



BEMA
Ballastwater Equipment Manufacturers' Association

Ballastwater Equipment
Manufacturers' Association

Manufacturers & Suppliers
Supporting Global
Implementation of Biosecurity
Regulations

*International Symposium on Ballast Water &
Biofouling Management in IAS Prevention &
Control*

29 November 2023, Antalya, Türkiye

*Presented by: Marcie Merksamer,
BEMA Secretary General*

BEMA Mission

BEMA is an independent, non-profit trade organization representing:

- vendors, suppliers, and key partners in the ballast water treatment and shipboard environmental technology industries

BEMA provides coordinated, technical, non-commercial guidance to:

- the ballast water market, the regulating community, ship-owners, and the testing community

BEMA aspires to disseminate accurate information about:

- how ballast water treatment systems work, how they are designed, and what the reasonable expectations are in regard to their performance

BEMA supports sustainability goals of the maritime industry by:

- Expanding to represent the manufacturers, designers, and users of developing and emerging environmental technologies designed to lessen the environmental impacts of shipping.

BEMA Purpose

The purpose of BEMA is to:

- provide manufacturers and service providers in the ballast water equipment market with leadership and a unified voice;
- promote the application of effective technology in ballast water treatment operations consistent with local, state, federal and international regulations and sound engineering practice;
- work on behalf of its members to serve as a central point for regulatory agencies, the testing community, and general public to obtain technical information on effective ballast water treatment to prevent aquatic invasive species transfer by ships;
- provide the shipping industry with design & operational expertise to balance the numerous perspectives from regulators, ship owner organizations, scientific testing networks, and environmental organizations that influence the requirements that directly impact manufacturers;
- liaise and cooperate with governmental agencies as well as allied trade and professional associations throughout the world.

BEMA Leadership

➤ BEMA Board of Directors:

- Birgir Nilsen – BEMA President (Optimarin, UV)
- Matt Granitto – BEMA Vice President (De Nora, electrochlorination)
- Coen Esser – BEMA Secretary (Control Union Vessel Performance Centre, Associate Member)
- Rasmus Folsø – BEMA Treasurer (DESMI OceanGuard, UV)
- Maxime Dedeurwaerder – Board Member (BIO-UV, UV)
- Michelle Guy – Board Member (Wärtsilä, electrochlorination and UV)
- Stelios Kyriacou – Board Member (ERMA FIRST, electrochlorination)
- Andrew Marshall – Board Member (Ecochlor, chemical injection)
- Peter Sahlen – Board Member (Alfa Laval, UV)

Marcie Merksamer – BEMA Secretary General (EnviroManagement, Inc., Consultant)

Mark Riggio - BEMA Technical Director (Simplify Ballast, LLC, Consultant)

BEMA has equal representation geographically and major technology types

BEMA Members

- As of 31 October 2023 BEMA has 43 Members
- BEMA Members represent close to 90% of the installed BWMS worldwide, split over major ballast water treatment technology types:
 - Electrochlorination
 - UV
 - Chemical injection
- BEMA Charter members have at least one BWMS with IMO and/or USCG Type Approval
- BEMA Associate members include component & service providers
- BEMA members are globally positioned:
 - Europe
 - Asia
 - North America

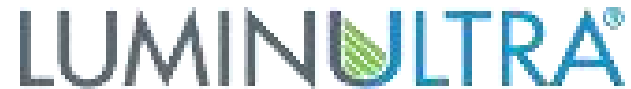
Charter Members



Associate Members



Drew Marine.



Corporate Members



Greensea IQ
Intelligent Ocean Solutions



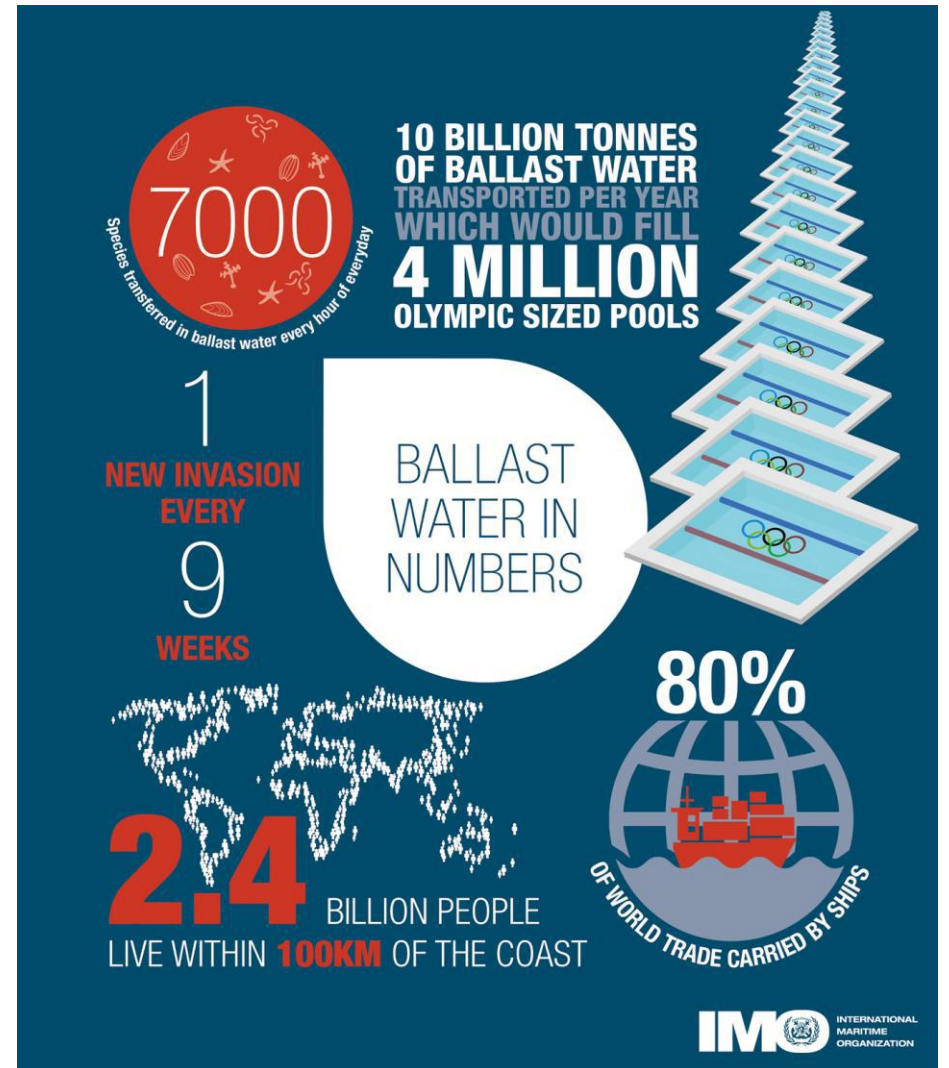
NakAI

Ballast Water Treatment

Why was that important again?

- Over 80% of all global trade is done by ships
- Ballast water is essential for ship stability / safety
- Estimated 10 billion tonnes of ballast water transferred globally each year
- Individual ships carry several hundred litres to >130,000 tonnes of ballast water
- Just one cubic metre of ballast water may contain up to 50,000 zooplankton specimens and/or 10 million phytoplankton cells

Source: <http://archive.iwlearn.net/globallast.imo.org/ballast-water-as-a-vector/index.html>



Ballast Water Treatment

Invasive Aquatic Species (IAS)

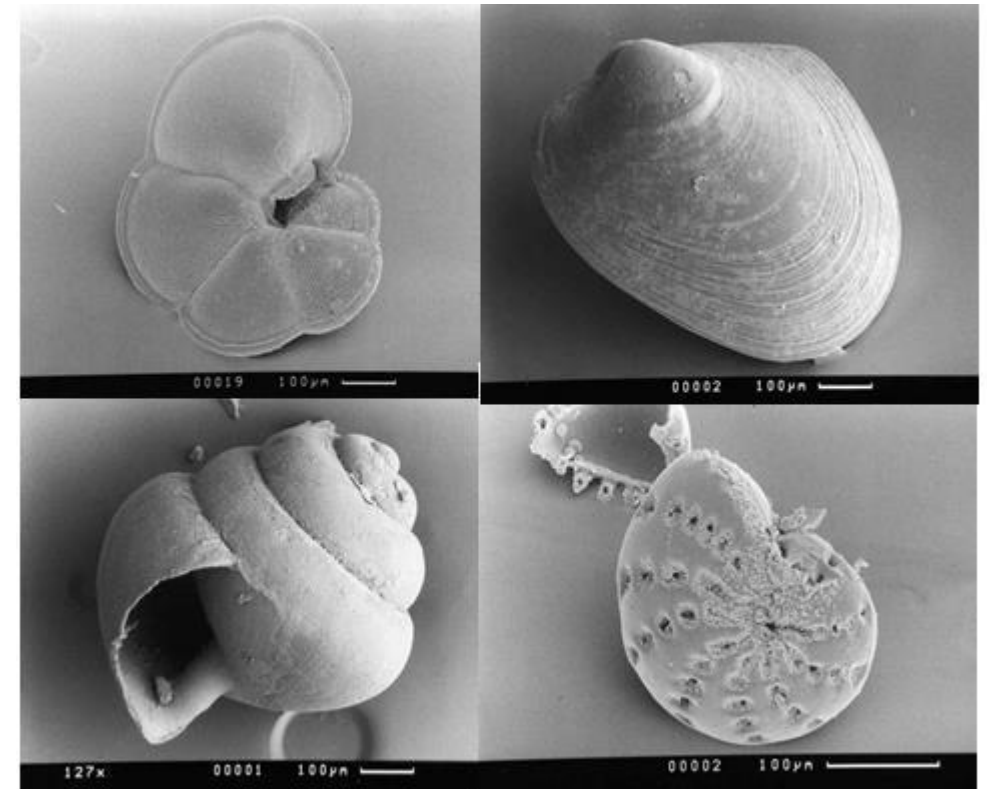
- Transferred species can establish and spread, they become:

Invasive Aquatic Species

- They may harm the local environment, economy and human health

Economic impacts may include:

- Reductions in fisheries production and aquaculture
- Physical impacts on coastal infrastructure, by fouling species
- Closure of recreational and tourism beaches



Aquatic organisms from ballast water samples under the electron microscope
Courtesy of Dr. Stephan Gollasch, GoConsult

Invasive Species

The problem in numbers

Ecological Impact: New invasion every 9 weeks

Economical impact: Damages of billions USD per year globally

Human health Impact: Paralytic shellfish poisoning, Cholera outbreaks

Examples

- **ZEBRA MUSSEL:** The US Environmental Protection Agency (EPA) estimates it costs \$500m every year to manage zebra mussel populations in the Great Lakes alone.
- **NORTH AMERICAN COMB JELLY:** The US State Department estimates the fishing industry in the Black Sea has lost around \$1 billion in revenue since the jellies arrived.



BEMA Cooperation & NGO Activities

BEMA cooperates by providing technical input to Flag States, Governmental Organizations, and Shipowner Industry Associations, such as:

- International Maritime Organization (IMO)
- United States Coast Guard (USCG)
- US Environmental Protection Agency (EPA)
- Great Lakes Ballast Water Collaborative
- National Administrations
- INTERCARGO
- INTERTANKO
- MARTECMA



Cooperation presents opportunities for BEMA and its Members to provide important technical information on topics that directly affect the ballast water and biofouling industries and regulations.

Examples of BEMA Contributions

- ❑ Participation at PPR 9 & 10, MEPC 77, 78, 79 & 80
- ❑ Paper submissions to MEPC 78, 79, 80 & 81 (in progress)
- ❑ IMO Correspondence Groups: BWM Convention Review, Ships Operating in Challenging Water Quality, and Biofouling Management
- ❑ Provided test data to the United States Environmental Protection Agency as part of the VIDA rulemaking process
- ❑ Represented industry at US Coast Guard and EPA listening sessions
- ❑ Issued guidance on Commissioning Testing of BWMS
- ❑ Provided industry input on critical regulatory topics:
 - ✓ Exchange of components in BWMS
 - ✓ Viability testing and methods
 - ✓ Ports with Challenging Water Quality

BEMA Focus Area: Challenging Water Quality

➤ Submission of papers to IMO:

- Proposed amendment to BWM.2/Circ.62 as a way to address issues being experienced by ships (MEPC 78/4/3)
- Further proposals for addressing CWQ issues (MEPC 79/4/12), co-sponsored with INTERCARGO
- Proposal for temporary guidance for ships operating in CWQ (MEPC 80/4/8), co-sponsored with Australia, Canada, Ireland, and Republic of Korea
- Continued work with national Administrations and other NGO's to reach agreed guidance; submission planned for MEPC 81, co-sponsored with several delegations.

BWMS
Selection

Pre-Planning
for CWQ

Optimize
BWMS
Operation

BWMS
Bypass -
last option

BEMA Focus Area: Changes to BWMS

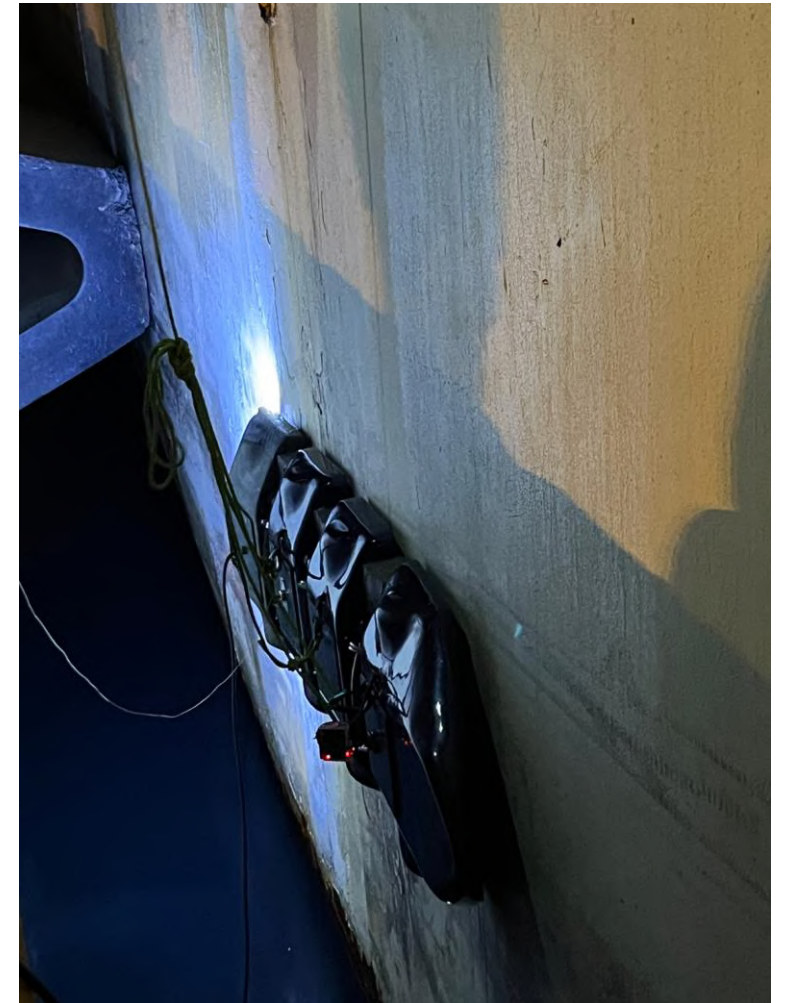
- Publication of document, “Technical Considerations for Exchange of BWMS Components”, Dec. 2019, revised March 2023 (www.bwema.org/resources). Highlighted:
 - Differences in regulations - IMO, USCG, National Administrations, Class Societies
 - Confusion about requirements and global inconsistency
 - Lengthy and costly review and approval process, sometimes ~1 year to complete
 - Repetitive review / approval process for the same components
- Submitted to IMO in MEPC 80/INF.18
- Preparing submission to MEPC 81 - Proposal to amend BWM.2/Circ.43/Rev.1
 - BWMS manufacturers need ability to innovate and bring improved systems to address industry demands:
 - Challenging Water Quality
 - Energy Efficiency
 - Supply Chain Challenges



BEMA Areas of Focus: Biofouling Management

BEMA's Bylaws support expansion of the Association to represent other emerging environmental technologies

One of the first areas of natural expansion has been into the hull biofouling cleaning and remediation markets to help both from a biosecurity standpoint and to improve service provider access to the regulatory process during standards development



Helping Biofouling Avoid the Ballast Pitfalls

BEMA is supporting the biofouling industry through:

**Representation at PPR
and in correspondence
groups during the
development of IMO
Guidelines on In-Water
Hull Inspection and
Cleaning**

**Tracking new regulatory
developments from the
IMO, USA and national
Administrations and
disseminating this
information through
members-only
publications**

**Assisting with the
development of
international standards
intended to assist with
implementation and
uptake of the
Guidelines (e.g. ISO
standards)**

BEMA and Decarbonization

- BEMA supports IMO's sustainability goals
- Ballast water management is inherently power intensive for some technologies, increasing vessel power needs, particularly in port
- Hull husbandry is a critical aspect of decarbonization goals
- BEMA strongly supports technology development and innovation for BWMS and hull cleaning technologies
- BEMA encourages the development of protocols to recertify existing BWMS which incorporate new technology and development of biofouling management regulations based on technology and science



How to reach us?

- Email the Association at Info@BWEMA.org
- Visit our website www.BWEMA.org
- Follow the #BallastGeeks on Twitter for the latest ballast water scuttlebutt, news, and regulatory updates [@BEMAssociation](https://twitter.com/BEMAssociation)
- Follow our LinkedIn Page: [BEMA in LinkedIn](#)





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UNITED WE STAND

THANK YOU!

