

**REGIONAL WEBINAR on the Effective
Implementation of the Ballast Water
Management Convention**

BWM Convention implementation issues – what to do in the Mediterranean

Dr. Matej David

12 November 2025, Webinar



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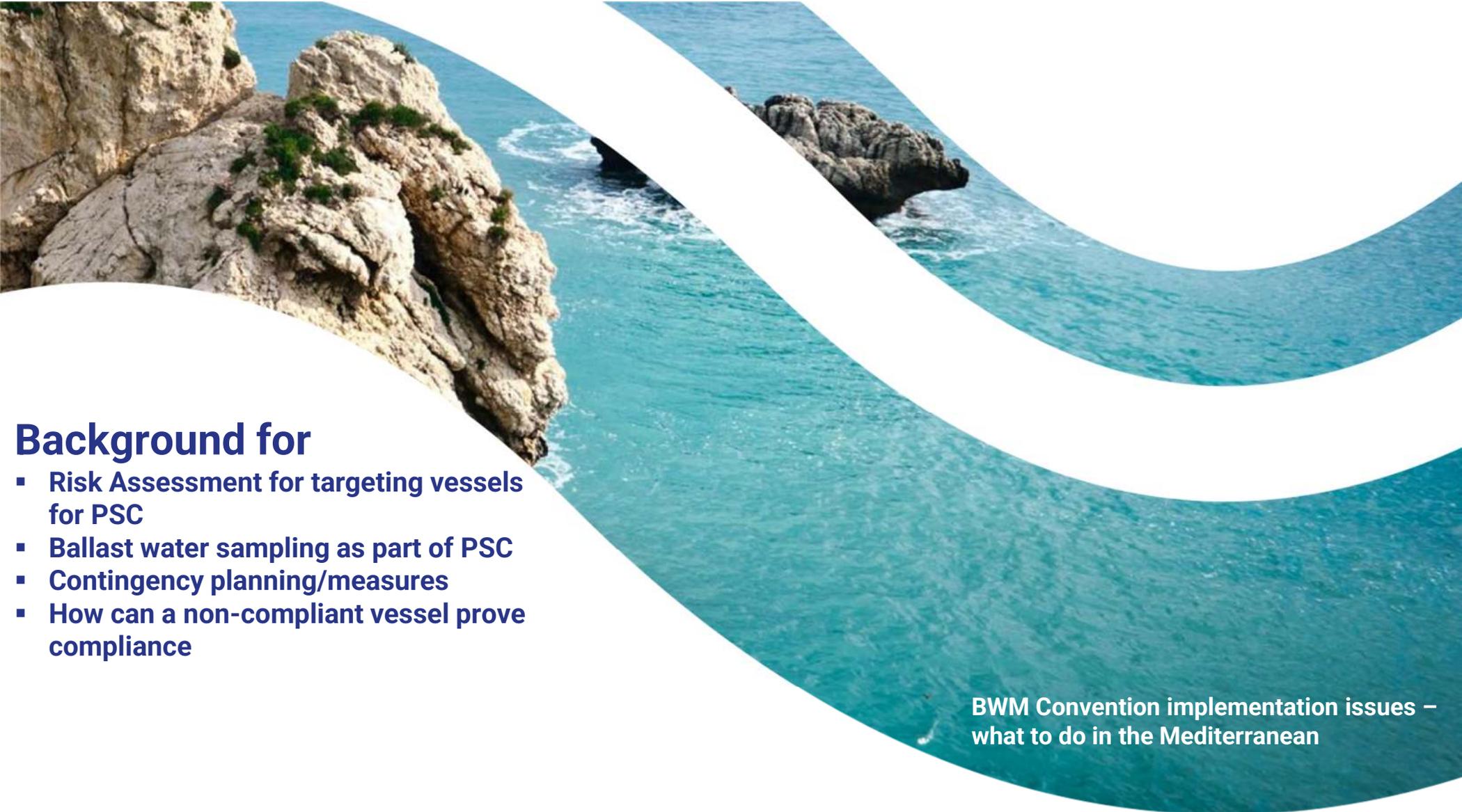
OUTLINE

- Risk Assessment for targeting vessels for Port State Control inspections
- Ballast water sampling as part of Port State Control inspections
- Contingency planning/measures in case of a failure of the BWM system, challenging water quality and non-compliance
- How can a non-compliant vessel prove compliance
- BWM Decision Support System for the Mediterranean
- What to do in the Mediterranean



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Background for

- **Risk Assessment for targeting vessels for PSC**
- **Ballast water sampling as part of PSC**
- **Contingency planning/measures**
- **How can a non-compliant vessel prove compliance**

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Background PSC Targeting vessels, Sampling, Contingency and prove Compliance

Background

- **inspections are blind for risks related to ballast water to be discharged** - the “critical” or “high risk” vessels, possibly non-compliant, may be missed, while instead “low risk” vessels may be inspected
- **level of risk posed by ballast water to be discharged** should be one of **triggering elements** to select vessels for PSC or adjust BWM requirements (e.g., additional measures or let a vessel discharge in non-compliant situation or introduce additional measures)



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Type Approval Certificate of Ballast Water Management System

This certificate is issued to the Ballast Water Management System (BWMS) that has been inspected and found to comply with the requirements of the Convention as amended on the conditions contained in this Certificate (MARPOL 73/78/Annex I, 1990/1992). This certificate is valid only for Ballast Water Management System (BWMS).

This certificate is based on:

Model: **David Clark Class A/B**
 Address: **Lloyds Register (UK) Limited, International, 100 Broad Street, London, E14 3DF, United Kingdom**

Ballast Water Management System installed by: **David Clark Class A/B**

Other type and model, designation and description: **No Class of Ballast Water Management System as it is not an abstracted reduction unit model, Chapter 7, 3.8.2**

Ballast Water Management System manufactured by: **David Clark Class A/B**

To equipment (serially) showing the: **all that contain: TPC/DM/LS/LS, Type 7, Date: 14/08/2014; all that contain: TPC/DM/LS/LS, Type 7, Date: 17/08/2014; Land based unit: 3011/TP/LS/LS, Date 7, Date: 17/08/2014; Land based unit: 3011/TP/LS/LS, Date 1, Date: 14/08/2014**

Other equipment manufactured by: **David Clark Design Approval Documents**

To equipment (serially) showing the: **David Clark Design Approval Documents**

Equipment used on ship: **TP 10000**

Date of issue: **07 November 2014** Expiry date: **06 November 2017**

Certificate No.: **MECA 120002**

Model No.: **MECA 120002**

Note: This certificate is issued on the basis of the Design Approval Documents (DAD) submitted to the Classification Society (Lloyd's Register) and is not valid for equipment, the design or construction of which has been based on a different basis. The certificate is issued on the basis of the Design Approval Documents (DAD) submitted to the Classification Society (Lloyd's Register) and is not valid for equipment, the design or construction of which has been based on a different basis. The certificate is issued on the basis of the Design Approval Documents (DAD) submitted to the Classification Society (Lloyd's Register) and is not valid for equipment, the design or construction of which has been based on a different basis.

Article 9 Inspection of Ships

Paragraph 2 (Article 9.2) when:

- BWMS not correspond to certificate
- crew not familiar with BWM procedures

Then proceed with detailed inspection... Consequence?

Article 9.3

In the circumstances given in paragraph 2 of this Article, the Party carrying out the inspection shall take such steps as will ensure that the ship shall not discharge Ballast Water until it can do so without presenting a threat of harm to the environment, human health, property or resources.





Sampling was conducted - indicating non-compliance

- sampling inspection conducted in the port
- sampling inspection in a previous port

Consequence?

Article 10.3

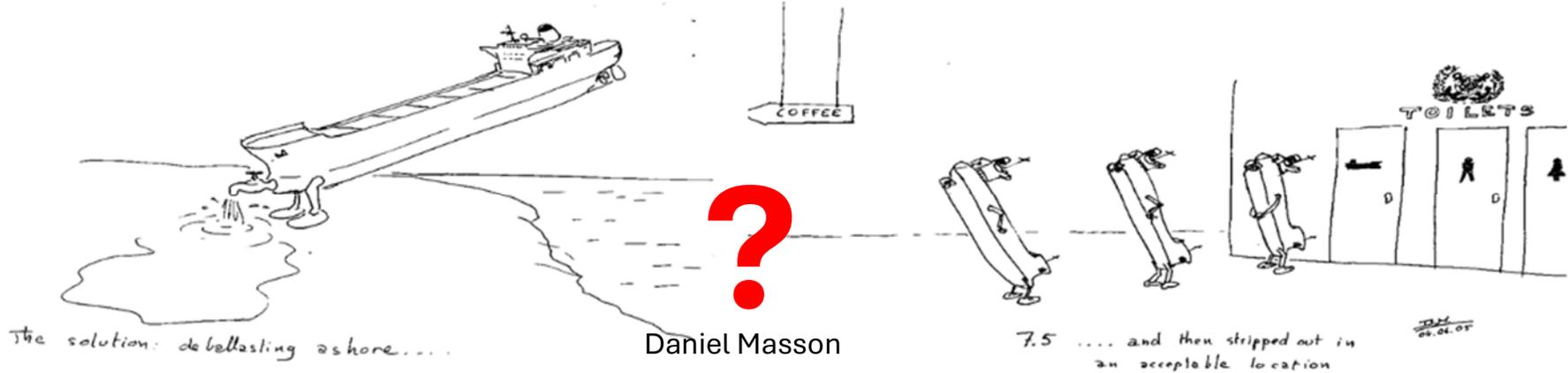
*If the **sampling** described in Article 9.1(c) leads to a **result**, or supports information received from another **port** or offshore terminal, **INDICATING** that the ship **poses a threat** to the environment, human health, property or resources, the Party in whose waters the ship is operating **shall prohibit such ship from discharging Ballast Water until the threat is removed.***



...but what to do with such vessels?

- No discharge (problem cargo operation)?
- No port reception facility?
- No designated discharge/contingency area?
- If none of these?

...how can such vessels can prove again to be compliant?



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Risk Assessment for targeting vessels for Port State Control inspections

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Risk assessment for port State control

▪ PSC should target ballast water related high risk vessels

- **Orange** – environmental matching
- **Green** – species-specific

BWM options:

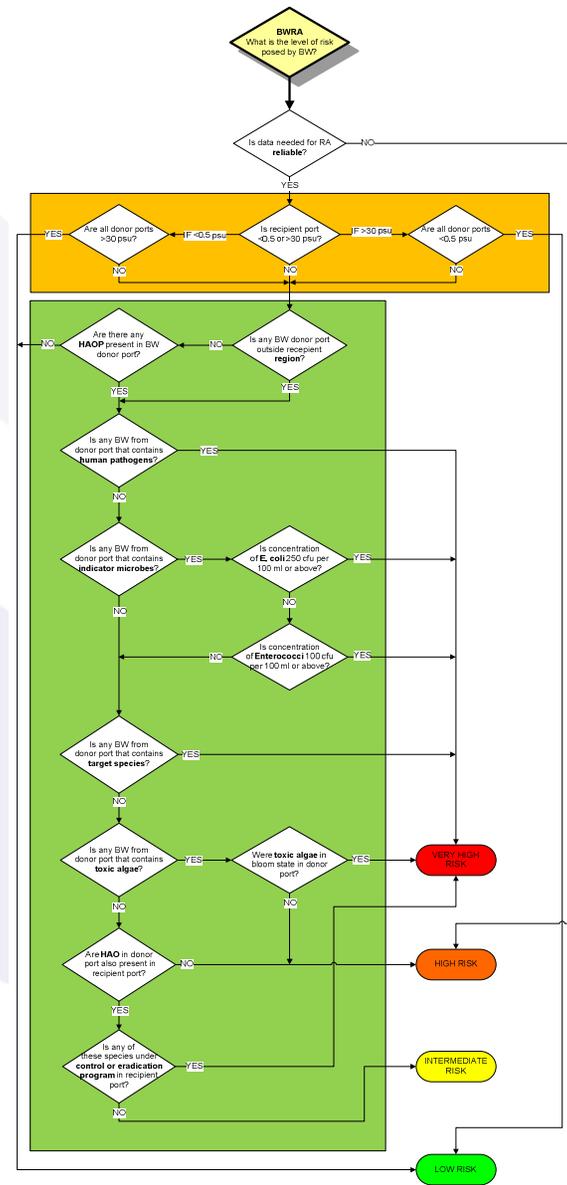
- **High or very high risk** - Targeting vessels for PSC control with different priorities
- **Very high risk** – Additional measures
- **Low risk** – Non-compliant vessel may discharge in critical situations



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David et al. 2015a



Ballast water sampling as part of Port State Control inspections

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Ballast water sampling as part of Port State Control inspections

BWS as per Article 9 Inspection of Ships

Two stage inspection:

- “Initial inspection” (Tier 1)
 - verifying if **valid International BWM Certificate (IBWMC)**
 - inspection of the **Ballast Water record book (BWRB)**, and/or
 - **sampling of the ship’s ballast water**, carried out in accordance with the (G2) guidelines, no undue delay because of analysis
- if **no valid certificate**, or
 - the **condition** of the **ship** or its **equipment** does **not correspond** with the International BWM Certificate, or
 - the **master** or the **crew** are **not familiar** with **BWM procedures**, or **not implemented these**
- a “**detailed inspection**” may be carried out (Tier 2)



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Ballast water sampling as part of Port State Control inspections

BWS as per **Guidelines for Port State Control under the BWM Convention (PSC guidelines)**

Four-stage inspection:

- 1) "**initial inspection**" documentation check (IBWMC, BWRB, BW Management Plan), visual check of equipment, ensuring that an officer has been nominated for BWM on the ship, crew familiar to operate BWMS, **if clear grounds then...**
- 2) "**more detailed inspection**" where the operation of the BWMS is checked and the PSCO clarifies whether the BWMS has been operated adequately, **may result in sampling**
- 3) "**indicative analysis**", sampling for compliance with D-2, no undue delay because of analysis, **if result exceeds D-2, then...**
- 4) "**detailed analysis**", sampling for compliance with D-2, no undue delay because of analysis



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Ballast water sampling as part of Port State Control inspections

Ballast water sampling under Tier 1 or Tier 2?

- sampling under the **BWM Convention as Tier 1** (initial inspection)
- sampling under the **PSC Guidelines as Tier 2** (more detailed inspection)

Conflict?... under **BWM Convention Tier 2 detailed inspection** (Art. 9.2) **BW discharge not allowed**

- Art. 9.3 ...ship shall not discharge when Art. 9.2 conditions = **sampling for D-2 can't be conducted**
- only some indicative sampling (without discharge) could be conducted... but in **PSC Guidelines** explained as **triggering element for detailed test**

“Compromise”?

- 1.1.1 These Guidelines... are not intended to limit the rights the port State has in verifying compliance with the BWM Convention
- no reference to PSC Guidelines in BWM Convention



Need for clarification/guidance when and how PSC may



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Ballast water sampling as part of Port State Control inspections

Ballast water sampling

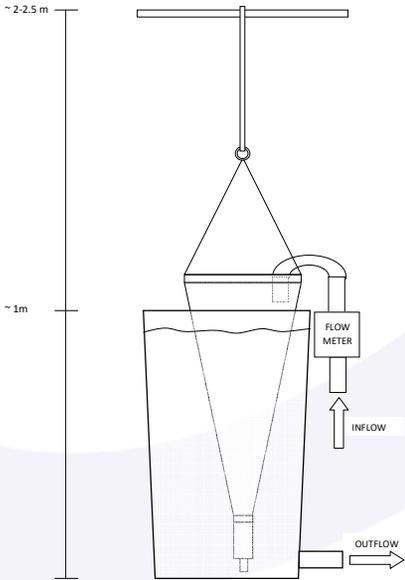
- Guidelines for ballast water sampling (G2)
- 2020 **Guidance on ballast water sampling** and analysis for trial use in accordance with the BWM Convention and Guidelines (G2) (BWM.2/Circ.42/Rev.2)

Ballast water analyses

- 2020 **Guidance on ballast water sampling and analysis** for trial use in accordance with the BWM Convention and Guidelines (G2) (BWM.2/Circ.42/Rev.2)

Ballast water sampling protocol needed!

Ballast water analysis protocol needed!



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**Contingency planning/
measures in case of a failure
of the BWM system,
challenging water quality and
non-compliance**

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Contingency planning/measures

- **Failure of BWMS** may happen **when loading ballast water** or **when discharging**
- **BWMS may not be able to operate** in **too challenging water conditions**, mainly due to very high sediments load
- If the BWMS fails, or is bypassed because of unable to handle water conditions, **vessel would load not (properly) treated ballast water**
- **Vessel needs to communicate this to the ballast water discharge port in advance**
- **Port would need to have Contingency measures available**



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Contingency planning/measures

What to do?

- Ask vessel, if possible, to retain ballast water onboard
- Provide a solution to manage ballast water to be discharged = BWM contingency measures

Contingency measures are port specific!

- Ballast water exchange (contingency) area (can be used on the way to BW discharge port)
- Ballast water reception facilities
- Apply alternative treatment acceptable to port State, e.g., kind of active substance treatment and neutralisation of ballast water prior to discharge



<https://www.bawat.com/bawat-baas/ballast-as-a-service/>



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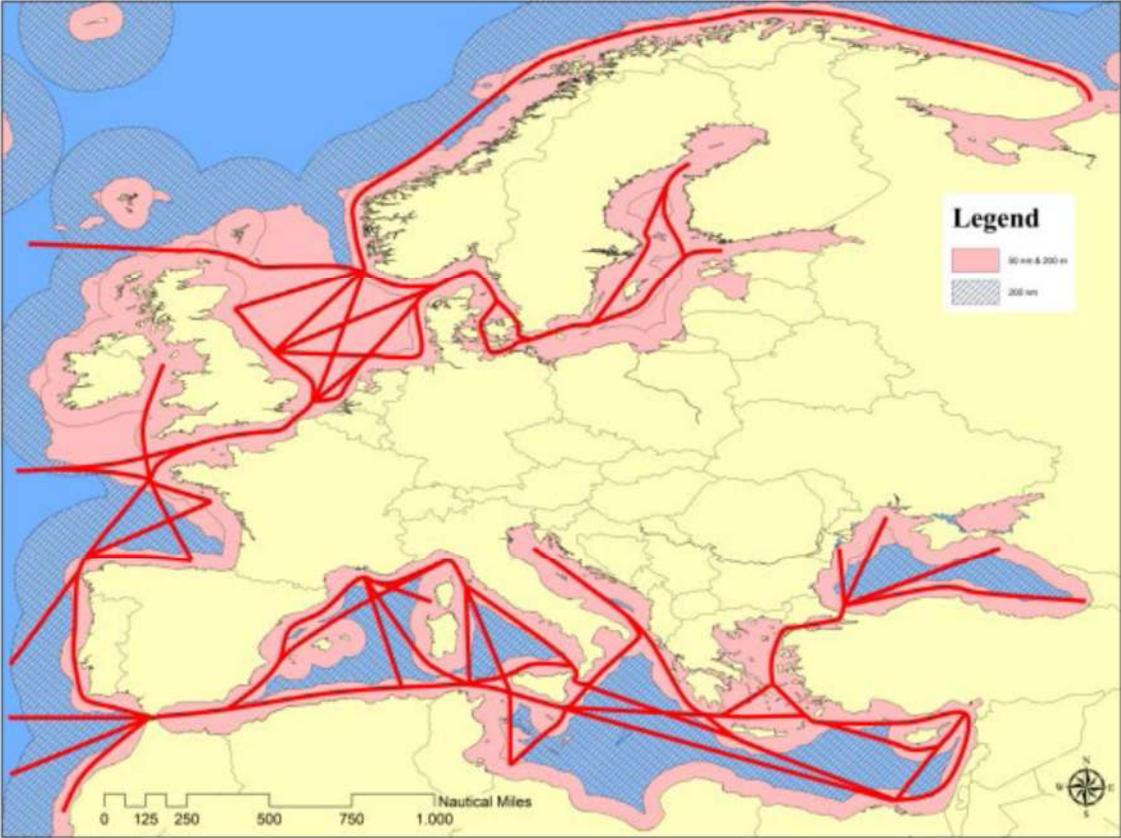


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Contingency planning/measures

Ballast water exchange (contingency) area



David et al. 2015b



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- The seas surrounding Europe with red lines showing the main shipping routes. The pink areas are less than 50 nautical miles from nearest land and/or in waters less than 200m deep, and the pink shaded areas are more than 200 nautical miles from the nearest land.

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How can a non-compliant vessel prove compliance

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How can a non-compliant vessel prove compliance

- Compliance with the D-2 standard is **confirmed by ballast water sampling**
- **D-2 standard** is a **discharge standard**
- **Ballast water** is regularly **discharged during sampling** for biological performance against the D-2 standard

- **If ballast water poses a risk, should not be discharged**
- Discharge may occur **only when no/acceptable risk** is indicated

Risk assessment may support a decision **to conduct D-2 compliance sampling**

- if the **ballast water is from high risk area, no sampling** for D-2
- if **low risk, than sampling for D-2 possible**



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BWM Decision Support System for the Mediterranean

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BWM Decision Support System for the Mediterranean

BWM DSS

- Tool **supporting decision making process** - maritime administration requirements/actions
- Reduce uncertainties
- Reduce subjectiveness
- Transparency of decisions process
- Decision process speed-up

Previous work/projects:

- Decision Model and Control of Ballast Water Management in the Slovenian Sea (2004-2007)
- The EU wide approach (VECTORS, 2011-2015)
- Cross border Adriatic area approach (BALMAS, 2013-2016)



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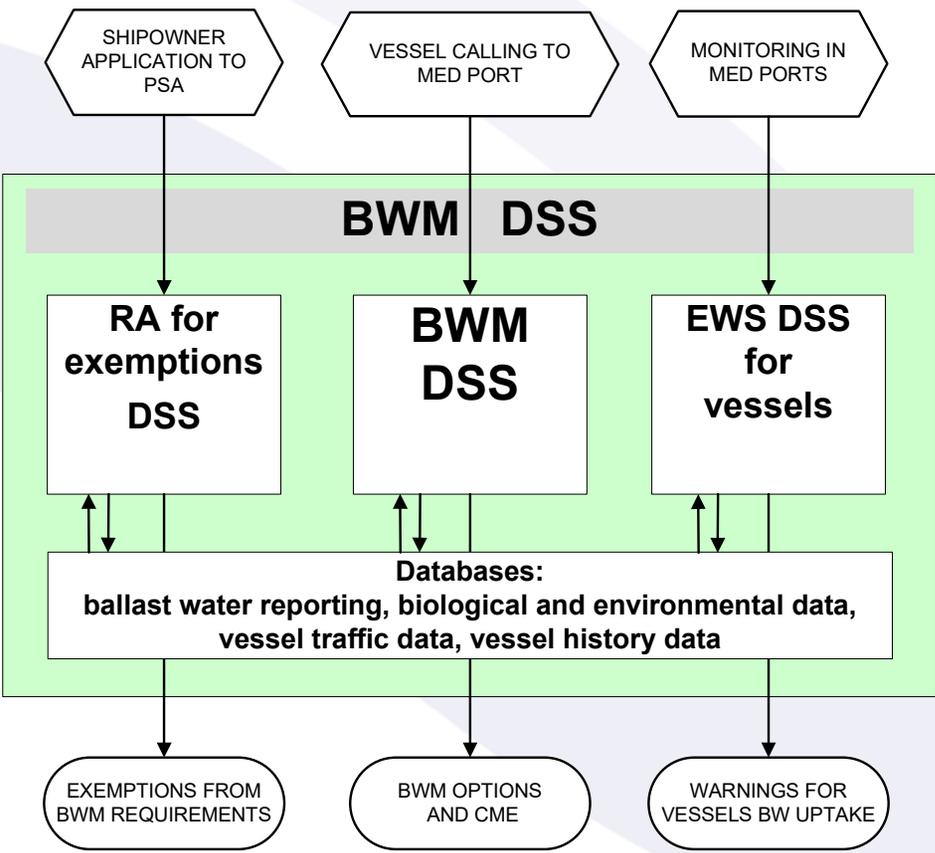
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BWM DSS challenges

- Quality of data as input information for decision making (reporting and other data)
- Appropriate BWM requirements
- Risk Assessment for exemptions
- Risk Assessment for BWM
- Early Warning System for warning of vessels
- Compliance Monitoring and Enforcement (CME) process (e.g., was BWM conducted properly, targeting vessels for inspection, decisions on corrective actions and consequences, etc.)
- What to do with non-compliant vessels = Contingency measures
- etc



BWM Decision Support System for the Mediterranean

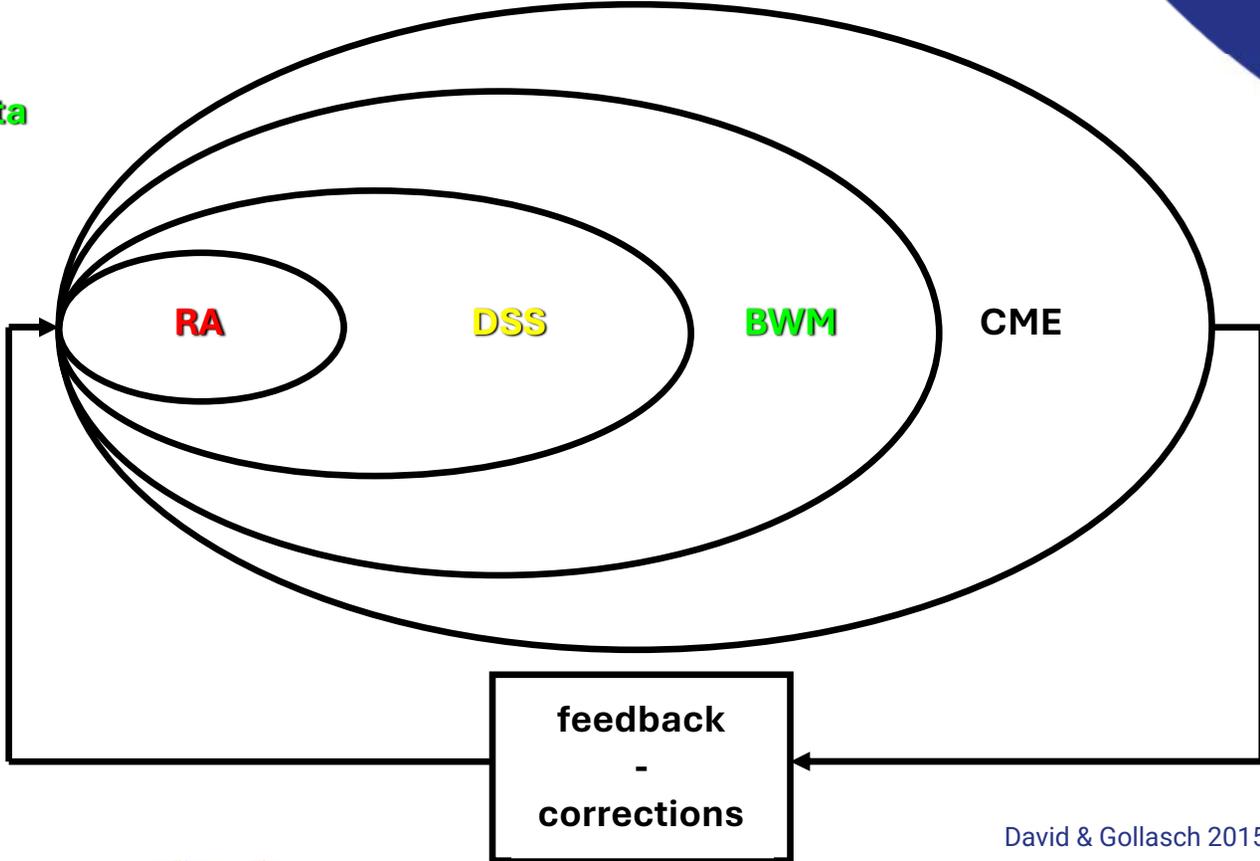


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Required data input



David & Gollasch 2015



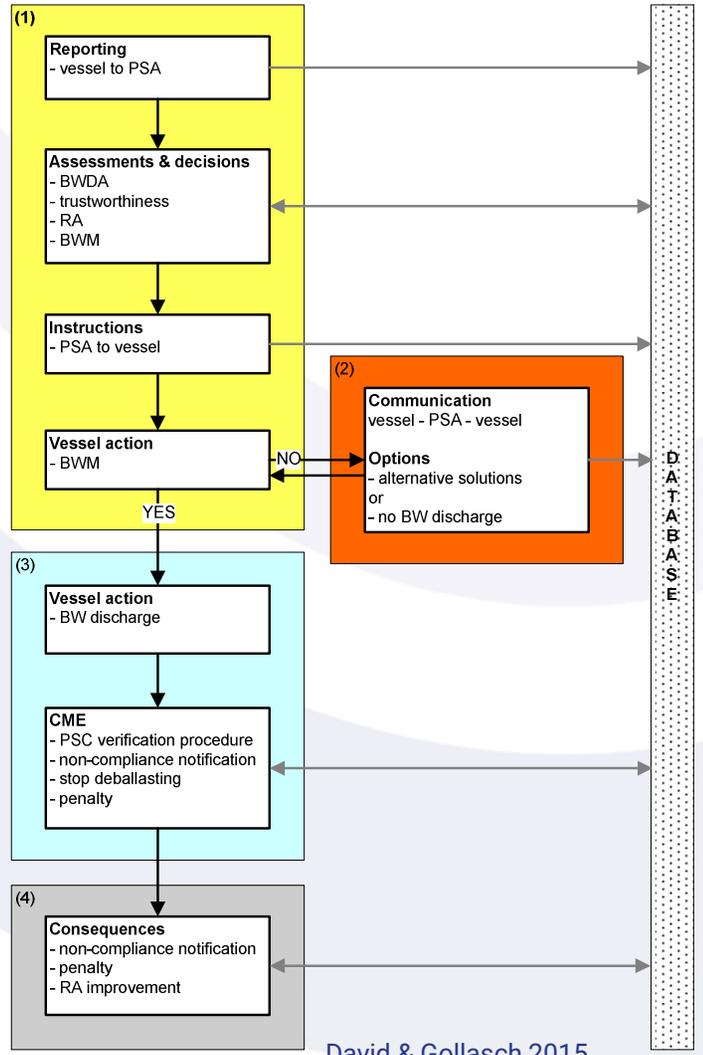
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BWM Decision Support System for the Mediterranean

- 1) **YELLOW BOX:** the vessel has left the last port of call and is able to conduct BWM on its intended route
- 2) **ORANGE BOX:** the vessel has left the last port of call but is not able to conduct BWM on its intended route, and may already be in the port of arrival but the port entry permit is not yet issued
- 3) **BLUE BOX:** the vessel is in the port of arrival and has received the port entry permit
- 4) **GREY BOX:** the vessel has received clearance and left the port



David & Gollasch 2015

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What to do in the Mediterranean

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What to do in the Mediterranean

- **Ratify the BWM Convention!**
- **Cooperate regionally with REMPEC support to implement the Regional BWM Strategy, with this:**
 - adopt **national legislation** to support the BWM Convention implementation
 - build **national capacities** for the implementation of the BWM Convention
 - engage in **research activities** to improve/provide missing data and knowledge
 - actively **implement the BWM Convention** with a regional approach
 - actively **regionally exchange knowledge and issues** (e.g., through online BWM group)
- **REMPEC consider to have a BWM Focal Point**
- Consider **other EU regional approaches, what could learn from**
- Cooperate with other regions in **building of an EU wide BWM approach**



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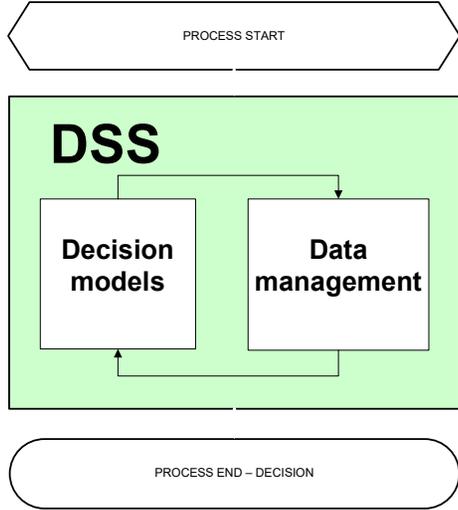


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What to do in the Mediterranean

- Items to include:
 - Prepare BWM Decision Support System for Mediterranean
 - Prepare Ballast water sampling protocol for PSC
 - Prepare Ballast water analysis protocol for PSC
 - Prepare Risk Assessment approaches/models to support Targeting vessels for PSC inspections, BWM additional measures, PSC sampling, Contingency measures, Warnings
 - Prepare PSC protocol/guidelines to address targeting vessels, ballast water sampling etc.
 - Prepare BW Reporting System
 - Study Additional measures, prepare if needed
 - Prepare Early Warnings System
 - Prepare Contingency measures (port specific)
 - Prepare Port Baseline Survey and Monitoring protocols for HAOP
 - Study Ballast water reception facilities options (port specific)



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References

- David M, Gollasch S, Leppäkoski E, Hewitt C 2015a. Risk Assessment in Ballast Water Management, pp. 133-169. In David M, Gollasch S (eds.) Global Maritime Transport and Ballast Water Management – Issues and Solutions. Invading Nature. Springer Series in Invasion Ecology 8, Springer Science + Business Media, Dordrecht, The Netherlands. p 306. DOI 10.1007/978-94-017-9367-4_7
- David M, Gollasch S, Elliott B, Wiley C 2015b. Ballast Water Management Under the Ballast Water Management Convention, pp. 89-108. In: David, M., Gollasch, S. (Eds.) Global Maritime Transport and Ballast Water Management – Issues and Solutions. Invading Nature. Springer Series in Invasion Ecology 8, Springer Science + Business Media, Dordrecht, The Netherlands. p 306. DOI 10.1007/978-94-017-9367-4_5
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- REMPEC 2012. Ballast Water Management Strategy for the Mediterranean Sea (2022-2027). Decision 25/17. pp 44
- UNEP/MED 2023. Regional Harmonised Procedures for the Uniform Implementation of the Ballast Water Management Convention in the Mediterranean Sea. Decision IG.26/11, UNEP/MED IG.26/22. pp 62

More about BWM:

- David, M., Gollasch, S. (Eds.) **2015. Global Maritime Transport and Ballast Water Management – Issues and Solutions.** Invading Nature. Springer Series in Invasion Ecology 8, Springer Science + Business Media, Dordrecht, The Netherlands. p. 306. <https://doi.org/10.1007/978-94-017-9367-4>
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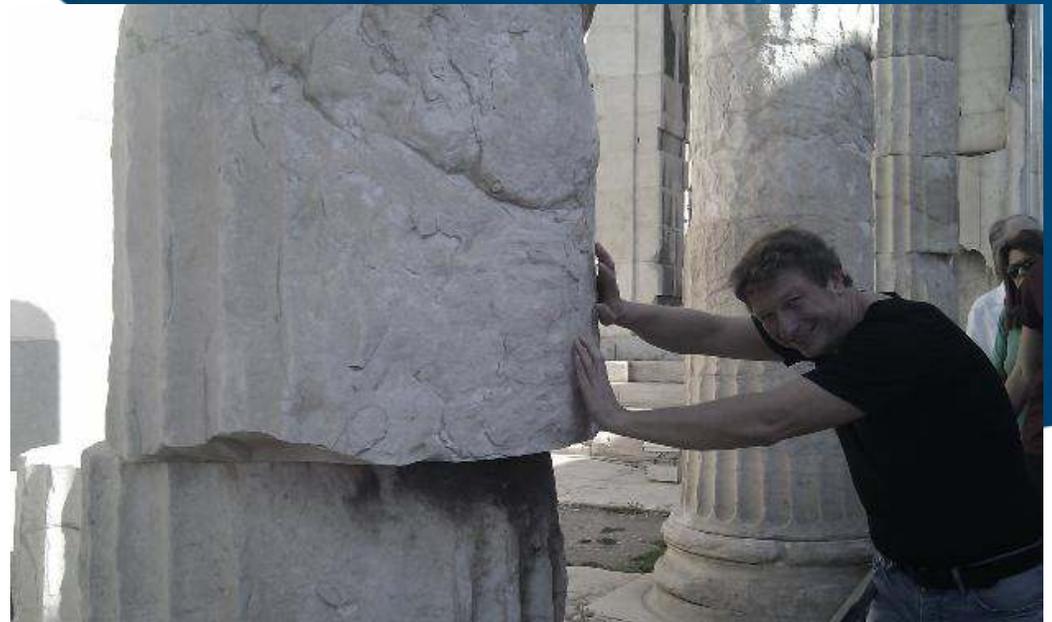


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THANK YOU



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