CLIME programme, Burrishoole is to participate in assessing the direct and indirect effects of climate change on the dynamics of freshwater lakes.

salmon management services

With support from the Department of Communications, Marine and Natural Resources, some sixteen fish counters were operated in 2002 on a wide geographic range of rivers. Fully verified data were made available on a monthly basis. Monthly verified counts were provided both in report format and through the Institute's website.

Through its work with the Aquaculture Research Committee (ARC), SMS identified the need for an Aquaculture Liaison Officer. The liaison officer will support the resourcing of R&D needs within the aquaculture industry. This position will be established in 2003 and funded jointly by the industry and the Institute.

Commencing in 2003, the SMS Division will be renamed Aquaculture & Catchment Management Services.

Dr Ken Whelan
DIRECTOR - Salmon Management Services

REVIEW OF ACTIVITIES 2002

AQUACULTURE SERVICES

CLAMS Co-ordinated Local Aquaculture Management System

Support for the CLAMS process in both Kilkieran Bay and Clew Bay continued through 2002. The Single Bay Management Group for Kilkieran met during the year to plan synchronous lice treatments and to discuss animal husbandry issues. The Institute commissioned a hydrographic study of Clew Bay. The resulting 3D model will be used as an investigative tool to evaluate processes in the bay which impinge on aquaculture and environmental quality.



Sea Lice Monitoring

Sea lice monitoring was carried out according to the DCMNR Monitoring Protocol No. 3. for the year 2002. All farms received regular results and feed back regarding sea lice levels on their farms. Due to very mild weather conditions throughout the winter months, the past spring saw an increase in sea lice levels in some areas, particularly in the north-west.

In conjunction with routine sea lice monitoring, temperature profiles were compiled from 15 in-situ probes at locations along the west coast and circulated to fish farmers on a regular basis. Phytoplankton samples were also taken in the vicinity of farm locations and results were provided to the individual farms on a weekly basis.

Current research projects include:

EU SEARCH Project - Sea Lice Resistance to Chemotherapeutants

The objective of this project is to investigate and monitor developing resistance in sea lice. The work is centred on chemotherapeutants commonly applied against *Lepeophtheirus salmonis* in Norway, Scotland, Ireland and eastern Canada. Sea lice samples were taken over a four month period, July to October 2002 and will be used by NUI, Galway, for genetic analysis.

Post Doctorate Research on Sea Lice Biology and Interactions

An NDP Marine RTDI Measure post doctorate programme, in association with GMIT, began in September 2002. The aims of the research programme include: the examination of developmental and survival rates of sea lice on farmed salmon in the west of Ireland; assessment of the efficacy of sea lice treatments by field studies and by analysis of historical farm records; a study of current Irish treatment strategies with a view to developing a plan to manage resistance from therapeutants.

Rhine Programme - Germany

SMS continued to supply eyed ova to the Rhine Rehabilitation Programme in Germany and co-ordinated the sale of over 1.4 million ova to Germany. Returns of adult salmon to the River Siege have increased to over 300 per annum. The greater majority of these are of Irish origin.

SMS Salmonid Production Levels 2002

Salmon ova	450,000
Salmon smolts	27,500 (Commercial)
Salmon smolts	77,000 (Ranching)
Salmon parr	132,000
Rainbow trout	1,400 - adults / 7,000 - parr

BURRISHOOLE RESEARCH SECTION

Burrishoole Catchment Environmental Programme

In recent years, the combined effect of extreme weather events and changes in land-use have had a significant effect on the erosion rates recorded in many upland areas. A network of automatic monitoring stations is being used throughout the Burrishoole Catchment to quantify the impact of these factors on sediment transport. The installation of the automatic monitoring systems deployed in the catchment was funded under EU LIFE and REFLECT Programmes.

salmon management services

Data gathered from this network is used by Institute scientists, with the assistance of colleagues from the UK Centre for Ecology and Hydrology (CEH), to produce models indicating areas vulnerable to erosion. Information from these models facilitates the formulation of land management guidelines for best practice within the agricultural and forestry industries, both locally and on a national level.

The unique facilities within the catchment facilitate national and international collaborative research programmes which currently include:

SALIMPACT - The aim of this EU-funded project is to assess the impact of aquaculture on the immune response genes of natural salmonid populations and the extent to which disease transmission and escaped fish from Atlantic salmon aquaculture affect genetic variation in natural populations of Atlantic salmon and brown trout.

REDCAFE - The aim of the EU-funded REDCAFE project is to synthesise current cormorant/fisheries information and to identify and evaluate methods of reducing the current Europe-wide conflict between conservationists and fisheries interests.

Fish trapping continued in the Burrishoole system in 2002. Upstream and downstream counts are included in Appendix 5.

Salmon:

- The return rate of wild grilse to Burrishoole increased from 6.5% in 2001 to 9.9% in 2002.
- The return rate of the Burrishoole ranched strain increased from 2% in 2001 to 2.3% in 2002.
- The number of wild salmon smolts migrating downstream during 2002 increased from 6382 in 2001 to 8687 in 2002. The wild smolt run has significantly increased since the mid-90s when a ban on the killing of wild salmon in the rod fishery was introduced.

Sea trout:

- Numbers of sea trout migrating upstream through the traps remains low in the Burrishoole system.
- A total run of 115 sea trout (70% finnock) and 65 unsilvered trout were counted upstream, leading to a poor spawning escapement.
- The smolt run improved to 1275 smolts compared with 530 in 2001.



- Of the 1275, a return rate to the traps as finnock (0+ sea age) of 6.3% was recorded, lower than the average of 9% for the previous two years.

Eel:

The downward trend in eel catches observed throughout much of Europe over recent years has not yet been observed in Burrishoole. The sex ratio of the silver eel run is now dominated by female eels and the mean size of females has increased significantly over the time period, probably as a result of decreased recruitment and/or increased productivity of the catchment.

WILD SALMON MANAGEMENT

National Salmon Commission

SMS chairs the National Salmon Commission's Scientific Committee. The NSC provides the technical and scientific advice for establishing conservation limits and TACs for the 17 salmon Fishery Districts in Ireland. In spring, presentations were made at public meetings in each of the seven fishery regions to outline the scientific basis for quotas. Further work is ongoing

by the Committee to improve the precision of the Conservation Limits and to provide more accurate quota options. The Committee also provided scientific advice on a number of other issues including catchment management techniques (GIS, remote habitat inventory) and provided Dúchas with advice on Special Areas of Conservation relating to salmon stocks.

Fish Counters:

A national implementation programme for fish counters was agreed in May 2002. This programme facilitated the maintenance, operation, validation and verification of these counters. A core of six salmon counters and three sea trout counters was in operation throughout the 2002 season and a total of seventeen were fully operational by year end. Monthly reports were issued to all interested parties and counts were also made available on the Institute's website.

National Coded Wire Tagging and Tag Recovery Programme Statistics

- The report of the recovery programme for 2001 is complete and is based on the examination of 80,000 salmon in 2001, with the recovery and processing of approximately 7,500 tags.
- The tagging of smolts for 2002 (returning in 2003 and subsequent years) was completed in March for hatchery fish (260,000 tagged) and in May for wild fish (3,000 Corrib and 1,600 Foyle smolts).
- Tagging of smolts for 2003 (returning in 2004 and subsequent years) has begun with approximately 90,000 of 280,000 completed by December 2003.
- Sampling of commercial catches for salmon tagged as smolts and released in 2001 (returning in 2002) is complete.
- Over 96,000 salmon (or 35% of the total catch) have been examined for the presence of tags with 3,267 tags recovered.
- While the number of fish examined has increased from 2001, the tag recovery is lower and may indicate a lower marine survival rate compared to the previous year.
- Of the total number examined, only 148 fish farm escapees were identified in the catches.
- The tag recovery will be complete when individual river broodstock fish have been examined for tags.

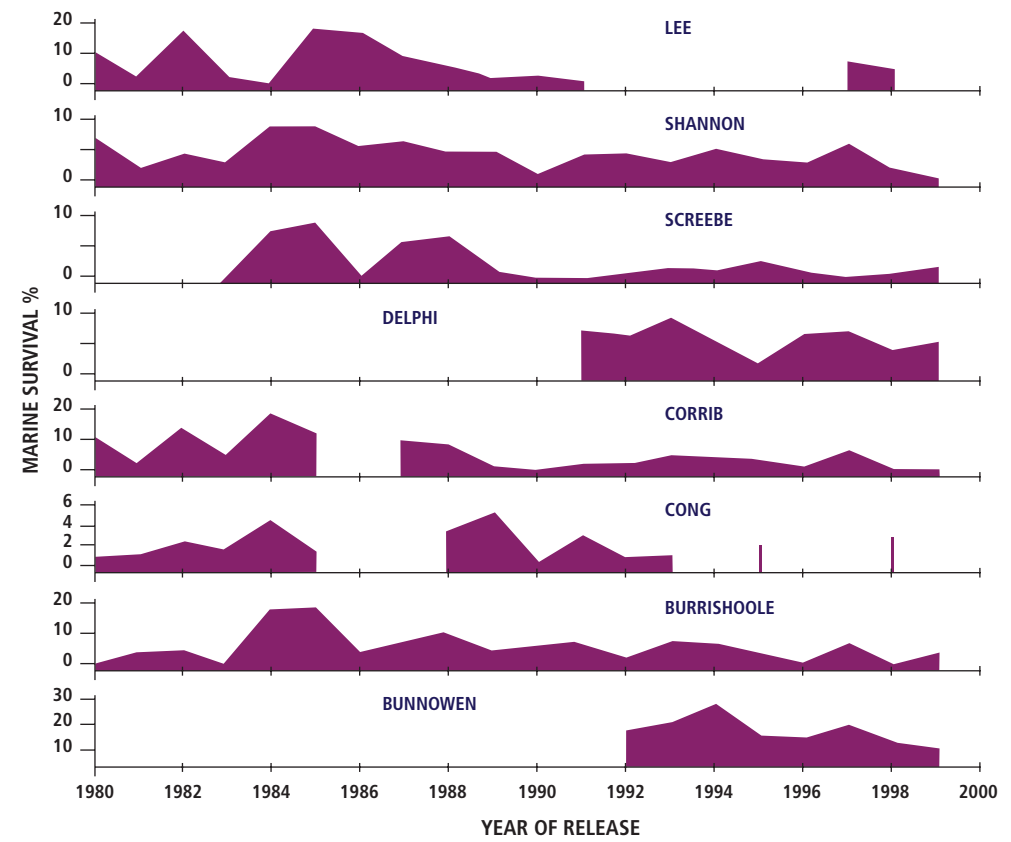
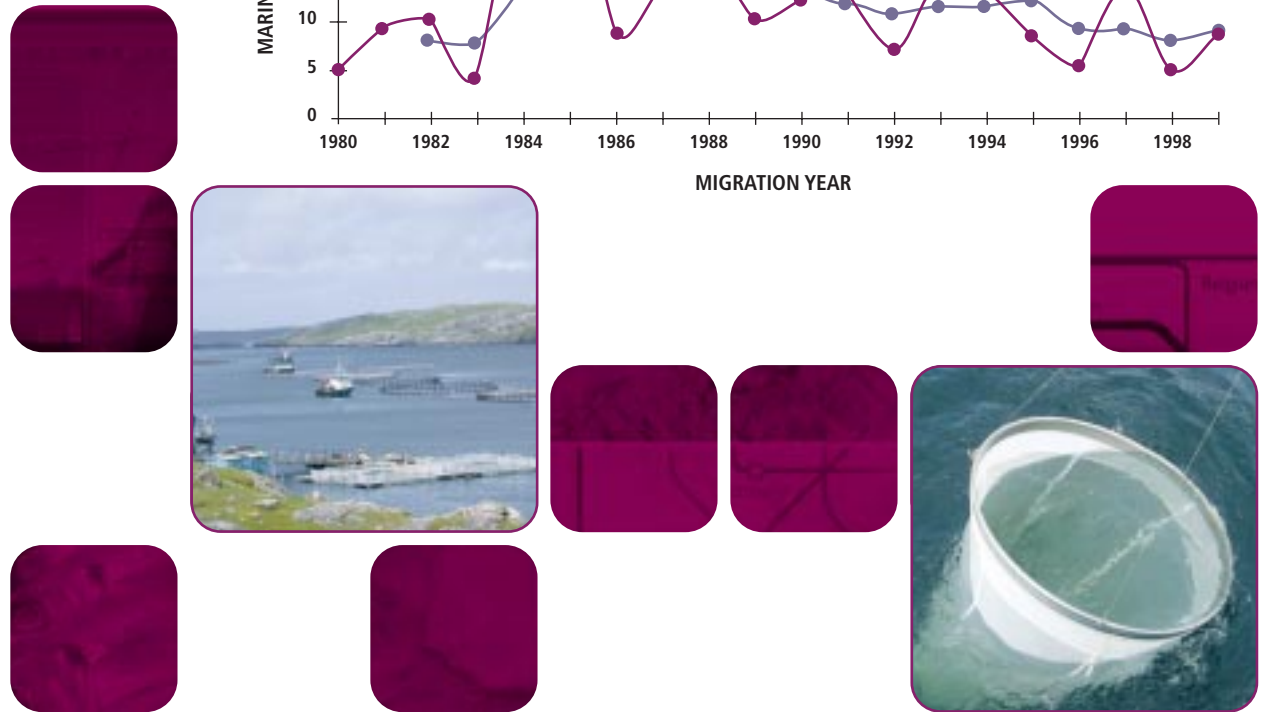
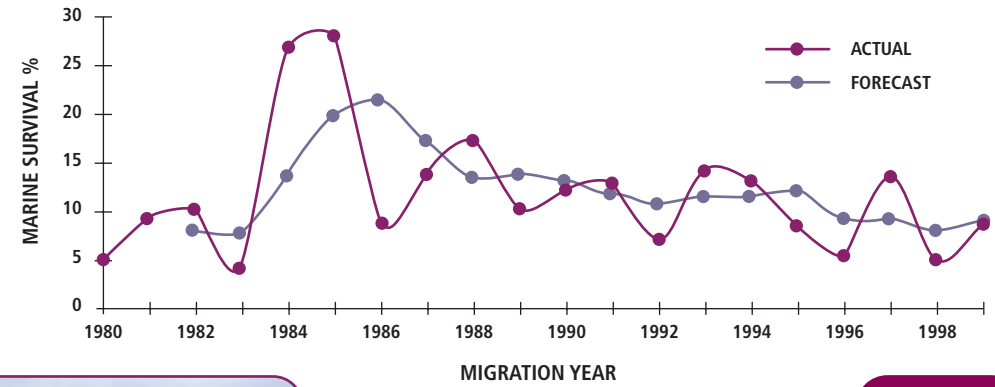
salmon management services

Current salmon wild salmon research projects include:

The Institute is currently funding a Marine Institute/NOAA PhD scholarship at the University of Massachusetts to evaluate the impacts of climate change on the marine survival of Atlantic salmon. The study will correlate weather data from NOAA satellites and a range of other oceanographic data on ocean temperature and chlorophyll concentrations with long-term survival data and catch records for the stocks of several Irish rivers. The long-term objective is to develop models for forecasting the pre-fishery abundance of Irish stocks.

The objective of the EU SALMODEL (Concerted Action) project is to develop forecast models and provide methodologies for establishing scientifically-based conservation limits for all stocks of salmon in the North East Atlantic. The final project report is due by the end of January 2003. Several significant improvements to existing methodologies were made and new insights obtained on factors affecting the survival and return of wild salmon stocks for all countries in the North East Atlantic. This project will lead to improved estimates of marine survival and conservation limits for managing the mixed stock fisheries of west Greenland and Faroes.

MARINE SURVIVAL - BURRISHOOLE SYSTEM





Yvonne Shields
DIRECTOR

DIRECTOR'S STATEMENT

2002 was a challenging year for the Science Technology & Innovation Services (STI) Team with a high level of activity associated with the delivery of programmes and services.

A major highlight was the successful delivery of the *RV Celtic Explorer* project on time and within budget. The RV Operations Team supervised the build programme and ensured regular consultation with vessel users on the specification of scientific equipment and systems. The Marine Institute Data Centre was heavily engaged in the specification and development of the IT and data management systems and the provision of support with instrumentation. Marine Technical & Development Services (MTDS) Ltd. worked closely with the Institute to expand the provision of vital services and support. Suppliers and consultants provided expert advice and guidance.

The *RV Celtic Voyager* delivered a very successful programme of activity, completing 24 separate scientific programmes and 236 days at sea. Student training remained an important part of our service with more than 120 students receiving their induction to sea-going research in 2002.

science technology & innovation services

As part of the National Seabed Survey, the Institute began surveying in Donegal Bay and covered an area of 5000 km sq. over a 60-day period. A major upgrade of the *Celtic Voyager's* equipment and systems was completed and the vessel is now capable of surveying to IHO standards.

In June, the Institute launched its new web site and had over 250,000 visitors during the year.

As part of the Institute's e-Services Programme, the Data Centre co-ordinated the development of a new Harmful Algal Bloom Information Service in conjunction with members of MEHS Division.

Two influential documents were published as part of the Tourism & Leisure Programme - *A National Development Strategy for Marine Leisure Infrastructure* and *Guidelines for Planning a Marina Development*.

The Institute and the Department of Communications, Marine and Natural Resources signed a new Memorandum of Understanding to continue collaboration on the operation and development of the National Data Buoy Network. A third buoy was added to the Network off Mizen Head in July 2002.

A collaborative initiative between the Marine Institute and Sustainable Energy Ireland saw the launch of a public consultation process and the publication of a report on *Options for the Development of Wave Energy in Ireland*.

Commencing in 2003, an expanded suite of services (incorporating the existing activities of STI) will be delivered by two new service groups - Strategic Planning & Development Services (SPDS) and Ocean Science Services (OSS).

Yvonne Shields
DIRECTOR - Science, Technology & Innovation Services

REVIEW OF ACTIVITIES 2002

RESEARCH VESSEL OPERATIONS

RV Celtic Explorer

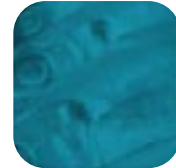
All technical and design issues relating to the *Celtic Explorer* were finalised early in 2002 with the steel superstructure of the vessel being completed in May. The vessel was launched from the dry dock in Galatz, Romania, in May and was transported to the Royal Schelde Yard at Vlissingen in Holland for outfitting. The factory acceptance tests for the fish-handling equipment took place at the Van Rijn factory in Holland in June. Trials of all electrical and engineering systems on board began in September and continued into November. Noise and vibration trials took place in the Hegernes Sound Range in Norway in November and December. The vessel successfully complied with the ICES 209 noise specifications. The ship is the first purpose-built research vessel to meet the ICES 209 requirements throughout the frequency range.



RV Celtic Voyager

The *RV Celtic Voyager* successfully completed 24 separate scientific programmes totalling 236 days at sea. A full list of research programmes undertaken in 2002 is included in

Appendix 6. New survey planning and management procedures were introduced in 2002 to streamline and improve services for vessel users. Calibration of all surface underway instrumentation was completed and an annual maintenance programme established.



Work commenced in 2002 on Zone 2 (depth range 50m and 200m) of the National Seabed Survey with a detailed survey of Donegal Bay. Over 5000km sq. of multibeam bathymetry was acquired and over 12,600 km of single-beam bathymetry, sub-bottom profile and magnetic data. A number of significant geological/bathymetrical features were identified. Charts, maps and reports delivered to the GSI will be incorporated into the Irish National Seabed Survey archive.

The *RV Celtic Voyager* received voluntary Safety Management Certification under the International Safety Management Code and her 5-year refit was completed and approved by Lloyds.

The Foreign Marine Scientific Research (MSR) Database was upgraded and contains details of the 40 foreign research survey programmes carried out in Irish waters in 2002 (Appendix 7).

MARINE TOURISM & LEISURE PROGRAMME

A number of key strategic blueprints and guidelines aimed at supporting future development of the tourism and leisure sector were published:

A Development Strategy for Marine Leisure Infrastructure - this report identifies a number of indicative locations for the development of leisure boating facilities and criteria for assessing coastal locations to meet key requirements for the development of leisure boating infrastructure.

Guidelines for Planning a Marina Development - this report identifies appropriate steps to be taken in preparing an application for planning permission and a foreshore lease for a coastal marina development.

Water-based Tourism - A Strategic Vision for Galway - this report includes over 40 recommendations to enhance the potential of Galway City and County's water-based tourism products and services. The report also highlights the potential for developers to target funding mechanisms under the National Development Plan.

As part of the Marine Institute's 10th Anniversary Conference, the Marine Tourism and Leisure Section hosted a plenary session addressing marine tourism R&D strategy and development issues. This session prompted discussion from delegates, highlighting key industry issues and concerns and providing input into the strategic R&D priorities for the sector.

MARINE DATA CENTRE

Throughout 2002, the Marine Data Centre Team was engaged in supporting the development of a range of new services and systems.

New Marine Institute Web Portal: www.marine.ie

The Marine Institute officially launched its new web portal in June 2002. The portal employs advanced technology to enable staff of the Institute to up-date web-pages in a timely and cost-efficient manner. New services include:

Online Harmful Algal Bloom Service (HABS): - developed to support Marine Environment and Health Services to disseminate information to the Food Safety Authority of Ireland, distributors, and shellfish farm operators on the results of toxicity tests in shellfish. The new service allows authorized test laboratories nation-wide to log test results via a secure link to the Marine Institute. Following analysis, reports are generated automatically via fax, e-mail and SMS.

science technology & innovation services

A *Data Warehouse Programme* was scoped and planned in 2002. Implementation will begin in 2003 to deliver on the Institute's vision of providing a national information repository, providing regulators, industry, academic researchers, and the public at large, with access to a wide range of marine information and services.

A *Ships Data Management System (SDMS)* was developed by the Data Centre and installed on the *Celtic Voyager* in July 2002. It is designed to deliver:

- Web enabled *On-line Ship Time Application and Cruise Planning*.
- Web enabled application module allowing automatic *Capture of Scientific and Instrument Meta Data during Research Surveys*.
- Semi automated *transfer of data from ship to shore*.
- Web enabled *Post Survey Cruise Reporting*.

Marine Institute NOAA Co-operation - Highlights included:

- Publication of report 'Oceanographic Data Coverage of the North East Atlantic'.
- Consultative Workshop on 'Physical/Biological Modelling Capabilities in Ireland'.

PLANNED RE-STRUCTURING

The planned re-structuring of the Institute in 2003 will see the activities of the current STI Division being divided between two new Service Groups: Strategic Planning and Development Services (SPDS) and Ocean Science Services (OSS). In this context, some of the Data Centre services will transfer to a new Information Services and Development Group within SPDS and some to the new Oceanographic Team in OSS. Both service areas will continue to innovate and provide practical solutions to support the development and use of information systems and data in the Institute and among external stakeholders.

MARINE TECHNOLOGY

Data Buoy Network

A third data buoy was added to the Data Buoy Network in July 2002 (between Mizen Head and the Fastnet) providing real-time data on wind, wave and weather conditions. This information is transmitted on an hourly basis for input to coastal forecasting by Met Éireann.

In November 2002, the Marine Institute, the Department of Communications, Marine and Natural Resources, UK Met Office and Met Éireann, signed a new Memorandum of Understanding to develop an enhanced Data Buoy Network that will have the ability to deliver real time oceanographic data in addition to meteorological information. This will provide essential information to climate modellers and be an important input into longer-term forecasting.

Up-to-date observations from the data buoy network are available at www.marine.ie/databuoy



Renewable Ocean Energy

A consultation document *Options for the Development of Wave Energy in Ireland* was launched at the Marine Institute 10th Anniversary Conference. The document highlights the potential for Ireland to become a world-leading developer and manufacturer of technologies which will enable the harnessing of ocean waves.

The consultation process will run until February 2003 and aims to build a consensus around the strategic approach to Wave Energy development in Ireland. This is a joint initiative by the Marine Institute and Sustainable Energy Ireland, and the ultimate aim is to support and inform the development of a National Ocean Strategy.

National Equipment Pool

A full inventory of the specialised equipment available for hire from the National Equipment Pool is now available on-line.



Communications

A total of 17 press releases were generated during 2002. Key areas targeted included: Marine Biotechnology, the launch of the IMDO web portal, the future of Ireland's Shipping Sector and plans for the Institute's new Galway Headquarters at Oranmore. The Communications Team serviced approximately 80 requests per month, email requests making up approximately 50% of this number.

The Institute's 10th Anniversary Conference was a major media event resulting in 57 national, and regional press articles, radio and national television broadcasts.

A listing of the workshop and events sponsored and/or supported by the Marine Institute in 2002 is contained in Appendix 7.

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 Communications, Marine and Natural Resources, 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 from all concerned.

Health & 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.

appendices

APPENDIX 1 - INTERREG-III A IRELAND/WALES (2000-2006)

In spring 2002, a first call for proposals under the new INTERREG-III A Ireland/Wales Programme was announced. Three marine projects, with Irish participation, were amongst the successful projects grant-aided. These included:

Sustainable management of nearshore water quality for aquaculture, recreation and tourism (SMART).

University College Dublin (Grant-aid: €330,000).
University of Aberystwyth (Grant-aid: €450,310).

Shellfish Aquaculture in the Irish Sea.

National University of Ireland-Cork (Grant-Aid: €250,000).
University of North Wales (Bangor) (Grant-aid: €402,752).

Use of ferries to observe water quality in the Irish Sea.

National University of Ireland -Galway (Grant-aid: €167,000).
University of North Wales (Bangor) (Grant-aid: €348,648).

In July 2002, a joint Irish/Welsh Workshop was hosted by the Marine Institute in Dun Laoghaire to advise potential participants on the funding opportunities available. The Workshop was attended by 75 persons, many of whom travelled from Wales.

Joint Projects submitted under the second call for proposals (September 2003) will be evaluated in January 2003.

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.

APPENDIX 2 - NDP MARINE RTDI MEASURE 2002

Sub-Measure 1: RV Celtic Voyager

The 65m multi-purpose research vessel *Celtic Explorer*, designed by Skipteknisk (Norway) and built by the Damen shipyards in The Netherlands and Romania, was delivered to the Marine Institute in December 2002. Construction and equipping of the *Celtic Explorer* cost circa €31 million and is 100% funded under the NDP Marine RTDI Measure.

Sub-Measure 2: Marine Infrastructure (€268,541)

Key infrastructures and specialised equipment supported under Sub-Measure 2 of the NDP Marine RTDI Measure included:

National Fisheries Assessment (Marine Fisheries Service Division)

- Upgrade Dunmore East Laboratory €30,375
- Upgrade of Castletownbere Laboratory €48,400
- Scanmar Scanbas System €49,610

Marine Environmental Monitoring & Assessment

- Laboratory Downdraft System €28,270
- Field Fluorometer €22,050
- Suite of autonomous in-situ sensors €32,169
- Multi-functional workboat €57,665

Sub-Measure 3: Marine RTDI Fund

Applied (Industry) Marine RTDI Programme (Total €331,913)

- A novel On-growing System for Abalone Grant-Aid €44,484
Awabi Teo. / 3rd Level RTDI Performer: Aquaculture Development Centre, NUI-Cork
- Technology & Scientific Development of turbot broodstock management and larviculture in Ireland Grant-Aid €97,236
Turbard Iathar Chonamara Teo (Connemara) / 3rd Level RTDI Performer: Aquaculture Development Centre, NUI-Cork
- Validation of non-contact techniques for marine water characteristics Grant-Aid €23,631
Spectral Signatures Ltd (Dublin) / 3rd Level RTDI Performer: None
- High pressure seawater pump for use in wave energy converters (C-PUMP) Grant-Aid €100,000
Marine Technology Ltd (Galway) / Associate SME: J.Murtagh Associates / 3rd Level RTDI Performer: None
- Prediction of ocean wave energy for resonant extraction devices (POWERED) Grant-Aid €66,562
Wavebob Ltd (Wicklow) / 3rd Level RTDI Performer: Hydraulics & Maritime Research Centre, NUI-Cork.

Strategic Marine RTDI Programme (Total €1,167,0716)

- Biological Oceanography of Harmful Algal Blooms off the west coast of Ireland. Grant-Aid: €399,500
Project leader: NUI-Galway
- Isolation and purification of azispiracids from naturally contaminated materials and evaluation of their toxicological effects. Grant-Aid: €419,854
Project leader: Marine Institute.
- Resource and risk assessment of mussel seed in the Irish Sea. Grant-Aid: €361,362
Project leader: NUI-Cork.
- Assessment of Orange Roughy stocks in the deep waters off the west coast of Ireland. Grant-Aid: €490,000
Project leader: NUI-Cork.

Desk Studies (Total €508,305)

- Identification and evaluation of appropriate marine S&T Performance Indicators. Grant-Aid: €65,000
Oikos (Fr)/OST (Fr)/ Circa (Irl)/EurOCEAN (Pt).
- Marine RTDI (Research, Technology, Development & Innovation) Foresight Review. Grant-Aid: €17,000
Circa (Irl).

- Disposal and re-utilisation of fish and fish processing waste (including aquaculture wastes). Grant-Aid: €30,800
Nautilus Consultants (Ireland and Scotland)
- A Review of the origins and appropriateness of the current fish stock assessment and management areas for the waters around Ireland. Grant-Aid: €58,376
MRAG (UK)
- The use of Recovery Plans to rebuild depleted fish stocks - a review. Grant-Aid: €47,622
MRAG (UK)
- Review and evaluation of marine environmental impact indicators and their application in Ireland. Grant-Aid: €57,200
Boelens (Irl), Gray (No), Parsons (Irl)
- Feasibility Study on the establishment of a Large Scale Inshore Resource Mapping Project. Grant-Aid: €89,453
Waterborne Geophysics (Irl), EcoServe (Irl)
NUI-Galway.
- Strategic review of the feasibility of seaweed aquaculture. Grant-Aid: €39,797
Irish Seaweed Centre, NUI-Galway.
- Scoping study to assess the feasibility, potential use and methodology for establishing a national marine leisure infrastructure database to support planning and development in the sector. Grant-Aid: €54,622
HMRC/NUI-Cork, ISG, NUI-Cork, Kirk McClure Morton (Belfast)
- Development of guidelines for the integration of marine recreational activities in the rejuvenation/regeneration of small harbours and ports. Grant-Aid: €48,435
Brand Shipman Martin, Kirk McClure Morton (Belfast), Fitzpatrick Ass.

Michael Manahan Marine Research Fellowship (2002) (Total €100,000)

Recipient: Dr R. Long. Centre for Marine & Natural Resource Law and Policy Centre, NUI-Galway.

Post-doctoral fellowships (Total €1,285,048)

- Modelling and simulation of fish stock dynamics in the waters around Ireland. Grant-Aid: €150,800
Host: NUI-Cork.
- Sea-lice biology and interactions. Grant-Aid: €157,400
Host: Galway-Mayo Institute of Technology (GMIT)
- Investigations into the hatchery rearing of Cod (*Gadus morhua*) in Irish conditions. Grant-Aid: €210,000
Host: NUI-Galway.

- Investigations into a reliable supply of scallop (*Pecten maximus*) for the inshore fishery and aquaculture industries. Grant-Aid: €209,280
Host: NUI-Cork.
 - Iodine in commercially used Irish seaweeds. Grant-Aid: €172,700
Host: University College Dublin.
 - Monitoring and predicting the influence of climate change on the marine flora and fauna of the islands of Great Britain and Ireland using intertidal indicators. Irish component of UK MarClim Project). Grant-Aid: €174,365
Host: NUI-Cork.
 - An integrated bioscreening approach for the identification and cloning of high value-added biocatalysts of biotechnological importance from marine algae. Grant-aid: €210,503
Host: NUI-Galway.
- PhD Scholarships (Total €660,755)**
- The biology, dynamics and fisheries for hake (*Merluccius merluccius*) in the waters around Ireland. Grant-Aid: €118,084
Host: NUI-Cork.
 - The impact of discarding on the management advice for key Irish fisheries. Grant-Aid: €120,623
Host: NUI-Cork.
 - The larval ecology of selected fish species in the waters around Ireland. Grant-Aid: €101,998
Host: NUI-Galway.
 - The biology, dynamics and fisheries for blue whiting (*Micromesistius poutassou*) in the waters around Ireland. Grant-Aid: €103,563
Host: Galway-Mayo Institute of Technology (GMIT)
 - Modelling of *Alexandrium* bloom dynamics in Cork Harbour. Grant-Aid: €98,350
Host: NUI-Galway.
 - Health and disease in clams, *Ruditapes philippinarum*, in Ireland with particular reference to brown ring disease. Grant-aid: €118,137
Host: NUI-Cork.
- Networking/Technology Transfer Scheme (Total €39,060) Workshops/ Conference Grants**
- Sponsorship - 13th Irish Environmental Researchers Colloquium (Galway: January 2003). Grant-Aid: €2,500
Recipient: Environmental Change Institute, NUI-Galway.

- Sponsorship - 3rd European Phycological Congress (Belfast: July 2003). Grant-Aid: €3,000
Recipient: Queen's University Belfast (Marine Laboratory).
- Sponsorship - 5th International Wave Energy Conference (Cork: September 2003). Grant-Aid: €5,000
Recipient: Hydraulics & Maritime Research Centre, NUI-Cork
- Sponsorship - Workshop series on "Aquaculture Information for non-Experts." Grant-Aid €4,960
Recipient: AquaTT UETP Ltd.

Travel/Mobility Grants

- Attendance/presentation - World Aquaculture Conference 2003 (Brazil: May 2003). Grant-Aid: €1,000
Recipient: Mr D. Murphy (AquaTT UETP)
- Attendance/presentation - All Energies Opportunities Conference (Scotland: May 2003). Grant-Aid: €2,000
Recipient: Mr John Coleman, La Tene Maps
- Attendance/presentation - 6th International Marine Biotechnology Conference (Japan: Sept 2003). Grant-Aid: €800
Recipient: Dr Carmel Mothersill (DIT)

Other Marine RTDI Networking / Technology Transfer Initiatives

- Further development of www.aquaculture.ie website. Grant-Aid: €2,000
Recipient: Aquaculture Development Centre, NUI-Cork
- Production of career promotion in aquaculture materials as contribution to PISCES project. Grant-Aid: €5,000
Recipient: AquaTT UETP
- Contribution to development of database on Irish Marine SME Sector. Grant-Aid: €5,000
Recipient: La Tene Maps
- Further development of the Irish Sea Food website (www.irishseafood.com). Grant-Aid: €2,800
Recipient: Irish Seafood .Com
- Contribution to Irish participation in German Carbonate Mound Coring Project. Grant-Aid: €5,000
Recipient: Dr A. Wheeler, Environmental Research Institute, NUI-Cork

APPENDIX 3 - MARINE INSTITUTE PUBLICATIONS

Special Reports

- The Stock Book: Annual Review of Fish Stocks in 2002 with Management advice for 2003. (2002). ISBN 1-902895-21-5.
- Oceanographic Data: Coverage of the Northeast Atlantic 1970-2000, September 2002. 64 pp. ISBN: 19802895185. Price €190.
- Options for the Development of Wave Energy in Ireland, A public consultation document, November 2002. Marine Institute and Sustainable Energy Ireland.50pp.
- A Guide to the NDP Industry RTDI Grant Aid Programmes Relevant to the Marine Sector, August 2002. 79 pp. ISBN: 1-902895-20-7.
- Blue Print 2005 - A Strategy by and for the Staff of the Marine Institute. December 2002. 25pp.

Marine Resources Series. ISSN 1363 4643

- 22 Cummins, V., Coughlen, S., McClean, O., Connolly, N., Mercer, J. & G. Burnell (2002). An assessment of the potential for the sustainable development of the edible periwinkle, *Littorina littorea*, industry in Ireland.

Fisheries Bulletin

- 20 Fahy, E. ; Carroll, J. ; Browne, R. ; Ni Rathaille, A. ; Casburn, P. ; Breathnach, S. ; Norman, M. ; Stokes, D. (2002). *A survey by hydraulic dredge of interstitial bivalves with commercial potential in Cill Charáin and Beirtreach Bui Bays and along their connecting shoreline, Co Galway.*

Fishery Leaflets

- 181 McCarney, P. ; Copley, L. ; Kennedy, S. ; Nulty, C. ; Jackson, D. ; (2002). *National survey of the sea lice (Lepeophtheirus salmonis Kroyer and Caligus elongatus Nordmann) on fish farms in Ireland - 2001.*
- 182 Fahy, E ; O'Toole, M. ; Stokes, D. ; Gallagher, M. ; (2002). *Appraisal of the whelk (Buccinum undatum) fishery on a part of the Codling Bank following aggregate extraction for beach restoration at Bray, Co. Wicklow.*

Irish Fisheries Investigations Series. ISSN 0578 7467

- 11 Fahy, E. ; Carroll, J. ; Stokes, D. ; (2002). *The inshore pot fishery for brown crab (Cancer pagurus), landing into south-east Ireland: estimate of yield and assessment of status.*

Marine Environment and Health Series. ISSN 1649 0053

- 4 McGovern, E. ; Monaghan, E. ; Bloxham, M. ; Rowe, A. ; Duffy, C. ; Quinn, A., McHugh, B. ; McMahan, T. ; Smyth, M. ; Naughton, M. ; McManus, M. ; Nixon, E. (2002). *Winter nutrient monitoring of the Western Irish Sea - 1990 to 2000.*

INTERREG- IIA Series. (Projects completed in 2001, published in 2002. ISSN 1393 9025)

- 9 Connolly, N., Buchanan, C., O'Connell, M., Cronin, M., O'Mahony, C., Sealy, H., Kay, D. & S. Buckley. (2001). *Assessment of Human Activities in the Coastal Zone: A research project linking Ireland and Wales.* 126pp.
- 10 Dubsy, K & A. Tierney. (2001). *Clean Seas Project Harbour Survey Report (Ireland).* 63pp.
- 11 Tambini, L., Dubsy, K., and B. Jones. (2001). *Clean Coasts / Clean Seas.* 51pp

Brochures:

- Science Technology Innovation News Bulletin 2002
- National Data Buoy Network
- Tourism & Leisure Information Leaflet

Sea State - Newsletter

- No. 12 Summer 2002
- No. 13 Special Edition 10th Anniversary Conference

CD ROMS

- National Coastline Survey: CD No. 8. Co. Sligo, Co. Leitrim and Co. Donegal
- IMDO - Imagine a Career at Sea

APPENDIX 4 - PUBLICATIONS

Anon., (2002). Report of the Sea Trout Review Group (Ed. P.J. Lynch), Dept. of Communications, Marine & Natural Resources, Dublin; 32pp.

Berrow, S.D., McHugh, B., Glynn, D., McGovern, E., Parsons, K.M., Baird, R.W., and Hooker S.K. (2002) Organochlorine Concentrations in resident bottlenose dolphins (*Tursiops truncatus*) in the Shannon Estuary, Ireland. Marine Pollution Bulletin No. 44. p1296 -1303.

Briggs R.P., Armstrong M.J., Dickey-Collas M., Allen M., McQuaid N. and Whitmore J. The application of fecundity estimates to determine the spawning stock biomass of Irish Sea Nephrops norvegicus (L.) using the annual larval production method. (2002) ICES Journal of Marine Science 59: 109-119.

Byrne, C.J., Poole, W.R., Dillane, M.G. and Whelan, K. (2002). The Irish sea trout enhancement programme: an assessment of the parr stocking programme into the Burrishoole catchment. Fisheries Management & Ecology 9 (6); 329-341.

Clarke M.W., Connolly P.L. and Bracken J.J. (2002). Catch, discarding, age estimation, growth and maturity of the squalid shark *Deania calceus* west and north of Ireland. Fisheries Research 56: 139-153.

Clarke M.W., Connolly P.L. and Bracken J.J. (2002). Age estimation of the exploited deepwater shark *Centrophorus squamosus* from the continental slopes of the Rockall Trough and Porcupine Bank. Journal of Fish Biology. 60: 501-514.

Cotter D., O Donovan V., Drumm A., Roche N., Ling E.N. and Wilkins N.P. (2002) Comparison of freshwater and marine performances of all-female diploid and triploid Atlantic salmon (*Salmo salar L.*). Aquaculture Research 33, 43-53.

Fahy E., Alcántara M.L., Norman M., Browne R., Roantree V. and Pfeiffer N. (2002). Mortalities of *Ensis arcuatus* (Jeffreys) (Solenacea) in western Ireland. Journal of Shellfish Research 21: 29-32.

Gargan, P., Tully, O. and Poole, W. R. (2002). The relationship between sea lice infestation, sea lice production and sea trout survival in Ireland, 1992-2001. In: Proceedings of the 6th International Atlantic Salmon Symposium 'Salmon on the Edge', Edinburgh, UK, July 2002 (in press).

George, D.G., Rouen, M.A., O'Hea, B., McGinnity, P. and Allott, N. (2002). Using automatic water quality monitoring systems to monitor the transport of suspended sediment from an upland catchment in the west of Ireland. Proceedings of the 3rd Inter-Celtic Colloquium on Hydrology and Management of Water Resources, National University of Ireland Galway, 8-10th July 2002; 10pp

Hutchinson, P., Welch, D., Boehlert, G., and Whelan, K. (2002) A Synthesis of the Joint Meeting. In: Joint Meeting on Causes of Marine Mortality of Salmon in the North Pacific and North Atlantic Oceans and in the Baltic Sea. Eds.: IBFSC, NASCO, NPAFC and PICES. North Pacific Anadromous Fish Commission. (NPAFC) Technical Report 4. Vancouver, Canada.

Ito E., Satake M., Ofuji K., Higashi M., Harigaya K., McMahon T. and Yasumoto T. (2002). Chronic effects in mice caused by oral administration of sublethal doses of azaspiracid, a new marine toxin isolated from mussels. Toxicon 40: 193-203.

May, L., Place, C.J., O'Hea, B., Lee, M., Dillane, M. and McGinnity, P. (2002). Modelling soil erosion and transport in the Burrishoole catchment, Newport, Co. Mayo, Ireland. Paper presented to the final LIFE II meeting, Seville, Spain, November 2002. 16pp.

Ó Maoiléidigh N., Cullen A., McDermott T., Bond N. and McLaughlin D. (2002). Review of Irish salmon aquaculture escapee data. International Council for the Exploration of the Sea. ICES Annual Science Conference. Theme Session T:10

O'Maoiléidigh, N., Potter, E.C.E., McGinnity, P., Whelan, K.F., Cullen, A., McLaughlin, D., and McDermot, T. (2002). The Significance and Interpretation of Net Catch Data. In: The Interpretation of Rod and Net Catch Data. Proceedings of a workshop held at the Centre for Environment, Fisheries and Aquatic Science, Lowestoft, 6th - 7th November 2001. Ed.: Richard Shelton. 15 - 30. Atlantic Salmon Trust, Pitlochry, Scotland.

Poole, W.R., Byrne, C.J., Dillane, M.G., Whelan, K. and Gargan, P.G. (2002). The Irish sea trout enhancement programme: a review of the broodstock and ova production programmes. Fisheries Management & Ecology 9 (6); 315-328.

Poole, R. (2002). Monitoring of eel recruitment in the Republic of Ireland. In: W. Dekker (ed.) Monitoring of glass eel recruitment. Netherlands Institute of Fisheries Research, Ijmuiden, Netherlands, EU Report C007/02-WD, 256pp.

Santos M.B., Pierce G., Hartmann M.G., Smeenk C., Addink N., Kuiken T., Reid R.J., Patterson I.A.P., Lordan C., Rogan E. and Mente E. (2002). "Additional notes on stomach contents of sperm whales *Physeter macrocephalus* stranded in the north-east Atlantic." Journal of the Marine Biological Association of the United Kingdom 82: 501-507.

Whelan, K.F., Whelan, B.J. and Rogan, G. (2002). Catch as a Predictor of Salmon Stock in the Burrishoole Fishery, Co. Mayo, Western Ireland. In: The Interpretation of Rod and Net Catch Data. Proceedings of a workshop held at the Centre for environment, Fisheries and Aquatic Science, Lowestoft, 6th - 7th November 2001. Ed.: Richard Shelton. 76 - 84. Atlantic Salmon Trust, Pitlochry, Scotland.

APPENDIX 5 - BURRISHOOLE TRAP CENSUS

Table 1. Upstream census data for the Burrishoole system, 2002

Species	Salmon Leap Upstream 2002	Mill Race Upstream 2002	Totals Upstream 2002	Totals Upstream 2001
Wild Grilse	499	136	635	361
Wild Spring Salmon	0	2	2	14
Reared Grilse	736	123	859	791
Wild Sea Trout	22	13	35	54
Wild Finnock	67	13	80	44
Wild Brown Trout	57	11	68	54

Table 2. Downstream census data for the Burrishoole system, 2002.

Species	Salmon Leap Downstream 2002	Mill Race Downstream 2002	Totals Downstream 2002	Totals Downstream 2001
Wild Salmon Smolt	6750	1869	8687	6382
Wild Sea Trout Smolt	1189	86	1275	530
Silver Eel	2634	226	2860	3875

APPENDIX 6 - RV CELTIC VOYAGER RESEARCH PROGRAMME 2002

Institute	Scientist	Dates	Location	Description
Marine Institute	Marine Data Centre	08/01/02 - 09/01/02	Galway Bay	Survey Data Management System sea trials
Marine Institute	MEHS	12/01/02 - 27/01/02	Irish Sea	Annual nutrients monitoring
NUI Dublin	Dr. Colman Gallagher	28/01/02 - 29/01/02	Dublin Bay	Student training
GMIT	Dr. David McGrath	14/03/02 - 15/03/02	Galway Bay	Student training
NUI Galway	Ms. Patricia Brannick	19/03/02 - 20/03/02	Galway Bay	Student training
NUI Galway	Prof. Julie Fives	21/03/02 - 22/03/02	Galway Bay	Student training
NUI Cork	Dr. Emer Rogan	24/03/02	Cork Harbour	Student training
Marine Institute	MFSD	26/03/02 - 16/04/02	Celtic Sea and Irish Sea	Egg larval survey
TCD	Dr. Jim Wilson	19/04/02	Dublin Bay	Student training
Marine Institute/ Met Éireann	STI	08/05/02 - 10/05/02	Irish Sea	East coast data buoy service
Petroleum Affairs Division, DoCMNR	Dr. Peter Croker	11/05/02 - 14/05/02	Irish Sea	Hydrographic and geophysical survey of the codling fault zone
Radiological Protection Institute of Ireland	Dr. Tom Ryan	15/05/02 - 17/05/02	N. Irish Sea	Annual marine monitoring programme
NUI Galway	Ms. Pauhla McGrane	20/05/02 - 26/05/02	West Coast	Investigation of phytoplankton bloom
NUI Cork	Mr. Gerry Sutton, Coastal Resources Centre	30/05/02 - 14/06/02	Waterford/ Wexford Coast	Scallop grounds survey using acoustic technology
NUI Dublin	Dr. Colman Gallagher	15/06/02 - 16/06/02	Waterford Coast	Multibeam and geophysical survey
Marine Institute	MFSD	23/06/02 - 02/07/02	West Coast	Nephrops trawl survey
Bord Iascaigh Mhara	Dr. Oliver Tully	04/07/02 - 13/07/02	NW Coast	Fisheries, larval distribution and production of edible crab
Marine Institute/ Met Éireann	STI	19/07/02 - 26/07/02	W and SW Coast	Deployment and servicing of met data buoy
Marine Institute	MEHS	27/07/02 - 05/08/02	West Coast	Distribution of harmful algal species
Geological Survey of Ireland	Mr. Mick Geoghegan	07/08/02 - 13/08/02	Galway Bay	Multibeam and geophysical survey
Marine Institute	STI	20/08/02 - 20/10/02	NW Shelf	Seabed Survey
GMIT	Dr. Brian Ottway	29/10/02 - 30/10/02	Galway Bay	Student training
TCD	Dr. Jim Wilson	03/11/02	Dublin Bay	Student training
Marine Institute	MFSD	04/11/02 - 03/12/02	Celtic Sea and Irish Sea	Annual Groundfish Survey

APPENDIX 7 - FOREIGN MARINE SCIENTIFIC RESEARCH (MSR) ACTIVITIES IN IRISH WATERS IN 2002.

Country	Vessel Name	Date of Cruise From	Date of Cruise To	Research Activity
BELGIUM	Belgica	24/04/2002	11/05/2002	Marine Biology and Oceanography
FRANCE	Cote de la Manche	04/07/2002	20/07/2002	Radiation Monitoring
	Thalassa	10/10/2002	30/11/2002	Fishery
GERMANY	Akademik Boris Petrov	25/03/2002	10/08/2002	Geology
	Alexander von Humboldt	25/06/2002	23/08/2002	Oceanography
	Gauss	20/05/2002	25/05/2002	Oceanography
	Gauss	03/07/2002	08/07/2002	Oceanography
NETHERLANDS	Poseidon	16/07/2002	04/08/2002	
	Walter Herwig	13/09/2002	06/10/2002	Fishery
	Pelagia	16/07/2002	20/07/2002	Oceanography
NORWAY	Pelagia	29/08/2002	06/09/2002	Oceanography
	Pelagia	20/06/2002	14/07/2002	Benthic Ecology
	Johan Hjort	23/03/2002	25/04/2002	Fishery
RUSSIA	Nera Atlantic	08/05/2002	07/06/2002	Fishery
	Akademik Mstislav Keldysh	11/08/2002	17/09/2002	Oceanography
	Akademik Sergey Vavilov	25/05/2002	31/05/2002	Oceanography
	Frridtjof Nasen	15/03/2002	15/04/2002	Fishery
SPAIN	Professor Logachev	10/06/2002	10/08/2002	Geology
	Vizconde de Eza	26/08/2002	28/09/2002	Fishery
	Cirolana	28/02/2002	31/03/2002	Fishery
UK	Cirolana	15/01/2002	27/01/2002	Pollution Monitoring
	Cirolana	01/11/2002	02/12/2002	Fishery
	Corystes	01/05/2002	14/05/2002	Fishery
	Corystes	04/09/2002	28/09/2002	Fishery
	Discovery	06/03/2002	21/03/2002	Fishery
	Discovery	18/04/2002	27/05/2002	Oceanography
	Discovery	17/02/2002	28/02/2002	Oceanography
	Discovery	01/04/2002	14/04/2002	Oceanography
	Discovery	24/07/2002	27/08/2002	Oceanography
	Discovery	27/09/2002	24/10/2002	Fishery
MV Ocean Seeker	15/08/2002	05/09/2002	Geology	
Not advised	01/03/2002	31/03/2002		
Prince Madog	24/01/2002	30/01/2002	Benthic and fisheries ecology	
Prince Madog	31/03/2002	06/04/2002	Oceanography	
Prince Madog	09/06/2002	14/06/2002	Training	
Prince Madog	12/07/2002	21/07/2002	Oceanography	
Scotia	03/03/2002	17/03/2002	Fishery	
Scotia	31/08/2002	19/09/2002	Fishery	
Scotia	12/11/2002	04/12/2002	Fishery	
Scotia	14/12/2002	20/12/2002	Fishery	

APPENDIX 8 - CONFERENCE /WORKSHOP SPONSORSHIPS 2002

January	12th Irish Environmental Researchers Colloquium (Environ 2002) Cork. 25th - 27th January 2002.
February	Dublin Boat Show. Dublin 27th February - 3rd March 2002.
March	Consultative Workshop on 'Preliminary Assessment of Modelling Capabilities in Ireland' Carlow. 13th March 2002. Royal Irish Academy " <i>The Intertidal System</i> " Dublin, 21st - 22nd March 2002. 7th International Coastal Symposium. University of Ulster, Templepatrick, Northern Ireland. 25th - 29th March 2002.
April	National Dive Exhibition. Kilkenny 27th - 28th April 2002.
May	Molecular Probe Technology for the Detection of Harmful Algae. Galway. 20th - 24th May 2002.
June	World Ocean Day / Irish Wildlife Trust. Howth. 8th June 2002.
July	Fish Ireland. Killybegs 4th - 6th July 2002. Joint Irish/Wales INTERREG-IIIa Programme (2000-2006) Networking Workshop. Dun Laoghaire, 16th July 2002.
August	
September	NDP Marine RTDI Measure Workshop to launch €2.35 million Desk Study/Fellowship/Scholarship Programme. Galway.
October	
November	Marine Institute 10th Anniversary Conference " <i>Taking Marine Research Further</i> " Dublin Castle, 5th - 7th November 2002. 3rd Annual Irish Marine Science Biotoxin Workshop. Galway. 14th November 2002.
December	BMW/MI Information seminar ' <i>A Guide to the NDP Industry RTDI Grant Aid Programmes Relevant to the Marine Sector</i> ' Galway, 10th December 2002.

APPENDIX 9 - BLUE PRINT 2005**A STRATEGY BY AND FOR THE STAFF OF THE MARINE INSTITUTE****At Organisational Level:**

- Manage the change process to ensure service delivery during the transition period.
- Implement a new HR plan incorporating structures, career progression, upgrade procedures, training and development.
- To achieve "*People Through Excellence*" accreditation from FÁS.
- Implement a Marine Institute Infrastructure Development Programme: incorporating Oranmore, Dublin, Newport and the Regional Fishery Harbours.
- Achieve independently assessed quality standards in key areas.
- Become a world-class centre of excellence in Marine RTDI and service delivery.

At Programme Level:

- To fully implement the objectives of the NDP - to build new research capacity, improve national marine research infrastructure and implement RTDI funding programmes to build new expertise and knowledge.
- Prepare a new National Marine RTDI Strategy.
- Participation in key projects under the 6th Framework Programme.
- Establishment of a National Shellfish Microbiology and Virology Laboratory.
- Establishment of a world class ship registry.
- Implementation of a suite of fiscal reforms aimed at developing the shipping sector.
- Provision of data for the establishment of real-time fisheries management programme with DCMNR and industry.
- New initiatives in relation to fish stock recovery plans.
- Preparation of a Strategy for integrating Marine Tourism and Leisure and the regeneration and rejuvenation of ports and harbours.
- Development of a Marine Data Warehouse to manage and deliver a suite of oceanographic information services.
- Expansion of the National Marine Data Buoy Network and the National Equipment Pool.
- Expand the utilisation of the Newport scientific infrastructure (Laboratory, Hatchery and Catchment) in aquaculture, environmental and wild fisheries RTDI and resource management programmes.
- Development of new inshore and offshore survey programme on the *Celtic Voyager* and *Celtic Explorer*.
- To develop stronger co-operative links with both Europe and US in relation to marine science policy, marine R & D and the use of marine R & D infrastructure.

In conjunction with other key Partners:

- Preparation of a Marine Monitoring Plan for Ireland in conjunction with EPA, RPII and Dúchas.
- Preparation of a Wave Energy Strategy for Ireland in conjunction with SEI and DCMNR.
- Participation in the National Seabed Survey Offshore Mapping Programme in conjunction with the GSI.
- Provision of scientific services and management advice to support the National Salmon Commission.
- Mapping and Drafting of Management Plans for Marine SAC's in conjunction with Dúchas and other stakeholders.
- Develop partnerships for a range of EU FP6 funded projects aimed at improving the scientific advice for fisheries management.
- Continued development of the NOAA - MI partnership.
- Major international collaborative project on the Biological Oceanography of Harmful Algal Blooms.

And finally...

- Any organisation is only as good as the people who work there.
- The Marine Institute is our organisation, we work in it, we are part of it and it is all of us.
- Ireland is surrounded by the sea, fed by the sea, and supplied by sea.
- We believe in Ireland and in her future as an island nation.
- By working together now, we are part of that future.

glossary of abbreviations

ACFM	Advisory Committee on Fisheries Management	FATS	Fishery Assessment Technicians	MARLAB	Fisheries Research Services Marine Laboratory	R&D	Research and Development
ALO	Aquaculture Liaison Officer	FHU	Fish Health Unit	MEHS	Marine Environment and Health Services	RASATA	Rapid Azaspiracid Shellfish Toxin Analysis
ARC	Aquaculture Research Committee	FSAI	Food Safety Authority of Ireland	MFSD	Marine Fisheries Services Division	RPII	Radiological Protection Institute of Ireland
ASP	Amnesic shellfish poisoning	FP6	Sixth Framework Programme	MHC	Major Histocompatibility Complex	RTD	Research, Technology and Development
AZP	Azaspiracid poisoning	GIS	Geographic Information System	MI	Marine Institute	RTDI	Research, Technology, Development and Innovation
BIM	Bord Iascaigh Mhara	GMIT	Galway Mayo Institute of Technology	MOU	Memorandum of Understanding	RV	Research vessel
CEFAS	Centre for Environment, Fisheries and Aquaculture	GSI	Geological Survey of Ireland	MSR	Marine Scientific Research	SCOFCAH	Standing Committee on the Food Chain and Animal Health
CEH	Centre for Ecology and Hydrology	HABS	Harmful Algal Blooms Service	MTDS	Marine Technical and Development Services	SDMS	Ships Data Management System
CEO	Chief Executive Officer	HMRC	Hydraulics and Maritime Research Centre	NAB	National Accreditation Board	SMEs	Small to Medium Sized Enterprises
CFP	Common Fisheries Policy	ICES	International Council for the Exploration of the Sea	NSC	National Salmon Commission	SMS	Salmon Management Services
CMA	Connecticut Maritime Association	ICT	Information Communications Technology	NDP	National Development Plan	SPDS	Strategic Planning and Development Services
CTD	Conductivity, Temperature and Depth	IEA	Irish Farmers Association	NEAFC	North East Atlantic Fisheries Commission	STECF	Scientific, Technical and Economic Committee on Fisheries
DAF	Department of Agriculture and Forestry	IFREMER	Institut français de recherche pour l'exploitation de la mer (French Research Institute for Exploitation of the Sea)	NOAA	National Oceanic and Atmospheric Administration	STI	Science, Technology and Innovation
DAEDNI	Department of Agriculture and Rural Development Northern Ireland	IFSHAC	Irish Fish and Shellfish Advisory Committee	NUIC	National University of Ireland, Cork	TAC	Total Allowable Catch
DAS	Data Acquisition System	IHO	International Health Organisation	NUIG	National University of Ireland, Galway	TCD	Trinity College Dublin
DCMNR	Department of Communications, Marine and Natural Resources	ILAB	Irish Accreditation of Laboratories	NZ	New Zealand	UCC	University College Cork
DG SANCO	European Commission Health and Consumer Protection Directorate General	ISA	Infectious Salmon Anaemia	OIE	Office International des Epizooties (World Organisation for Animal Health)	UETP	University Enterprise Training Partnership
DIT	Dublin Institute of Technology	ISAV	Infectious salmon anaemia virus	OSPAR	Oslo and Paris Convention (1992)	UK	United Kingdom
DSP	Diarrhetic shellfish poisoning	ISEAS	Irish Seafarers Educational Assistance Scheme	OSS	Ocean Scientific Services (of Marine Institute)	UN	United Nations
DTX-2	Dinophysistoxin-2	ISPG	Irish Seafood Producers Group	OST	Office of Science and Technology	UNCLOS	United Nations Convention on the Law of the Sea
EIFAC	European Inland Fisheries Advisory Commission	IT	Information Technology	PAD	Petroleum Affairs Division	UNICPOLOS	United Nations Informal Consultative Process on Oceans and the Law of the Sea
EPA	Environment Protection Agency	IMDO	Irish Maritime Development Office	PMDS	Performance Management Development Systems	US	United States
ERA	European Research Area	INTERREG	EU Inter-Regional Co-Operation Programme	PSP	Paralytic shellfish poisoning	USA	United States of America
ESF	European Science Foundation	LC/MS	Liquid Chromatography - Mass Spectrometry	QUASIMEME	Quality Assurance of Information for Marine Environmental Monitoring in Europe		
ESF-MB	European Science Foundation - Marine Board						
EU	European Union						