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U.K. ATLANTIC AREA

With the participation of the  
European Union  
Project co-financed by the  
ERDF



## INTERREG III B « Atlantic Area » FINAL REPORT FORM

### PROJECT IDENTIFICATION

CODE and ACRONYM: 212 MARINE

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## INTRODUCTION

The aim of the Final Report of the project is to gather together, in a single document, all the information about the results of each project co-financed within the framework of the INTERREG IIIB “Atlantic Area” 2000 2006 Community Initiative Programme. This report details the activities carried out by the project MARINE – Maritime Incident Research and Innovation Network from the 1<sup>st</sup> of January 2007 until the 30<sup>th</sup> of June 2008.

**PROJECT IDENTIFICATION***(Cf. Application Form point 1)***PROJECT NUMBER: 212****ACRONYM: MARINE****NAME: Maritime Incident Research and Innovation Network****PRIORITY: A****MEASURE: 2****NUMBER OF PARTNERS PER COUNTRY: ESP 2, FR 1, IRL 1, PT 2, UK 0****LEAD PARTNER IDENTIFICATION***(Cf. Application Form point 2.1)***ORGANISATION OF THE LEAD PARTNER: Faculdade de Engenharia da Universidade do Porto****NAME OF THE REPRESENTATIVE OF THE LEAD PARTNER: FERNANDO MANUEL FERREIRA LOBO PEREIRA****ADDRESS:  
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**EVALUATION OF THE WORKING OF THE PARTNERSHIP***(Cf. Application Form 11 and 3.12)*

**PROJECT STEERING STRUCTURE:** List the different Committees and groups formed and briefly define their working.

The MARINE network used an organizational model that congregates partners and international organizations, developing activities to promote and foster the creation and knowledge transfer, with synergies and multiplying effects only possible in a shared network with international leading organizations.

The network created on scope of the MARINE project presented the following structure:

- Executive Commission: composed by one person from each partner of the project. This commission was responsible for the technical activities, being the project coordinator responsible for its management.
- Interest Group: composed by other entities interested in these domains of application but that were not partners of the MARINE project.
- Advisory Group: composed by experts with international recognition and merit and by elements nominated by institutions with interest in the domains of application.

Further to proposed structured for the Research and innovation Network for Maritime Incidents, the project management methodology was organised into 3 levels of coordination:

- Administrative management of the project (responsibility of the project coordinator)
- Global coordination of the project: periodical meetings of the consortium.
- Coordination by activity: each activity had its responsible partner and its work team clearly identified.

**PROJECT STEERING***(Cf. Application Form point 8 and 3.7)***SCHEDULE OF MEETINGS AND ACTIVITIES OF THE STEERING STRUCTURES (Type of communication and frequency)**

There were 5 consortium meetings organised during the project duration:

- Porto, Portugal, 16th April 2007
- La Coruña, Spain, 28th November 2007
- Porto, Portugal, 17th March 2008
- Killaloe, Ireland, 7th April 2008
- Porto, Portugal, 30th June 2008

Several phone conferences were carried out periodically between different partners (every 2 months). The private area in the project website was also used for planning and coordination of activities, and information exchange. Several meetings were carried out between partners (FEUP and APDL, FUAC and IUEM, FEUP and UL, etc.) during the project.

The project advisory board was set up during the project.

Prof Anthony HEALEY (NPS, USA)

Mr. Pitta e Cunha (European Commission, Brussels)

Mr. Michel GIRIN (CEDRE, France)

Mr. Philippe MARCHAND (IFREMER, France)

Mrs. Purificación MORANDEIRA (CEPRECO, Spain)

Mr. Ramiro SANTALICES (GUARDIA CIVIL DEL MAR, Spain)

Mr. Juan Román Acinas Garcia(Univertyity of Coruna, Spain)  
Mr. Emilio Martitin Bauzá (EUROPEAN MARITIME SAFETY AGENCY)  
Mr. Micheal McGarry (Irish Coast Guard, Ireland)  
Mr. Hugh Conlon (Shannon Foynes Port Company, Ireland)  
Mr. Jorge Silva Paulo (Portuguese Navy, Portugal)

The members of the advisory board were contacted regularly and participated in the workshops of the Project.

#### **WORKING OF THE PARTNERSHIP – POSITIVE, NEGATIVE ASPECTS AND POINTS THAT COULD BE IMPROVED...**

The main positive aspect concerned the strongly interdisciplinary mix of different partners which encompass academia, authorities and operational institutions. This provided a unique opportunity to understand how the innovation based in advanced emergent technologies from research institutions can be valued by institutions that have to deal with the real-life problems arising in the maritime context. This is particularly challenging as extremely different components – legal, social, technical, and operational – have to be considered in the system’s design.

Networking with the members of the Advisory Board - being particularly intense the interactions with Michel Girin, Anthony Healey, Purificación Morandeira - and with a diversified set of Interest Groups such as port authorities, maritime authorities and environmental entities, was extremely fruitful.

The main negative aspect concerned the need to restructure the consortium. This was due unanticipated departure of key personnel internally assigned to the project by the partners Brest Pilotage and ENSIETA. The impact in the consortium consisted in:

- a) The exit of the partner Brest Pilotage, and
- b) The scale down of the participation of ENSIETA.

Both events implied a reallocation of objectives, activities and corresponding budget by the remaining partners.

These events highlighted the discomfort inherent to the least interesting feature of the MARINE project: given the nature of the project, the total duration (18 months) was very short, and activities were concentrated in a too short time span. A wider time span would be useful to further mature ideas.

## TRANS-NATIONAL OBJECTIVES OF THE PROJECT

(Cf. Application Form point 3.4)

### Reminder of the **expected** results

The goal of the research and innovation network for maritime incidents in the Atlantic Area, MARINE project, was to create and promote new knowledge and its transfer between Research and Technological Development Centres, Enterprises, Technology Transfer Organizations, public organizations, etc.

Further to this, questions of maritime security affect and concern all regions of the Atlantic Area, namely on the coastal areas. All the participant regions have in common a strong dependence of the maritime ecosystems, being their coastal area one of their major assets. Activities like tourism, fishing maritime transportation are essential for the regional economy, being naturally affected when maritime accidents occur. For this reason, improving maritime security is a key objective to ensure a sustainable development of all regions cooperating on MARINE project. Protecting the maritime ecosystems and promoting a sustainable development, assuring the needs of the present without compromising the ability of future generations to meet their own needs is one of the main objectives of the project.

Another goal is the contribution to the identification of strengths and weaknesses of the Atlantic area regions, as well as the promotion of solutions for the social, technological and commercial challenges on maritime security and on protection of the maritime habitats domains. By networking organizations with different and complementary competences, experiences and knowledge of the maritime safety and of the economical activities related to maritime environment – such as the members of the MARINE consortium -, the MARINE project promoted the knowledge creation and transfer with a higher added value.

### Description of the results **achieved**

Awareness: Increase the knowledge of Maritime Incident problems and mobilise the society’s support.

- Authorities and operational institutions – potential benefits of the proposed systems and technologies.
- Administrative and political decision-makers – legal issues underlying the operation of autonomous systems.
- Technology and systems developers – requirements for the different phases of maritime incidents.
- Marine scientists – new perspectives for the articulation with marine habitat protection.
- Society at large – contribution towards the increase of confidence level to deal with maritime incidents.

Methodologies: Foster the development of new technologies for the Maritime Incident problem.

- Sustained presence in critical maritime zones.
- Adjustable degrees of intervention.
- New sensor deployment.

Pilot projects: Demonstration of new concepts using small scale infrastructures (testbeds).

- Maritime surveillance and prevention.
- Testbeds to demonstrate new concepts.
- Pilot projects pave the way for ocean observatory.
- Bioremediation.
- Monitoring and tracking environmental and security maritime incidents.
- Maritime ecosystem characterization.
- Ship port maneuvering.

Value creation: for the network, the Atlantic area, and society in general.

Contribution of trans-national cooperation to the ADDED VALUE of the project. Give a figure from 1 (negative) to 4 (remarkable) and **explain your choice**.

1     2     3     4

**4** - The accomplishment of the MARINE objectives was only possible through a network of different organizations from different regions and with different perspectives of a common problem. The transnational cooperation was therefore a crucial tool for the Project.

**INNOVATIVE ASPECTS**

*(Cf. Application Form point 3.3)*

MARINE project proposes a strong consortium, integrating entities with different competences, distributed by 3 main roles on the proposed excellence network: Research and Development (Faculdade de Engenharia da Universidade do Porto, Instituto Universitario de Estudios Maritimos, Ecole Nationale Supérieure d' Ingenieurs and the University of Limerick), Innovation and Technology Transfer (FUAC) and End Users (Administration of the Port of Leixões, Brest Pilotage). These organizations were responsible for setting up and for the operation of the MARINE network, and the consortium is firmly believes that this network will continue after the project conclusion. An Innovative Structure:

- Creation of an Executive Commission constituted by different members of each region involved, which will be responsible for all the activities develop by the Centre of Excellence. This Executive Commission will be responsible by all the executive management of the project, establishing the bridge between partners and the technical team of management.
- Set up of an Interest Group, composed by other entities interested in these domains of application but that will not be partners of the MARINE project.
- Set up of an Advisory Group, composed by experts with international recognition and merit and by elements nominated by other institutions with interest in the domains of application.

Besides the innovative structure, the approach adopted by the consortium to answer to situations of maritime incidents is also innovative. The activities are structured into different workpackages addressing each one a different stage of a maritime incident:

- Identify – identify potential sources and characterize maritime ecosystems;
- Prevent and protect- mitigate potential incident sources, and watch and monitor the maritime space.
- Prepare – allocate and place the necessary means to face any occurrences;
- Respond – act whenever an incident occurs, making use of the means and of the collected data;
- Recover – mitigate the consequences resulting from the incident, by using the pre-incident characterization as a reference.

The activities developed in each one of the workpackages were focused on the study of the necessary skills and capabilities, activities to be performed, data to be collected, and needed technologies. Pilot projects seeking the demonstration of new and innovative technologies, and techniques, as well as services and products with a potential high added value for enterprises and the regional economies were also carried out.

Number of job creations <b>FORECAST</b>		Number of job creations <b>ACHIEVED</b>	
Men <input type="text"/>	Women <input type="text"/>	Men <input type="text"/>	Women <input type="text"/>

**PROJECT OBJECTIVES***(Cf. Application Form point 3.5 and 3.8)***Reminder of the objectives and of the main results achieved**

The MARINE project aimed to create and foster an Excellence Network to promote the development and transfer of knowledge and innovation in the field of maritime incidents within the context of maritime security and of the protection of marine habitats. Expected results from the project were mainly in 4 dimensions: awareness, methodologies, pilot projects and value.

**Awareness:** related to the network activities that may increase the knowledge of these situations and get support from society. These activities were workshops, conferences, participation in round tables, etc. This dimension is evaluated with output/performance indicators.

**Methodologies:** related to the network activities that foster the development of new technologies to address the Maritime Incident problem. These activities were studies and research. This dimension is evaluated with results indicators.

**Pilot projects:** related to the network activities related with the demonstration of new concepts using small scale infrastructures (testbeds). This dimension is evaluated with results indicators.

**Value:** related to the creation of value not only for the network but also to the Atlantic area and society in general. This dimension is evaluated with value indicators.

**METHODOLOGY***(Cf. Application Form point 3.5/3.7 and 3.5/3.6)***Description of the methodology, with the links between the objectives and actions.**

The project methodology was based on the division of work into 9 activities (identified as workpackages) delivered over an 18 month period and with two major kinds of activities:

**I- Management Activities**

The project established the formal project management structures, including the partnership agreement, risk evaluation, gender equality system etc, and hold its first partnership meeting (Kick-off meeting): to ensure that all partners have a clear understanding of the full project plan, finances, reporting, and its collaborative transregional approach, as well as to focus on the objectives and results of the project.

**II- Support Activities:**

Technical supporting activities were developed with participation of all members of the consortium. Each activity (workpackage) had a task leader, responsible for the coordination of the specific activity and for its results.

- WP2- Characterization of Maritime Incidents
- WP3- Identify
- WP4- Protect and Prevent
- WP5- Prepare
- WP6- Respond
- WP7- Recover
- WP8- Approaches to mitigate Maritime Incidents
- WP9 – Dissemination

<b>ACTIONS CONDUCTED</b> (Cf. Application Form point 3.7 and 3.5)			
Action	NATURE OF THE ACTION		
<b>1</b>	Project Management		
<b>Expected results</b> (according to the Application Form)			
<p>The goal of this activity was to assure the success of the project through coordinating the activities and maintaining an efficient and pro-active relation with the partners and the INTERREG Secretariat. Other expected results of this activity were the following:</p> <ul style="list-style-type: none"> <li>• Success in reaching of the goals of the project, within the time and budget constraints;</li> <li>• Project planning and scheduling;</li> <li>• Internal and external reporting and documentation;</li> <li>• Financial management and liaison with the INTERREG;</li> <li>• Relations with all the partners, companies and institutions.</li> </ul> <p>This activity was responsible for organising 5 consortium meetings, arranging for the ERDF Claims Processes and Activity Reports to National Contact Points and ERDF Claims Processes and Activity Reports to INTERREG Managing Authority.</p>			
Describe the way in which the action was implemented			
<p>This activity was implemented through 5 consortium meeting for project coordination and management and via the implementation of a collaborative space (wiki) in the project web site. Further to this, regular phone conferences between the partners were maintained.</p> <p>Each partner was responsible for the timely delivery of its results, for ensuring the quality of the work executed, and for providing the inputs for internal an external reporting an documentation.</p> <p>The Executive Commission was created at the Kick-Off meeting of the project, and it is composed by a representative member of each organization involved. Executive Commission:</p> <p>FEUP - Fernando Lobo Pereira  IUEM - Marta Garcia Pérez  FUAC - Braulio Astray Perez  ENSIETA - Nicolas Seube  BP - Jean Jacques Le Borgne  UL - Daniel Toal</p>			
Partners involved in implementing the action			
Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	FEUP was the leader of this activity and was in charge of organising to consortium meetings. Participated in all consortium meetings. FEUP was responsible for the ERDF Claims Processes and Activity Reports to INTERREG Managing Authority.	Porto, 16/04/2007 Porto, 08/03/2008 Porto 30/09/2008
APDL	PT	APDL was responsible for organizing the last consortium meeting. Participated in all consortium meetings. APDL was responsible for presenting its ERDF Claims Processes and Activity Reports to National Contact Points.	Porto 30/06/2008

FUAC	SP	FUAC was responsible for organizing one consortium meeting. Participated in 4 of the consortium meetings. FUAC was responsible for presenting its ERDF Claims Processes and Activity Reports to National Contact Points.	Porto, 16/04/2007 La Coruña, 29/11/2007 Porto, 08/03/2008 Porto, 30/06/2008
IUEM	SP	Participated in 4 of the consortium meetings. IUEM was responsible for presenting its ERDF Claims Processes and Activity Reports to National Contact Points.	
ENSIETA	FR	Participated in 2 of the consortium meetings. ENSIETA was responsible for presenting its ERDF Claims Processes and Activity Reports to National Contact Points.	
BP	FR	Participated in 2 of the consortium meetings.	
UL	IR	UL was responsible for organizing one consortium meeting. Participated in all the consortium meetings. UL was responsible for presenting its ERDF Claims Processes and Activity Reports to National Contact Points.	7/04/2008
<b>Description of the results achieved</b>			
<ul style="list-style-type: none"> <li>• Consortium meeting: Porto, Portugal, 16th April 2007</li> <li>• Consortium meeting: La Coruña, Spain, 28th November 2007</li> <li>• Consortium meeting: Porto, Portugal, 17th March 2008</li> <li>• Consortium meeting: Killaloe, Ireland, 7th April 2008</li> <li>• Consortium meeting: Porto, Portugal, 30th June 2008</li> <li>• ERDF Claims Processes and Activity Reports to National Contact Points</li> <li>• ERDF Claims Processes and Activity Reports to INTERREG Managing Authority</li> </ul>			
<b>Key dates of the action</b>			
<p>Start date: January, 1<sup>st</sup> 2007</p> <p>16/04/2007, 1<sup>st</sup> consortium meeting  29/11/2007, 2<sup>nd</sup> consortium meeting  08/03/2008. 3<sup>rd</sup> consortium meeting  7/04/2008, 4<sup>th</sup> consortium meeting  30/06/2008. 5<sup>th</sup> consortium meeting</p> <p>30/09/2008: ERDF Claims Processes and Activity Reports to National Contact Points  12/12/2008: ERDF Claims Processes and Activity Reports to INTERREG Managing Authority</p>			
<b>Justification of any discrepancies between the action as planned and as implemented, if any</b>			
Nothing to report			
<b>Total cost of the action (in Euros) including VAT</b>			

<b>ACTIONS CONDUCTED</b> <i>(Cf. Application Form point 3.7 and 3.5)</i>	
Action	NATURE OF THE ACTION
<b>2</b>	Maritime Incidents Characterisation
<b>Expected</b> results (according to the Application Form)	
<p>Objectives:</p> <ul style="list-style-type: none"> <li>• Characterize maritime incidents: their nature, current best practices in incident mitigation and challenges.</li> </ul> <p>Work Description:</p> <ul style="list-style-type: none"> <li>• Studies and discussion between partners.</li> <li>• Consultation in the Interest group and stakeholders in general.</li> <li>• Workshop/Conference.</li> </ul> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>• Report – Maritime Incident Characterization.</li> <li>• Report – Proceedings/Presentations from the workshop</li> </ul>	
Describe the way in which the action was implemented	
<p>The action took place under the leadership of IUEM in close cooperation with FUAC, APDL and FEUP.</p> <p>The initial phase concerned the development of a methodology and of a common language. This required an inter-disciplinary approach where each partner contributed the specific expertise and focused on understanding the aspects of expertise mastered by the remaining partners.</p> <p>Identification of stakeholders-interest groups (FUAC Partners/IUEM-UDC) - FUAC and IUEM developed a comprehensive guide to interest groups and projects related to maritime safety.</p> <p>Study on Maritime Incident (FUAC Partners / IUEM-UDC), FUAC participated in a series of meetings organized by the Research Group of the UDC (IUEM) to realize, along the lines of study within the project MARINE. As a result of these meetings were implemented the following lines of work:</p> <ol style="list-style-type: none"> <li>a. Collection of data on incidents worldwide and international, national and European legislation on maritime safety.</li> <li>b. Study overview of the current maritime security in Europe.</li> <li>c. Analysis of the main lines of work of European institutions in the field of maritime safety and marine environment.</li> <li>d. Reviewing the sources of scientific and technological information on incidents in Europe: scientific publications, patents and research projects; data analysis and gathering information about publications→ Science Citation Index, projects Sixth Framework Program, European Patent Office, patent-field incidents at sea, pollution and safety.</li> </ol> <p>Processing information and conducting a full report on this→ subject with reference to the countries participating in the project.</p> <p>All scientific findings resulting from the implementation of this WP2 are available to the scientific community on the website of the Observatory of the Coast, <a href="http://www.observatoriodelitoral.udc.es/">http://www.observatoriodelitoral.udc.es/</a> (draft marine + maritime safety), which was developed in the first quarter of 2008.</p> <p>Organizing a workshop (workshop) (FUAC Partners / IUEM-UDC), The Foundation Universidade da La Coruña held a series of working meetings with the Graduate Institute of Maritime Studies for the planning of all actions to be developed for organizing the workshop of Work package 2, which took place on November 28, 2007 in Hotel AC of A Coruna. Date: Wednesday, November 28, 2007</p>	

<p>Venue: Hotel AC A Coruna. Great room Forum, 1st floor. C/Enrique Mariñas, s/n. 15,009 A Coruna (Spain)</p> <p>Title: "Economic analysis of the impact of environmental damage caused by oil spills in the marine environment."</p> <p>Attended by 23 people (9M/14H).</p> <p>Content: Presentation of the project or Marine.</p> <p>Block or I. Economic analysis of the impact of environmental damage caused by oil spills in the marine environment. or Block II. New hypotheses and valuation of responsibility for environmental damage generated.</p> <p>Special attention was developed to the potential contributions of emergent technologies (autonomous vehicles, sensor and communication networks) to address the issues raised by these incidents. This raised questions concerning the legal frameworks to support the intervention of emergent technologies, in particular of unmanned vehicle systems, in operations. The conclusions were that there is a legal void here which should be address at the international level. This phase also contributed to align the developments in all of the project actions. The key development directions and project focus concerned the potential contributions of emergent technologies in maritime incidents. Much has to be done at this level and this project raised fundamental questions that need to be addressed by the international community.</p>			
Partners involved in implementing the action			
Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	Contributed technological perspectives and state-of-the-art	Mainly in Porto
APDL	PT	Contributed their expertise in harbour management	Mainly in Porto
IUEM	SP	Organized the study and reporting	Mainly in La Coruña and also in Porto
FUAC	SP	Contributed to the characterization.	Mainly in La Coruña and also in Porto
ENSIETA	FR	Contributed with their expertise in ship maneuvering in ports	Mainly in Brest and also in Porto
BP	FR	Participated in 2 of the consortium meetings.	
UL	IR	Contributed technological expertise	Mainly in Limerick and also in Porto
Description of the results <b>achieved</b>			
<p>The action took place as planned. The key results were as follows (details on these results were provided under the <i>Description of the way in which the action was implemented</i>):</p> <ul style="list-style-type: none"> <li>• (D2.1) Survey on projects with maritime focus</li> <li>• (D2.2) Survey on projects with maritime incident focus</li> <li>• (D2.3) Survey on patents regarding maritime technologies</li> <li>• (D2.4) Incidents in the Atlantic and influence in the legal framework</li> <li>• Proceedings/Presentations from the workshop that took place in La Coruña (Spain), 29/11/2007 (project website)</li> </ul>			
Key dates of the action			
<p>Start Month: January 1<sup>st</sup>, 07</p> <p>Workshop: November, 29<sup>th</sup>, 07</p>			
Justification of any discrepancies between the action as planned and as implemented, if any			
<p>The main discrepancy concerned the decision of the consortium to extend the duration of the action. The key developments (organization, research and discussions) took place during the first three months of the project as planned. The report was refined as the project progressed. This proved to be the correct course of action. There were several reasons for this: 1) most of the partners were collaborating in the same project for the first time; 2) there was not much overlap in terms of</p>			

expertise, which was rather complementary. After an initial phase, where a common language and understanding was developed, the partners developed an inter-disciplinary approach to the work plan and focused on planning and networking. This was instrumental for the partners to get to know each other and to develop the framework within which the project was successfully developed.

**Total cost of the action (in Euros) including VAT**

<b>ACTIONS CONDUCTED</b> <i>(Cf. Application Form point 3.7 and 3.5)</i>	
Action	NATURE OF THE ACTION
<b>3</b>	Identify
<b>Expected</b> results (according to the Application Form)	
<p>Characterize maritime incidents: their nature, current best practices in incident mitigation and challenges.</p> <p>Objectives:</p> <ul style="list-style-type: none"> <li>• Identify potential focus of maritime incidents in the Atlantic and define ways to integrate with existing surveillance and classification systems.</li> <li>• Characterization of selected ecosystems in the Atlantic.</li> </ul> <p>Work Description:</p> <ul style="list-style-type: none"> <li>• Studies and discussion between partners</li> <li>• Analysis of existing surveillance (VTS) and classification systems</li> <li>• Pilot project - maritime ecosystems characterization</li> <li>• Characterization of selected Atlantic Ecosystems</li> <li>• Consultation in the Interest group and stakeholders in general</li> <li>• Workshop/Conference</li> </ul> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>• Report – Identification of potential focus of maritime incidents</li> <li>• Report – Pilot project on Maritime Ecosystem Characterization</li> <li>• Report – Characterization of Atlantic ecosystems</li> <li>• Report – Proceedings/Presentations from the workshop</li> </ul>	
Describe the way in which the action was implemented	
<p>The action took place under the leadership of FEUP in close cooperation with ENSIETA, BP (in the 1st phase), APDL and UL.</p> <p>The initial phase concerned the development of Maritime Incident characterisation taxonomy and of a common language. This required an inter-disciplinary approach where each partner contributed the specific expertise and focused on understanding the aspects of expertise mastered by the remaining partners.</p> <p>The next phase concerned the research on maritime incidents in the last 20 years, their characterization and taxonomy and graphical depiction on the web page of the project. This involved consultation with the Interest group, experts and stakeholders in general.</p> <p>UL (MMRRC) team carried out a detailed survey of the wreck of the Kowloon Bridge which sank off the Staggs Rock off the Cork Coast, south west Ireland. High resolution Imaging sonar (Reson 7125) was deployed on a pontoon in boat tow mode for this survey, and precision Optical Fibre Gyro INS system with a Real Time Kinematic Differential GPS aid was used for best positioning and motion reference during the survey (see figure 8 below). This survey was used as a means to characterise an Atlantic Ecosystem where an incident took place.</p> <p>The key conclusions were discussed and validated in workshops and with experts. These were mapped onto the reports and presentations.</p> <p>This activity organised a workshop jointly held with activity 4 and 5.</p>	

Partners involved in implementing the action			
Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	FEUP was leader of this activity. Developed the taxonomy to characterise Maritime incidents and performed the survey on incidents in the Atlantic.	Mainly in Porto
APDL	PT	Participated in the definition of the taxonomy to characterise Maritime incidents and on the survey on incidents in the Atlantic.	Mainly in Porto
IUEM	SP	Participated in the definition of the taxonomy to characterise maritime incidents.	Mainly in La Coruña.
FUAC	SP	Participated in the definition of the taxonomy to characterise maritime incidents.	Mainly in La Coruña.
ENSIETA	FR		
BP	FR		
UL	IR	Participated in the definition of the taxonomy to characterise maritime incidents. Carried out a detailed survey of the wreck.	Mainly in Limerick
<b>Description of the results achieved</b>			
<p>The action took place as planned. The key results were as follows (details on these results were provided under the <i>Description of the way in which the action was implemented</i>):</p> <ul style="list-style-type: none"> <li>• (D3.1) Maritime Incident Characterization form</li> <li>• (D3.2) Maritime Incident Survey</li> <li>• (D3.3) Webpage <a href="http://whale.fe.up.pt/marine/incidents.html">http://whale.fe.up.pt/marine/incidents.html</a></li> <li>• (D3.4) Atlantic Characterization</li> <li>• Proceedings/Presentations from the workshop that took place in Porto (Portugal), 17/03/2008 (project website)</li> </ul>			
<b>Key dates of the action</b>			
<p>Start Month: March 12<sup>th</sup>, 07 Workshop: March, 17<sup>th</sup>, 08</p>			
<b>Justification of any discrepancies between the action as planned and as implemented, if any</b>			
<p>The main discrepancy concerned the decision of the consortium to merge the workshop from activities 3, 4 and 5. The key developments (organization, research and discussions) took place as planned.</p>			
<b>Total cost of the action (in Euros) including VAT</b>			

<b>ACTIONS CONDUCTED</b> <i>(Cf. Application Form point 3.7 and 3.5)</i>	
Action	NATURE OF THE ACTION
<b>4</b>	Protect and Prevent
<b>Expected</b> results (according to the Application Form)	
<p>Objectives:</p> <ul style="list-style-type: none"> <li>• Study and demonstrate technologies for maritime surveillance and protection.</li> <li>• Focus on networked systems and autonomous vehicles.</li> </ul> <p>Work Description:</p> <ul style="list-style-type: none"> <li>• Studies and discussion between partners</li> <li>• Technologies for protection and prevention</li> <li>• Pilot Project - maritime surveillance and protection</li> <li>• Consultation in the Interest Group and stakeholders in general</li> <li>• Workshop/Conference</li> </ul> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>• Report – Pilot Project on Maritime Surveillance and prevention</li> <li>• Report – State of the art in networked systems</li> <li>• Report – Proceedings/presentations from the workshop</li> </ul>	
Describe the way in which the action was implemented	
<p>The action took place under the leadership of FEUP in close cooperation with APDL and UL.</p> <p>The initial phase concerned the definition of the scenario for the pilot project. It was meant that this scenario concerned several aspects of a maritime incident since this pilot project would include contributions from other activities (namely activity 5 and 7). In the end, this pilot project was representative for all stages of a maritime incident. After the scenario was defined and discussed with several members of the advisory board, the plans for deployment were specified. The main deployment was performed in Portugal, just in front of APDL premises in Porto, and was carried out during the months of May and June 2008. Some equipment was expressly acquired to comply with the requirements set for the pilot project scenario.</p> <p>FEUP team carried out a detailed deployment of autonomous vehicles during these months with the support of APDL.</p> <p>The leader, in consultation with the other partners, developed the key contributions of the Action. This involved consultations with the Interest Group, experts and stakeholders in general. The discussions with the Irish Coast Guard and with the Portuguese Navy were crucial in this process. These were complemented by the discussions with Michel Girin from CÉDRE (France) and with Prof. Anthony Healey from the Naval Postgraduate School (United States of America). The discussions with Michel Girin focused not only on the technological aspects but also on the aspects of public and governmental perception of the roles of emergent technologies and on key aspects of demonstrations. The discussions with Prof. Anthony Healey focused on the aspects of Maritime Domain Awareness that are relevant to maritime incidents. These discussions contributed to the investigation of strategies for coordinated technical response to maritime incidents. The project raised fundamental questions that need to be addressed by the international community. The role of unmanned vehicles was thoroughly investigated. This involved levels of autonomy, of complementary (sensors) and of intervention. Special attention was paid to the role of unmanned vehicles, in particular of unmanned air vehicles, in surveillance which may present a deterrent to unlawful actions leading to maritime incidents. The notion of maritime incident was also thoroughly discussed and the potential role of unmanned vehicles to detect and prevent accidental and small-scale (but quite frequent) spills was addressed. This seems to favour developments towards a sustained presence at sea. This has the potential of a paradigm shift</p>	

<p>which needs to be fully understood. This was also one of the main conclusions of the project. The key conclusions were discussed and validated in workshops and with experts. These were mapped onto the reports and presentations. The final conclusions were discussed in the Workshops “Autonomous vehicles in the response to maritime incidents” and “Maritime Incidents: Challenges and Technologies”.</p>			
Partners involved in implementing the action			
Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	FEUP was leader of this activity. Developed the scenario for the pilot project and carried out the deployment of the pilot project.	Mainly in Porto
APDL	PT	Participated in the definition of the scenario for the pilot project and supported the deployment of the pilot project.	Mainly in Porto
IUEM	SP	Participated in the definition of the scenario for the pilot project.	Mainly in La Coruña.
FUAC	SP	Participated in the definition of the scenario for the pilot project.	Mainly in La Coruña.
ENSIETA	FR	Participated in the definition of the scenario for the pilot project.	
BP	FR	Participated in the definition of the scenario for the pilot project.	
UL	IR	Participated in the definition of the scenario for the pilot project and carried out separate deployments in Ireland.	Mainly in Limerick
Description of the results <b>achieved</b>			
<p>The action took place as planned. The key results were as follows (details on these results were provided under the <i>Description of the way in which the action was implemented</i>):</p> <ul style="list-style-type: none"> <li>• (D4.1) Pilot Project scenario</li> <li>• (D4.2) Pilot Project presentation</li> <li>• (D4.3 ) Videos</li> <li>• (D4.4) Autonomous vehicles in the response to maritime incidents</li> <li>• (D4.5) Towards integrated monitoring networks</li> <li>• (D4.6) Leaflet</li> <li>• Proceedings/Presentations from the workshop that took place in Porto (Portugal), 17/03/2008 (project website)</li> </ul>			
Key dates of the action			
<p>Start Month: March 12<sup>th</sup> , 07  Workshop: March, 17<sup>th</sup> , 08  Pilot project: May and June 08</p>			
Justification of any discrepancies between the action as planned and as implemented, if any			
<p>The main discrepancy concerned the decision of the consortium to merge the workshop from activities 3 and 4. The key developments (organization, research and discussions) took place as planned. The duration of the activity was also extended to enable a large scale deployment in the pilot project.</p>			
<b>Total cost of the action (in Euros) including VAT</b>			

<b>ACTIONS CONDUCTED</b> (Cf. Application Form point 3.7 and 3.5)			
Action	NATURE OF THE ACTION		
<b>5</b>	Prepare		
<b>Expected</b> results (according to the Application Form)			
<p>Objectives:</p> <ul style="list-style-type: none"> <li>• Study the solutions for the allocation and distribution of scarce resources for maritime incident response in the Atlantic area. Methodologies to coordinate supra-national operations in response to maritime incidents.</li> </ul> <p>Work Description:</p> <ul style="list-style-type: none"> <li>• Studies and discussion between partners</li> <li>• Study on the strategies to distribute resources for incident response in the Atlantic area</li> <li>• Methodologies for coalition operations in the Atlantic area</li> <li>• Consultation in the Interest group and stakeholders in general</li> <li>• Workshop/Conference</li> </ul> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>• Report – Placement of resources for incident response</li> <li>• Report – Methodologies for coalition operations</li> <li>• Report – Proceedings/Presentations from the workshop</li> </ul>			
Describe the way in which the action was implemented			
<p>The action took place under the leadership of FEUP in close cooperation with APDL, UL and ENSIETA.</p> <p>The initial phase concerned the study of the current practices in what concerns the plans and procedures to address maritime incidents in the countries involved in the activity. During this study the contribution of the members of the advisory board who are involved in these activities in their countries was crucial. Mr. Michel Girin from France, Mr. Micheal McGarry from Ireland, and Mr. Jorge Silva Paulo from Portugal, were instrumental in this study.</p> <p>The next phase focused on understanding of what are the best practices and strategies that can be used to improve the effectiveness in the response to a maritime incident. The experience and contributions from Mr. Hugh Conlon in the Shannon Estuary Anti-Pollution Team (SEA-PT, Ireland) were fundamental to shape the overall results.</p> <p>The key conclusions were discussed and validated in workshops and with experts. These were mapped onto the reports and presentations.</p> <p>This activity organised a workshop jointly held with activity 3 and 4.</p>			
Partners involved in implementing the action			
Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	FEUP was leader of this activity. Participated in the study of the current approaches and in the identification of best practices.	Mainly in Porto
APDL	PT	Participated in the study of the current approaches and in the identification of best practices.	Mainly in Porto
IUEM	SP		
FUAC	SP		

ENSIETA	FR	Participated in the study of the current approaches and in the identification of best practices.	Mainly in Brest
BP	FR	Participated in the study of the current approaches and in the identification of best practices.	Mainly in Brest
UL	IR	Participated in the study of the current approaches and in the identification of best practices.	Mainly in Limerick
<b>Description of the results achieved</b>			
<p>The action took place as planned. The key results were as follows (details on these results were provided under the <i>Description of the way in which the action was implemented</i>):</p> <ul style="list-style-type: none"> <li>• (D5.1) Maritime Response</li> <li>• (D5.2) SEA-PT</li> <li>• (D5.3) Irish Coast Guard</li> <li>• Proceedings/Presentations from the workshop that took place in Porto (Portugal), 17/03/2008 (project website)</li> </ul>			
<b>Key dates of the action</b>			
<p>Start Month: March 12<sup>th</sup>, 07 Workshop: March, 17<sup>th</sup>, 08</p>			
<b>Justification of any discrepancies between the action as planned and as implemented, if any</b>			
<p>The main discrepancy concerned the decision of the consortium to change the leadership of this task from ENSIETA to FEUP and to merge the workshop from activities 3 and 4. The change in leadership is justified by the lack of availability of resources from the initial leader. ENSIETA concentrated its efforts in activity 6. The key developments (organization, research and discussions) took place as planned.</p>			
<b>Total cost of the action (in Euros) including VAT</b>			

<b>ACTIONS CONDUCTED</b> (Cf. Application Form point 3.7 and 3.5)	
Action	NATURE OF THE ACTION
<b>6</b>	Respond
<b>Expected</b> results (according to the Application Form)	
<p>Objectives:</p> <ul style="list-style-type: none"> <li>• Planning of the coordinated response to maritime incidents. Technologies for monitoring the evolution of the incident.</li> </ul> <p>Work Description:</p> <ul style="list-style-type: none"> <li>• Studies and discussion between partners.</li> <li>• Study on coordinated response to maritime incidents in the Atlantic area.</li> <li>• Pilot project – monitoring and tracking environmental and security maritime incidents.</li> <li>• Consultation in the Interest group and stakeholders in general.</li> <li>• Workshop/Conference</li> </ul> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>• Report – Coordinated response in maritime incidents</li> <li>• Report – Pilot project on monitoring and tracking environmental and security maritime incidents</li> <li>• Report – Proceedings/Presentations from the workshop</li> </ul>	
Describe the way in which the action was implemented	
<p>The action took place under the leadership of UL in close cooperation with IUEM, FUAC, APDL and FEUP.</p> <p>The action benefited significantly from the developments from action 2. First, the consortium had already developed a methodology and of a common language. This was not a trivial endeavour since some of the partners had technology-oriented activities, while others were concerned with operations and other with the study of maritime incidents and legal frameworks. Second, the characterization of the maritime incidents which took place in the last 20 years contributed to the development of a shared understanding of the project orientation, namely in what concerns the focus on the potential contributions of emergent technologies (autonomous vehicles, sensor and communication networks). Third, it became clear that the topics associated to this action had to be discussed and developed in the context of a legal void to support the intervention of emergent technologies, in particular of unmanned vehicle systems, in operations.</p> <p>The way the action was implemented followed the pattern of development refined for Action 2. This strongly contributed to the development of orientations for planning the technological (from the perspective of emergent technologies) response to maritime incidents and to the development of a pilot project.</p> <p>The leader, in consultation with the other partners, developed the key contributions of the Action. This involved consultations with the Interest group, experts and stakeholders in general. The discussions with the Irish Coast Guard and with the Portuguese Navy were crucial in this process. These were complemented by the discussions with Michel Girin from CÉDRE (France) and with Prof. Anthony Healey from the Naval Postgraduate School (United States of America). The discussions with Michel Girin focused not only on the technological aspects but also on the aspects of public and governmental perception of the roles of emergent technologies and on key aspects of demonstrations. The discussions with Prof. Anthony Healey focused on the aspects of Maritime Domain Awareness that are relevant to maritime incidents.</p> <p>These discussions contributed to the investigation of strategies for coordinated technical response to maritime incidents (by technical response it is meant the use of the emergent technologies under consideration in the project). The project raised fundamental questions that need to be addressed by the international community. The role of unmanned vehicles was thoroughly investigated. This involved levels of autonomy, of complementary (sensors) and of intervention. Special attention was</p>	

<p>paid to the role of unmanned vehicles, in particular of unmanned air vehicles, in surveillance which may present a deterrent to unlawful actions leading to maritime incidents. The notion of maritime incident was also thoroughly discussed and the potential role of unmanned vehicles to detect and prevent accidental and small-scale (but quite frequent) spills was addressed. This seems to favour developments towards a sustained presence at sea. This has the potential of a paradigm shift which needs to be fully understood. This was also one of the main conclusions of the project.</p> <p>The key conclusions were discussed and validated in workshops and with experts. These were mapped onto the reports and presentations. The final conclusions were discussed in the Workshop “Monitoring and tracking maritime incidents with autonomous technologies”.</p>			
Partners involved in implementing the action			
Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	Contributed complementary (with respect to the action leader) technological perspectives	Mainly in Porto and Limerick
APDL	PT	Contributed their expertise in harbour management.	Mainly in Porto and Limerick
IUEM	SP	Contributed the background on maritime incidents.	Mainly in La Coruña and also in Porto
FUAC	SP	Contributed to the legal aspects applicable these activities.	Mainly in La Coruña and also in Porto
ENSIETA	FR		
BP	FR		
UL	IR	Leader of the action. Coordinated the developments and organized the workshop and the pilot project.	Mainly in Limerick and also in Porto
Description of the results <b>achieved</b>			
<p>The action took place as planned. The key results were as follows (details on these results were provided under the <i>Description of the way in which the action was implemented</i>):</p> <ul style="list-style-type: none"> <li>• (D6.1) Safety analysis of large ships</li> <li>• (D6.2) Use of Drifting Buoys</li> <li>• (D6.3) Multi purpose</li> <li>• (D6.4) Technology</li> <li>• (D6.5) Tools for responde(D6.6) Leaflet</li> <li>• Proceedings/Presentations from the workshop that took place in Killaloe (Ireland), 7/04/2008 (project website)</li> </ul>			
Key dates of the action			
<p>Start Month: Mar 1<sup>st</sup>, 07 Workshop: April 7<sup>th</sup> 08</p>			
Justification of any discrepancies between the action as planned and as implemented, if any			
<p>The main discrepancy concerned the decision of the consortium to extend the duration of the action. The reports were refined as the project progressed. This proved to be the correct course of action. The pilot project was developed after the planned completion of the task to accommodate for logistic and weather conditions.</p>			
<p><b>Total cost of the action (in Euros) including VAT</b> XXXXX INCLUDE</p>			

<b>ACTIONS CONDUCTED</b> (Cf. Application Form point 3.7 and 3.5)			
Action	NATURE OF THE ACTION		
<b>7</b>	Recover		
<b>Expected</b> results (according to the Application Form)			
<p>Objectives:</p> <ul style="list-style-type: none"> <li>Technologies to recover from the incident and to monitor this evolution</li> </ul> <p>Work Description:</p> <ul style="list-style-type: none"> <li>Studies and discussion between partners</li> <li>Pilot project – bioremediation</li> <li>Consultation in the Interest Group and stakeholders in general</li> <li>Workshop/Conference</li> </ul> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>Report – Coordinated response in maritime incidents</li> <li>Report – Pilot project on bioremediation</li> <li>Report – Proceedings/Presentations from the workshop</li> </ul>			
Describe the way in which the action was implemented			
<p>The action took place under the leadership of FEUP in close cooperation with the other partners.</p> <p>The initial phase concerned the study of current state of the art in the use of using bioremediation to combat marine oils spills. The spills concern discharges of ballast water, rests of cargos or bunker oil on open sea, but also the breaking of a crude oil tanker can occur. In nearly all cases oil is washed to the shores, giving there big and long lasting environmental, ecological and economical problems. Biotechnology has been proven to play an important role in solving environmental problems. In essence use is made of (micro)-organisms involved in the natural cycling of material. By stimulating the natural activity of micro-organisms in designed environments it is to a large extend possible to enhance natural cycles. Extra advantages of biotechnological applications are the absence of a need for large amounts of auxiliary materials and the high affinity of micro-organisms towards substances which allows purification down to the desired low concentration levels.</p> <p>The second phase concerned the preparation a pilot project on a system to apply bioremediation in the combat of oil spills. It defined what can be expected from bioremediation in terms of objectives, treat ability of products involved in the spill, in situ and ex situ applications and a concept to apply remediation in the combat of oil spills.</p> <p>The key conclusions were discussed and validated in workshops and with experts. These were mapped onto the reports and presentations. This activity organised a workshop jointly held with activity 8.</p>			
Partners involved in implementing the action			
Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	FEUP was leader of this activity. Developed the study on bioremediation of oil spills.	Mainly in Porto
APDL	PT	Contributed to the study on bioremediation of oil spills.	Mainly in Porto
IUEM	SP	Contributed to the study on bioremediation of oil spills.	Mainly in La Coruña.
FUAC	SP	Contributed to the study on bioremediation of oil spills.	Mainly in La Coruña.
ENSIETA	FR	Contributed to the study on bioremediation of oil spills.	Mainly in Brest

BP	FR	Contributed to the study on bioremediation of oil spills.	Mainly in Brest
UL	IR	Contributed to the study on bioremediation of oil spills.	Mainly in Limerick
<b>Description of the results achieved</b>			
<p>The action took place as planned. The key results were as follows (details on these results were provided under the <i>Description of the way in which the action was implemented</i>):</p> <ul style="list-style-type: none"> <li>• (D7.1) Bioremediation of oil spills</li> <li>• Proceedings/Presentations from the workshop that took place in Porto (Portugal), 30/06/2008 (project website)</li> </ul>			
<b>Key dates of the action</b>			
<p>Start Month: March 1<sup>st</sup>, 07 Workshop: June, 30<sup>th</sup>, 08</p>			
<b>Justification of any discrepancies between the action as planned and as implemented, if any</b>			
<p>The main discrepancy concerned the decision of the consortium to extend the duration of the action. The reports were refined as the project progressed. This proved to be the correct course of action.</p>			
<b>Total cost of the action (in Euros) including VAT</b>			

<b>ACTIONS CONDUCTED</b> <i>(Cf. Application Form point 3.7 and 3.5)</i>	
Action	<b>NATURE OF THE ACTION</b>
<b>8</b>	Approaches to mitigate Maritime Incidents
<b>Expected</b> results (according to the Application Form)	
<p>Objectives:</p> <ul style="list-style-type: none"> <li>• Integrate conclusions from previous workpackages.</li> <li>• Define approaches – plans, methodologies &amp; technologies – to address the incident “life cycle”</li> <li>• Identify current status and challenges for future research. Define a roadmap for future work.</li> </ul> <p>Work Description:</p> <ul style="list-style-type: none"> <li>• Studies and discussion between partners</li> <li>• Consultation in the Interest group and stakeholders in general</li> <li>• Consultation with the Advisory board</li> <li>• Definition of a roadmap for future work (strategic agenda)</li> <li>• Workshop/Conference</li> </ul> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>• Report – Approaches to address the maritime incidents life cycle: current status and challenges.</li> <li>• Report – Strategic Agenda for Maritime Incident Research and Innovation</li> <li>• Report – Proceedings/Presentations from the workshop</li> </ul>	
Describe the way in which the action was implemented	

Under the leadership of APDL in close cooperation with the partners FEUP, FUAC, ENSIETA, BP (only in the first phase), and UL, this action consisted in the integration of the developments from actions 2, 3, 4, 5, 6 and 7. Therefore, the developments of these actions for the individual stages of the maritime incident – characterization, prepare, identify, protect and prevent, respond, and recover – were considered as building blocks to define approaches – plans, methodologies and technologies – to deal with the incident “life cycle”.

These were examined centred in the design development and implementation of a final demonstration near the harbour of Leixões in which emergent systems and technologies were deployed in order to carry out all the identified stages of a fictitious maritime incident that produced a serious oil spill in a densely inhabited urban area. The following were considered among the most pertinent issues:

- Definition of activities: track oil spills (from air, surface, or underwater), track currents, inspection of ship or infra-structures involved in the incident, characterization and impact assessment of protected marine areas, local communication relay, etc.
- Selection of resources to be used – UAVs, ASVs, AUVs, ROVs, drifters, fixed buoys, and other devices – and examining the challenges to their deployment.
- Operational requirements for each phase – indicators pertinent to the development of the various phases, types of monitoring required, geographical and temporal scope, real-time constraints, etc
- Consistency of the approach, Given the relations among the identified stages of the maritime incident, it is important to ensure that each stage is carried out in such a way that not only the data gathered satisfies the requirements needed by the subsequent stages, but also determines the best circumstances under which each stage should be terminated and the next one initiated.
- Legal issues that arise in the intervention of emergent technologies, in particular of unmanned vehicle systems, in operations.

The implementation of this action was implemented relied strongly on the pattern of development adopted in the previous actions, now being integrated. This strongly contributed to the development of orientations for planning the technological (from the perspective of emergent technologies) response to maritime incidents and to the development of the final demonstration.

The discussions and exchange of experiences with the Interest Group, experts and stakeholders in general that took place in the course of the various activities of the project were obviously reflected in the results of this action. The discussions with the Portuguese Navy, the Irish Coast Guard, and with Michel Girin from CÉDRE were particularly relevant for the operational aspects. The emergent systems and technologies – and more precisely those based on unmanned air vehicles, autonomous underwater vehicles and remotely operated vehicles for the incident impact awareness– were addressed in the interaction with Prof. Anthony Healy from NPS, Monterey, USA. Besides several technical issues pertinent to the operational aspects together with issues concerning the public and governmental perception were addressed by Michel Girin.

Finally, DHV provided inputs concerning the recovery stage with particular emphasis to bioremediation approaches.

The key conclusions were discussed and validated in workshops and with experts. These were mapped onto the reports and presentations. The final conclusions were discussed in the Workshop “Monitoring and tracking maritime incidents with autonomous technologies”.

#### Partners involved in implementing the action

Partner name	Country	Role in implementing the action	Place(s) implemented
APDL	PT	Coordinator of the action. Contributed with the expertise in harbour management. Organized the last workshop in Porto,	Mainly Porto and Limerick
FEUP	PT	Contributed with their expertise in systems and technologies. Organized the last workshop in Porto	Mainly Porto and Limerick
<u>FUAC</u>	ES	Contributed to the legal aspects applicable these activities. Organized a workshop in La Coruña	Mainly Porto and La Coruña

ENSIETA	FR	Contributed with their expertise in systems and technologies	Mainly in Brest and Porto
BP (only 1 <sup>st</sup> phase)	FR	Contributed with their expertise in harbour manoeuvring.	Mainly in Brest and Porto
UL	IR	Contributed with their expertise in systems and technologies. Organized a workshop in Limerick	Mainly Porto and Limerick
<b>Description of the results achieved</b>			
<p>The action took place as planned. The key results were as follows (details on these results were provided under the <i>Description of the way in which the action was implemented</i>):</p> <ul style="list-style-type: none"> <li>• (D8.1) Legal questions in relation to autonomous marine vehicles</li> <li>• (D8.2) incidents</li> <li>• (D8.3) Marine Tech</li> <li>• (D8.4) Collaborative US</li> <li>• (D8.5) Vehicles and Incidents</li> <li>• (D8.6) Roadmap (Strategic Agenda for Maritime Incident Research and Innovation)</li> <li>• (D8.7) Operations with autonomous vehicles in the response to maritime incidents</li> <li>• (D8.8) Maritime surveillance of the Portuguese coasts and seas</li> <li>• (D8.9) Leaflet</li> <li>• Proceedings/Presentations from the workshop that took place in Porto (Portugal), 30/06/2008 (project website)</li> </ul>			
<b>Key dates of the action</b>			
<p>Start Month: October 1<sup>st</sup>, 07  Porto (Leixões) workshop: June 30<sup>th</sup>, 08</p>			
<b>Justification of any discrepancies between the action as planned and as implemented, if any</b>			
<p>The final demonstration in Leixões (near Porto) was left to the very end of the project activities due a combination of difficulties of agenda and the need to accommodate for logistic and weather conditions.</p>			
<b>Total cost of the action (in Euros) including VAT</b>			

<b>ACTIONS CONDUCTED</b> (Cf. Application Form point 3.7 and 3.5)	
Action	NATURE OF THE ACTION
<b>9</b>	Dissemination
<b>Expected</b> results (according to the Application Form)	
<p>Objectives:</p> <ul style="list-style-type: none"> <li>Disseminate MARINE project activities and results beyond the borders of the MARINE partnership, Interest Group and Advisory Group by involving other networks and projects.</li> </ul> <p>Work Description:</p> <p>This workpackage will be focused on the broader dissemination of results towards a large number of organizations in all European regions and in particular Atlantic Regions, in order to cause a leverage effect that can raise the knowledge creation and transfer levels. The dissemination activities will be promoted during entire project and after project conclusion.</p> <p>Deliverables:</p> <ul style="list-style-type: none"> <li>Project Web Site and first presentation of the project</li> <li>Dissemination Plan</li> <li>Seminars and International Conferences</li> <li>Project results publication</li> <li>Dissemination on the Media</li> </ul>	
Describe the way in which the action was implemented	
<p>There is a wide variety of dissemination methods and tools that were clearly identified in the project proposal. The include project website, workshops, press releases and publications in media. However, while these were planned activities, the consortium is strongly committed to take advantage of any other dissemination opportunities that may arise during the project’s duration, and as such, other dissemination methods have already been recognized. These new methods include, for instance, participation in external events such as conferences, trade fairs and seminars; radio announcements and news; publications in university and research journals; use of newsletters and mailing lists.</p> <p>Dissemination Methods and tools Workshops, Seminars, Conferences and other Events</p> <p>i) Workshops</p> <p>One workshop will be organised for each work package. The events have the explicit goal of disseminating knowledge and results during previous work packages, including workshops and seminars on the following subjects:</p> <ul style="list-style-type: none"> <li>WP2: Characterization of Maritime Incidents</li> <li>WP 3: Identify, WP 4: Prevent and Protect, WP 5: Prepare</li> <li>WP 6: Respond</li> <li>WP 7: Recover</li> </ul> <p>ii) Partners participation on Seminars and International conferences</p> <ul style="list-style-type: none"> <li>OCEANS '08 14-18 September, Quebec, Canada</li> <li>Risk Management in Production Activities, Porto, Portugal (10-12/Oct/07)</li> <li>GASD Round Tables, Paris, France (20.9.07)</li> <li>GASD Maritime Economy, Porto, Portugal (14 e 15.12.07)</li> <li>SeaTech Week, Brest, France (October 08)</li> </ul> <p>Project Web Site</p> <p>The project website is intended to publicise electronically the MARINE project, informing visitors about the goals, activities and strategies of the project and providing the necessary contacts. The development of this tool will also make communication between partners an easy task while making visitors aware of project issues and results. The website is currently available at <a 853="" 884="" 938="" 955"="" data-label="Page-Footer" href="http://www.project-&lt;/a&gt;&lt;/p&gt; &lt;/td&gt; &lt;/tr&gt; &lt;/tbody&gt; &lt;/table&gt; &lt;/div&gt; &lt;div data-bbox=">28</a></p>	

marine.eu, and has been designed by FEUP, being its responsibility to keep it updated and the information accurate. The website contains:

- A comprehensive project presentation
- Description of project actors and key players
- Description of the methodology applied in the project and workplan
- Information on the pilot projects and workshops
- List of publications
- Contacts
- wiki

This last item is mainly to be used by the project partners and members of the interest group as tool for collaborative work and discussion.

#### Publications and Press Releases

The project partners prepared several electronic and paper publications to disseminate project objectives, activities and results. Several publications were released on local press.

#### Partners involved in implementing the action

Partner name	Country	Role in implementing the action	Place(s) implemented
FEUP	PT	FEUP was leader of this activity. Developed the dissemination plan and contributed to the dissemination o the project.	Mainly in Porto
APDL	PT	Developed the dissemination plan and contributed to the dissemination o the project.	Mainly in Porto
IUEM	SP	Developed the dissemination plan and contributed to the dissemination o the project.	Mainly in La Coruña.
FUAC	SP	Developed the dissemination plan and contributed to the dissemination o the project.	Mainly in La Coruña.
ENSIETA	FR	Developed the dissemination plan and contributed to the dissemination o the project.	Mainly in Brest
BP	FR	Developed the dissemination plan and contributed to the dissemination o the project.	Mainly in Brest
UL	IR	Developed the dissemination plan and contributed to the dissemination o the project.	Mainly in Limerick

#### Description of the results **achieved**

The action took place as planned. The key results were as follows (details on these results were provided under the *Description of the way in which the action was implemented*):

- (D9.1) <http://www.project-marine.eu>
- (D9.2) Project Presentation
- (D9.3) Dissemination Plan
- (D9.4) Project Leaflet
- Scientific papers
- Dissemination in the media (<http://whale.fe.up.pt/marine/news.html>)

#### Key dates of the action

Start date: January 1 <sup>st</sup> , 07  Workshop A Coruna, Spain 29/11/2007 Workshop Porto, Portugal 08/03/2008. Workshop Killaloe, Ireland 7/04/2008 Workshop Porto, Portugal 30/06/2008
Justification of any discrepancies between the action as planned and as implemented, if any
Nothing to report
<b>Total cost of the action (in Euros) including VAT</b>

**INFORMATION AND COMMUNICATION***(Cf. Application Form point 10 and 3.9)***REMINDER OF THE COMMUNICATION PLAN****(Objectives, review and results)**

In order to achieve the strategic objectives of MARINE project the exploitation and dissemination activities played a key role in the project. A dissemination plan was defined on an early stage of the project defining dissemination methodologies and major their targets. Also, specific rules for confidentiality issues were addressed.

Main Instruments used for Project Dissemination:

I. Partners Participation on Seminars and International Conferences: participation on project related international conferences in order to present the project, activities and results.

II. Workshops: organisation of thematic workshop at least one per country involved on the project.

II. Project Web Site

The development of this tool made communication between partners an easy task, allowing visitors make aware of project issues and results. The project webpage will contains:

- A comprehensive project presentation
- Description of project actors and key players
- Events guide
- Promotional materials
- Links to relevant web sites
- wiki

III. Publications:

The consortium prepared several electronic and paper publications to disseminate project objectives, activities and results.

COMMUNICATION ACTIONS IMPLEMENTED			
Type of communication action conducted	Description		Total cost of the action in Euros including VAT
WEBSITE	Domain	http://www.project-marine.eu/ http://www.fundacion.udc.es http://www.observatoriodellitoral.es/	
	Compliance with publicity standards (logo, EU flag...) (YES/NO)	Yes	
	Date created	2007/2008	
	Languages (ENG, SP, FR, PT)	ENG, SP	
	Intranet (YES/NO)		
	Number of visits to date		
BROCHURES	Number of copies circulated		
	Languages (ENG,SP,FR,PT)	EN, SP	
	Compliance with publicity standards (logo, EU flag...) (YES/NO)	Yes	
	Downloadable (YES/NO)	Yes (project website)	
	Date published	2007/2008	
LEAFLETS	Number of copies circulated		
	Languages (ENG, SP, FR, PT)	EN	
	Compliance with publicity standards (logo, EU flag...) (YES/NO)	Yes	
	Downloadable (YES/NO)	Yes (project website)	
	Date published	2007	
BOOKS	Number of copies circulated		
	Languages (ENG, SP, FR, PT)		
	Compliance with publicity standards (logo, EU flag...) (YES/NO)		
	Downloadable (YES/NO)		
	Date published		
SCIENTIFIC JOURNALS	Name and number of the issue (date)	<b>BULLETIN OF PEOPLE-ENVIRONMENT STUDIES, N° 31.</b>	
	Article title	<b>MARITIME INCIDENT RESEARCH AND INNOVATION NETWORK</b>	
	Number of pages	34	
	Languages (ENG, SP, FR, PT)	ENG	
	Downloadable (YES/NO)	NO	
SCIENTIFIC JOURNALS	Name and number of the issue (date)	Proceedings of the International Conference on Navigation, Guidance & Control of Underwater Vehicles (NGCUV08)	
	Article title	Autonomous vehicles in the response to maritime incidents	
	Number of pages	6	
	Languages (ENG, SP, FR, PT)	ENG	
	Downloadable (YES/NO)	NO	
SCIENTIFIC	Name and number of the issue (date)	Proceedings of the 3 <sup>rd</sup> Maritime Systems and Technology Global Conference (MAST)	

<b>JOURNALS</b>	Article title	Operations with autonomous vehicles in the response to maritime incidents	
	Number of pages	6	
	Languages (ENG, SP, FR, PT)	ENG	
	Downloadable (YES/NO)	NO	
<b>PRESS ARTICLES</b>	Name of paper and article	Portugal Diário	
	Date	21/04/2007	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Jornal de Notícias Porto	
	Date	22/04/2007	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	DN Madeira	
	Date	22/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	24 Horas	
	Date	22/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Jornal de Notícias	
	Date	22/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Primeiro de Janeiro	
	Date	22/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Metro Portugal Metro Lisboa	
	Date	22/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Atlântico Expresso	
	Date	23/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Destak Porto	
	Date	24/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	OJEEmprego	
	Date	27/04/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Ingenium	
	Date	01/05/07	
	Languages (ENG, SP, FR, PT)	PT	

	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Jornal de Notícias	
	Date	27/05/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Jornal de Notícias	
	Date	27/05/07	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	Cargo - Transportes & Logistica	
	Date	30/06/08	
	Languages (ENG, SP, FR, PT)	PT	
	Downloadable (YES/NO)	Yes (project website)	
<b>PRESS ARTICLES</b>	Name of paper and article	<b>EL IDEAL GALLEGO</b>	
	Date	<b>28/11/2007</b>	
	Languages (ENG, SP, FR, PT)	SP	
	Downloadable (YES/NO)	NO	
<b>PRESS ARTICLES</b>	<b>Name of paper and article</b>	LA VOZ DE GALICIA	
	<b>Date</b>	28/11/2007	
	<b>Languages (ENG, SP, FR, PT)</b>	SP	
	<b>Downloadable (YES/NO)</b>	No	
<b>PRESS ARTICLES</b>	<b>See project website for</b>		

COMMUNICATION ACTIONS IMPLEMENTED (cont'd)				
Type of communication action conducted	Description			Total cost of the action in Euros including VAT
MAJOR EVENTS	organised by the project	Seminar name	Maritime Incidents: Challenges and new technologies	
		Date and venue	30 of June 2008, Porto Portugal (APDL)	
		Number of participants	56	
		Type of audience		
		Documentation available (YES/NO) – downloadable?	Yes (project website)	
	in which the project took part	Seminar name	International Conference Risk Management in Production Activities	
		Date and venue	10-12 October 2007, Porto Portugal	
		Number of participants		
		Type of audience	Academic and industry	
MAJOR EVENTS	in which the project took part	Conference name	NGCUV'08 - IFAC Workshop on Navigation, Guidance and Control of Underwater Vehicles	
		Date and venue	8-10 April 2008, Killaloe, Irland	
		Number of participants	60	
		Type of audience	Academic, authorities and industry	
		Documentation available (YES/NO) – downloadable?	Yes (project website)	
	in which the project took part	Conference name	IACAS'08 48th <i>Israel</i> Annual Conference on Aerospace Sciences	
		Date and venue	27-28 February 2008, Haifa and Tel-Aviv, Israel	
		Number of participants	300	
		Type of audience	Academic, authorities and industry	
		Date and venue	17 March 2008, Porto (Portugal)	
		Number of participants		
		Type of audience		
		Documentation available (YES/NO) – downloadable?	Yes (project website)	
	Workshops in which the project took part	Workshop name		
		Date and venue		
		Number of participants		
		Documentation available (YES/NO) – downloadable?		

<b>WORKSHOPS</b>	<b>Workshops organised by the project</b>	Workshop name	Maritime Incidents Challenges and new technologies
		Date and venue	7 April 2008, Killaloe (Ireland)
		Number of participants	
		Type of audience	
		Documentation available (YES/NO) – downloadable?	Yes (project website)
	<b>Workshops in which the project took part</b>	Workshop name	
		Date and venue	
		Number of participants	
		Documentation available (YES/NO) – downloadable?	
<b>POSTERS</b>	Event (venue/date)	International Conference Risk Management in Production Activities, 10-12 October 2007, Porto Portugal	
	Number of copies circulated		
	Languages (ENG, SP, FR, PT)	EN	
<b>POSTERS</b>	Event (venue/date)	GASD Maritime Economy, 14-15 December 2007, Porto Portugal	
	Number of copies circulated		
	Languages (ENG, SP, FR, PT)	EN	
<b>TV Programmes</b>	TV channel/programme	<b>Tv local de A Coruña-LOCALIA</b>	
	Date	<b>29/11/2007</b>	
	Languages (ENG, SP, FR, PT)	SP	
<b>Radio Programmes</b>	Radio station/programme	Rádio Nova (Portugal)	
	Date	20/04/2007	
	Languages (ENG, SP, FR, PT)	PT	

**PLEASE ATTACH A COPY OF ANY PUBLICITY OR INFORMATION DOCUMENTS PRODUCED WITHIN THE FRAMEWORK OF THE PROJECT**

**PROSPECTS**

Indicate whether the project or certain actions will be continued in the future (for example, as part of a future territorial cooperation programme).

The contacts between the partners remained activity after the project conclusion. Some of the contacts made during the project, for example with the members of the advisory board, have also remained active after the project completion.

Currently the MARINE consortium, with the addition of new members that were involved in some actions of the project, is working on a new proposal in this area to be submitted to a call in 2009.

It should also be noted that during the project a technological based spin-off was created in the University of Porto. This new company - already involved in some of the project activities - demonstrates the exciting possibilities of these new technologies.

**HAS THE PROJECT SUCCEEDED IN CONSTRUCTING A TRANS-NATIONAL NETWORK THAT WILL CONTINUE AFTER THE END OF THE PROJECT? YES**

If yes.

**In what field and for what types of activities?**

**Description of the network: (number of partners, typology, status, mode of operation...)**

The MARINE project consortium remains active and the network as new members besides the original members.

Informal network involving research institutions, maritime authorities (ports, Portuguese navy, Irish coastguard) and environmental maritime organizations (CÉDRE, Galicia)

Broadly speaking: refining and deploying the roadmap outline that emerged as a deliverable of the MARINE project.

Maintain the awareness of the partners to the progress in the field and collaborative opportunities, regular meetings, exchange of experiences, prepare new proposals, etc.

**In the list of priority themes proposed by the Commission for the period 2007 – 2013, identify those which are of interest to you:**

**Accessibility and Transport NO**

**Types of activities that could be envisaged.**

**Water Management YES**

**Types of activities that could be envisaged.**

Technologies for the management of coastal and sea waters

**Maritime Risk Prevention YES**

**Types of activities that could be envisaged.**

Technologies for the prevention and mitigation of maritime incidents

**Research & Development Networks / NO**

**Types of activities that could be envisaged.**

**Would you like to receive further information on the future territorial cooperation programme for 2007-2013? YES**

**COMPLIANCE WITH THE GRANT OFFER LETTER and any addenda.****(For each question, delete the response that does not apply, and if the response is no, give details)**

Did the project comply with the terms of the Grant Offer Letter? / NO

**Specify if there were any addenda to the grant offer letter: number, date and grounds.**Did the project comply with the partnership presented in the grant offer letter? / NO **(delete as applicable)**Did the project comply with the financial plan? / NO **(delete as applicable)**Did the project comply with the schedule presented in the grant offer letter? YES / **(delete as applicable)**

The project failed to comply with

- (i) the terms of the grant offer letter
- (ii) the partnership presented in the grant offer letter
- (iii) the financial plan

in that

- a) the partner Brest Pilotage left the consortium shortly before the terminus of the project activities, and
- b) ENSIETA requested a reduction of its participation.

The share of these partners in the objectives, activities and budget allocated to the other partners.

The global funding plan of the project remained largely unchanged.

The inexistence of an addenda to the grant offer letter is due to the fact that, upon notification of the INTERREG III B managing authority of the changes unanimously agreed within the original consortium (thus, including Brest Pilotage) this authority reached the conclusion that there would be no time to formalise the modifications before the terminus of the project.

Did the project comply with the obligations regarding the inclusion of the programme logo and the European Union flag in all information and publicity actions? YES **(delete as applicable)**

**COMPLIANCE WITH COMMUNITY POLICY***(Cf. Application Form point 7)***Did the project comply with national and Community legislation on:**

- public procurement? YES
- fair competition? YES
- the environment? YES
- equal opportunities? YES

**Justify your answers.**

The MARINE project respected national or communitarian legislation about competition. Procurement of products and services fully respected the requirements specified in the concerned Community regulatory and legislation. All the procurement of subcontracting services to be performed by the consortium was done in respect of the legislation related to public contracts.

One of the main objectives of the MARINE project was to set up a network of organization focused on the study and creation of knowledge and technologies needed to face a maritime incident in all of its different stages. The consortium developed several studies in order to identify potential sources of maritime pollution and ways to prevent and protect. Also, major efforts were developed in order to prepare and to respond in emergency situations and ways to mitigate and recover from the negative impacts from a maritime incident. Therefore, MARINE project will provide an effective support towards the development and implementation of innovative knowledge and technologies with highly environmental benefits, e.g. avoid water resources contamination, protection of the maritime ecosystems.

The MARINE project, while promoting the internationalisation of the organizations involved on the MARINE network and in consequence, a greater technological and organizational progress of its regions, created a window for the parity participation of women and men in the science and technology decision-making processes.

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**DECLARATION OF THE LEAD PARTNER**

**As Lead Partner, I hereby declare that the information in this final activity report is the faithful reflection of the actions and results of the project throughout its duration.**

Date:

Surname and forename (in capitals)

Position within the organisation

Signature and stamp:

**ANNEXE 1: PROJECT SCHEDULE AND KEY DATES**

	Date	Comments (if any)
<b>Date of submission of the application form</b>	17/07/2006	
<b>Date of final approval of the file by the Steering Committee</b>	09/01/2007	
<b>Date of signature of the grant offer letter by the lead partner</b>	15/01/2007	
<b>Date project started</b>	01/01/2007	
<b>Date of modification application N°1 (if any)</b>		
<b>Date addendum N°1 signed</b>		
<b>Date of modification application N°2 (if any)</b>		
<b>Date addendum N°2 signed</b>		
<b>Date project ended</b>	30/6/2008	

<b>ANNEXE 2: FILING OF ORIGINAL SUPPORTING DOCUMENTS</b> (of expenditure, income, etc. ) in application of Article 4 of the grant offer letter	
Lead Partner and Partners	Place(s) filed
<b>Lead Partner</b>	<b>Economic and Financial Services FEUP</b>
<b>Partner 1</b>	Leça da Palmeira, Portugal
<b>Partner 2</b>	A Coruña, Spain
<b>Partner 3</b>	A Coruña, Spain
<b>Partner 4</b>	Brest, France
<b>Partner 5</b>	Brest, France
<b>Partner 6</b>	Limerick, Ireland
.....	

<b>ANNEXE 3: FILING OF KEY DOCUMENTS OF THE PROJECT</b>	
<b>Document</b>	<b>Place(s) filed</b>
<b>Grant offer letter</b>	<b>Cooperation Office FEUP</b>
<b>Letters of intent</b>	<b>Cooperation Office FEUP</b>
<b>Partnership agreement</b>	<b>Cooperation Office FEUP</b>
<b>Modification (if any)</b>	
<b>Addendum (if any)</b>	

**ANNEXE 4: SUMMARY OF ERDF PAID**

**Advanced payment of: 19.578,13 €**

**Requested on: 13/03/2007**

**Received on: 07/05/2007**

**ANNEXE 5: PROGRAMME INDICATORS****TABLE COMPARING FORECASTS AND ACHIEVEMENTS ON INDICATORS AT THE END OF THE PROJECT**

Provide information only for the indicators relating to the measure on which your project was financed (Cf. Application Form point 12 and 3.10)

**PRIORITY A****Justification of any discrepancies between the forecast and actual performance indicators, if any**

	<b>Indicator</b>	<b>Proposed</b>	<b>Achieved</b>
Performance	Seminars/Workshops	4	4
	Training	4	1*
	Participation in round Tables	6	7
	Individuals and organizations involved	20	22
Results	Partnerships	3	4
	Studies on Maritime Incidents	8	14
	New approaches	5	5
	Pilot projects	4	2
	Cooperative Projects (Proposals)	3	3
Impact	Technology transfer projects	6	
	IPR requests	2	
	Partnerships sustained after 18 months	2	

The main discrepancies between the proposed and achieved indicators was on the “training” which was ended with a formal expression smaller than that initially envisaged in the project proposal. However, some effort was made in this area with the following actions:

- Participation of Dr. Karen Quintin (CÉDRE) which presented training material on understanding black tides.
- Awareness of the technical and operational personnel of the partners (from Portugal, Ireland, and France) involved in the demonstration pilots for the role of the used emergent technologies in addressing maritime incidents.

The number of pilot projects is also smaller that proposed since 3 of the planned pilot projects were carried out jointly in one big deployment.

In what concerns the “impact” indicators it is still too early to realistically assess the full impact of the project.

**ANNEXE 6: PROJECT INDICATORS**

**For projects with indicators in addition to those for the measure in question.**

Performance and results indicators on the basis of those proposed by the Project in its Application Form - (Quantify the indicators)	Forecast	Actual