



September 2011 Report: Activity: Ballast Water Opportunity (resubmission)

Internal Filing Number	35-2-50-08
Periodic Report numb	ber 5

Name of project:	Ballast Water Opportunity (resubmission) (extension)
Project acronym:	Ballast Water Opportunity (resubmission)
ID journal number	35-2-50-08

Summary on Progress

The Ballast Water Opportunity project is now running over 2,5 years. Where is started as a North Sea Initiative, international organisations start to draw upon its resources to provide solution in implementing the IMO Ballast Water Management Convention (IMO-BWMC). Among these are the International Maritime Organisation, US Coast Guard and European Marine Safety Agency. Thus, increasing the impact of the North Sea Region, now also aiding the North Sea Regional authorities and companies in the implementation of the IMO-BWMC. This is illustrated by the joint workshop at Moss Landing (US) by the US Coast Guard and the BWO project on detection, the papers submitted to IMO for Chlorination systems and the papers submitted to EMSA for sampling and control.

Although we attract international attention, we also still draw attention at a local level. This is illustrated by the Open Day at NIOZ for Europa Om de Hoek (Europe just around the corner) that attracted over 80 people for maritime industry to people from Texel.

Next to this, authorities and companies still find their way to NIOZ, the knowledge transfer centres and the pilot test bed as well as the web site.

1. Beneficiary and project information

Beneficiary information

Extended deadline for submission of report	
Required submission date	
14/11/20 11	
Final Report is expected to be delivered	
31/03/2014	

Lead Beneficiary information

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Project number	35-2-50-08	Priority	2 - Promoting the Sustainable Management of our Environment		e Management of our Environment
Project website	www.northseaballast.eu	ERDF	5.698.719		

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Certification by Lead Beneficiary

Name	H. Ridderinkhof
Position	Director
Signature	MAN
Date	19/12/2011

2. Time period (6 months)

This Activity report covers the time period from	01/03/2011	То	31/08/2011
Extended implementation period		То	

3. Changes and other project issues

3.1 Changes process

Have any of the changes below been made during the reporting period	Yes
Have the changes been processed using the above listed process	No
Change of contact details	Yes
Changes of activities in the work packages	No
Change of partnership	No
Change of project timeline (new project timeline)	No

3.2 Other project issues

Incompletion of a work package	No

Addition of an Indicator	No		
Publicity	No		
Activities outside the Eligible Area	Yes		

Comments

Changes #2 have been processed. Changes #3 are pending. The project has several changes that will be filed through the online system when possible. A major mid project budget change is planned for the next March 2012 reporting period.

Just before the end of this reporting round, a major change in the management was made by NIOZ. Prof. Dr. Marcel Veldhuis was resigned from the project and Dr. Louis Peperzak took over his duties in respect of the scientific issues and Dr. Jan Boon for the coordination of the project.

The delayed Dissemination Plan has been published at the NSBWO web site (19/04/2011). After the time-out of IMarEST the plan has been further developed in co-operation with sub partners Wadden Sea Society and the recently entered ProSea. Welcome support was also given by co-ordinator NIOZ. The plan consists of a solid Dissemination Plan and a living Dissemination Action Plan.

DHI has applied for a change of budget lines in change #3. An advance commitment has been received. Therefore, the payment claim in this reporting is based on the changed budget as applied for in change #3.

Evonik has taken over the role of Hamann AG within the project in 2010 (see changes #3; reported in the 4 th report, March 2011).

During this reporting period it became evident that some sub partners of BSH, even though they indicated prior commitment, were and are not in a position to fulfill their commitments and should be dropped out of the project structure.

It is suggested that the funds allocated to these sub partners will be allocated to sub partners that have put in more than the expected workload. The restructuring of the project will be finished after the March 2012 reporting round and done in coordination with the lead partner and the JTS, where appropriate.

The delivery of three major deliverables have been seriously delayed, these are the manual for certification of ballast water treatment equipment (D2.1), the manual for certification of ballast water detection equipment (D2.6) and the guidelines for compliance control (D2.7). These were envisioned as a collaborative product from the project partners to be delivered to IMO. Due to the attention the project received and the improved level of discussion in the international arena, an improved transnational horizontal and vertical collaboration is required to achieve these deliverables. As illustrated in section 6 and 7 and enclosure 1b.

Two memoranda are added.

One containing the changes. The changes will be uploaded when the system allows new changes. One containing delays and remarks from JTS.

4. Work packages/activities

4a. Work packages and activities

See enclosure 1.

4b. Activities outside the eligible area (that were listed in Q2.4 of the approved application form)

A second technical workshop on organisms in the 10-50 mm size class, was held at the Moss Landing Marine Laboratories (CA, USA), outside the eligible area. Ten scientific organizations and test facilities and the German government attended the workshop. From NIOZ 2 scientists attended this workshop. Results of the workshops will be a submission to the respective IMO Committee via the member states involved in the NSBWO project.

4c. Activities or travels outside the eligible area (that were not listed in Q2.4 of the approved application form)

People from Imares attended the 38th session of the Gesamp in Monaco, 9-13, 2011. The discussion of WG34 (Ballast Water Working Group) were of prime importance, but also the discussions on merging issues were of interest. A short report is added as enclosure 5.

NIOZ and BSH coorganized and participated in the 'Phytoplankton workshop' for test facilities, at Moss Landing Marine Laboratories, March 28 to April 1, 2011. GoConsult and IMARES also participated and gave presentations at this workshop. This was part of the collaboration between the US authorities and the Ballast Water Opportunity as described in the extension. It was also part of WP2 (D2.1) and "Aspects of Certification and Compliance Enforcement" (D2.7/8) Purposes; counting phytoplankton (>10 < 50 micron fraction), in which all major western test facilities will try to identify common understanding in the testing protocols, initiating true progress towards a globally harmonized testing scheme. It also provided guidance on how to test ballast water treatment systems, based on the data and experience gained over the last years, since the release of G8. This will contribute to D2.1, 7 and 8.

Due to some confusion on the eligibility of the payment claims for this event the costs were not included in the payment claim of NIOZ and Imares.

GoConsult attended the IMO/GloBallast Ballast Water Management Training Seminar in Russia. No Interreg funds were used.

GoConsult undertook some sea voyages outside the eligible area, to do research. These activities are provided as in-kind contribution to the project and no EU-Interreg funding was used.

How has the project ensured transnationality in its approach during the reporting period?

The work in the project is transnational by nature. It affects the maritime industry and policies that are transnational by itself. All initiatives involve participants from different levels of government, scientists and industry. All countries within the North Sea Region (NSR) and many countries outside this region are involved.

Through working groups in WP2 and the joint collaboration in WP3, 4 and 5 (science, industry and government), transnational participation is ensured.

The transnational approach is best illustrated by the international collaboration that has been initiated in a number of expert workshops on ballast water treatment technology, certification and detection. On one hand the project contributes to the IMO GloBallast test forum in workshops and conferences to exchange best practices and come to a common approach. On the other hand the BWO project organizes and co-organize a number of dedicated and hands-on workshops to harmonize and standardize certification strategies and technologies. These include the UV and Cl workshops and the dedicated D2 standard workshops focusing on detection according to D2 (>50um, 10 to 50um, <10 um and indicated bacteria). In both initiatives the major contribution comes from North Sea participants. In the dedicated workshops the Ballast Water Opportunity project has been able to bridge the gap between Europe and the USA where the IMO convention is unable to do so. Where the IMO GloBallast Test Forum focused on test centers, the Ballast Water Opportunity project was able to involve participants in the vertical dimension, expanding these workshops form test centers to participation from governmental institutions, science, manufactures, to desiccated sector representatives like the UV-lamp manufacturers. Only through this improved transnational, horizontal and vertical approach that is initiated and made possible by the Ballast Water Opportunity project (including the extension) it is possible to achieve a transnational approach to resolve differences and achieve harmonization.

One examples of this approach by the partners of the NSBWO project is:

NIOZ and BSH coorganized and participated in the 'Phytoplankton workshop' for test facilities, at Moss Landing Marine Laboratories, March 28 to April 1, 2011. Also GoConsult and Imares participated in this workshop. The workshop was part of the collaboration between the US authorities and the Ballast Water Opportunity as described in the extension and in WP2 (D2.1) and "Aspects of Certification and Compliance Enforcement (D2.7/8) Purposes; counting phytoplankton (>10 < 50 micron fraction), in which all major western test facilities will try to identify common understanding in the testing protocols, initiating true progress towards a globally harmonized testing scheme. It also provided guidance on how to test ballast water treatment systems, based on the data and experience gained over the last years, since the release of G8. This will contribute to D2.1, 7 and 8.

As follow-up Imares participated in a Technical Advisory Group regarding the development of ballast water performance standards for California, on request of the California State Lands Commission. The TAG discussed issues using teleconferencing on June 9th and August 11th.

Only through these workshops can we come to transnational harmonization of certification procedures for the testing of ballast water treatment systems, equipment for compliance enforcement and harmonization of compliance enforcement throughout the North Sea Region and if possible beyond. Scientific outcome of the test performed by the Newcastle University can be used in harmonization for implementation, monitoring and enforcement of the ballast water convention in the North Sea region as well.

BSH reported the outcome of working groups to International Organizations, such as IMO, HELCOM and OSPAR, the EMSA is engaged in workshops. The project interacts on a structural and a personal level with other organisations. By involving key figures in the world of ballast water decision making on multiple levels (e.g. workshops, discussions), the project receives input and is shaping output on the international level.

The outcome of this truly transnational and vertical approach started with the Ballast Water Week in Malmö (2010), resulted in the contributed discussions at GloBallast and the dedicated workshops of the Ballast Water Opportunity project. It will have its impact at the global level as papers are submitted and discussed in various working groups at IMO. Results will also be evaluated by EMSA in order to disseminate them trough Europe. In this we surpass the transnational impact that we had initially hoped for.

Next to this several other initiatives contribute to the transnational impact of the project.

The NIOZ pilot test bed remains a crucial link in the development and testing of BWT systems and tools for Compliance Enforcement and Monitoring. As such, there are many bilateral contacts within and outside of the BWO project with national authorities and manufactures. During this period Marcel Veldhuis was invited to the USA being the only non-US resident for a meeting with the USCG, EPA, and several States to find a common way forward in the US in terms of BWT legislation and compliance enforcement.

As a result of the involvement in the project WMU has expanded its education and training in the area of ballast water management largely. WMU is now giving lectures to students about ballast water management in the International Masters Program during both the First Semester (Foundation Studies) and the Second Semester (Maritime Administration and Environmental Protection).

WMU has also developed a Professional Development Course in Port State Control of the Ballast Water Management Convention. The curriculum for this course was developed together with the GloBallast Project in IMO. The course is ready and will be included in WMUs regular course plan. The present group of Masters students at WMU are 105 coming from 67 countries.

GoConsult: As during the last reporting period, the North Sea alien species list was discussed with many experts in North Sea countries and beyond during the various meetings attended.

GoConsult, in cooperation with Prof. (emeritus) Erkki Leppaekoski and Prof. Matej David, is currently involved in a HELCOM ballast water management related risk assessment programme.

ZebraBioscience: Zebra has contacted scientists from other companies (G. Wubbels/Waterlab Noord, Wim vd Wilden/TNO and Henk Stegeman/RIKILT, all in The Netherlands) with expertise in the capturing of target bacteria from difficult matrices such as food and process water. During several telephone calls and a research meeting the opportunities and pitfalls of the magnetic immune-separation approach were discussed.

Evonik conducted tests for their BWMS at NIOZ and Imares. In this respect they also attended several meetings on ballast water treatment and ballast water management in Europe.

Brockmann Consult discussed the subjects concerning the risk index model in transnational groups in Europe during several occasions.

CaTO, GoConsult, NIOZ and BSH are keeping contact and attend meetings and workshops with different international organizations as GloBallast, GTFM, Ballast Water expert group, EMSA, ICES, IMO, MEPC and BLG.

They are also facilitating the project web site that is visited by interested parties within and outside the NSR. The number of registrations to this website are increasing and are made by academia, maritime industries, government, NGO's, education & training bodies and developers

of technologies. Also many request by students and manufacturers of BWTS are made.

On May 13 NIOZ organized an open day at the "Europe around the corner" event. Lectures were given in the auditorium of NIOZ and at the Ballast Water Test facility at the NIOZ harbour. It was open for the general public and invitees. Representatives from the target audience for this project were specifically invited to come (pictures available). Mark Overmans from AgentschapNL revealed a plaque explaining the project. About 80 people found their way to NIOZ, from which an number of them where not Dutch.

Cytobuoy: Continued the contacts with the partners from the Interreg Deux Mères group called Dymaphy (Towards the development of a DYnamic observation system of MArine water quality based on PHYtoplankton analysis by flow cytometry), and participated (Mr. van Hecke) in the first Dymaphy calibration exercise in Wimereux France 1-2 Dec 2010.

7. Transnationality

7a) How have the project partners ensured horizontal and vertical participation?

Horizontal and vertical collaboration is essential in this project. The complex implementations of the IMO Ballast Water Convention can only be achieved through good transnational, horizontal and vertical collaboration. A description of the current transnational, horizontal and vertical collaboration has been given in section 6.

Again a number of new contacts have been established and the involvement of project partners increased. A list with the transnational partnerships was enclosed in the previous report and will be updated with indicators for the next report (enclosure 2).

During the annual meeting at the University of Newcastle a survey was held to assess the needs and interests of the participants. This was used for the communication and dissemination plan, but also used as input for two master students that studied the collaboration with in the project (see enclosures 6 and 7). The results are used to strengthen the collaboration.

Next to these generalistic approaches, specific collaborations where encouraged. Examples are:

Imares continued the project with Evonik Degussa GmbH (Germany) to assess the effect of neutralization on residual toxicity of Peraclean Ocean. Evonik gently agreed with the use of Peraclean Ocean as test substance in the mesocosm study.

Imares performed ecotoxicity tests on water treated with the Cold Harbour inert gas BWMS, the Hamworthy UV-based BWMS and the Hamworthy electrochlorination-based BWMS in close collaboration with the named companies.

Evonik tested their BWTS in collaboration with NIOZ and Imares and Dr. U. Noack Laboratories (Niedersachsen, Germany). They also work with Boll & Kirch Filterbau (equipment manufacturer, Germany). BSH will become actively involved when the test work is done.

DHI is cooperating with WMU and Danish Nature Agency. The cooperation has been primarily between DHI as R&D and Consultancy company, WMU as research institution, and the Danish Nature Agency as a central authority. The first contact between DHI and Brockmann Consult where established to enable integration of their complementary approaches.

Brockmann Consult: discussed the risk index model that uses different data sources retrieved from different disciplines with stakeholders from environmental, administrative and industry sectors within and outside of the project. They also had discussions over this with governmental stakeholders about the applicability of the risk index model. This, in very close cooperation with BSH and their contacts to national and international organizations connected to the project.

Further, the risk index model is designed for the North Sea and Baltic Sea. Presentations and discussions with the member countries of HELCOM and OSPAR were held. The global aspect of the topic of ballast water exchange was part of the discussions.

BSH is a federal agency. They continued their close collaboration with other (sister) agencies in Germany and the NSR, both as sub partners in the project as outside. Thus, also their needs are taken into account in this project.

Cytobuoy continued collaboration with NIOZ and GoConsult in WP4, as well as continued cooperation with the Dutch water management department of Rijkswaterstaat (Dr. Machteld Rijkeboer and Dr. Arnold Veen). They presented their work during the open day at NIOZ (Europe around the corner)

7b) Are there any difficulties in the partnership?

If a partner wishes to withdraw or change responsibility within/from the partnership please refer to question 4 in the Changes Explanation form

Full beneficiaries:

For the 5th reporting round all beneficiaries are reporting their activities. Cathelco does not report, as they only recently initiated their work and their admission to the project is still pending. Cytobuoy, Evonik and CaTO did report their activities, but not their finances.

The problems with IMarEST are solved. IMarEST resigned for their activities and will not make any payment claims. IMarEST wishes to remain in contact with the project to draw upon its resources for expertise and to support the dissemination of information and activities through its network on case by case basis. Therefore they wish to remain a partner in the project. A letter explaining the involvement of IMarEST in the project is enclosed (enclosure 1a).

Partnership as a whole:

Reshaping the sub partner structure will be discussed in the next annual meeting, that is postponed to May 2012. Only then can we sit down and discuss the sub partners new position in line with the changes due to the strict national implementation of the FLC regime.

A number of partners were outraged over the unexpected rejection of their overhead in the 3th payment. This payment was far overdue, and the changes in regulations was not expected in this. This is especially painful as two of the affected partners are small sized SME's that cannot be expected to continue to make investments without proper payments as they have only limited resources. As a result we have drafted a letter to the JTS explaining our position in this.

Over the summer a number of initiatives where initiated to improve the collaboration in WP 4 and on risk assessment. Unfortunately, due to the sudden departure of the project leader these activities are seriously delayed. How far this will lead to a delay in the project as a whole can only be assessed in 2012.

8. Knowledge transfer and links

8a) Which European /national or other policies has the project contributed towards during the reporting period?

Global:

The project its contribution to the discussion at IMO level is continuing. Various papers are in preparation to be submitted. As these become public they will be enclosed in the report.

Newcastle University contributed to the International convention for the control and management of ships' ballast water and sediments, 2004. Two associated guidelines of G-2 and G-8.

Europe:

Through contacts with EMSA and through contacts with the involved national administrations and working groups for the marine framework directive (invasive species, eutrification, that are chaired by project partners) the project is continuing to contribute to Europe. The project also contributes to the EU-biocide directive and REACH. When invasive species are successfully reduced in ballast water, the project will contribute to Natura 2000 too.

DHI and Brockmann: The activities are aimed at the generation of a BWVM to be applied by authorities as a management component to support planning and the risk assessment in relation to the release of ballast water, environmental approval of shipping companies activities, protection of marine protected areas.

NIOZ, BSH, GoConsult, CaTO and other partners are in contact with HELCOM – Maritime Baltic Sea Action Plan, OSPAR ballast water activities, MEPC, GESAMP and ICES.

North Sea Region:

Through BSH and the Dutch Ministry of Infrastructure and Environment, the project is continuing to contribute to the development of regional (NSR) strategies and policies.

Arising from this project a new initiative is developing to provide a new trilateral strategy to protect the Wadden Sea from alien invasive species. This is initiated by a Dutch sub partner and the Common Wadden Sea Secretariat and will involve a number of participants from the project. This has to result in a project proposal in 2012. The Ballast Water Opportunity project therefore affects a major part of the Nature 2000 areas in the North Sea.

8b) Does the project make any links to any current and former programmes and projects during the reporting period? If yes, please present how these links are implemented in your project.

Brockmann Consult presented the risk index and BWO project on the Trilateral Conference on "Neobiota in the WaddenSea – Challenges for Nature Conservation" organized by the Common Wadden Sea Secretariat on 08.03.2010 and during an information meeting with German representatives of the harbour and ship owners (14.09.2010) in Hamburg.

NIOZ participates in MARES – (Doctoral Programme on Marine Ecosystem Health and Conservation) a EU Erasmus Mundus Joint Doctorates project which can be of benefit to the NSBWO project and in which BWO topics can be introduced.

Ships as well as ports participating in the ship board test are currently approached to participate in a research program of a full scale genetic analysis of organisms present in treated and untreated ballast water tanks. NIOZ will liaise in this matter after been contacted by researchers from the Station Biologique (Roscoff, France) and Statione 'Anton Dohrn" (Naples, Italy). In July samples were taken from ships and analysed.

CaTO monitored follow-up inventories in large-scale land-locked saline ecosystem 'KP Zijl' and joined them in a radio interview to draw public attention to ballast water issues and the project. CaTO also participated in planning follow-up monitoring in co-operation with Groningen University.

WMU has been involved in the development of a new project on ballast water and invasive species together with a consortium of institutions in the Mediterranean. This project has been submitted to EU Mediterranean Regional Program.

Newcastle University: some facilities and experiment of BaWaPIa – EU funded project were used in performing the chlorine-based tests.

IMARES gives advice to Dutch Authorities on the validity of a test dossier regarding a request for type approval.

GoConsult is partner in the newly launched FP7 Project VECTORS. This involvement will ensure mutual benefit between BWO and VECTORS. VECTORS will address e.g. ballast water management and related risk assessment.

DHI links the NSBWO project with an internal R&D project that is focusing on the development of generic modeling tools combining ABM, classical water quality modeling and hydrodynamic modeling.

ZebraBioscience: A part of Zebra's activities (lab-on-a-chip) is connected to a highly innovative EU FP6 STREP project that was finished in March 2010. The title of the project was: Hybrid integrated Blophotonic sensors created by ultrafast systems (HIBISCUS). Zebra is looking with the company LioniX for possibilities to include these new lab-on-a-chip microchip devices into rapid human pathogen detection.

Brockmann Consult: BC has a close cooperation with the ESA project under the DUE Innovator II programme "Ballast water" which ended in June 2010. Within this project the risk index model was developed. This development was used for further adjustment to the requirements coming from BWO project. The BWO project supported the efforts to start a follow up project by organizing an ESA user consultation meeting.

Cytobuoy: The Interreg Deux Mères proposal called Dymaphy, to which CytoBuoy b.v. is contributing as external expert and advisor has been granted in the 5th call of the Interreg Programme Deux Mères and is operational.

Cytobuoy participated in the project negotiation for a project called UV-MON. Full title: An Integrated and Modular Bio-Monitoring Ballast Water Treatment System based on Advanced UV Plasma Technology Delivering Maximum Performance and Lowest System Lifetime Cost. It was submitted in the program: Research for Benefit of SMEs (FP7-SME-2011-1) by the coordinator: Paul Luen (CEO), Martek Marine Ltd. For this project, we attended the grant proposal negotiations on May 3rd and 4th in Brussels, BE and on June 24th Mr Isaiah Saibu of Pera Innovation Network, UK, visited the company.

8c) Have other contacts have been made during the reporting period?

NIOZ: Some ship owners contacted NIOZ directly. Dockwise faces major challenges due to the high volumes of ballast water which has to be PDFmyURL.com

taken in and discharged at short time intervals. Together with the Dutch authorities we discussed the issue and analysed the possibilities accordingly.

NIOZ joined the Maritime Transport Cluster (MTC) project with the aim to have a common dissemination programem and to develop further future strategies.

CaTO: Consulted with WP3 on students curricula in KP Zijl land-locked saline ecosystem inventory and follow-up. 21 March, RU Groningen, Faculty Math & Sciences, President Gron. Biol. Diving Club, Calamari - Student Biology, co-ordinator Science & Society (RUG), Prof. M. Veldhuis (RUG). Calamari stand for a group of scuba-diving biologists that are to sample the saline system.

Cytobuoy is continuing its contacts with Prof. Linda Medlin, Université Pierre et Marie Curie, Paris.

Newcastle University has had a contact with the CNSS (Clean North Sea Shipping) INTERREG Project during the present reporting period to gain the knowledge and the type of scientific approach employed in that project.

ZebraBioscience has started collaborations with the Microbiology Department of Utrecht (Hans Kusters) in the field of human pathogen detection using Real time DNAPCR instruments of Siemens Diagnostics (Stephan de Gier) and Hangzhou Bioer Technology (Ronald Wu) and Biolegio.

As a result of the involvement of Zebra in the BWO project, Zebra was asked to deliver kits and to collaborate on the detection of different human and animal micro-organisms by the university of Utrecht (Microbiology Department) in the Netherlands.

Ovizio has established a partnership with the VUB (Vrije Universiteit Brussels).

9. Innovation

How has your project contributed to promoting innovation within the North Sea Region during the reporting period?

NIOZ: The use of the knowledge exchange centre and pilot test bed at NIOZ provide a strong impulse on innovation and development of new treatment technologies.

A small device to concentrate plankton organisms, without affecting their viability, is currently tested in the laboratory using different types of plankton (phyto- and zoöplankton).

NIOZ has started to monitor the long-term effect of a ballast water treatment system. The institute has therefore equipped its own research vessel with a BWT system in the upcoming period and a variety of ballast water scenarios will be studied over a longer period (years). It is also very likely that NIOZ scientists can use a naval vessel with a different technology onboard for a long-term study too.

BSH and Brockmann Consult are collaborating in a project that uses satellite images for the evaluation of ballast water exchange areas. Results will be reported to IMO.

WMU is continuing with the development of the website for invasive species in the North Sea.

Newcastle University carried out tests that revealed the breakdown period of biocide after addition of seawater. The results can be used to determine the potential for environmental harm upon discharge of Ballast Water.

DHI: The developed methodology on how to combine hydrodynamic modeling, ABM and statistical post-processing techniques for addressing risk assessment of ballast water release and the thread from invasive species is a new innovative approach.

IMARES: Marine stagnant mesocosms facilitate assessment of the effects of active substances at community level, thereby bridging the gap between laboratory and field. They are not only suitable for ballast water treatment systems, but also in a broader sense when environmental risks of substances have to be assessed. Currently IMARES is the only institute worldwide, exploiting mesocosms on a commercial basis. The main challenge is adaptation of the substance based procedure to a effluent based procedure.

Evonik: Development of in-line sensors for the detection of H $_2O_2$ in the presence of sulfite with a measurement range of 0,05 – 750 mmol/l in cooperation with ProMinent. Detection of H $_2O_2$ at such low concentrations in the presence of sulfite can be instrumental for the neutralization of ballast water which had been treated with H $_2O_2$,.

Brockmann Consult: The combination of remote sensing and other spatial information of the North Sea were combined to a risk index model for ballast water exchange. However, algorithms for the retrieval of water quality products (such as chlorophyll concentration, suspended matter concentration and turbidity) from remote sensing are established. Using this information for the topic of ballast water exchange is an innovative approach.

Zebra: The development of Biomagnetic enrichments methods for human pathogen from sea water, in combination with Real time DNA is new to the project. The goal is to provide robust detection tools for the detection of low amounts of many human pathogens, such as bacteria and viruses, in sea/ballast water. The combination of immune-beads, High-Five beads and DNA is very innovative. The innovative detection tool "ATP measurement of bacterial growth" into the ballast water project, if successful, could prove to be a very powerful and effective detection method.

The technology Ovizio has developed has contributes to WP 4 (detection) of the ballast water project. It could be used to automate the detection of the presence of organism based on a unique signature ultimately it could become a universal on line label free detection technology that could even be installed on ships for direct monitoring.

Cytobuoy: All activities are new and innovative The result of our activities will constitute a combination of measuring technology and data analysis software that will (hopefully) be very valuable in the monitoring of ballast water and surface water for invasive species. This will provide new possibilities for monitoring by authorities and the scientific community as well as trigger new technology development by our colleague technology manufacturers.

Some of the developments generated in this project may prove useful in a subsequent stage for our regular CytoSense developments and end up in laboratories and research ships of our customers in the North Sea.

Innovation of policies:

GoConsult: Further work at sea and the attendance of the Barcelona conference on alien species contributed to the already existing knowledge on how to take representative samples of ballast water on board. The future involvement in shipboard tests of ballast water treatment systems will enable detailed experiments to proof the suitability of organism detection technologies and sample processing approaches on board.

CaTO: Probed further on the potential of the Relation on European Grouping of Territorial Cooperation (EGTC) Reg (EC) No 1082/2006 by screening case studies for possible similarities and re-discovering the potential of the North Sea Forum Study (Peet, ten Hallers-Tjabbes & van Weering-Albrechts, 1983; EU committed) that explored the potential of a target group Forum (platform) as advisory to North Sea Policies.

10. Publicity

Tua) what kind of communication and publicity activities have been carried	of communication and publicity activities have been carried o	y activities have been	f communication and publicit	10a) What kind of
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An excel file is included in which the different publications during the 5th reporting period are listed (see enclosure 4). The type of publications listed in this file are:

- Conferences and workshops (presented and attended):
- Presentations at international meetings (scientifically and policy);
- Press releases and publications in magazines.

10b) Have any particular activities obtained particular attention for the project or Programme?

Open day at NIOZ for the Ballast Water Pilot Test bed in coordination with Europe Around the corner. During this event a plaque to indicate the Interreg ERDF contribution was revealed (enclosure 3).

10ci) If you fulfil the following conditions as beneficiary, you should during the implementation of the operation, put up a billboard at the site of each operation.

Yes

Yes

Yes

No

No

No

(a) the total public contribution to the operation exceeds EUR 500 000;

(b) the operation consists in the financing of infrastructure or of construction operations. Yes

If you have answered both questions with yes, please provide details about the infrastructure or construction and the billboard: During construction of the pilot test bed no details for a billboard where available. Due to the short construction time non would have been relevant (1 week).

10cii) If you fulfil the following conditions as beneficiary you should put up a permanent explanatory plaque that is visible and of significant size no later than six months after completion of an operation:

(a) the total public contribution to the operation exceeds EUR 500 000; (b) the operation consists in the purchase of a physical object or in the financing of infrastructure or of construction operations.

If you have answered both questions with yes, please provide details about the purchase of a physical object, financing of infrastructure or construction operations and the explanatory plaque

During the Open Day at NIOZ (May 13, 2011) a plaque to indicate the Interreg ERDF contribution was revealed (enclosure 3).

10ciii) All information and publicity measures aimed at beneficiaries, potential beneficiaries and the public should include the following (for small promotional objects points (b) and (c) do not apply):

(a) the emblem of the European Union, in accordance with the appropriate graphic standards, and reference to the European Union

(b) reference for the ERDF: 'European Regional Development Fund'

No

(c) The statement investing in the future by working together for a sustainable and competitive future

(d) as stated in the guidance, the North Sea Region programme logo and related references should be used

14. Communications

Plaque to identify the source of funding

11. Indicators

No

Indicators

Indicato	ors								
14.2i Compulsory Indicators - each of the indicators must be established for the project									
Output/ Result/ Impact	Priority/Programme Indicator description	Description	Unit	Baseline	Project target	Source of information	Reported previously	Reached in total	Reached this period
Raising	awareness/dissemin	ation							
Output	transnational dissemination outputs	exhibitions	number	0	1	Appendix 3 WP 5	3	3	0
Output		own events	number	0	5	Appendix 3 WP 2&5	11	11	0
Output		published material	number	36	120	Appendix 3, WP 2,3,4, this includes public and scientific papers, press communications and targetted information	25	25	0
Output		websites	number	1	2	Appendix 3 WP 5	2	2	0
Output		TV and radio ap- pearances	number	0	0		3	3	0
Result	individuals reached by (priority) specific awarenessraising activities	exhibitions	number female	0	0	appendix 3, WP5	0	0	0
Result		other	num ber male	75	1,150	Reached by Priority 1,2,3	0	0	0
Result		other	num ber fem ale	34	575	Reached by Priority 1,2,3	0	0	0
Result	organisations in target groups reached by (priority) specific awareness raising activities	e xhibitions	number	103	395	This includes all from priorities 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 3.1, 3.3 as described in appendix 3 WP 2, 4 and 5, which include shipping companies, ports, technology providers, coastal ecosystems, transport and reduced negative impact on living resources, bio-invasios, urban, rural and costal communities, port authorities	143	143	0
Strength	hening transnational	co-operation	ī						
Result	Organisations within and outside the official core partnership involved in the project (i.e. as contributor to activity or output)	activity	number	15	50	Paragraph 8, partners and sub-partners	119	119	0
Result	individuals within and outside the official core partne rship involved in the project (i.e. as contributor to activity or output)	activity	number	100	1,000	Appendix 3, WP 2-5	120	120	0
Output	project administration outputs (I): transnational partner management meetings		number	12	15	Appendix 3, WP 1-2	21	21	0
remon	ai ooverage								

14 .2ii Ge	neric Indicators - in	ndicators must	be chose	n which are re	elevant for the	e project			
Result/ Impact	Indicator description	Description	Unit	Baseline	Project target	Source of information	Reported previously	Reached in total	Reached this period
Core act	ivitie s								
Output	developed:	transnational training	number	2	5	Appendix 3 WP 3-5	0	0	0
Result	individuals in different social and age groups undertaken transnational training	female 18-24	number	0	0		1	1	0
Result		male 25-54	num ber	10	30		0	0	0
Result		female 25-54	number	5	20		0	0	0
Result		male 55+	number	0	3		0	0	0
Result		female 55+	number	0	1		0	0	0
Output	initiatives that		number	0	1	Appendix 3 WP 3 and 5	0	0	0
	provide or help find investment re- sources		_						
Result	com plem entary financing secured (financing additional to approved project budget)		Euro	5,400,000	12,400,000	see par. 2.4-5 and budget, part is specified in project budget by BWT developors €645,000 secured, €645,000 searched for, duch matchings subsidy €500,000. Private and Public RTD Triggered	3,000,000	3,000,000	0
Output		transnational demonstration projects	number 1	9	17	Appendix 3 WP 3 and budget; this includes: feasibility monitoring, validation BWMS, Conpliance Controll and enforcement best practises, BWM implementation knowledge transfer database, NIOZ BWM technology and WMU Emerging Issues and strategies	3	3	0
Raising	awareness/dissemin	ation	-						
lm pact	individuals within and outside the NSR with greater awarenessof project outputs	male	n um ber	200	2,000		219	219	0
Im pact		female	number	100	1,000		41	41	0
lm pact	organisations within and outside the NSR with greater awareness of project outputs		number	28	200		23	23	0
Strength	ening transnational	co-operation							
Output	project administration outputs (II): shared IT system s		number	2	4	Sgared web based administration and 1 to 3 information databases for dissimination of wp 2, 3, 4	2	2	0
14 .2 iii. P	riority indicators -	chose at least	1 out put	and 1 result	indicat o r				
Output/ Result/ Impact	Priority/Programme Indicator description	Description	Unit	Baseline	Project target	Source of information	Reported previously	Reached in total	Reached this period
Priority 2	promoting the susta	inable managem	entofour	environment					
Output	contingencyplans	new	number	1	2		0	0	0
Output		improved	number	0	1		0	0	0
Output	common databases	new	n um ber	2	2		1	1	0
Output	new transnational model approaches		number	4	9	This includes priority 1, adding 2 to baseline, 4 to target, ind. on toolsfor transnational technology transfers adopted for RTD exchange	2	2	0
Output	transnational ne twork	new	number	8	27	incl. implementation, of BWMC.this incl all new ad improved transnational networks, alliances, collaborations, etc	5	5	0

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Result	land are a subject to	transnational management tools	ha t	60,000,000	60,000,00	00 the target is over 60.000.000 tech tranf of BWM and Bio-invasions, tech tranf on BWMS, future ship borne invasions.	0	0	0
Result	se a are a subject to	transnational management tools	ha	500	2,000	ports	0	0	0
Result	Coastline subject to	transnational management tools	km t	30,696	35,696		0	0	0
Result	new technologies / pilots to reduce pollution and manage risks transfer red transnationally and implemented		n u m b e r	6	14	incl. BWM monitoring, BWM treatment systems, early warning and mitigation	1 3	3	0
Environn	nental Indicators								
Output/ Result/ Impact	Priority/Programme Indicator description	Description U	Init B	aseline Pr	oject s rget	Source of information	Reported previously	Reached in total	Reached this period
Environn	n ental issues								
	Biodiversity, flora and fauna	Natura n 2000 areas affected	umber ()	0		All known maritime areas and all new areas during and after the project period	0	0	0

12. Enclosures

Enclosures		
Form at e.g. book, CD, DVD etc	Description	No. of pages/photographs
Enclosure 1b2	Flowchart 5th reporting	8
Enclosure 7	Master thesis Veerbeek	57
Enclosure 6	Master thesis Meftah	66
Enclosure 5	Report GESAMP 38th meeting	3
Enclosure 4e	Newsletter August	6
Enclosure 4d	Newsletter May	4
Enclosure 4c	Texelse Courant 17-5-2011	1
Enclosure 4b	Texelse Courant Open Day	1
Enclosure 4a	Paper Al 2011 Liebich et al.	8
Enclosure 4	List of publications and presentations	1 Excel
Enclosure 3	Pictures of plaque	1
Enclosure 2	Overview transnational partnership	1 Excel
Enclosure 1i	Presentation open day NIOZ	8
Enclosure 1h	Evonik test report	4
Enclosure 1g	Evonik test description	19
Enclosure 1f	Workshop neobiota	104
Enclosure 1e	BWO progress report 2011	35
Enclosure 1d	Rotterdam Ballast Water Sampling report	6
Enclosure 1c	NIOZ Moss Landing presentation	2
Enclosure 1b	Work plan Ballast Water treatment system certification manual	2
Enclosure 1a	IMarEST resign	1
Enclosure 1	Table 4a WPAcitivities 5th report	19

Finalise

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