THE NORTH SEA BALLAST WATER OPPORTUNITY Project Newsletter

2012/4



NORTH SEA BALLAST WATER

Introduction

The last quarter of the year was partly dedicated to preparing for events, such as the Annual Meeting 2013 and the NSBWO-Europort 2013 conference. A ports workshop focused on exchange and exemptions and our views on transparency were brought to IMO-MEPC 65. We welcomed a new project member, Anne Bouyssou of WMU. The science partners continued to refine BWM analytical techniques and a research consortium formed of the winners of the detection competition set out to further develop and refine their detection methods.

WP 1: Project co-ordination

The work package leader meeting on 17 December, at BSH, Hamburg was a major event in this quarter.

The main target was completion of the outstanding deliverables as well as the ones planned for the coming period. WP 1 is tasked to write a business plan for a sustainable continuation of project activities, identifying issues we wish to maintain and develop strategies to that end.

All agreed that the upcoming fifth year of the project will be crucial in harvesting deliverables. WP1 should stimulate efforts of cross-fertilisation between work packages. We formally applied for a six-month project extension into 2014.

Procedures for preparing NSBWO reports

Drafts of all NSBWO reports have to be circulated to all WP leaders for general agreement before they can be made public. Prior to dissemination the author of the report has to co-ordinate appropriate dissemination strategies with the leader of WP6, This will enable dissemination of all official NSBWO reports in a uniform format and cover



and will be embedded in a consistent indexing system. PDF copies of the reports will become available on the NSBWO web-site, while specific reports are to be printed. An updated list of all partners and sub-partners of the NSBWO project will be available on the web site in early 2013.

Plans for use of remaining NSBWO budget

NIOZ as well as WMU had prepared detailed proposals, which were discussed at the meeting.

- WMU proposes a course in compliance, monitoring and enforcement and would also like to invest more into informing the public.
- NIOZ proposed to develop an increased quality assurance/quality control programme for typeapproval testing in cooperation with Imares, GoConsult and BSH.
- Dr. Cato ten Hallers (WP6) proposes to evaluate the potential of policy instruments to safeguard transparency in all facets of ballast water management policies and practice; the proposed activity is envisaged to be shaped in cooperation with WP2.

In this newsletter

- Plans for use of remaining NSBWO budget
- Upcoming NSBWO meetings
- Development of test protocols for filtration systems
- Workshop organisms in ballast water below 10 micron in minimum dimension
- New employee at the WMU
- Transparency to confidence and trust in Ballast Water management

Upcoming NSBWO meetings

- NSBWO AM2013, WMU, Malmö, Sweden, 11 and 12 March. The programme will be developed by WP6 and WP5.
- Flow cytometry Workshop, 11-14 February 2013 (WP3)
- CME Workshop, Hamburg, BSH (WP2)
- Next Work package leader meeting at NIOZ on 17-18 June.
- NSBWO Europort 2013 Conference, Rotterdam, 6-7 November.

The report of reporting period 7 has been delivered to JTS. The current reporting period 8 will end on 28 February 2013.







NORTH SEA BALLAST WATER

WP 2: Policy

The workshop report on microbes and organisms smaller than 10 micron will be collated together with the two reports on the larger organism size classes, to be submitted to MEPC 66.

Other WP2 activities in this period were:

- Article about NSBWO in a brochure on InterReg-Projects of which Hamburg is part (October 2012)
- Ports workshop in cooperation with PIA (University of Aachen) 'Workshop on the impact of Exchange and Exemptions regulations of the BWMC for Ports' (Hamburg, November at November 15th; outcome not given)
- Submitted documents to BLG 17 on:



Picture: preparing fluorecent beats for Flow Cytometer workshop, NIOZ



- comments on monitoring and sampling of certain Ballast Water Management Systems
- results and follow-up of competition to identify effective new detection technologies for assessment of compliance with the BWM Convention
- Alongside, the consortium that followed up on determine feasible detection methods, presented their results during BLG17
- Preparing two workshops in cooperation with other institutes (for early 2013), one on disinfection by-products and in vitro toxicity from seawater oxidation, the other on CME.

WP 3: Science and Testing

We tested the filtration step of a BWM system with different types of sediment (Wadden Sea sediments and specific test sediments); particle size distribution of the sediments were recorded. The findings relate to the development of test protocols for filtration systems. Test sediments are also being analysed for presence of cysts and other plankton survival stages in BWMS tests, prior to and after treatment.

The adequacy of different detection techniques (FDA, ATP, PAM fluorimetry) for compliance monitoring and enforcement (CME) was further investigated. The promising ATP technique has been stepped developed by PhD Cees van Slooten; 2nd prize in the BSH competition on detection techniques). Different types of other techniques will be inter-calibrated. Some 'Cam' instruments were not up to par in distinguishing viable from non-viable cells. A paper on the performance of different screening methods has been published¹.

Ballast water samples were also analysed by 454 Roche Titanium FLX genome sequencing to assess which organisms, that are otherwise hard to identify, survive specific ballast water treatments. The genus Vibrio, that had been recorded to be present in the natural test water was again found to be abundant. The CARD-



FISH (CAtalyzed Reporter Deposition Fluorescence In Situ Hybridization) detection method offers potential to detect. Vibrio spp. as a proxy for Vibrio cholerae.

For the flow cytometer workshop (February 2013) we invited scientists and flow-cytometry manufacturers. The main target of the workshop is rapid counting of plankton in size classes of 2-10 and 10-50 μ m at low organism concentrations.

¹Peter Paul Stehouwer, Viola Liebich & Louis Peperzak, 2012, Flow cytometry, microscopy, and DNA analysis as complementary phytoplankton screening methods in ballast water treatment studies, DOI 10.1007/ s10811-012-9944-8), Journal of Applied Phycology, www.nioz.nl/tl_files/afdelingen/BIO/ Ballast_water/News documenten/2012-3-Stehouwer.pdf



Picture: Cees van Slooten working on ATP method, NIOZ

management systems, in particular as several potentially toxin producing

belong to this size class.

On-board testing of detection

technologies for selected organism

organism detection were identified.

However, it continues to be difficult

to identify a method which reliably

Anne Bouyssou began her maritime career with six years of service in the

French Navy. She obtained a Master

the University of Perpignan (France)

in 2010. An internship in the French

in Maritime Affairs Management from

documents both the viability of organisms and synchronously counts

the number of organisms.

WP 5: Strategies

and Sediments.

continued. Suitable methods for

algae, which may also affect humans,



NORTH SEA BALLAST WATER

WP 4: Sience-Detection

The work in WP4 focussed on organisms detection technologies. Last quarter a workshop was organised jointly with the Great Ships Initiative (USA) targeted organisms in ballast water below 10 micron in minimum dimension. The IMO D-2 Standard includes indicator microbes below 10 micron, but does not refer to other organisms in this size class, such as phytoplankton species. The workshop concluded that such organisms should also be included when checking the performance of ballast water



Maritime Administration resulted in a dissertation on the Legal Principles and Implementation of the International Convention for the Control and Management of Ships' Ballast Water

She graduated from WMU in 2011 with a M.Sc. in Maritime Safety & Environmental Administration. Her dissertation addressed The Introduction of Alien Aquatic Species by Ships in the Arctic.

Anne is both a research assistant and a Ph.D. candidate at WMU. Her thesis focuses on the environmental impacts of shipping in the Arctic, particularly on the introduction of alien species into



This period we followed up on the new viewpoint linking transparency to confidence and trust in Ballast Water management with the maritime industry. As the welcoming response called for follow-up we set out to co-ordinate views with the maritime sector and introduced our submission to MEPC 64, also supported by a presentation in IMO to bring our views to the attention of the attendees of BLG 17.

We stepped up the co-ordination within WP6 by several meetings and met with the organisers of Europort 2013 in preparation for the conference. We also developed a first concept programme for the NSBWO-Europort 2013 Conference and set a preliminary logistic planning. Attending a North Sea Interreg financial seminar gave further understanding and insight in the way the public money is channelled to the actual projects.

In November we attended the global test net meeting (Singapore) where transparency was again an important issue. Following that we presented a thorough analysis on the role of transparency in confidence and trust in BWM ate the ICBWM conference (also in Singapore). IN December we participated in the Live Project group meeting. We further participated in developing the programming for the Annual Meeting 2013.

- Meeting with Europort 2013 organisers & WP6 team (29/10)
- Attended FLC Seminar (30/10, Assen)
- Participated in Global testnet, Singapore, highlighting the need for transparency
- Presented ideas on transparency in BWM at ICBWM Singapore
- Continued WP6 team
- Participated in WP Live meeting
- Developed first concept Programme Europort 2013 and logistic planning
 Planning of AM13
- Planning of AM13



the Barents Sea.

After working on a short-term project with the GEF/UNDP/IMO Global Ballast Water Management Programme, she got involved in the NSBWO project and became a regular contributor to both the NORSAS database and the study conducted by WMU on biofouling.

Anne contributed to the WMU proposals in view of the possible extension of the NSBWO project. She attaches importance, in particular, to the creation of widespread awareness about the introduction of alien species into the North Sea by ships. In this regard, WMU intends to make the NSBWO project's research findings and experiences available to the general public, especially to children, through the publication of a monograph which could be used in schools.