WORLD MARITIME UNIVERSITY

Our role and research on Arctic invaders

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IMO INTERNATIONAL MARITIME ORGANIZATION

What is WMU?

- 1983
- International Maritime Organization
- “to increase the number of highly qualified specialist maritime personnel in countries across the world”

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World Maritime University

Maritime transportation

Security

Management

Environmental protection

Policy and administration

Safety

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Education

- Msc in Maritime Affairs
  - Marine Environmental & Ocean Management
  - Maritime Education & Training
  - Maritime Law & Policy
  - Maritime Safety & Environmental Administration
  - Port Management
  - Shipping management & Logistics

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- 120 students
- From 45 countries

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Education

- PhD in Maritime Affairs
  - Marine Environmental Research (MER Group)
  - Maritime Administration: Law, Policy and Security
  - Shipping and Port Management
  - Maritime Technology and Education
  - Martime Risk and System Safety (MaRiSa Group)
  - Maritime Energy

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Research projects

- ACCEAS – Accessibility for shipping, Efficiency advantages and sustainability
- ADOPTMAN – Safety of life at sea, search and rescue development of a maritime safety assistance tool to become a standard add-on for integrated navigation
- ARTWEI – New methods for the management of transboundary waters in the Southern Baltic region
- Baltic Maritime Science Park Oil Spill forum – creating a network for oil spill contingency information sharing
- CyClaDes – Crew centered design and operations of ships and ship systems

Research projects

- HERRING – Sustainable management of the South Baltic region's ecosystem resource herring
- MARE-WINT – New Materials and Reliability in offshore wind turbines technology
- PartiSEApate – Maritime Spatial Planning within the Pomeranian Bight
- EU SeaTalk – creation of a qualification framework for effective communication at sea

NSBWO

- North Sea Ballast water opportunity – development of future strategies in ballast water policies and management, and the issue of aquatic invasive species

  Development of strategies in ballast water policies and management and creation of an aquatic invasive species website and database.

NSBWO

- Regional cohesion
  - Implementation
  - Monitoring
  - Enforcement
- Encouraging innovation
- Developing future strategies in ballast water policies and ballast water management
- Open exchange of knowledge ideas and expertise

NORTH SEA BALLAST WATER

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The Interreg IVB North Sea Region Programme

Investing in the future by working together for a sustainable and competitive region

NSBWO

- Project members
  - NIOZ; Royal Netherlands Institute for Sea Research
  - BSH; Federal Maritime and Hydrographic Agency of Germany
  - GoConsult
  - CaTO Marine Ecosystems
- Subpartners; shipping industry, ports, BWM industries, scientists, policy makers, educational and environmental NGOs

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Investing in the future by working together for a sustainable and competitive region

NSBWO
Project achievements

- Europort conferences
- Expert workshops
- Policy papers that influence international BWM policies
- Raising awareness
- IMO-MEPC submissions
- Raising awareness on importance of organisms < 10 µm
- Development of tests for BWT systems
- Treatment efficacy and effectivity

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The Interreg IVB North Sea Region Programme

Investing in the future by working together for a sustainable and competitive region

NSBWO
WMU

- NORSAS – North Sea Alien Species Database
- Norsas.eu
- Current information on status of alien species in the North Sea region
- Detailed information on taxonomy, common names, images of species, morphological description, biology, ecology, impact, population, pathways and vectors of introduction, procedures for management, global biodiversity information, worldwide distribution map
- Aid early detection and work as identification tool

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The Interreg IVB North Sea Region Programme

Investing in the future by working together for a sustainable and competitive region

Invasives in the Arctic

- Assessing and mitigating the environmental impacts of shipping in the Arctic – Focus on the introduction of invasive species and pathogens
- Total Foundation
  - WMU
  - IFREMER (French research institute for the Exploitation of the Sea)

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TOTAL CORPORATE FOUNDATION

Invasives in the Arctic

- Objectives
  - Characterize the transfer of aquatic organisms by ships
  - Present the legislative framework regulating unintentional introductions at the international level
  - Determine whether ships calling at two selected ports in the Barents present a risk of introductions
  - Evaluate existing mitigation strategies

Invasives in the Arctic
Expected outputs

- Review of international and national legislation on ballast water and biofouling of relevance to the Barents Sea LME
  - Existing and future implementation and enforcement procedures (mainly BWMC)
  - Responsibilities of parties including operators of maritime activities, port and flag States, regional and international bodies

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TOTAL CORPORATE FOUNDATION

Invasives in the Arctic

- Sampling procedures
  - Focus on biofouling
  - C-Leanship
- Ports
  - Russia – Murmansk
  - Norway – Tromsö
  - Greenland
- Sampling – summer 2014

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TOTAL CORPORATE FOUNDATION

PortBasIn

- BW exemption regulations
- Port baseline inventories
- Uniform procedures
- A region with potential invaders for the Arctic

PhD-project

- BWMC – no ratification unless method of enforcement
- Challenges in compliance monitoring and enforcement
  - Organism-based discharge standards
  - Determining compliance – *sampling*
    - *Sampling issues; representativeness? How? Where? When? Frequency? Sampling for system approval compared to sampling for compliance testing?*

PhD-project

”It will be very difficult to arrive at a conclusion as in the case of non-compliance the results of the analysis are likely to be used in the legal jurisdiction of each IMO Member State, and each of those States may require different evidence to support any enforcement action.”

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PhD-project

- Uncertainties have led to the proposal of a "no criminalization based solely on sampling"

PhD-project
Objectives

- Scientific/biological processes and legal procedures
  - Strategies for detection of non-compliance
  - Ballast water samples as basis for enforcement actions – evidentiary requirements

PhD-project

- Ballast water sampling – similar procedures/ problems in other fields?
  - Scientific uncertainty
  - Requirements on sampler/laboratories
  - Requirements on sampling procedures
  - Chain of custody
  - Experts in court
  - Criminal sanctions – Fines vs imprisonment?
  - Case law?

Thank you!

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