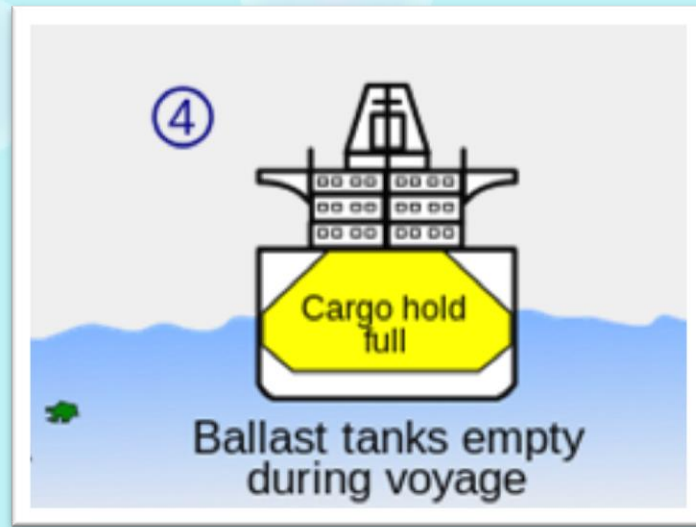
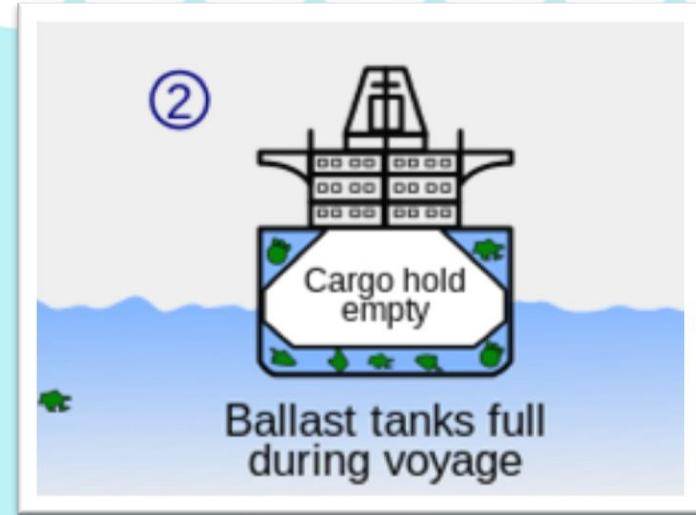
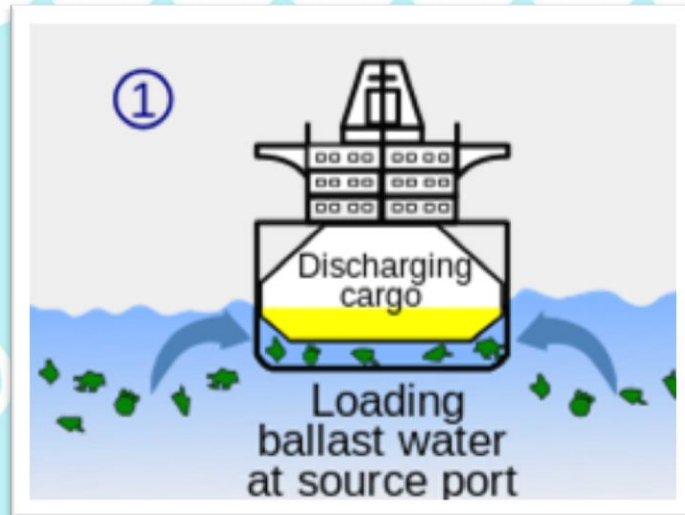


Proposals for the Effective Implementation of the Ballast Water Management Convention

TEAM
SEAKOREA

Ballast Water?



Background Issue

- **Introduction of unwanted invasive species via ships' ballast water**
 - ⇒ Zebra Mussel: Black sea to Great Lakes
 - ⇒ Comb Jelly: US East Coast to Black Sea
- **Irreversible environmental and economic harm**
 - ⇒ Severe disruption of local ecosystems
 - ⇒ Economic Cost of billions of dollars



Unregulated discharge of ballast water is a major cause of ecological crises

IMO BWM Convention

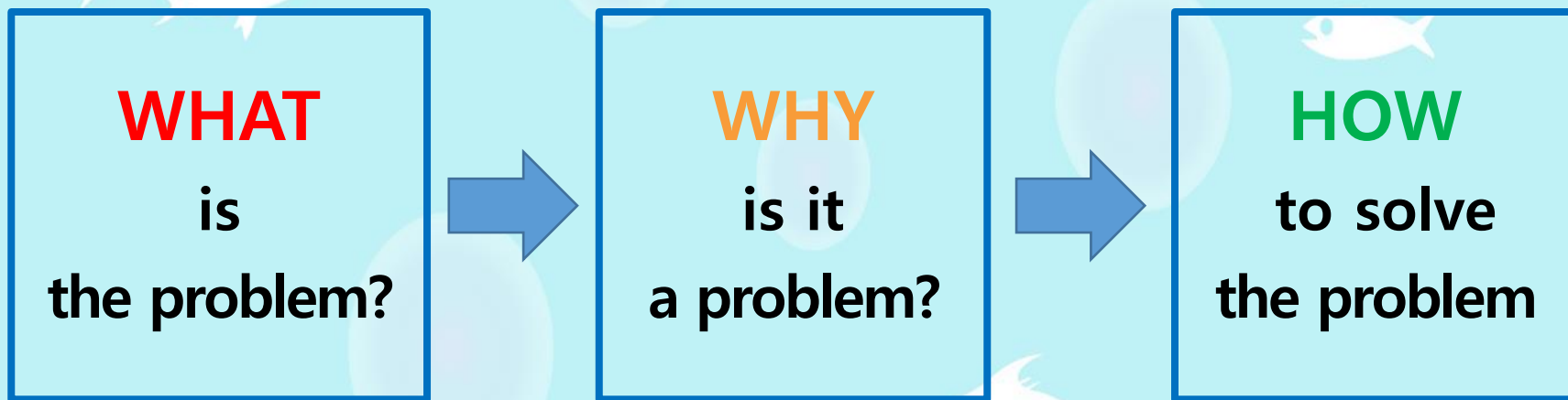


- **Adopted in 13 February 2004**
 - ⇒ Requires the installation of BWMS approved by IMO regulations
- **BWM Convention will enter into force on 8 September 2017**

<http://www.imo.org/en/OurWork/Environment/BallastWaterManagement/PublishingImages/convention.PNG>

Discussion



Is the current **BWM Convention** enough to solve the issue?



What? – Status Quo

1. Conflicting regulations between IMO and respective port states

<USCG, BWMS Type Approval Status, 2017>



Marine Safety Center
BWMS Type Approval Status

<i>Approved</i>						
Date Received	Manufacturer (Country)	Model	Independent Lab	System Type	Approved Range	Certificate Issued*
20 Sep 2016	Optimarin (Norway)	OBS/OBS Ex	DNV GL	Filtration + UV	167 – 3000 m ³ /h	02 Dec 2016
21 Sep 2016	Alfa Laval (Sweden)	Pure Ballast 3	DNV GL	Filtration + UV	150 – 3000 m ³ /h	23 Dec 2016
23 Sep 2016	OceanSaver AS (Norway)	MK II	DNV GL	Filtration + Electrodialysis	200 – 7200 m ³ /h	23 Dec 2016
24 Jan 2017	Sunrui (China)	BalClor	DNV GL	Filtration + Electrolysis	170 – 8500 m ³ /h	07 Jun 2017

<i>Under Review</i>						
Date Received	Manufacturer (Country)	Model	Independent Lab	System Type	Approved Range	Certificate Issued
31 Mar 2017	Ecochlor, Inc. (USA)	Ecochlor BWTS	DNV GL	Filtration + Chemical Injection	500-16,200 m ³ /h	Pending
02 May 2017	Erma First	Erma First FIT	Lloyds Register	Electrolysis + Filtration	100-3000 m ³ /h	Pending

*Complete copies of the Coast Guard Type Approval Certificates can be found on the Coast Guard HOMEPORT website under the "Environmental" Missions Tab or by visiting the USCG Approved Equipment List at: <http://cgmix.uscg.mil/Equipment/Default.aspx>

- Absence of a global standard for approval
- Unfair burden to ship-owners

2. Low Practicality

<MEPC 70/4/17>

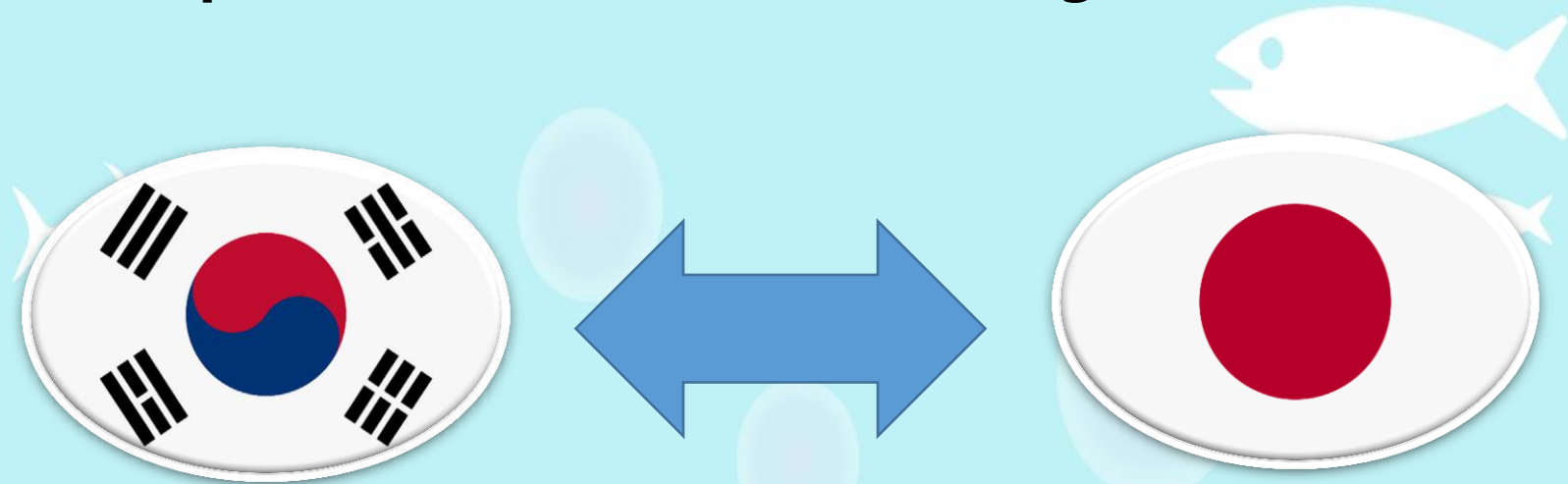
HARMFUL AQUATIC ORGANISMS IN BALLAST WATER

Proposal for revision of the draft MEPC resolution on Determination of the date referred to in regulation B-3, as amended, of the BWM Convention

Submitted by Liberia

- Lack of proper infrastructure for BWMS installation globally

3. Unproductive outcome of a regulation



- Insufficient measures in resolving issues concerning exchange areas

Why? – Problem Analysis

1. Absence of Unilateral Standard

1-1) Ship-Owners face trade-off

- ✓ Disparity between two standards
- ✓ Number of systems with final approval [Feb. 2017]



43^[1] vs 4^[2]



⇒ **Systems approved by IMO are not compatible with USCG standards.**

[1] ClassNK, *Latest Information of Approval of Ballast Water Management System*, Feb. 2017

[2] USCG, *BWMS Type Approval Status*, 2017

Why? – Problem Analysis

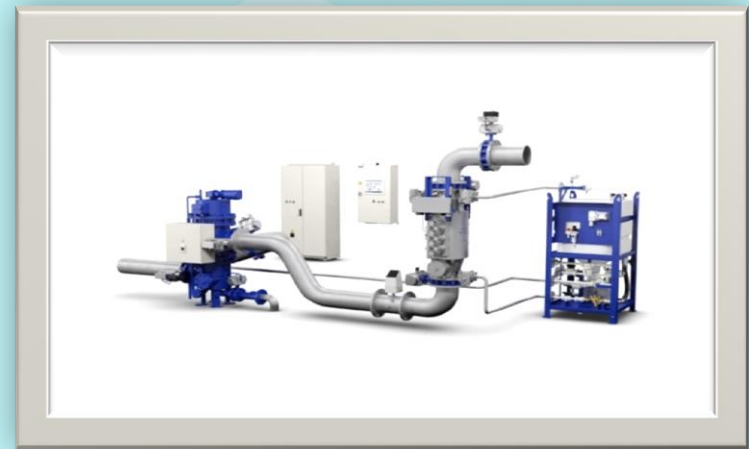
- Absence of Unilateral Standard

1-2) Financial Burdens on Ship-Owners

- ✓ Expensive Cost Burdens for Replacement
- ✓ Average Cost: **\$800,000** (System + Installation)^[3]



BWMS made by Techcross, Korea
(Source: Techcross)



BWMS made by Alfa Laval, Sweden
(Source: Alfa Laval)

⇒ **Ship-Owners must replace the system with expensive costs.**

Why? – Problem Analysis

- Absence of Unilateral Standard

1-3) Authority of the Convention



[4]

13

Stricter
Rules



[5]

0



[6]

1

⇒ Authority of BWM Convention gets deteriorated.

Need for a “consistent” unified approval standard

[4] IBK Bank, *Status and Prospects of Domestic BWMS Market*, Oct. 2016

[5] USCG, *BWMS Type Approval Status*, 2017

[6] The Korea Maritime News, “Techross gets approval from Chinese Classification Society”, Jan. 2017

Why? – Problem Analysis

2. Considerate Application

2-1) Renewal Survey = Check for compliance of ships

2-2) Excess Demand for installation Anticipated in 2020

<MEPC 70/4/17>

Table 1: Ships dry-docked in 2015 and renewal survey due date distribution from 2016-2020

Numbers of ships dry-docked in 2015		Ships scheduled to perform renewal surveys *1				
For Renewal survey	For Intermediate survey	2016	2017	2018	2019	2020
7,647	5,077	6,336	6,901	6,704	7,324	8,245

Global demand for installation in 2020

8,245

Global dock capacity per year

6,300

Need for an amendment that will increase the “practicality” of the Convention

3. Inefficacy of Regulation B-4

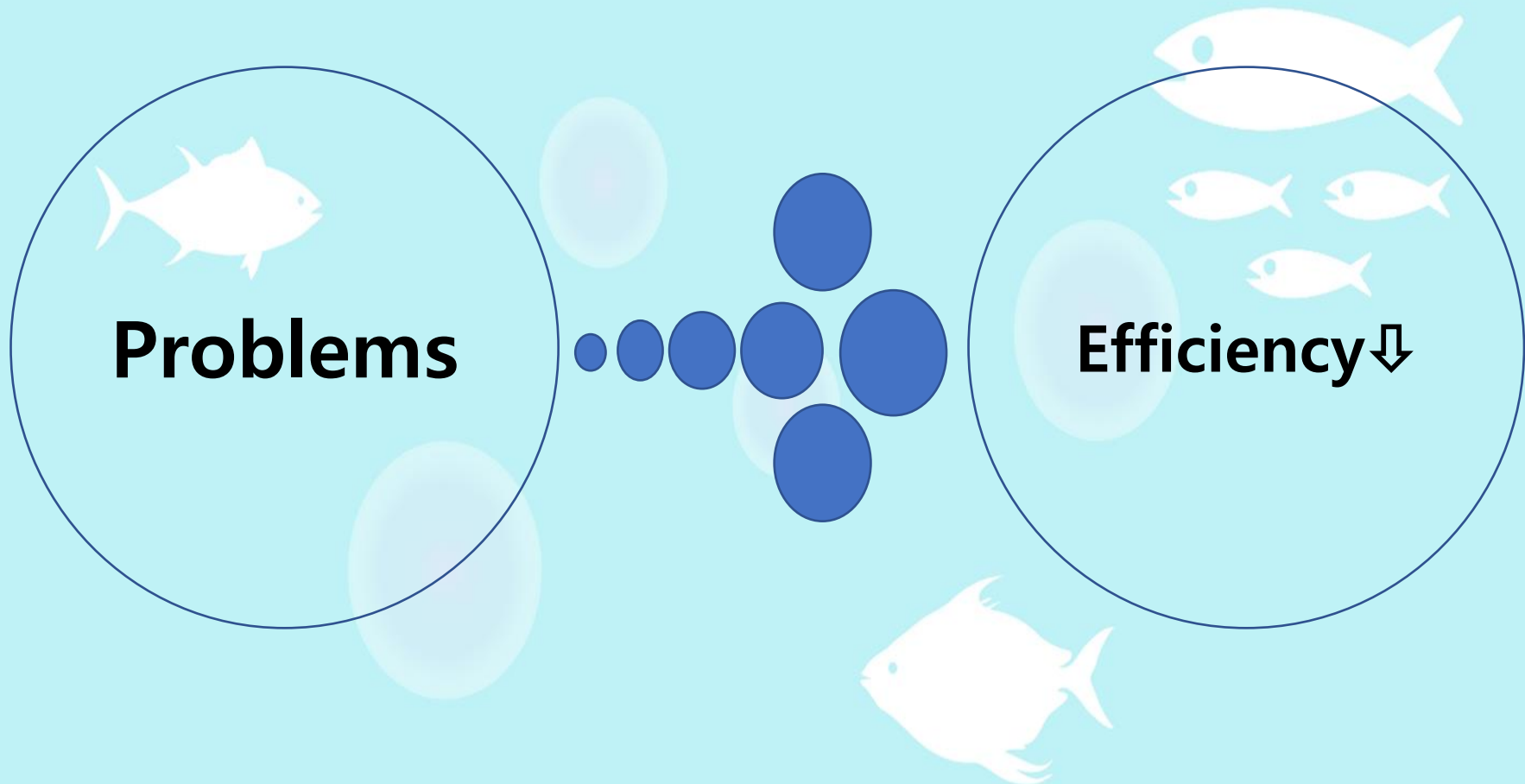
3-1) Ballast Water Exchange Area

Regulation B-4 *Ballast Water Exchange* <BWM/CONF/36 Regulation B-4>

- 1 A ship conducting Ballast Water exchange to meet the standard in regulation D-1 shall:
 - .1 whenever possible, conduct such Ballast Water exchange at least 200 nautical miles from the nearest land and in water at least 200 metres in depth, taking into account the Guidelines developed by the Organization;
 - .2 in cases where the ship is unable to conduct Ballast Water exchange in accordance with paragraph 1.1, such Ballast Water exchange shall be conducted taking into account the Guidelines described in paragraph 1.1 and as far from the nearest land as possible, and in all cases at least 50 nautical miles from the nearest land and in water at least 200 metres in depth.
- 2 In sea areas where the distance from the nearest land or the depth does not meet the parameters described in paragraph 1.1 or 1.2, the port State may designate areas, in consultation with adjacent or other States, as appropriate, where a ship may conduct Ballast Water exchange, taking into account the Guidelines described in paragraph 1.1.

**Need for an alternative that can help induce
“productive” negotiations among parties.**

How? - Solutions



Amendments

The background of the slide is a light blue gradient with a decorative border at the top consisting of a series of white, scalloped shapes. Scattered throughout the background are several white silhouettes of fish of various sizes and orientations, along with several light blue, semi-transparent bubbles of different sizes.

I. More effective Standard

II. Change to Second Renewal Survey

III. Installation of TSO

1st Amendment

<BWM/CONF/36 Regulation D-2>

Regulation D-2 *Ballast Water Performance Standard*

1 Ships covered by this regulation shall discharge less than **viable** organisms per cubic metre greater than 1 to 50 micrometres in minimum dimension; and less than 10 **dead** organisms per cubic metre greater than 50 micrometres in minimum dimension; and discharge of the indicator microbes shall not exceed the specified concentrations described in paragraph 2.

2 Indicator microbes, as a human health standard, shall include:

- .1 Toxicogenic *Vibrio cholerae* (O1 and O139) with less than 1 colony forming unit (cfu) per 100 millilitres or less than 1 cfu per 1 gram (wet weight) zooplankton samples ;
- .2 *Escherichia coli* less than 250 cfu per 100 millilitres;
- .3 Intestinal Enterococci less than 100 cfu per 100 milliliters.

1st Amendment

- **Benefits**

① **More effective to test**

② **America & China:**

Necessary for them to participate
in IMO Convention in a globalized world

How? - Solutions

1st Amendment

<America>^[1]

Import

736.3 Billion

Export

496.6 Billion

[1] <https://www.census.gov/foreign-trade/statistics/highlights/toppartners.html>

1st Amendment

- **America:**

Industries like Agriculture that is essential for America to export to other countries

- Agriculture, food, and related industries: \$992 billion in 2015, a 5.5-percent share.^[1]
- The output of America's farms: \$136.7 billion of above sum - about 1 % of GDP.

[1] <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy.aspx>

2nd Amendment

<BWM/CONF/36 Regulation B-3>

Regulation B-3 *Ballast Water Management for Ships*

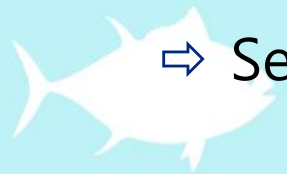
- 1 A ship constructed before 2009:
 - .1 with a Ballast Water Capacity of between 1,500 and 5,000 cubic metres, inclusive, shall conduct Ballast Water Management that at least meets the standard described in regulation D-1 or regulation D-2 until 2014, after which time it shall at least meet the standard described in regulation D-2;
 - .2 with a Ballast Water Capacity of less than 1,500 or greater than 5,000 cubic metres shall conduct Ballast Water Management that at least meets the standard described in regulation D-1 until 2016, after which time it shall at least meet the standard described in regulation D-2.
- 2 A ship to which paragraph 1 does not apply shall comply with paragraph 1 not later than the first intermediate or renewal survey, but not later than 12 months first, after the anniversary date of the ship in the year of compliance with the standard applicable to the ship.
- 3 A ship constructed in or after 2009 with a Ballast Water Capacity of less than 5,000 cubic metres shall conduct Ballast Water Management that at least meets the standard described in regulation D-2.
- 4 A ship constructed in or after 2009, but before 2012, with a Ballast Water Capacity of 5,000 cubic metres or more shall conduct Ballast Water Management in accordance with paragraph 1.2.

second

first

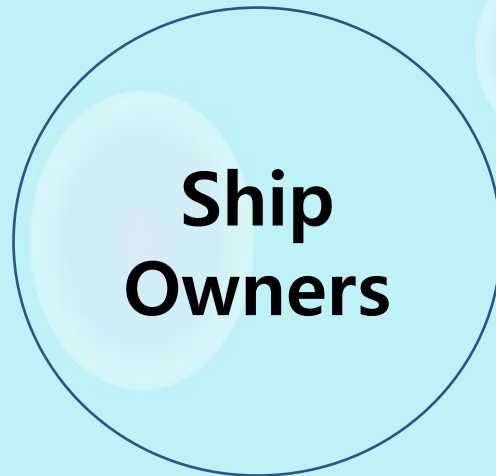
2nd Amendment

- First renewal Survey : 2019/2020



⇒ Second renewal Survey : 2024/2025

- Benefits



2nd Amendment

- Benefits

- ① **Ship owners:** Longer time to implement the machine
⇒ Less economic burden
- ② **Technology:** More time for the supply of various types of machine to meet the demands that exist
⇒ Higher possibility for various ships to follow the standard

3rd Amendment

<MEPC 55/23 ANNEX 3>

5.3 In case there is a dispute, in which ballast water exchange areas are not agreed upon, even if they are necessary, **Temporary Scrutiny Organization(TSO)**, composed of each 2 countries from each categories of IMO council except for the issue-related countries, are required to be composed.

.1 TSO is suggested to come up with a compromise, based upon the objective facts of the disputed area and the argument of both related countries. The compromise only functions as suggestion in that the Parties do not necessarily have to agree with it. If at least one of the Parties disagree, the compromise will not function as a guideline.

3rd Amendment

- Benefits


A white silhouette of a fish swimming to the left, positioned to the left of the first benefit.

- ① **More trade available:**

Less economic burden for ship owners of adjacent countries to implement the management system

- ② **Better Environment:**

Better ways for trades between two adjacent countries to be made without harming the environment

A white silhouette of a fish swimming to the right, positioned at the bottom right of the text for the second benefit.

“Safe, secure and efficient shipping
on clean oceans...



... with Consistency,
Practicality and Productivity!”

- [1] "Ballast water: Living Versus Viable" . Rear Adm. Paul Thomas, U.S. Coast Guard, 9 Dec. 2015. Web. 23 May 2017.
- [2] ClassNK, Latest Information of Approval of Ballast Water Management System, Feb. 2017
- [3] IBK Bank, Status and Prospects of Domestic BWMS Market, Oct. 2016
- [4] "IMO vs USCG: navigating the differences in ballast water regulation ." www.ship-technology.com, n.d. Web. 22 May 2017.
- [5] International Maritime Organization, BWM/CONF/36, 2004
- [6] International Maritime Organization, MEPC 55/23, 2006
- [7] International Maritime Organization, MEPC 70/4/13, 2016
- [8] Korea Maritime Research Institute. "Implementation of Ballast Water Convention and the dilemma of ship holders due to American Standard ." Marine Korea 2017-2 Feb. 2017: 145-47. Print.
- [9] "The Effectivation of Ballast Water Management Convention and Ship-owners' dilemma due to the U.S. regulations." Monthly Maritime Korea. Korea P&I Club, 31 Jan. 2017. Web. 17 May 2017.
- [10] The Korea Maritime News, "Techross gets approval from Chinese Classification Society", Jan. 2017
- [11] USCG, BWMS Type Approval Status, 2017



THANK YOU

Q & A