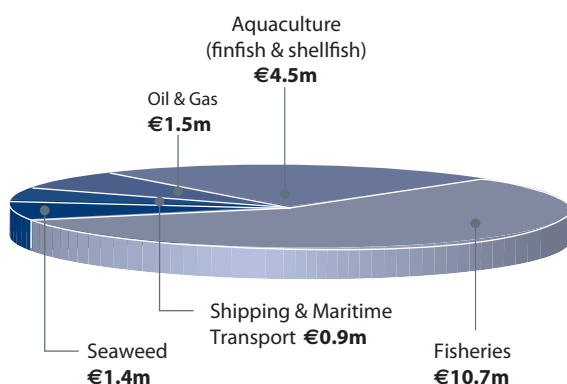


Appendix 1: Sea Change Research Programmes – Overview of Progress in 2007

Industry Research Measure



Overview

Throughout 2007, activity has taken place across all the Research Programmes within the Industry Research Measure, with an estimated €19m being committed in research funding for 24 research and innovation projects/initiatives.

Research Programme	Funds Committed
Marine Food (<i>excluding Marine Functional Foods</i>)	€16.6m
Offshore Oil & Gas	€1.5m
Shipping & Maritime Transport	€0.9m

In addition, €5.4m has been committed under the Marine Functional Foods Programme, of which €5.2m has been awarded to the Marine Functional Foods Research Initiative – MFFRI, (see information under the Discovery Measure). The MFFRI is a pre-competitive institutional-based research programme focussing on new research effort to identify marine origin food ingredients for use by Ireland's expanding food ingredients and marine foods industries.

Summary of impact

The investment committed in the Industry Measure will significantly strengthen research capacity, supporting 17 research groups spread across 10 research institutions on the island of Ireland, providing new research capacity (19 new research positions, 20 PhD scholarships and 26 summer student placements) and funding for existing research groups. In addition, support for 10 SMEs has been provided to carry out marine research and innovation in the marine food and shipping sectors.

Marine Food Research Programmes:

Fisheries Resources
Aquaculture (Finfish & Shellfish)
Seaweed
Seafood Processing

A number of funding mechanisms, aimed at achieving the objectives within the research programmes of the marine food area, have successfully been rolled out in 2007. An estimated €16.6m has been committed in research funding across the programmes.

An additional €5.4m committed to marine functional foods research (an element of the Seafood Processing Research Programme) will build new research competencies and multi-disciplinary teams.

Research Programme	Research Capacity
Fisheries (€10.7m)	13 research projects across 11 organisations (including industry), 11 new research positions and 13 PhD scholarships created
Aquaculture (€4.5m)	Five new researchers involved in two projects across six organisations (including industry)
Seaweed (€1.4m)	Two research projects with strong industry focus and one Post-Doctoral Fellowship (funding provided to six research groups and one SME)
Seafood Processing-Functional Foods (€5.4m)*	Two new teams in marine functional foods, supporting nine new researchers and seven PhDs across six organisations. One industry-led research project

* Categorized under Discovery Programme. (Further information provided in the Case Study presented on Page 27).

Strong links have been developed between *Sea Change* and the *Seafood Strategy Implementation Group*, with reciprocal representation on the respective Steering Groups and considerable collaboration/information exchange between BIM and the Marine Institute aimed at achieving common objectives.



Members of the Marine Food Advisory Group

Case Study: Cod Aquaculture

The Marine Institute (under the 2000-2006 NDP) funded research on hatchery rearing of cod at NUIG's Carna facility. This led in turn to additional support through the AquaReg programme, leading to the first successful harvest of farmed cod in early 2007. This cod project was directed by a management group comprising MI, BIM, Údarás na Gaeltachta/ Taighde Mara, NUIG and industry (Trosco Teo).

Considerable expertise in hatchery production now exists and there is ongoing production of juvenile cod, based largely on imported eggs. Key to the further development of cod farming in Ireland is a national cod broodstock resource. A seven-year research programme, supported under *Sea Change* through the Marine Research Sub-Programme of the NDP 2007-2013, co-financed by ERDF, via the BMW Regional Operational Programme, seeks to remove this production bottleneck and establish an indigenous supply of quality eggs/juveniles.

By ensuring the availability of a regular supply of eggs, with full traceability in terms of parentage, genetic characteristics and health status and providing focussed R&D in key areas of larval/juvenile production, this project will support the emerging industry.

The research consortium includes NUIG, UCC, BIM, MI, Údarás na Gaeltachta, the Irish Seafood Producers Group and Trosco Teo.

Marine Food Research Projects/Initiatives Funded in 2007	
Project Title/Focus	Project Type
Fisheries Research Projects	
NDP Marine Research Sub-Programme (€1.8m)	
Rebuilding Depleted Fish Stocks	Post-Doctoral Fellowship
Fisheries Data Integration	Post-Doctoral Fellowship
Signal Detection Methods to the Fisheries Management System	PhD Scholarship
Scholarships related to: Nephrops, Black Scabbard, Herring and Climate Change	PhD Scholarships (x4)
Beaufort Marine Research Award (€7.6m)	
Ecosystems Approach to Fisheries Management	Capacity Building
Fish Population Genetics	Capacity Building
EU FP7, EPA & IRCSET (€1.3m)	
Atlantic Salmon: Stock Migration & Distribution (SALSEA)	EU FP7 Project
Atlantic Eels: Assessment of their Decline (EELIAD)	EU FP7 Project
European Fisheries & Ecosystem Management (MEFEPO)	EU FP7 Project
Juvenile Fish Habitats	EPA PhD Scholarship
Ecology of Coral Feeding Butterfly Fishes	IRCSET Post-Doctoral Fellowship
Aquaculture Research Projects	
NDP Marine Research Sub-Programme (€4.1m) EU FP7 (€0.4m)	
Cod Broodstock & Breeding	Strategic Industry
MIDTAL Microarrays for the Detection of Toxic Algae	EU FP7 Project

Marine Food Research Projects/Initiatives Funded in 2007	
Project Title/Focus	Project Type
Seaweed Research Projects	
NDP Marine Research Sub-Programme (€1.4m) IRCSET (€0.07m)	
Seaweed Aquaculture	Strategic Industry
Inshore Kelp Resource Assessment	Applied Industry
Metal Contamination in Seaweeds	IRCSET PhD Scholarship
*Seafood Processing/Marine Functional Foods Research Projects/Initiatives	
SSTI MI/DAFF Award (€5.2m)* & NDP Marine Research Sub-Programme (€100k)	
Marine Functional Foods Research Initiative	Capacity Building
Flavouring and Taste Components in Irish Seaweeds	Industry-Led

*Categorised under Discovery Programme.

Shipping & Maritime Transport Research Programme

The *Sea Change Marine Foresight Panel* on Shipping and Maritime Transport identified a number of opportunities within the Shipping and Maritime Transport Sector, e.g. development of the maritime services sector (economics and transport). Building upon the Foresight Exercise, in 2007, the Marine Institute commissioned an international expert to work on the creation of a plan to expand Ireland's research effort in the area of shipping and maritime economics; to enable Irish researchers to participate in international research networks within this area. This work will be completed in 2008.

Under the first round of the EU's FP7 Co-operation Programme, Irish researchers have been successful in securing grant-aid across three collaborative research projects, providing funding to four Irish industry partners/organisations.

Shipping & Maritime Transport Research Projects/Initiatives Funded in 2007	
Project Title/Focus	Project Type
NDP Marine Research Sub-Programme (€59k)	
An Assessment of Research Capabilities and Development of a National Research Agenda in the area of Maritime Economics and Transport	Tender
EU FP7 (€803k)	
Intuitive Operation and Pilot Training when using Marine Azimuthing Control Devices (AZIPILOT)	EU FP7 Project
Promotional Platform for Short Sea Shipping & Intermodality (PROPS)	EU FP7 Project
Sustainable Knowledge Platform for the European Maritime and Logistics Industry (SKEMA)	EU FP7 Project

Offshore Oil & Gas Research Programme

Research funding provided by the DCENR/GSI under the Griffith Geoscience Research Awards resulted in €1.5m being awarded to petroleum geology research and associated knowledge and information management. This funding will build and strengthen existing capacity in this area by supporting two new research positions, four PhD scholarships and five summer students.

In addition, the Marine Institute has been liaising with the DCENR's Petroleum Affairs Division (PAD) to identify collaborative opportunities and synergies with its Petroleum Infrastructure Programme (PIP).

Finally, through the Marine Institute's Integrated Marine Exploration Programme, a number of deep sea research initiatives will support the development of this sector.

Offshore Oil & Gas Research Projects/ Initiatives Funded in 2007	
Project Title/Focus	Project Type
DCENR/GSI Griffith Geoscience Research Award (€1.5m)	
Petroleum Geology Research	Capacity Building

Appendix 2: Marine Research Projects 2007 (Marine Institute and other Sources)

Industry Research Measure						
Fisheries Resources Research Programme						
Funding Source & Type	Project Name	Grant-Aid (agreed) ⁴	Project Duration	Lead Partner	Partners	
Beaufort Marine Research Award (Capacity Building)	Ecosystems Approach to Fisheries Management	€3,926,688	7 Years	University College Cork Department of Zoology, Ecology & Plant Science	Queen's University Belfast Ecology & Evolution Research Cluster, School of Biological Sciences Marine Institute Fisheries Science Services	
Beaufort Marine Research Award (Capacity Building)	Fish Population Genetics	€3,712,588	7 Years	University College Cork Department of Zoology, Ecology & Plant Science	Queen's University Belfast Fisheries Genetics & Molecular Ecology Research Group & Fisheries & Aquatic Ecosystems Branch	
Marine Institute NDP Marine Research Sub- Programme (Postdoctoral Fellowship)	Develop and test through Simulation a Suite of Measures that will Contribute to Rebuilding Depleted Fish Stocks in Waters Around Ireland	€627,570	84 months	University College Cork Department of Zoology, Ecology & Plant Science		
Marine Institute NDP Marine Research Sub-Programme (PhD Scholarship)	The Application of Signal Detection Methods to the Fisheries Management System	€115,000	48 months	University College Cork Department of Zoology, Ecology & Plant Science		
Marine Institute NDP Marine Research Sub- Programme (Postdoctoral Fellowship)	"Joined Up Thinking from Joined Up Data" Fisheries Data Integration and Analysis, Facilitating the Ecosystems Approach to Fisheries Management	€612,602	84 months	University College Cork Coastal & Marine Resource Centre (CMRC)		

4. This is the amount available at the time of writing and means the maximum grant-aid allocated to the project. This figure may be revised downwards at the end of the project when a full audit of eligible costs is carried out. In the case of EU FP7 Grant-aid it is the figure included for the Irish partner(s) at the project approval stage. This may however be revised during detailed contract negotiations and is subject to a final audit of eligible costs.

Funding Source & Type	Project Name	Grant-Aid (agreed) ⁴	Project Duration	Lead Partner	Partners
Marine Institute NDP Marine Research Sub-Programme (PhD Scholarship)	Modelling the Ecology, Population Dynamics, Assessment and Management of Nephrops (<i>Nephrops</i> <i>Norvegicus</i>) in the Waters around Great Britain and Ireland	€105,000	48 months	University College Cork <i>Department of Zoology, Ecology & Plant Science</i>	
Marine Institute NDP Marine Research Sub-Programme (PhD Scholarship)	The Impact of Climate Change on the Distribution, Biology and Productivity of Fish Stocks in Waters around Ireland	€110,000	48 months	National University of Ireland, Galway <i>Martin Ryan Institute</i>	
Marine Institute NDP Marine Research Sub-Programme (PhD Scholarship)	The Life History, Ecology and Dynamics of the Black Scabbard (<i>Aphanopus Carbo</i>) on the Deep Water Ecosystem of the North East Atlantic	€115,000	48 months	University College Cork <i>Department of Zoology, Ecology & Plant Science</i>	
Marine Institute NDP Marine Research Sub-Programme (PhD Scholarship)	Long-Term Dynamics of Herring Populations around Ireland	€114,840	48 months	Galway-Mayo Institute of Technology <i>Commercial Fisheries Research Group</i>	
EU FP7 Programme (Theme 6)	SALSEA-Merge: Advancing Understanding of Atlantic Salmon at Sea: Merging Genetics and Ecology to Resolve Stock-Specific Migration and Distribution Patterns	€767,753	36 months	Institute of Marine Research (IMR), Norway	Marine Institute <i>Aquaculture & Catchment Management Services</i> University College Cork <i>Department of Zoology, Ecology & Plant Science</i>
EU FP7 Programme (Theme 6)	EELIAD: European Eels in the Atlantic: Assessment of their Decline	€112,809	48 months	Centre for Environment, Fisheries and Aquaculture Science (CEFAS), UK	Central Fisheries Board <i>Research & Development Division</i> Marine Institute <i>Aquaculture & Catchment Management Services</i>
EU FP7 Programme (Theme 2)	MEFEPO: Making European Fisheries Ecosystem Operational	€214,958	36 months	University of Liverpool, UK	Marine Institute <i>Fisheries Science Services</i>

Funding Source & Type	Project Name	Grant-Aid (agreed) ⁴	Project Duration	Lead Partner	Partners
EPA Strive Programme (PhD Scholarship)	Juvenile Fish Habitat Requirements in Changing Coastal Ecosystems	€95,000	36 months	Galway-Mayo Institute of Technology <i>Department of Life Sciences</i>	
IRCSET (Postdoctoral Fellowship)	Community and Nutritional Ecology of Coral-Feeding Butterflyfishes	€100,000	24 months	Trinity College Dublin <i>Department of Earth & Environmental Sciences</i>	

Aquaculture Research Programme

Funding Source & Type	Project Name	Grant-Aid (agreed) ⁴	Project Duration	Lead Partner	Partners
Marine Institute NDP Marine Research Sub-Programme (Strategic Industry Project)	Cod Broodstock & Breeding Project	€4,099,992	84 months	National University of Ireland, Galway <i>Martin Ryan Institute</i>	Irish Seafood Producers Group (ISPG) Trosca Teoranta Bord Iascaigh Mhara (BIM) University College Cork <i>Department of Zoology, Ecology & Plant Science</i>
EU FP7 Programme (Theme 6)	MIDTAL: Micro-Arrays for the Detection of Toxic Algae	€363,629	45 months	Alfred Wegener Institute for Polar and Marine Research (AWI), Germany	NUJ, Galway <i>Martin Ryan Institute</i>

Seaweed Research Programme

Funding Source & Type	Project Name	Grant-Aid (agreed) ⁴	Project Duration	Lead Partner	Partners
Marine Institute NDP Marine Research Sub-Programme (Strategic Industry Project)	Development and Demonstration of Viable Hatchery and Ongoing Methodologies for Seaweed Species with Identified Commercial Potential	€749,197	36 months	Bord Iascaigh Mhara (BIM)	Queen's University Belfast C-MAR NUI Galway Martin Ryan Institute
Marine Institute NDP Marine Research Sub-Programme (Applied Industry Project)	Development of a Methodology for the Quantitative Assessment of Ireland's Inshore Kelp Resource	€616,063	27 months	Queen's University Belfast School of Biological Sciences	Envison Mapping Ltd. University College Cork Department of Zoology, Ecology & Plant Science
IRCSET (PhD Scholarship)	Investigation of the Genomic and Proteomic Effects of Metal Contamination in Seaweeds	€ 72,009	36 months	Waterford Institute of Technology Estuarine Research Group	

Offshore Oil & Gas Research Programme

Funding Source & Type	Project Name	Grant-Aid (agreed) ⁴	Project Duration	Lead Partner	Partners
DCENR/GSI – Griffith Geoscience Research Award (Capacity Building)	Griffith Award in Marine Petroleum Geology	€1,545,257	7 Years	University College Dublin Marine & Petroleum Geology Research Group	

Shipping & Maritime Transport Research Projects/Initiatives

Funding Source & Type	Project Name	Grant Aid (agreed) ⁴	Project Duration	Lead Partner	Partners
Marine Institute NDP Marine Research Sub-Programme (Tender)	An Assessment of Research Capabilities and Development of a National Research Agenda in the Area of Maritime Economics and Transport	€58,950	4 months	John Mangan & Associates	
EU FP7 Programme (Theme 7)	AZIPLOT: Intuitive Operation and Pilot Training when using Marine Azimuthing Control Devices	€83,558	36 months	University of Newcastle-upon-Tyne (UK) <i>School of Marine Science and Technology</i>	Transas Group
EU FP7 Programme (Theme 7)	PROPS: Promotional Platform for Short Sea Shipping & Intermodality	€319,078	36 months	Alliance of Maritime Regional Interests in Europe (AMRIE)	Nautical Enterprise Centre Ltd. Irish Exporters' Association
EU FP7 Programme (Theme 7)	SKEMA: Sustainable Knowledge Platform for the European Maritime and Logistics Industry	€401,042	36 months	Athens University of Economics and Business, Greece	Nautical Enterprise Centre Ltd. Dublin Port Company Irish Exporters' Association