



## **Submission of the Information concerning the Experience Building Phase of the IMO from members of the Global TestNet**

### **Background**

The Marine Environment Protection Committee (MEPC), at its seventy-first session (3 to 7 July 2017), adopted resolution MEPC.290(71), establishing the experience-building phase (EBP) associated with the Ballast Water Management (BWM) Convention, to allow MEPC to monitor and improve the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004. During MEPC 74 (13 to 17 May 2019) the revised Data Gathering and Analysis Plan (DGAP) for the experience-building phase associated with the BWM Convention (BWM.2/Circ.67/Rev.1) was adopted, and the Secretariat appointed the World Maritime University (WMU) to coordinate the data gathering and reporting for this exercise (BWM.2/Circ.74, 20 May 2021).

The Global TestNet promotes comparable and accurate test results on the performance evaluation of technologies to control the risk of introductions of invasive aquatic species via shipping. This occurs through an open exchange of information, transparency in methodologies, and advancing the science of testing. Therefore, the Global TestNet has been identified as a stakeholder with potential to provide data and information to support the WMU in its efforts, and eventually, it was invited by WMU to support the EBP work.

The members agreed to compile data and submit this information together. The following information has been collated from 7 of the Global TestNet members. In accordance with the DGAP, all commercial sensitivities have been protected through the use of aggregate reporting, and no information is attributed to any specific individual, organization, ballast water management system (BWMS), or ship.



### **Information for consideration by the EBP**

Since its inception in 2010, the Global TestNet has continuously developed and improved the methodologies for obtaining representative samples and their analysis using the most robust methods. In their effort to support transparency, the members have already shared this information which is publicly available on the Global TestNet website.

Therefore, the data submitted here was not re-transposed into the structure of the supplementary data submission form of the DGAP, but a simplified XLS form was submitted to the members.

The information was gathered only for discharge testing that was carried out after the entry into force of the BWM Convention (i.e., after 08 September 2017). Here, we have separated the information gathered into compliance testing of ships with installed and operating BWMSs (ship in operations) (1) and newly installed BWMSs as required by the commissioning testing (BWM.2/Circ.70 and its revisions, as appropriate) (2).

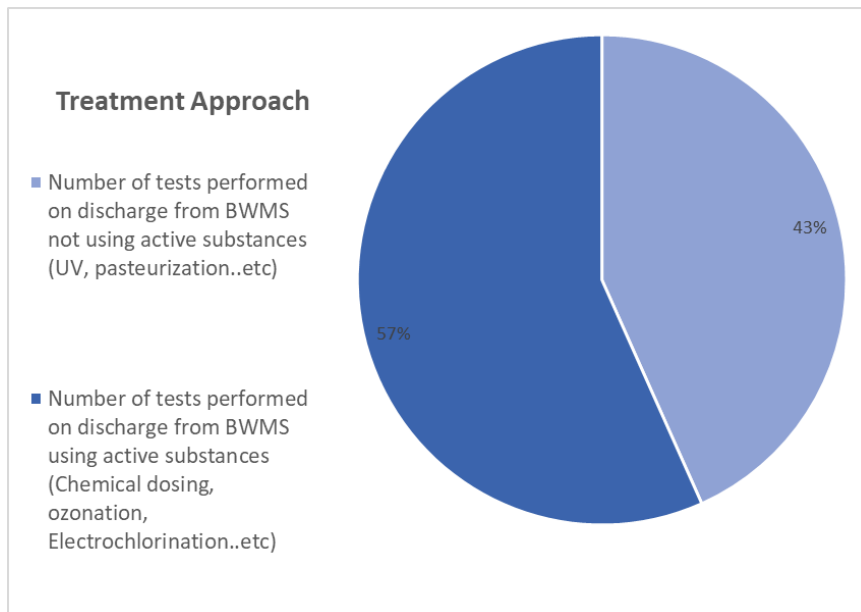
In total, information from 828 tests was compiled with 7 members submitting data from 704 commissioning events and 3 members submitting information from 134 compliance events. Out of the 134 compliance events, 50 were not shared with administrations (self-compliance from owners as due diligence); 11 were already shared with IMO as part of MEPC.75/INF.11 and associated corrigendum, 24 were already shared with IMO as part of MEPC.76/56; one of our members reported that results from 49 tests reported here were submitted to an administration; two other members did not report any information on compliance testing because they have already submitted this information to an administration. Results from commissioning tests are used as a basis for issuing International Ballast Water Management Certificate and may therefore be also in the hands of the Flag or Class.



The findings from the data compilation are presented in **Table 1** and Figure 1.

**Table 1.** Overview of the testing results for tests carried out and reported by the Global TestNet.

Parameter	Type of Testing	
	Commissioning	Compliance
Total number of tests	704	134
Percentage of discharges failing to meet the D-2 Standard	20%	22%
Percentage of discharge exceeding TRO limits as set by GESAMP (G9 Guidelines)	6%	34%
Percentage of failed tests involving exceedance in the $\geq 50 \mu\text{m}$ size class	81%	93%
Percentage of failed tests involving exceedance in the $\geq 10 \mu\text{m}$ and $< 50 \mu\text{m}$ size class	8%	14%
Percentage of failed tests involving exceedance for <i>E. coli</i>	7%	0%
Percentage of failed tests involving exceedance for <i>Enterococci</i>	6%	0%
Percentage of failed tests involving exceedance for <i>V. cholerae</i>	0%	0%



**Figure 1.** Percentage of tests of ballast water management systems (BWMS) tested according to IMO Guidelines G8 or G8+G9 (using active substances).

The data compiled from both commissioning testing and compliance testing clearly reveals that testing for organisms in the  $\geq 50 \mu\text{m}$  size fraction is essential for compliance monitoring and enforcement. The Global TestNet has previously made a statement on that matter (see links at the end of the report).

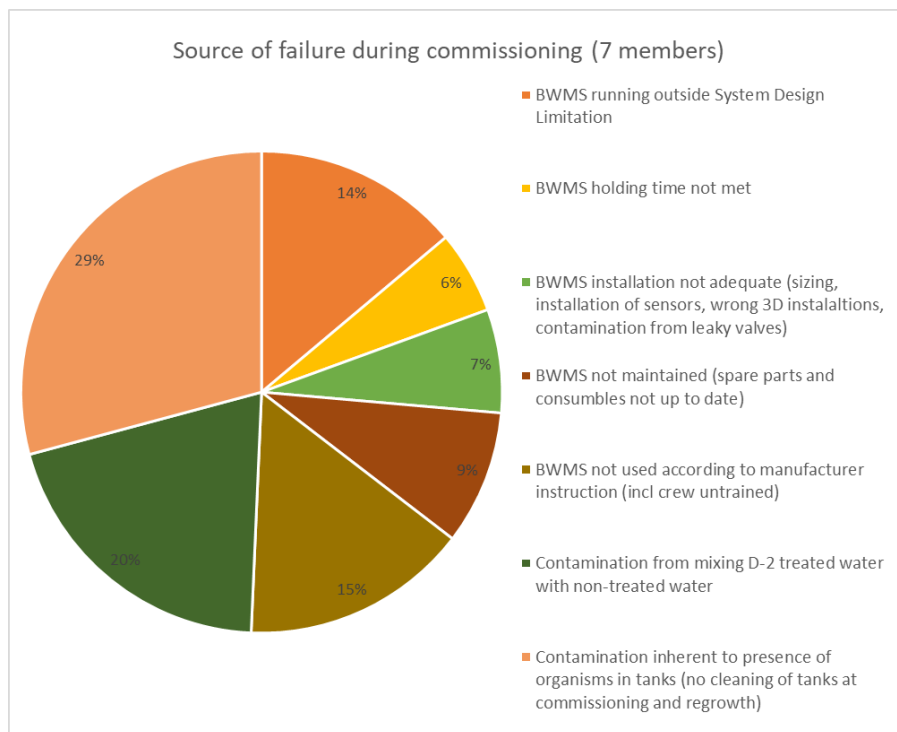
Two of the members reported that in their sets of data, when a discharge failed to meet the  $\geq 10 \mu\text{m}$  and  $< 50 \mu\text{m}$  size class discharge standard, it was always accompanied by a failure to meet the discharge standard for the  $\geq 50 \mu\text{m}$  size class. One member noted that detailed analysis carried out after failures of indicative analysis often proved that the discharge was compliant. These results agree with the previous statement from Global TestNet on commissioning that supports the use of detailed analysis as a priority testing approach.

In addition, the members were asked for feedback on the most likely source of failure during the discharge. Seven options were proposed, and respondents ranked the answers from most likely to least likely:

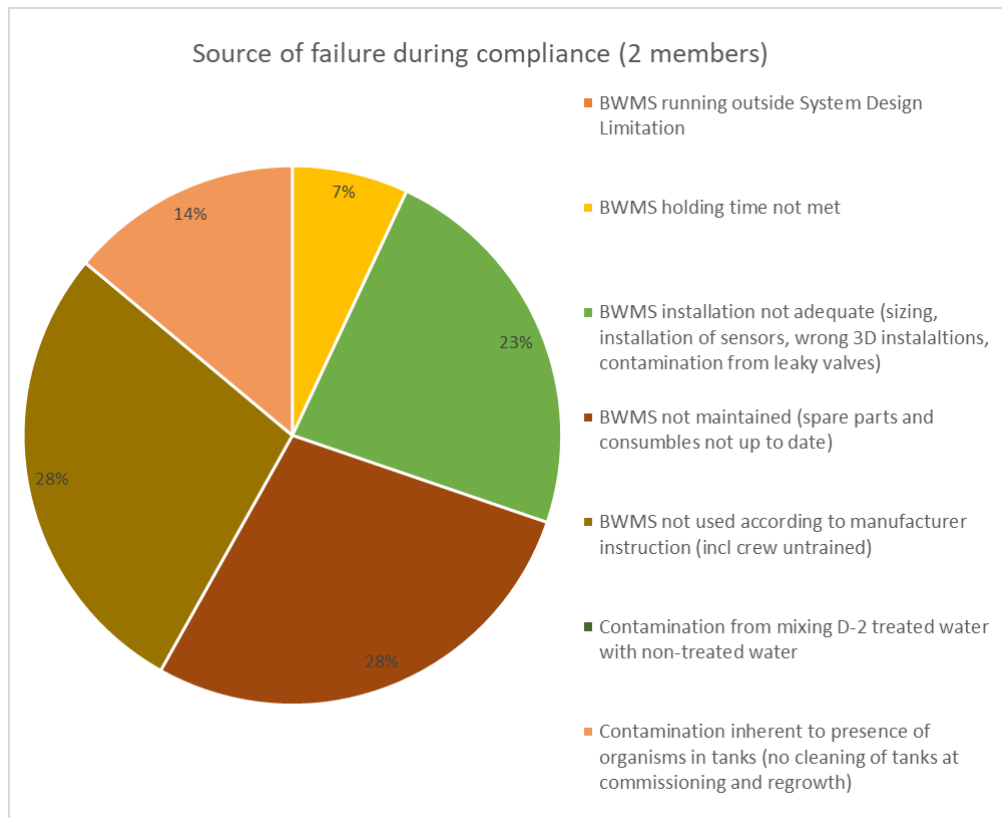


- Contamination inherent to presence of organisms in tanks (no cleaning of tanks at commissioning and regrowth)
- BWMS running outside System Design Limitation
- BWMS holding time not met BWMS not maintained (spare parts and consumables not up to date)
- BWMS not used according to manufacturer instruction (incl crew untrained)
- Contamination from mixing D-2 treated water with non-treated water
- BWMS installation not adequate (sizing, installation of sensors, wrong 3D installations, contamination from leaky valves)

All options were not reported all of the time, because some members may not have encountered such a situation, or they may not have felt that the option was relevant, or both. The results are presented in Figure 2 & 3.



**Figure 2:** Most likely sources of non-compliance during discharges from 7 members (commissioning tests)



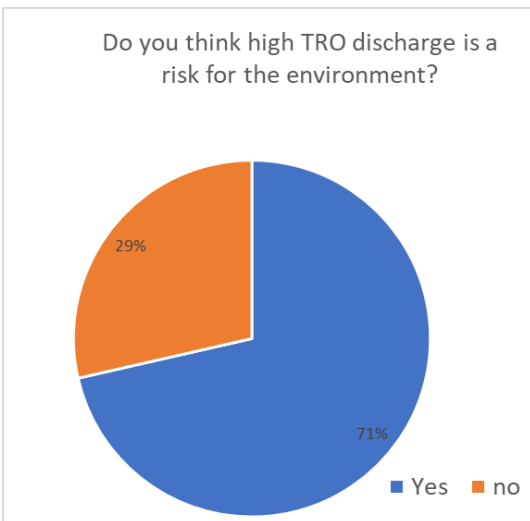
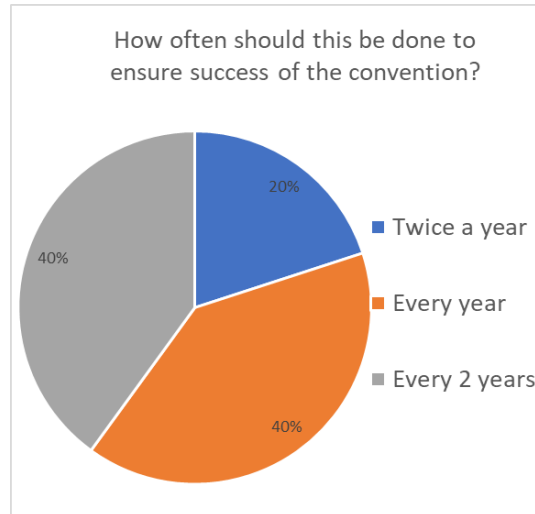
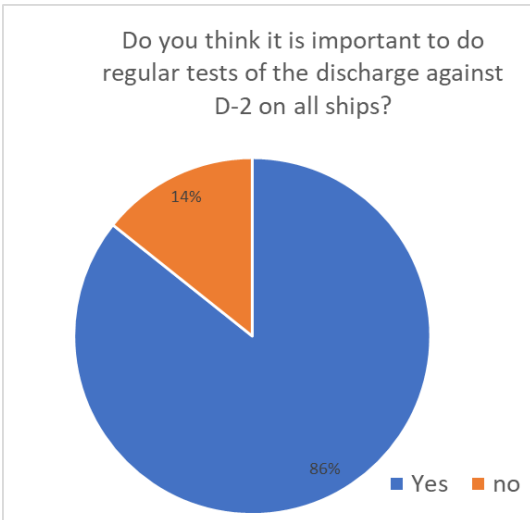
**Figure 2.** Most likely sources of non-compliance during discharges from 2 members (compliance tests).

Based on this evaluation, an obvious source of non-compliance for the discharges is the contamination of treated water from dirty ballast water tanks and mixing of waters with unmanaged ballast water onboard. This is particularly true for commissioning testing. For compliance tests, the use and maintenance of the BWMS was also important (51%). For compliance tests, a notable percentage (23%) of responses noted potential issues with installation, but no information was gathered on the model, age, or installation type of the BWMS installed.

Finally, the members were asked three questions regarding the importance and frequency of compliance testing (Figure 3). The majority of respondents thought regular testing was important (86%), should be conducted annually or every two



years (40% for each option), and that the discharge of high total residual oxidant is an environmental risk (71%).



**Figure 3.** Responses to questions on compliance monitoring. TRO = total residual oxidant.

### About Global TestNet

Global TestNet promotes comparable and accurate test results on the performance evaluation of technologies to control the risk of introductions of invasive aquatic species via shipping. This occurs through an open exchange of information, transparency in methodologies, and advancing the science of testing.



Regular compliance monitoring is encouraged through the existing network of accredited ballast water testing providers.

A list of Global TestNet discussions and position statements is provided below and additional information on Global TestNet activities may be found on the website:

[Global TestNet](#)

- [Revising the Protist Challenge Condition for Type Approval Testing](#)
- [Acknowledging the need for testing for compliance - May 2021](#)
- [Global TestNet Position Statement on BWMS Commissioning](#)
- [Filtration as a Ballast Water Treatment Measure - Allegra Cangelosi](#)
- [Land-Based Performance Evaluation in Ambient and Augmented Duluth-Superior Harbor Water of Eight Commercially... - Allegra Cangelosi et al.](#)
- [Member's Methodology Comparison Charts - January 2021](#)
- [DNV GL IL approach to measuring organisms in the size classes 10-50  \$\mu\text{m}\$  and  \$>50 \mu\text{m}\$](#)
- [\*Vibrio cholerae\* Issues - January 2021](#)