

UNDERSTANDING BALLAST WATER MANAGEMENT SYSTEM

Ensuring Environmental Sustainability in Maritime Operations



What is Ballast Water?

Water taken on by ships for stability and balance.



It reduces stress on the hull, balances off for the weight loss due to consumption of water and fuel, provides better maneuverability with sufficient vessel draft, including ship propeller immersion.

Why is Ballast Water a Concern?



A significant medium for the transmission of harmful and damaging aquatic organisms and other pathogens.



Pose serious ecological, economic and health problems



If introduced into the sea including estuaries, or into fresh water sources, may create hazards to the environment, human health, property or resources



Has caused major damage to many of the worlds' coastal regions and bio-diversities over the years.



Regulatory Landscape:

- The BWM Convention, in effect since September 8, 2017, globally governs the transfer of invasive species through ships' ballast water.
- It requires all international ships to follow specific standards through ship-specific ballast water management plans.
- Ships must carry a management plan, a record book, and an international certificate (for ships of 400 gt & above).
- Additionally, there are two standards: D-1 and D-2.

Types of Ballast Water Management System (BWMS)



Filtration Systems: Use physical barriers.



Chemical Treatment Systems: Add chemicals to neutralize organisms.



UV Radiation Systems: Disinfect with UV light.



Deoxygenation Systems: Reduce oxygen levels.



Heat Treatment Systems: Heat water to eliminate organisms.



Electrochlorination Systems: Generate chlorine for disinfection.



Ozone Treatment Systems: Use ozone gas for disinfection.

BENEFITS

of Effective Ballast Water Management:



Environmental Protection



Health and Economic Safeguard



Improvement of Water Quality



Regulatory Compliance



Sustainable Shipping



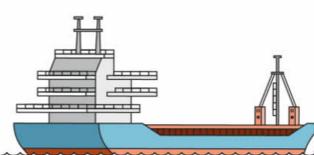
Encourages Global Collaboration



Economic Cost Reduction



Commitment to responsible Maritime Operations



Varuna Marine Services
SMART SUSTAINABLE SHIPPING

Varuna Marine Services B.V. is class approved and maintains a global service suppliers' network to enable local service at Global ports. Hence providing most cost efficient and quick turnaround. Through our global footprints we are capable of Commission testing at all major port(s) around the world

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