

EMSA's Ballast Water Action Programme – Update, results and added value.

EMSA Workshop on Ballast Water Issues

Lisbon

13th November 2013

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EMSA's Ballast Water Action Programme

- November 2008, *"Implementing the Ballast Water Management Convention (BWM) – the EU dimension"*.
- Ballast Water issue in the European Context;
- Presentations from Regional Seas, Member States and the Commission;
- Member States suggested over 40 activities:
 - to help them ratify the BWM Convention; and,
 - contribute to the interim ballast water management strategies being developed by the four Regional Sea Conventions.
- EMSA assessed the feasibility of these proposals;
- A list of actions that could be undertaken at the European Level;
- Submitted to the Commission; and,
- July 2009 - original proposals revised and Action Programme formulated.

EMSA's Ballast Water Action Programme

EMSA will

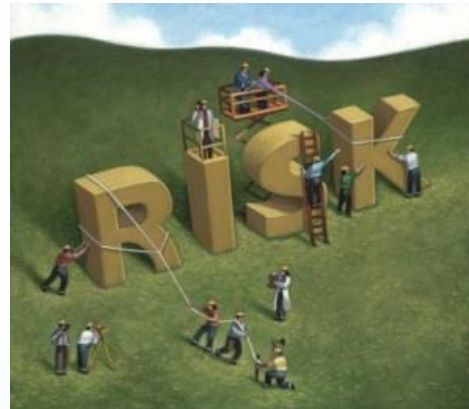
- *Prepare a review of the Ballast Water Risk Assessment Methodologies and the different ballast water management measures available to the Member States and the Regional Seas Conventions;*
- *Review the need for further guidance on: data collection on ship's ballast water exchange and on invasive species in ports; the granting of exemptions; and, the identification and implementation of additional measures, following the completion of Action 1;*
- *Produce a joint briefing note (EMSA/DG Environment/DG TREN) on the relationship between approval for ballast water technologies that use active substances under the Biocides Directive, the proposed Biocides Regulation and the Ballast Water Management Convention's Guidelines;*
- *Host a workshop to identify how a joint EU ballast water sampling strategy can be developed;*

EMSA's Ballast Water Action Programme

- *Investigate how funding can be obtained to "Develop a technical co-operation and short term secondment programme to enhance cohesion and parity on ballast water sampling and analysis within the Member States";*
- *Investigate how ballast water management information and best practice can be shared electronically between all Member States;*
- *Actively participate in the North Sea Ballast Water Opportunity project;*
- *Maintain liaison with DG Environment and the EEA over the introduction of non-indigenous species through ballast water discharge, to ensure that there is continuity between this Action Plan and the European Communities work in this area. EMSA will also react to requests for input into these programmes when necessary; and,*
- *Maintain a watching brief on developments at the IMO and within the Member States, and contribute to the important work of the Regional Seas Conventions. EMSA, through the European Commission, will also react to requests for input into these programmes when necessary.*

1). Prepare a review of the ballast water risk assessment methodologies and the different ballast water management measures available to the MS and the RSC's.

- Risk Assessment in the BWM Convention
 - Applicability
 - Additional Measures
 - BW Exchange
 - Exemptions
 - Port State Control
 - Emergency Measures
- Assessment methods and principles?
- Examples
 - Globallast, Norway, Croatia, Black Sea, Canada, USA, Australia, New Zealand, India, Brazil, OSPAR, HELCOM and DNV



1). Prepare a review of the ballast water risk assessment methodologies and the different ballast water management measures available to the MS and the RSC's.

- Fit for purpose in Europe
- Conclusions
 - Applicability - None
 - Additional Measures (G13)- None
 - BW Exchange – Norway
 - Exemptions - HELCOM
 - Port State Control - None
 - Emergency Measures – None – IMO (BWM 2.Circ 17)
- Document should be circulated early 2014.
- OSPAR – provisional guidelines for vessels operating in OSPAR Region based on basic risk assessment.
 - top ten approach



2). Review the need for further guidance on:

Data collection on ship's ballast water exchange and on invasive species in ports

- Being undertaken where needed by Member States and RSC as they have the expertise in house.

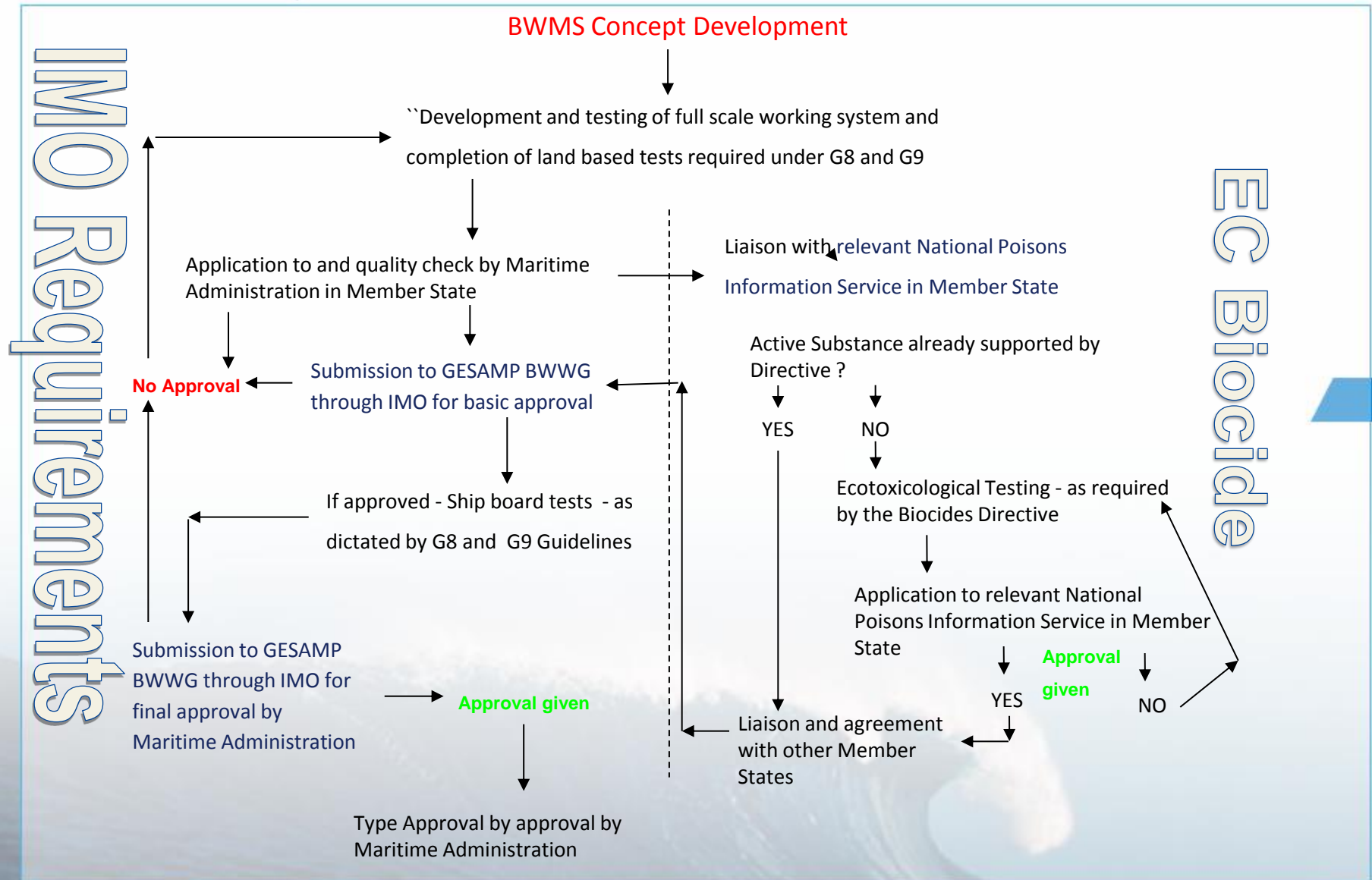
The granting of exemptions

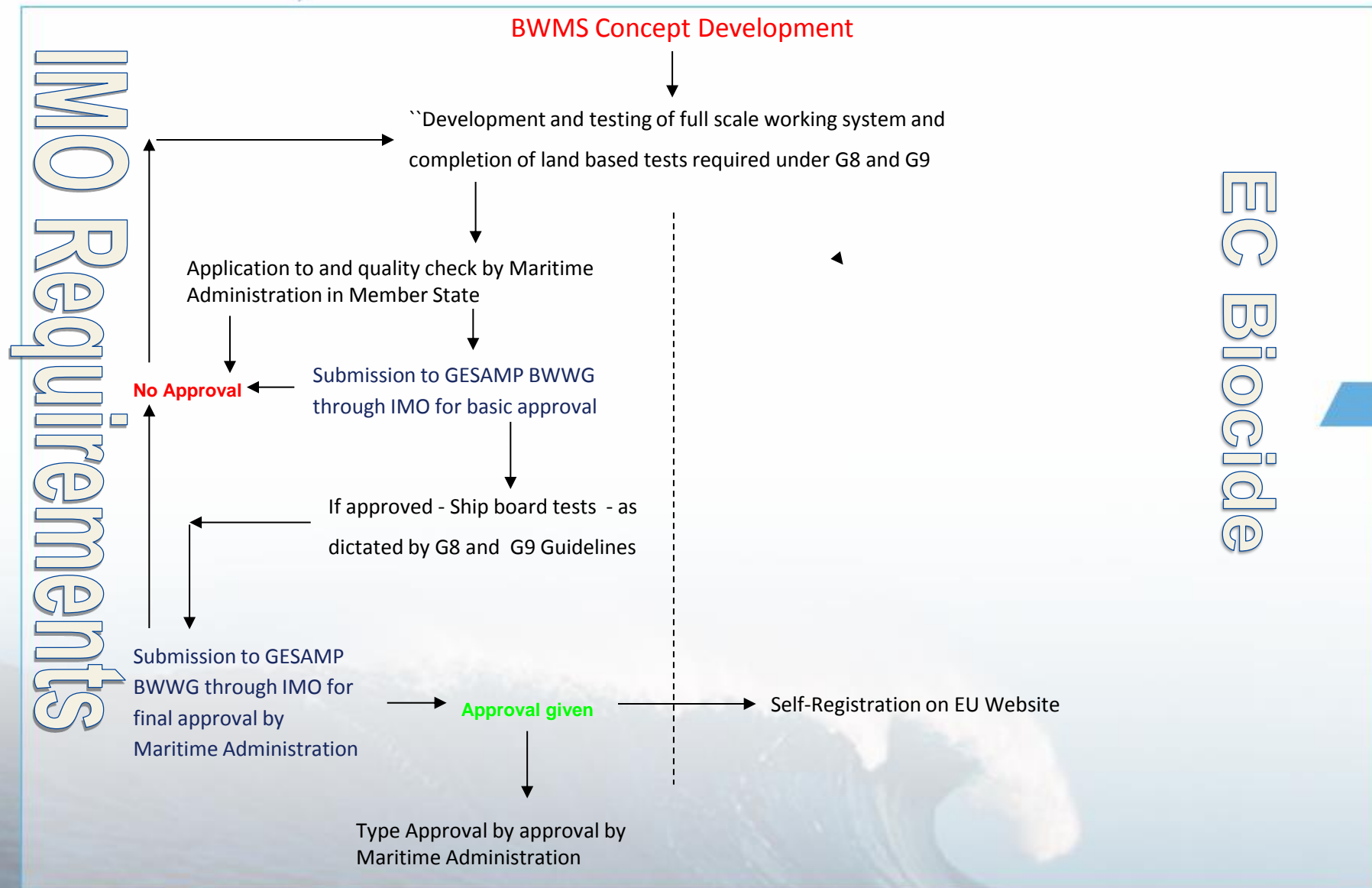
- Being undertaken where needed by Member States and RSC as they have the expertise in house.
 - provided basic input into
OSPAR/HELCOM work

The identification and implementation of additional measures.

- Not been raised in European Union
 - not pursued further







4). Host a workshop to identify how a joint EU ballast water sampling strategy can be developed;

Held in January 2010

- Focus on pre PSC, PSC, Indicative/Detailed Sampling and based on research.

Research in 2010

- How to undertake indicative analysis/sampling to provide “clear grounds” for stopping a discharge and/or enforcement;
- How to test a discharge from a BWTS and a ballast water tank to ensure that the results are representative of the entire discharge; and,
- The development of guidance for how to analyse a sample.

EMSA Sampling Workshop in early 2011

- Resulted in
 - a Ballast Water Sampling Protocol was representative
 - based on sampling for type approval;
 - A statistical method to analyse the results
 - A review of the methods of sampling and analysis
- In parallel IMO was discussing the development of a “*BWM Circular on Guidance on ballast water sampling and analysis in accordance with the BWM Convention and Guidelines (G2)*”
- EC were asked to submit their research;
- BLG 15/5/1, BLG 15/5/4, BLG 15/5/5 and BLG 15/5/6;
- Correspondence Group (CG) was set up;
 - EC as base documents
 - co-ordinated by EMSA on behalf of the European Commission
 - Reported to BLG 16



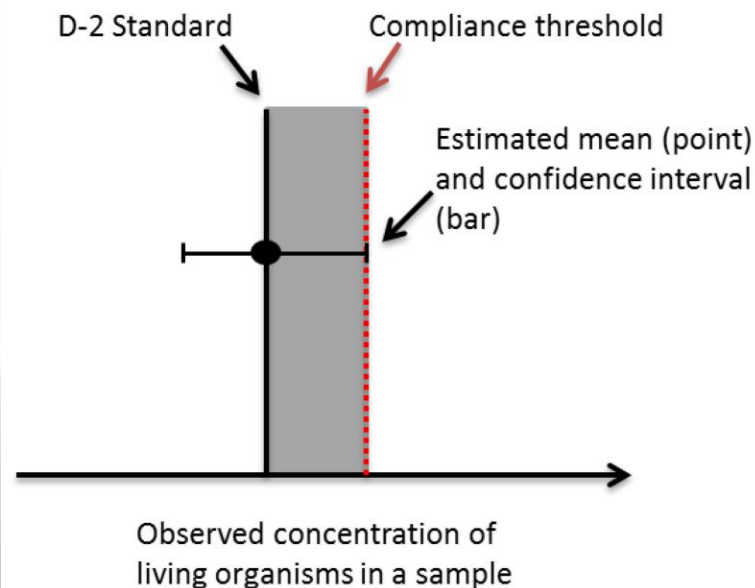
- This document introduces the concept of
 - indicative analysis and detailed analysis;
 - provides a review of all the technologies available for sampling and analysis;
 - gross Non-compliance;
 - provides a suite of sampling protocols that can be used for sampling for compliance;
 - Guidelines for Type approval; and,
 - sampling for compliance vs sampling for enforcement.
- However, at BLG 16 there were many problems: BLG 17
 - No standardised or single sampling method
 - enforcement more stringent than compliance.
 - BWMS won't work everywhere
 - Is type approval robust enough
 - Are ships going to be prosecuted unfairly

**Not
Accepted
by Plenary**

BLG 17

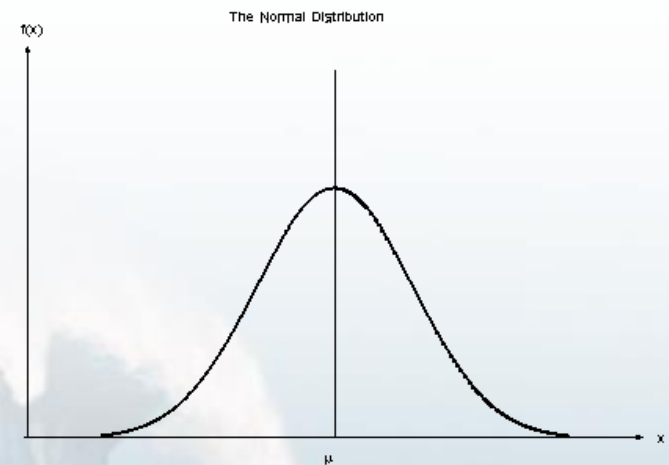
- Discussed whether the G8 Guidelines should be re-opened.
- As a result the CG report was accepted as a part of a bigger package.
 - Additional guidance for vessels, IMO Member States and testing facilities on the G8 guidelines;
 - Expansion of the Type Approval certificate to include more information
 - The inclusion of a trial period for standardised and scientifically validated sampling protocols linked to a period where “criminal sanctions based on sampling alone” would not occur.
- Acceptance of the fact that the “*Guidance on ballast water sampling and analysis for trial use*”
 - living document
 - current state-of-the-art

- Big issue - error encountered by sampling and analysis same magnitude as the D-2 standard.
- **EMSA further research 2012**
 - ***"The development of a full standard methodology for testing ballast water discharges for gross non-compliance of the IMO's BWM Convention".***
- Gross non-compliance was examined
- Re-engineered the problem
- Not looking at samples and working out the error
- Finding the error from the distribution of a set protocol identifying 99.9% confidence and applying it to the D-2 standard



EMSA 3rd Sampling Report

- Original Data placed into Poisson Distribution Model;
- Found to not fit expected variation;
- Refined statistical model (Negative Binomial) has therefore been used to incorporate the additional variability;
- Expected variability of counts from samples with equal to the D-2 standard is extrapolated based on 99.9% certainty;
- Added to the D-2 Standard to provide the “gross non-compliance” threshold;
- Many assumptions – living organisms
 - these are stated and analysed to ensure they fit in with real time sampling and sample concentration
- Provides a bigger threshold than that identified by the Poisson distribution.



Results

Gross Non-Compliance thresholds for organisms greater than or equal to 50 micrometres in minimum dimension

Number of 500 L samples	Volume represented by analysing 6 ml subsample	Direct count	GNC Threshold #/m ³
1	0.06 x 0.5 m ³	11	366.7
2	0.06 x 1.0 m ³	13	216.7
3	0.06 x 1.5 m ³	14	155.6
4	0.06 x 2.0 m ³	15	125.0
5	0.06 x 2.5 m ³	17	113.3

Gross Non-Compliance thresholds for organisms greater than or equal to 50 micrometres in minimum dimension less than 50 micrometres in minimum dimension and greater than or equal to 10 micrometres in minimum dimension.

Number of 5 L samples	Volume represented by analysing 0.81 ml subsample	Direct count ²	GNC Threshold #/mL
1	1 x 5 L	94	116.0
2	2 x 5 L	119	73.5
3	3 x 5 L	139	57.2
4	4 x 5 L	158	48.8
5	5 x 5 L	175	43.2

Need to verify assumptions, scientifically validate and standardise the protocol – 4th Study not funded in 2013
- due to changes in EMSA Regulations

Ballast Water Training

- Member States requested in 2011
 - Repeated in 2013
 - Policy Officials and PSC Officers
- Globallast Sampling
 - First Sampling Presentation
 - Safemed
 - Adopted into Globallast training
 - Repeated by others around the world
- Industry conferences
 - BWM Tech, Green Ship Technology
- ICES links – ICES/IMO/IOC Working Group on Ballast and Other Ship Vectors
- IMAREST Ballast Water Group/Conferences



***Investigate how funding can be obtained to
"Develop a technical co-operation and short term
secondment programme to enhance cohesion and
parity on ballast water sampling and analysis within
the Member States"***

- Looked into funding opportunities in Europe
- None easily accessible without many partners
- European Cooperation in Science and Technology (COST)
 - an intergovernmental framework for European Cooperation in science and technology,
 - coordination of nationally-funded research on a European level.
 - infrastructure enabling for scientists to exchange expertise and co-operate with each other.
 - a bottom-up network, so it is upon the respective scientific institutions to suggest COST actions

***Investigate how funding can be obtained to
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secondment programme to enhance cohesion and
parity on ballast water sampling and analysis within
the Member States"***

- 35 "COST countries" (COST Member States), among them all EU Member States.
- COST - under certain circumstances.
 - finances scientific events (workshops, conferences),
 - costs of travelling for short term scientific missions, committee meetings and publications for laboratories and other scientific institutions.
- financed at the level of the Member States.
- A COST Action has to be proposed by scientists/researchers to their national coordinators.

6). Investigate how ballast water management information and best practice can be shared electronically between all Member States;

- Original plan to develop its own electronic technical database
- North Sea Ballast Water Opportunity Project was doing something similar technical database was being set up.
- No duplication,
 - EMSA looked into the possibility of taking over this database at the end of the INTERREG funded project,
 - A feasibility project was undertaken.
- 200 pages, containing about 2000 PDFs with an average size of 2 MB, plus pictures
- Topshare logic does not fit into EMSA's system
- Cost 5X equivalent of EMSA's total website ;

7). Actively participate in the North Sea Ballast Water Opportunity project;

- A joint cooperation between over forty partners and sub-partners, including governments, industry and scientific centres in the North Sea Region.
- Provided significant amount of guidance technical and operational.
- EMSA has actively been involved in this project,
 - providing advise
 - Presentations
 - ensuring that the two projects are compatible
 - sharing information on EMSA's sampling research.

8) Maintain liaison with DG Environment and the European Environment Agency over the introduction of non-indigenous species through ballast water discharge.

- Regular updates/consultation to EEA and EC on Ballast Water issues
- EMSA represented DG Move, ISC on the new "*Regulation on the prevention and management of the introduction and spread of invasive alien species*".
- The BWM Convention is referred to as the methodology for controlling the pathway for invasive alien species in ballast water. The legislation does not include any requirements that go beyond the BWM Convention.
- Marine Framework Directive
 - Alien Species as one of the indications of Env. Quality
 - non-indigenous species kept at levels that do not adversely alter ecosystems

9. Maintain a watching brief on developments at the IMO and within the Member States, and contribute to the important work of the Regional Seas Conventions.

- OSPAR
 - OSPAR and HELCOM Guidance on Ballast Water Exchange;
- Barcelona Convention/SafeMed
 - Mediterranean Ballast Water Action Programme and Guidelines;
 - Training in Turkey, Malta and Croatia
- HELCOM – EC and HELCOM Maritime
- EC Liaison - S Korea, China, Brazil, Japan, US
- IMO
 - Attending and providing technical advice at all the IMO meetings on Ballast Water;
 - Commenting on Member States submissions to IMO – Dredging, BWMS self monitoring, Drinking Water as ballast;

- Providing technical advice on projects being considered and commissioned by different Member States;
- Liaison with the shipping, BWMS and ports industry, their representatives and scientists – 4 to 6 a year
 - Intertanko, Intercargo, ICES, EPSA, BIMCO, ICTA, SEA Europe, ICES/IOC/IMO Working Group on Ballast and Other Ship Vectors,
- Providing the European perspective on ballast water issues at international and regional conferences; 4-6 a year
 - BWM Tech, Green Ship Technology, and Brazil, US,
- Providing specific technical advice to Member States on ratification, implementation and Type Approval.
- Responding to the questions from the European Parliament and the general public.



Thank you



Ballast water sampling with thanks
to Mahle and GoConsult



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