



BEMA
Ballastwater Equipment Manufacturers' Association

Lessons Learned From the Experience Building Phase

TRIPARTITE Meeting

18 October 2019, Tokyo, Japan

Presented by: *Mark Riggio, President*

BEMA Mission

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

- vendors, suppliers, and key partners in the ballast water treatment industry

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

Charter Members



Associate Members





Working Together to
Save our Oceans and
Coastal Ecosystems



www.ermafirst.com



Ballast Water Management Technology
A CALGON CARBON COMPANY



Ecochlor Examples

Challenges

- Late component deliveries
- Compressed dry dock schedule
- Inexperienced shipyards / integration engineers
- Dry dock time that includes scrubbers
- Delays in Class & Flag
- Building our training programs
- Keep all Ecochlor BWMS operable
- Expanding chemical resupply ports and hiring highly skilled service technicians quickly

Solutions

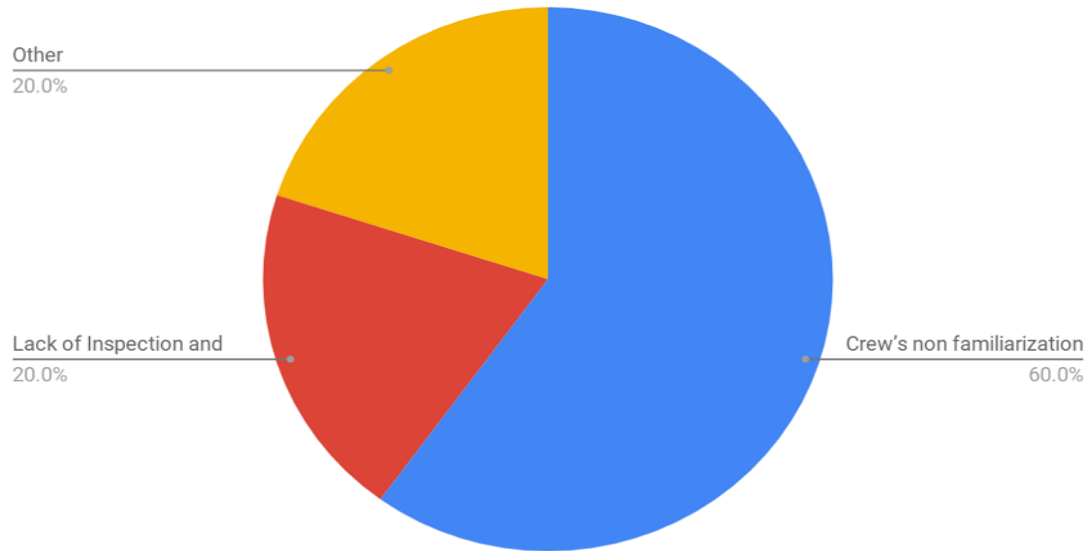
- Pre-planning, open communication and daily meetings at installation keeps things moving
- Training programs important for engineers, shipyards and crew! Ecochlor has USA Training Center; MARPOL Computer Software Program; and ship board crew training. Training during chemical resupply 2X year
- Ecochlor 'vessel delegate' monitors every ballast operation on every ship to monitor chemical levels & provide quick service response
- Globally located Ecochlor Service Team is largest division in the company and growing

This is provided by Ecochlor, BEMA does not represent a preference towards a technology or is liable on the content

ERMA FIRST Examples

Challenges On Operation

Claims Distribution



- Ø Crew are not familiar with system
- Ø Lack of components inspection and maintenance from operators
- Ø De-activation of BWTS systems for long time
- Ø No further training to crew
- Ø Defected components from suppliers
- Ø Wrong design from yards
- Ø Expired chemicals on board

How to fix them

- Ø Follow troubleshooting actions from ERMA FIRST OMSM
- Ø At long voyages, use BWTS system for an hour at sea to sea operation once per 10 days
- Ø Follow maintenance schedule for all components, especially for filters
- Ø Replacement of Chemical on TRO sensors
- Ø Train any new personnel of crew directly on board

Liaise with Manufacturer for the full Training Program, Maintenance, After Sales Network Scheme

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HYDE MARINE Lessons Learned

Piping Matters

- Flow dynamics through a BWTS are critical to the overall system performance
 - Head loss due to equipment can be significant
 - Performance of pumps can be reduced
- Failing to account for drain line pressures can cause filters to be overwhelmed
- Common drains and failing to protect a drain with a check valve can contaminate samples



Know Your Needs

- Base your system selection on your vessel and your routes
- For UV Systems, USCG Type Approval requires either higher power, reduced flow, or both
 - Know how your system handles low UVT
 - Know what UVT your ship may see
 - Plan for extended port time
 - Upsizing may improve performance
- Make sure your crew can use the system
 - How much training and support is needed?



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Optimarin Examples

Problems

- Industry delaying tactics
- 2022 will be an impossible year
- 50% of all retrofits due
- Crew resistance to use
- Operator lack of understanding
- BW different after BWTS installed



Going forward

- Shipowners planning
- Make sure system is available 2022
- Optimarin a Logistics business
- Resources available
 - ❖ engineering
 - ❖ installation
 - ❖ commissioning
 - ❖ and now Bio testing
- Approved contingency measures

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UNITED WE STAND

Thank you from the
#BallastGeeks!



Ecochlor Experience

2001	Ecochlor was founded
2004	Ecochlor's ClO ₂ patent approved; 1 st Ecochlor BWMS retrofit
2010-11	IMO G9 Final Approval & G8 Type Approval received
2006-17	Early Retrofits: Matson; IHS/Seacor; Liberty Maritime; SCF
2017	Ecochlor received USCG Type Approval
2017-now	Retrofits: Alaska Tanker; Minerva; Scorpio; Angelicoussis
2019-20	Currently, over 200 retrofits scheduled in our order book

96%
of
Ecochlor
BWMS
are
operable

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ERMA FIRST Experience

Introduction

Type Approval 2011

750 Systems Installed

Compliance and Enforcement is the back-bone of the Product/Company

Focus on the Training-Maintenance-After Sales & Compliance Monitoring Tools



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HYDE MARINE Experience

- First installation in 2003, still in service
- Over 500 installed systems
- Medium Pressure UV and filter
- Third generation product
- Approved based on dose-methodology

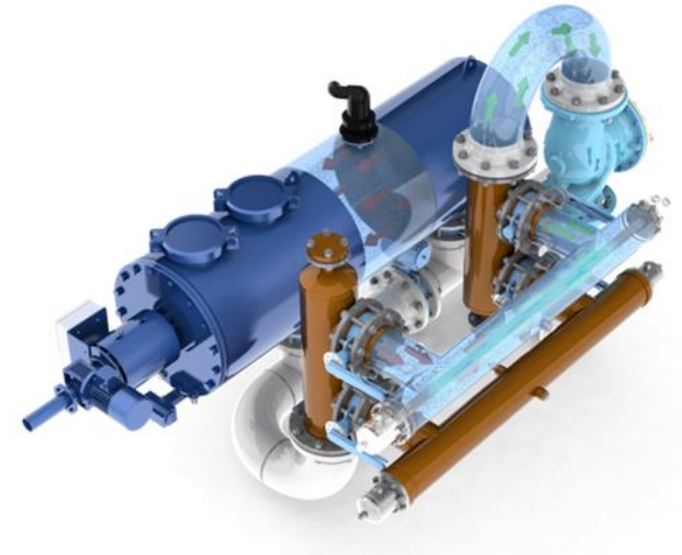


Hyde Marine
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Optimarin Experience

Introduction

- First installations in 2000
- 2009 Type Approval
- 550 systems sailing
- Training and Company Policy/attitude is paramount
- Success w/officer conferences (experience sharing) Training and
- Planning ballasting
- Challenging water conditions
- Holding time restrictions



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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:

- Mark Riggio – BEMA President (Hyde Marine, UV)
- Efi Tsolaki – BEMA Vice President (ERMA FIRST, electrochlorination)
- Jeremy Lowe – BEMA Secretary (Hach, manufacturer of equipment in support of BWMS)
- Birgir Nilsen – BEMA Treasurer (Optimarin, UV)
- Steve Candito – Board member (Ecochlor, chemical injection)
- Benoit Gillmann – Board member (Bio UV, UV)
- Rasmus Folsø – Board member (DESMI OceanGuard, UV)
- Stelios Kyriacou – Board member (De Nora, electrochlorination)
- Matthias Voigt – Board Member (Cathelco, UV)

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

BEMA has equal representation geographically and major technology types

BEMA Leadership

Board of Directors

Planning
Committee

- Initiate studies
- Review annual and long-range plans

External Affairs
Committee

- Represent the interests of BEMA work with:
- external organizations
 - trade associations
 - governmental organizations

Executive
Committee

Manage the Affairs
of BEMA

Finance
Committee

- Annual operating budget
- Periodic financial reports

Membership
Committee

- Applications for membership
- Initiate programs for the development of new members

Technical
Committee

- Neutral technical expertise in regard to BWTS and related issues

BEMA Members

- As of September 2019 BEMA has 47 Members, with new Member applications pending
- BEMA Members represent close to 90% of the installed BWMS worldwide, split over all major ballast water treatment technology types:
 - Electrochlorination
 - UV
 - Chemical injection
 - Physical / other disinfection methods
- BEMA Charter members have at least one BWMS with a valid IMO and/or USCG Type Approval
- BEMA Associate members include major component & service providers
- BEMA Members are globally positioned:
 - Europe
 - Asia
 - North America

BEMA Engagement

Regulatory Organization Interactions:

IMO
US Coast Guard
US EPA
UK Maritime & Coast Guard Agency
California State Lands Commission

Regulatory & Technical Topics:

VIDA regulation development with USCG and EPA
IMO NGO application
ISO Standards development
BWMS Type Approvals – “Exchange of Components”
System Design Limitations

Industry Organization Interactions

ABS
BIMCO
Chamber of Shipping of America (CSA)
IACS
INTERMANAGER
INTERCARGO
IPPIC
SeaEurope
Singapore Shipping Association (SSA)
VDR – Germany Shipowners Association

Look for our new publication
[Real Ballast Facts Bulletin](#)
coming soon!

Events and Meetings

Feb 2018: BEMA Formation Meeting



Sep 2018: Member Meet & Greet, SMM, Germany



May 2019: BEMA 2nd Annual Meeting, UK



Jun 2018: Posidonia 2018, Greece



Jun 2019: Member Meet & Greet, Norshipping



Events and Meetings

Current and Forthcoming Events

Sep 2019: BWM Tech, USA

Sep 2019: Shanghai Forum, China

Oct 2019: SeaEurope Tripartite Meeting, Japan

Oct 2019: INTERCARGO Technical Committee Meeting, Greece

Oct 2019: KorMarine, Republic Of Korea

Dec 2019: Marintec, China

Dec 2019: BWMTech, UK



What can BEMA do for you?

BEMA promotes an open and transparent dialogue with all stakeholders...

- Opportunity for BEMA to hear from meeting participants:
 - What information do participants need access to?
 - Relevant concerns and topics BEMA may assist with?

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](#)

