Aquatic Invasive Species ballast water Treatment

Ballast Water Stowaways

Ballast water is one of the major pathways for the introduction of aquatic invasive species largely due to the expanded trade and traffic volume over the last few decades. It is estimated that ballast water is responsible for 70% of aquatic invasive species (AIS) introductions. As seaborne trade increases, the problem may not yet have reached its peak.

When leaving port, ships pump water into their ballast tanks in order to remain balanced and maintain safe operating conditions as they glide through the oceans. Then, they discharge the ballast water as they enter the next port or harbor.

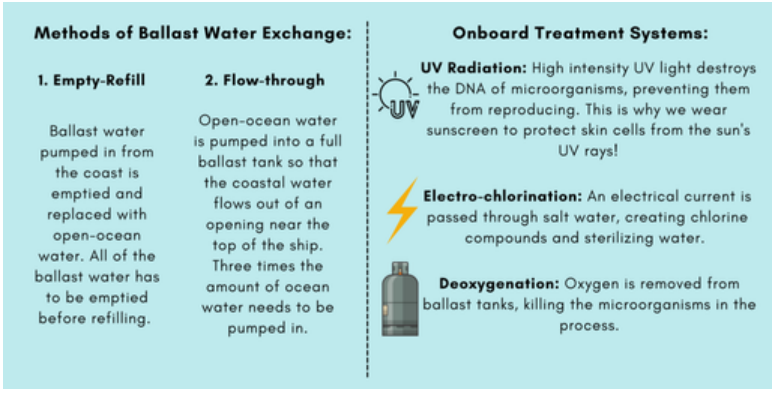
While ballast water is essential for safe and efficient modern shipping operations, it may pose serious ecological, economic, and health problems due to the multitude of freshwater, estuarine, and marine species carried in ships' ballast water. When ships release ballast water at a new port-of-call, they risk introducing non-native species, ranging from small fish to microorganisms, into a new area. Species may survive to establish a reproductive population in the new host environment, becoming invasive, out-competing native species, and multiplying.

Aquatic organisms such as viruses, bacteria, algae, jellyfish, crabs, mollusks, and fish can hitch a ride in ballast water. Zebra mussels gained entry into the U.S. in 1988 and have spread, causing significant ecological, economic and recreational damage.

Preventing an Invasion

The aim of ballast water treatment is the elimination of invasive marine species. Both new introductions and spread of aquatic invasive species can be reduced by 85 - 99% by ballast water treatment.

The U.S. Coast Guard and the International Maritime Organization require all ships to "undertake comprehensive actions in order to prevent, reduce and, if possible, eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments." Ballast water can be exchanged or treated through a combination of filtration and disinfection (e.g., electro-chlorination, ultraviolet radiation).



What About the Lakers?

Oceangoing vessels aren't the only problem for AIS. Studies shows that all vessels – including "lakers," or commercial vessels that don't leave the Great Lakes – contribute to moving invasive species around the region. In 2018, Congress enacted the Vessel Incidental Discharge Act of 2018 (VIDA) and directed the EPA to establish national standards for vessel discharges, such as ballast water. In October 2020, EPA released its proposed draft VIDA rules that regulate oceangoing vessels but exempt all lakers from having to treat ballast water. Now, EPA is proposing to require "new lakers" to install, operate, and maintain ballast water management systems. Existing lakers would be exempt under the new rule, leaving a major pathway for invasion open. If all ships in the Great Lakes were required to adhere to ballast water treatment standards, there could be a significant reduction in the spread of aquatic invasive species in the Great Lakes.

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