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## **IMO Developments for BWMS Commissioning Testing using Indicative Analysis**

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# Outline

- MEPC 73 development
  - Significance & challenges
- Looking ahead
  - Existing technology
  - Future standards development?



## GUIDANCE FOR THE COMMISSIONING TESTING OF BALLAST WATER MANAGEMENT SYSTEMS

### Context

1 The purpose of commissioning testing is to validate the installation of a ballast water management system (BWMS) by demonstrating that its mechanical, physical, chemical and biological processes are working properly. Commissioning testing is not intended to validate the design of type-approved BWMS that are approved by the Administration.

3 For the purposes of this Guidance, commissioning testing refers to an operational test of the ballast water management system carried out based on the installation commissioning procedures referred to in...[**Harmonized System of Survey and Certification (HSSC) Guidelines**].

4.3 the representative samples should be analyzed for **all size classes included in the D-2 standard using indicative analysis methods** listed...

# Indicative vs. Detailed Analysis

An *indicative analysis* means a compliance test that is a relatively quick indirect or direct measurement of a representative sample of the ballast water volume of interest:

A *detailed analysis* means a compliance test that is likely to be more complex than indicative analysis and is a direct measurement of a representative sample used to determine the viable organism concentration of a ballast water volume of interest. The result of such measurement:



OceanTech P.counter



BW Monitor



Chelsea Technologies



LuminUltra B-QUA

# Indicative Analysis Instruments

12

Instruments available as of Jan. 2019

9 – fluorescence      3 – chemical / imagery

3

Detect  $\geq 50 \mu\text{m}$  (zooplankton)

11

Detect  $\geq 10 \mu\text{m}$  to  $\leq 50 \mu\text{m}$  (phytoplankton)

3

Detect indicator microbes\*

# Indicative Analysis Instruments

8

Detect 1 size class

3

Detect 2 size classes

1

Detects 3 size classes\*

# Indicative Analysis Instruments

**1 drop – 1.2 liters**

Minimum sample size\*

**1 minute – 24 hours**

Time to obtain results\*\*

**<\$5,000**

3 instruments

**\$5,000 -**

**\$10,000**

2 instruments

**\$10,000 -**

**\$20,000**

1 instrument

**>\$20,000**

4 instruments



# Looking Ahead

- Evaluation of current technology?
- Standardized testing & verification?
- Standardized sampling protocols specific to indicative analysis?
  - Representative sampling for indicative analysis?



Success



what people think  
it looks like

Success



what it really  
looks like

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*Thank you!*

