

## Challenges in Ballast Water Management



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Mr Kabi is a marine engineer and has experience in Ship operations in various types of vessel for 12 years prior joining IRS. Mr. Kabi has attended MEPC and PPR meeting as Indian Delegate/IACS representative and was involved in the development of various Regulations at IMO and IACS. Mr. Kabi has experience in the design appraisal of various systems and equipment on board including type approvals for more than 12 years. He is also involved in developing standards of various statutory equipment for Bureau of Indian standards.

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**Abstract:**

The treatment technologies differ in method and rate of application, scalability, holding time (required for kill rates and safe discharge), power requirements, effects on other ship systems or structure (corrosion), inherent safety and costs of operation. In many cases their efficacy varies with the conditions of the ballast water, flow rates, volume of water treated and holding time. There are also issues of whether treatment is done at intake, while being held on board, at discharge, or a combination of the three. For instance, filtration, separation and UV radiation are done during ballasting. UV radiation is also used during deballasting. These systems are sized for the maximum flow rate in the ballast system.

Conversely chemical biocides and deoxygenation are usually applied to attain a certain concentration in the water in the ballast tanks. The efficacies of these systems do not depend so much on the flow rate of the pumps as the time the ballast is allowed to remain in the tanks to achieve the desired kill rate. Short voyages can be a problem for these technologies.

Matching the treatment technology to the ship type, or more accurately the ballast system type, and vessel service is the key to designing a successful ballast water.