Ballast Water Management

Update

May 2017

Dipl. Ing. Ramona Zettelmaier

INTERNATIONAL MARITIME ORGANIZATION

Move Forward with Confidence

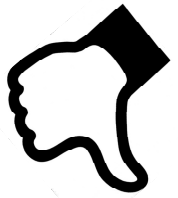
BUREAU VERITAS

Brief history of the convention

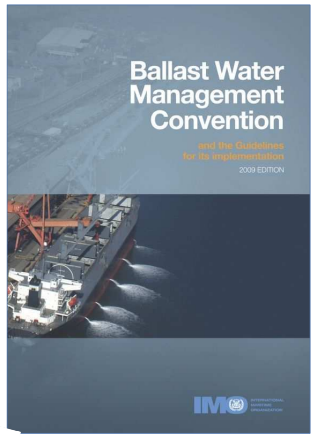
- In **1988**, Canada was the first to signal the negative effects resulting from migration of invasive species
- In **1991** the first set of voluntary guidelines to avoid the migration invasive species
- First IMO resolution in **1993**, next in **1997**
- In **1999**, start of the Ballast Water Working Group at IMO tasked with the drafting of the convention
- In **2004** the Ballast Water Management Convention was adopted at IMO level
- Since 2004, the IMO has steadily worked on the implementation
- On 8 September **2016** Finland ratified the Convention
- Entry into force on 8 September **2017**

IMO IBWM Convention - now ratified

- Does it become easier once the convention reached the threshold of 35%, is it proved that this is wrong?



- Since months focus on the target that might drift accross the line, but since 8 September 2016, when Finland gave the final vote, it **changed FOCUS** now on other things:



- "HOW TO COMPLY"
  "HOW NOT TO COMPLY"
  "HOW TO DELAY COMPLY"

MEMORY: Ships concerned

The convention applies to **all ships** according to the definition:

Ship means a vessel of any type whatsoever operating in the aquatic environment

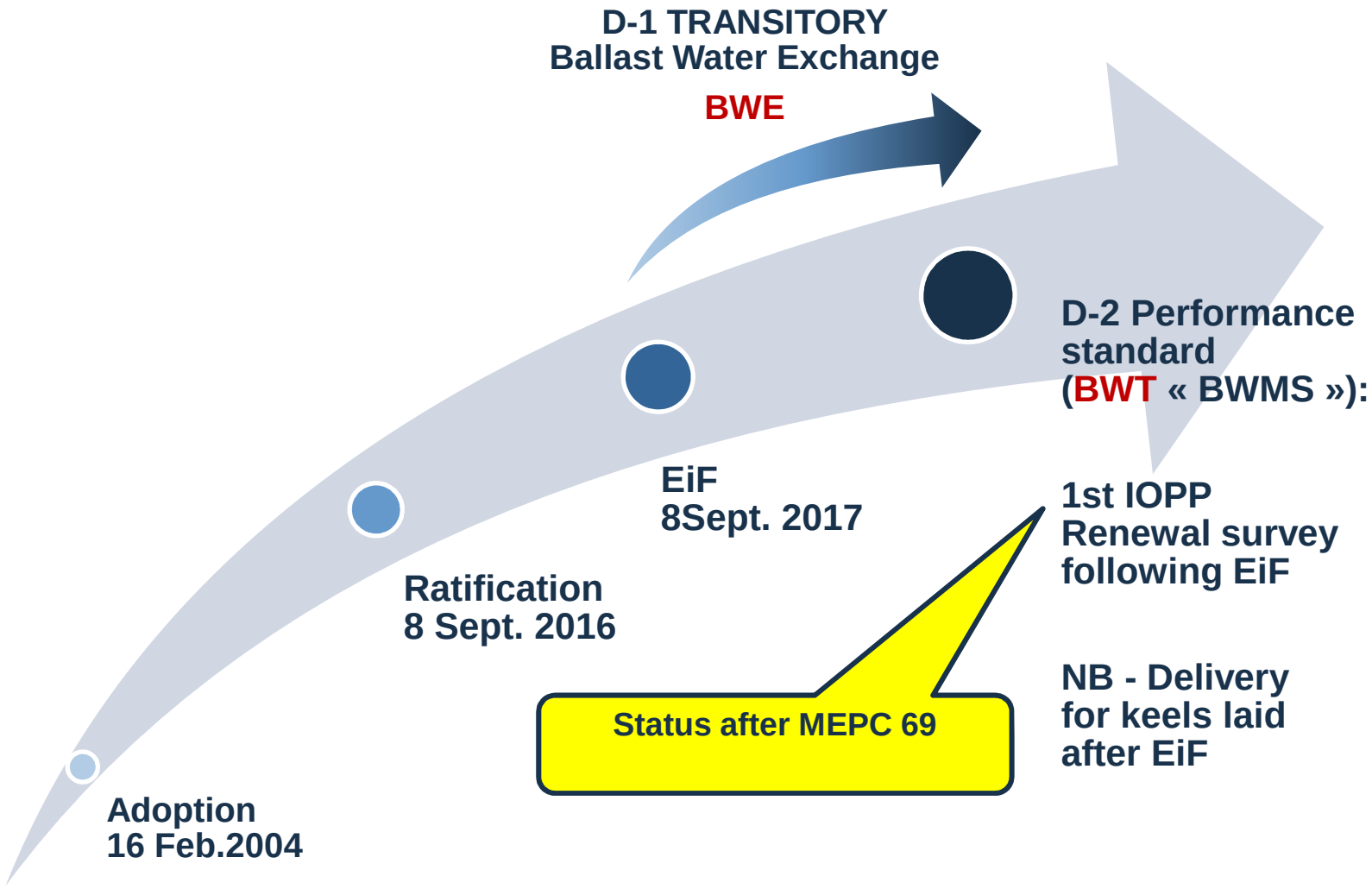
and includes submersibles, floating craft, floating platforms, FSUs and FSPOs

- There will be no distinction according to type, tonnage, propulsion or usage (recreational or professional)
- No more favourable treatment will be given to ships flying the flag of a non-party to the convention
- Only few exemptions exist

MEMORY: Convention shall NOT apply for:

- Ships are **not designed to carry ballast water**
- Ships of **a party which only operate in waters under the jurisdiction of that party**, unless the party determines that the discharge of ballast water from such ships would impair or damage their environment, human health, property or resources, or those of adjacent or other states
- Ships which **only on non-commercial service**
- **Warships, naval auxiliary ships or other ships owned or operated by a state**
- Ships with **permanent ballast water in sealed tanks**

BWM Convention Implementation schedule



How to comply with the convention

- **Two standards** to achieve the objectives of the BWM Convention:

a)Ballast Water Exchange Standard (based on dilution): **D-1**

b)Ballast Water Performance Standard (based on treatment): **D-2**

- Documentary evidence

Review the ballast water management plan (BWMP)

Review the Ballast water exchange method, or

Review the design, construction and installation plans for BWMS TARGET **:**

All vessels to comply with D-2 by 2022

How to comply - Survey & Certification

- Ships are required to be **certified** at the **EiF date.**
- Arrange **initial survey prior** to **08. September 2017.**
- This means that EiF, **ships of 400 GRT** and above will be required to have on board:

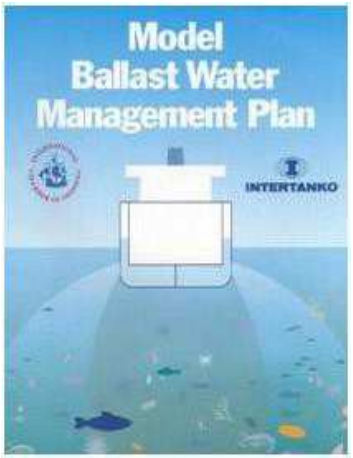
1.An approved Ballast Water Management Plan (BWMP) (according to D-1 or D-2 Standard)

2.A Ballast Water Record Book (BWRB)

3.An International BWM Certificate (according to D-1 or D-2 Standard). If vessel's flag has not ratified BWM Convention, then a Certificate of Compliance

How to comply - Ballast Water Management Plan

- IMO has issued BWM.2/Circ.40 which envisages the possibility of vessels trading with an unapproved BWMP for up to 3 months.
- BWMP must be submitted for approval by the RO prior to 8 September 2017.
- BWMP's approved in accordance with resolution A.868 (20) will remain valid until a Ballast Water Management System has been Installed which thus requires revision of the BWMP (MEPC.127(53)
- International Ballast Water Management Certificates (IBWMC) can be issued prior to the entry into force of the Convention.



How to comply - Ballast Water Management Plan

Ballast Water Management Plan, drafted in the working language of the vessel and if not in English, French or Spanish, translated into English, and should contain amongst others:

- Detailed safety procedures for the ship and the crew associated with Ballast Water Management
- Detailed procedures for the disposal of sediments at sea and to shore
- Procedures for coordinating shipboard Ballast Water Management that involves discharge to the sea with the authorities of the State into whose waters such discharge will take place
- Designate the officer on board in charge of ensuring that the plan is properly implemented
- Reporting requirements

How to comply - Ballast Water Record Book

Ballast Water Record Book , may be an electronic record system, shall be

maintained on board the ship for a minimum period of two years , and shall contain:

- ➢ Each operation concerning Ballast Water (fully)
- ➢ Accidental or exceptional discharge of Ballast Water not otherwise exempted by this Convention, describing the circumstances of, and the reason for, the discharge

Again - How to comply – D1 & D2

2 Options depending upon existence of an IOPP certificate

✓Regulation D-1 Ballast Water Exchange Standard as of 8 September 2017 (if no IOPP)

✓Regulation D-2 Ballast Water Performance Standard as of renewal survey of the IOPP (IMO res. A.1088(28))

How to comply – D1

- At least a 95%volumetric exchange of ballast water

- For ships exchanging ballast water by the pumping- through method, pumping through three times the volume of each ballast water tank shall be considered to meet the standard

- At least 200 nautical miles from the nearest land and in water at least 200 metres in depth

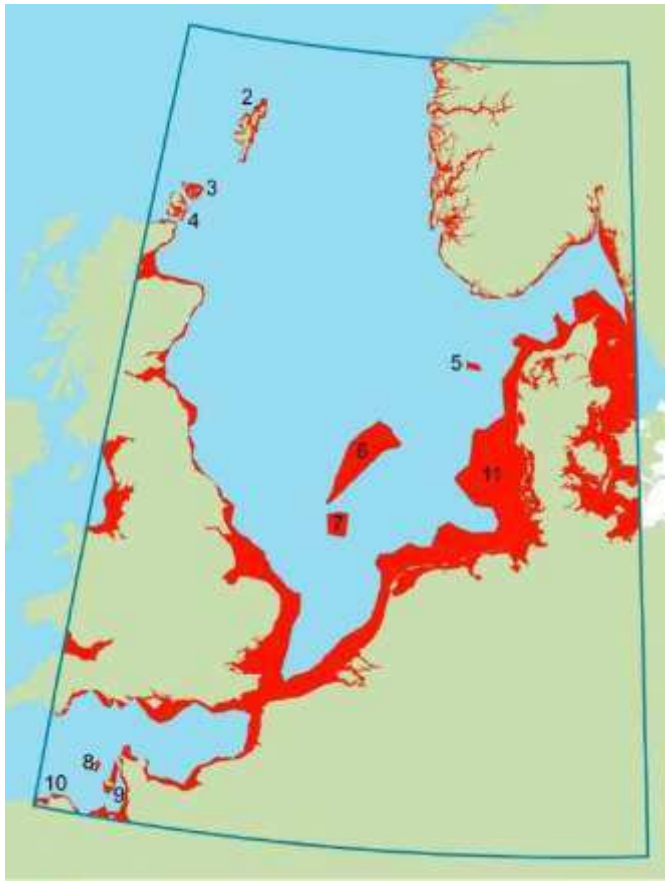
How to comply – D1

Example - NorthSea?

➢ Dedicated ballast water exchange zone for

intra NorthSea traffic

Red areas = No Ballast Water Exchange



How to comply – D1

How to comply when the voyage only passes limited time through the exchange zone?

A ship shall not be required to deviate from its intended voyage, or delay the voyage, in order to comply with any particular requirement of the D-1 Ballast Water Exchange Standard

How to comply – D1

How to comply when the voyage does not allow any ballast water exchange for safety reasons?

A ship conducting Ballast Water exchange shall not be required to comply with the D-1 standard, if the master reasonably decides that such exchange would threaten the safety or stability of the ship, its crew, or its passengers

How to comply – D1

Local authorities can always **refuse** the discharge of ballast water when the D-1 Standard is not met for any of the aforementioned reasons!

How to comply – D2 – BWMS performance standard

Organisms	Discharge Limitation
Organisms ≥ 50 µm	< 10 viable organisms / m^3
50 µm > Organisms ≥ 10 µm	< 10 viable organisms / ml

Indicator Microbes	Concentration
Toxicogenic Vibrio cholera (O1 and O139)	< 1 colony-forming unit (cfu) per 100 ml
Escherichia coli	< 250 cfu per 100 ml
Intestinal Enterococci	< 100 cfu per 100 ml

EXEMPTIONS:

- the uptake or discharge of Ballast Water and Sediments in **emergency situations**

- the **accidental disc**harge or ingress of Ballast Water and Sediments resulting from damage

- avoiding or minimizing pollution incidents from the ship

- **Return to origin**, same uptake/discharge

How to comply – D2 – BWMS performance standard

Exemptions by adminsitration

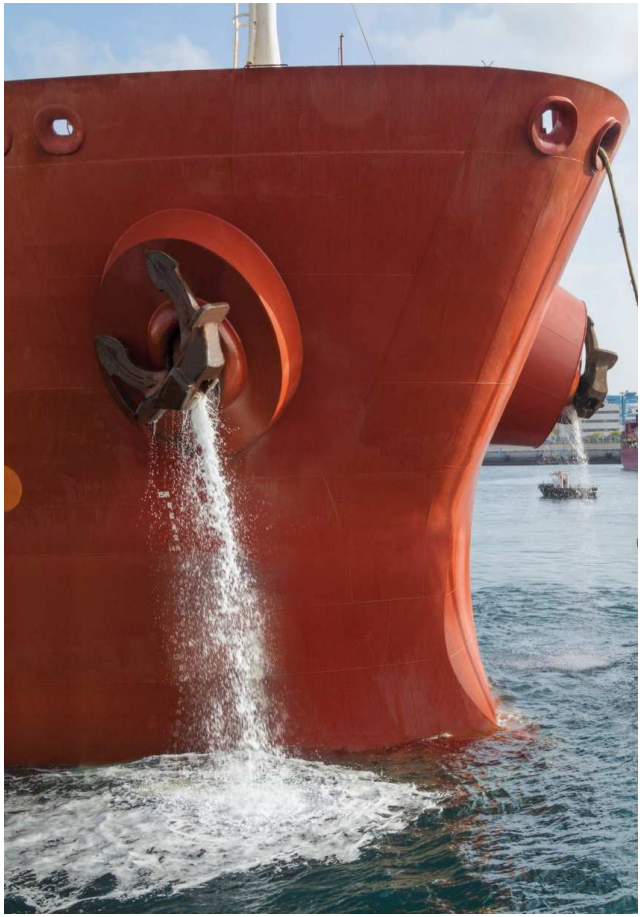
- Can be granted to a ship or ships on a voyage or voyages **between specified ports or locations**; or to a ship which operates exclusively between specified ports or location
- Effective for a period of **no more than five years** subject to intermediate review
- Can be granted to ships that **do not mix** Ballast Water or Sediments other than between the ports or locations specified
- Can only be **granted based** on the guidelines on **risk assessment** developed by the IMO

How to comply – D2 – BWMS performance standard

A vessel **sailing** between ports under the jurisdiction of **x-amount of parties** will need same amount of exemptions issued by the administrations of parties to the convention involved

What's NEW – revised Guideline G8

- **More focus** on systems where **treatment** is undertaken **inside ballasts**
- More accurate **definition of viable organisms**
- Requirements on **control and monitoring** and **reporting** of BWTS, especially regarding detection of dangerous gases
- **Traceability** required for the **software** revisions
- Necessity to have **mentioned on certificate** the « *Limiting operational conditions* » for water salinity and temperature if installation has not been tested in the scope described in the guidelines
- **Other System design limitations** should be investigated and mentioned on certificate (ex : UV transmittance, Holding time)



What's NEW - Schedule after MEPC70

- Conclusion of **MEPC 70** (Oct. 2016) was to maintain this schedule with a further examination at MEPC 71 (May 2017)
- **New G8** guidelines (MEPC.279(70)) added another issue about schedule
  - BWTS installed on or **after 28 October 2020** should comply with the new adopted guidelines
  - BWTS installed **prior to 28 October 2020** should comply with previous guidelines or preferably with the revised guidelines
- Committee agreed to make this G8 Guideline mandatory and to rename it as ***Code for approval of ballast water management systems***

New timeline proposal (MEPC (70))

NEW PROPOSAL for MEPC 71- Alternative schedule

- 1st IOPP Renewal survey following EiF if survey is completed on or after 8 September 2019
- 2nd IOPP Renewal survey following EIF if the first renewal survey is completed prior to 8 September 2019
- Delivery for keels laid on or after 8 September 2019

It has been proposed and it will be discussed at MEPC 71 (July 2017) that compliance should be extended at IOPP renewal after September 8 2019. Unfortunately this schedule has to be approved by MEPC 72 (May 2018)

„ How to delay comply“ ?

How to delay comply - De-coupling of the IOPP Certificate

- De-Harmonization of Harmonized System of Survey & Certification (HSSC) to gain time.
- Uncertainty of treatment systems
- Not all Flags, ports may accept the de-coupling of the IOPP Certificate. Ship may be detained!!!
- In the event of flag change, new flag might not accept the decoupling.
- It is reminded that in tankers the mandate for loading computers is aligned with IOPP renewal surveys (after 1- 1-2016)
- Flag must provide written acceptance of de-coupling.

All three major register - Panama, Liberia and Marshal Island (plus 24 states) permitted decoupling.

Australia has taken contrary position and refused

Not forgett: 118 IMO member states have not ratified

Australia, China, Saudi Arab, Bahamas, Cyprus, Greece...

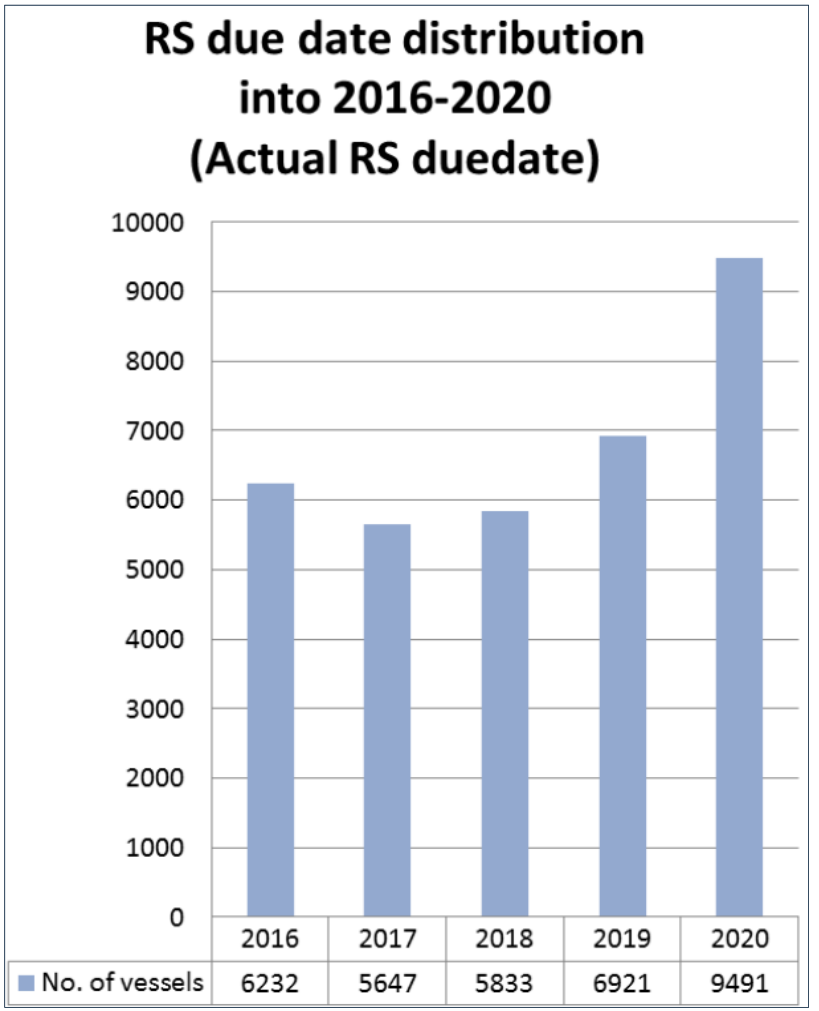
MARKET Perspectives

► Ships concerned by BWMC

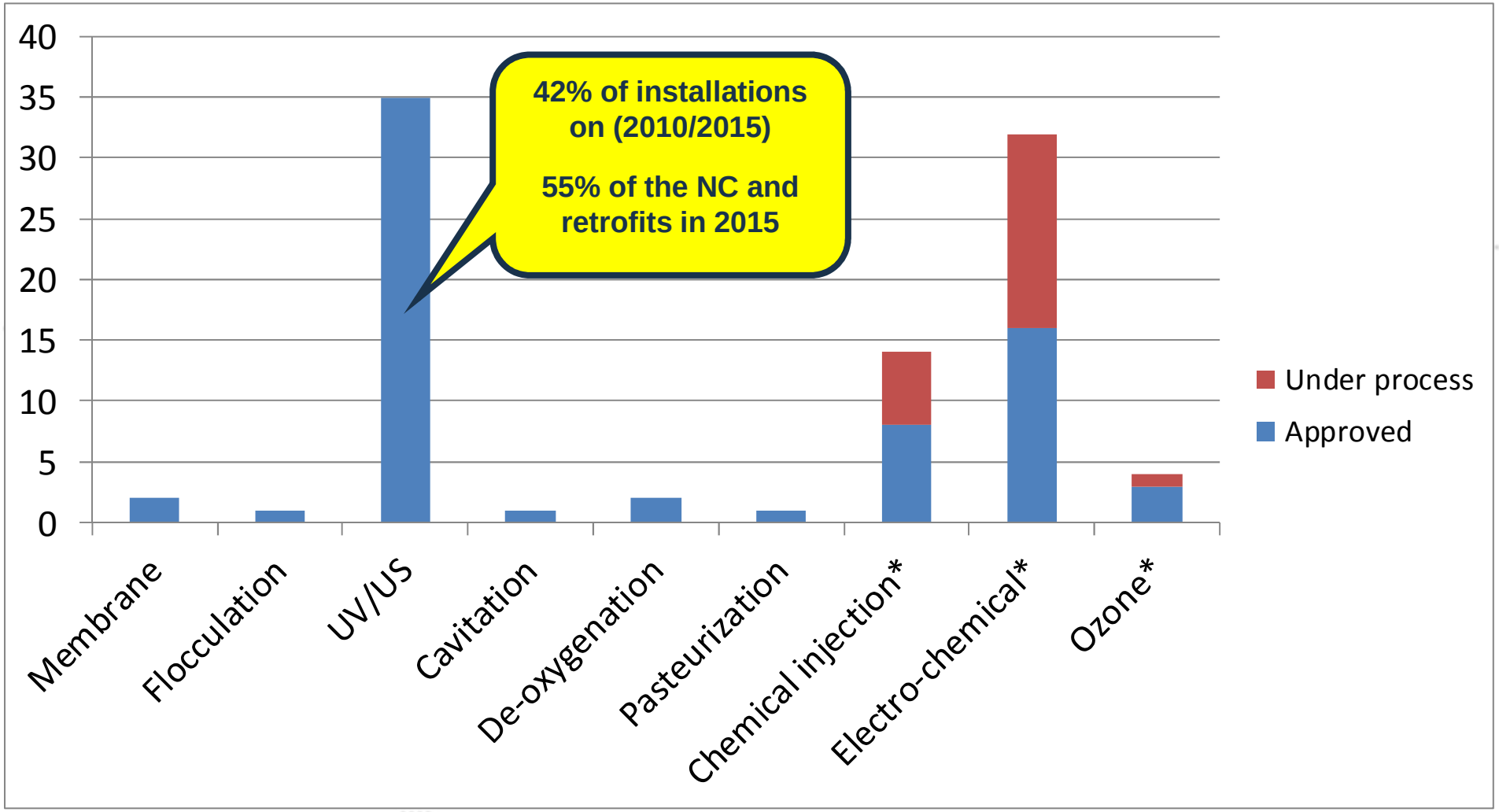
- **2.410 existing ships** and with BWMS (91,120 world fleet existing ships)
- Expected about **34.000 retrofits** (2017/2022) About **9.500** at peak in **2020**

► Some concerns

- Limited dry-docking capacity for BWMS retrofits :
  - **max. 4.800** in **2015** and estimated maximum **6.000** (in **2020**)
  - Shortage of about **3.500** retrofits?
- Availability of **sufficient production** of BWMS?
- **Confidence** on existing BWMS with regards to **USCG requirements?**
- Prediction on **inflation of the price** of retrofit…

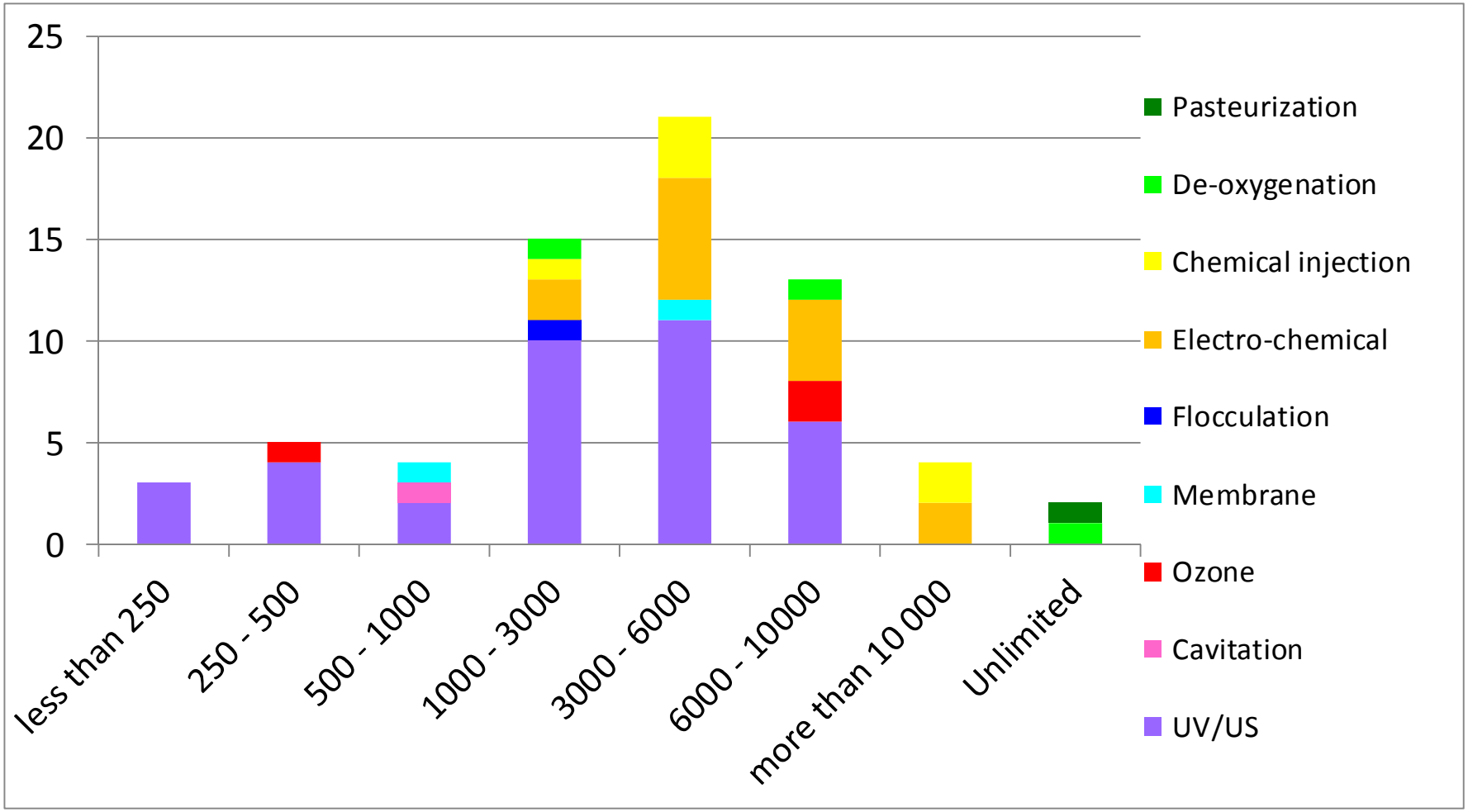


Available BWMS approved as per G8 and G9



69 systems completed approval process + 23 in progress = 92

Maximum capacities of BWMS



In-tank systems (Pasteurization & De-oxygenation)
do not dependent from ballasting / de-ballasting flow rates

- Take precautions when ballasting
- Exchange Ballast
- Treat Ballast
- Retain ballast on board
- Discharge to shore reception facilities
- Control sediment built up

The Convention - Control Sediments

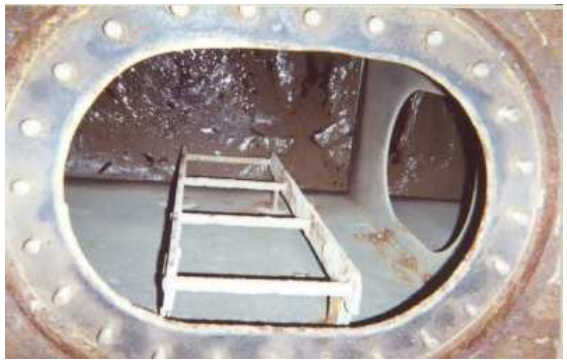
Wash tanks regularly

Remove sediments regularly

Prevent sediment build up

Port state responsibility?? G1

Massenwanderung juveniler Krabben im Mai 1998 in Geesthacht - www.nobanis.org



ATTENTION - Ballast Water Management System / Operating

- **Some systems generate chemicals during treatment process**
- crew training required on hazards associated with them
- Development of safety procedure for managing and minimising risks to the ship and crew resulting from treatment process
- Risks: storage of chemical & by-products generated by system

- Risk studies can identify hazards and operational problems

PSC – How to comply

Deficiencies can be

Absence of Ballast Water Certificate, Management Plan or Record Book

Indication that the vessel or its **equipment does not correspond** substantially with the particulars of the Ballast Water Certificate and/or Ballast Water Management Plan

The **designated personnel are not familiar** with essential shipboard procedures relating to ballast water management

No **Designated Officer has been nominated**

PSC – Guidelines

- Adopted Guidelines for Port State Control under the BWM Convention, Resolution MEPC.252(67)
- **First Stage** – "Initial Inspection"
  - Documentation–international BWM Certificate, approved BWMP, and Ballast Water Record Book
  - BWM Officer properly trained, and knows how to operate the BWMS
  - Maintain evidence that BWM system is type approved and has been maintained and operated in accordance with BWMP if the use of a BWMS is required
- **Second Stage** – "More Detailed Inspection"
  - Check compliance of operations in accordance with the BWMP
  - Operation of BWMS checked against records, crew knowledge, operating status and bypass records
  - BWMS operated in according to BWMP and self-monitoring indicators
- **Third Stage**
  - Indicative or detailed sampling would occur
- **Fourth Stage**
  - Detailed analysis to verify compliance with D-2 Standard

Deficiencies against the BWMC may warrant the detention of the vessel!

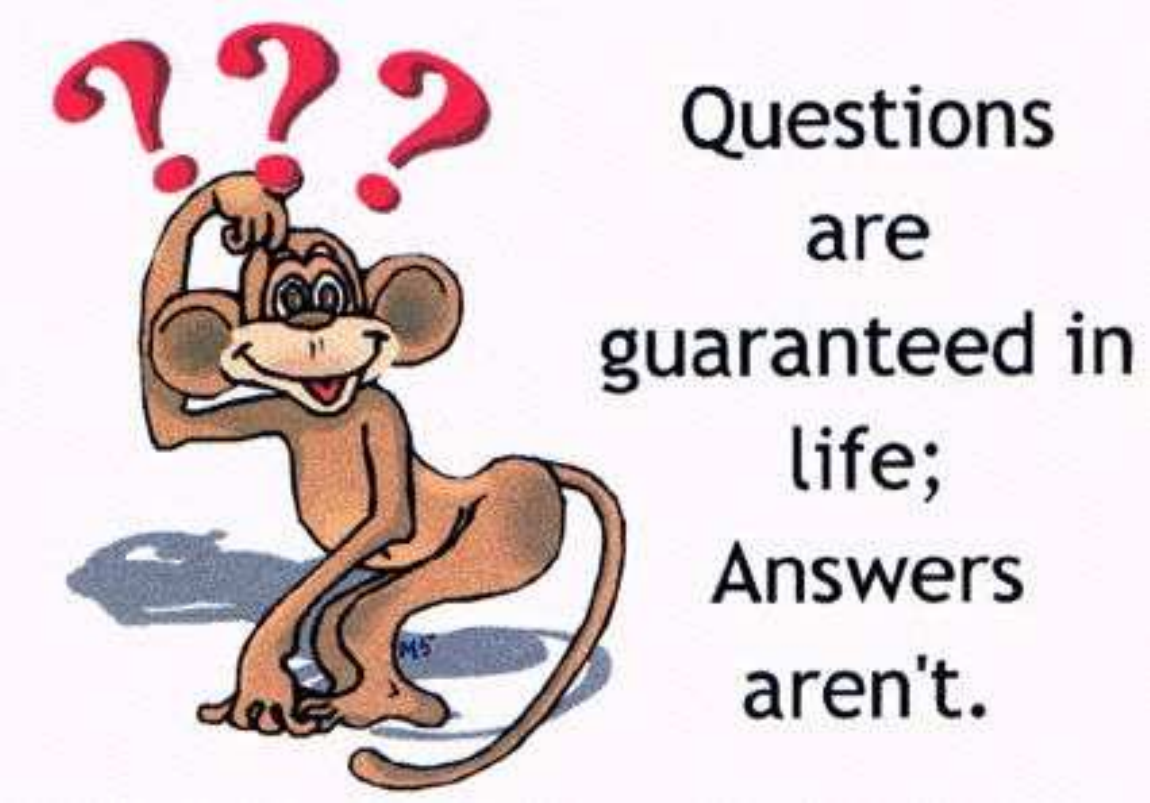
HOPE: MEPC (71) : <u>EBP – experience building phase</u>

- Data collection
- Data analysing
- Convention review

Non- penalization arrangement

✓ GLOBAL consistant way approach

Questions ?



Thank you !

Dipl. Ing. Ramona Zettelmaier

Tel: +49 40 23 625 677

Email: ramona.zettelmaier@de.bureauveritas.com

BUREAU VERITAS

Move Forward with Confidence