

MARINE DELIVERS ... measures to keep invasive species at bay

Vessels entering the Great Lakes undergo the most stringent ballast management and inspection regulations in the world. Since the latest measures were introduced in 2006, no new aquatic nuisance species have been discovered in the Great Lakes due to shipping. The marine industry is committed to eventually eliminating any risk of new introductions and therefore supports international regulations requiring installation of ballast water treatment technology aboard all ocean-going vessels.

WHY DO SHIPS CARRY BALLAST WATER?

When not fully loaded, cargo ships must take on water (ballast) to maintain their stability. Once pumped onboard, ballast water is stored in narrow cavities (ballast tanks) built into the hull of a ship. Ballast water pumped onboard in one port may inadvertently contain aquatic organisms and they could be released if the ballast is discharged in another port. In most cases, these organisms die. But as history has shown, in some cases, they thrive in their new environment.

A GLOBAL PROBLEM

As global trade expands, concern over the movement of aquatic species is also growing. Aquatic nuisance species are a concern not only in the Great Lakes, but also in the Chesapeake Bay, the Gulf of Mexico, Puget Sound, San Francisco Bay and other areas.

Scientists have documented about 185 non-native species in the Great Lakes. In some cases, these organisms are large fish; in other cases they are microscopic bacteria. Not all species are disruptive or “nuisance” species. For example, a number of Great Lakes states purposefully introduced non-native fish into the region to enhance sport fishing, such as salmon. Ballast water is believed to be responsible for introducing about one-third of non-native species into the Great Lakes region. Other species were introduced as a result of various human activities such as aquaculture, live fish markets, sport fishing, recreational boating, bait fish, pets and plants.

TOUGH REGULATIONS TO PROTECT THE GREAT LAKES

To protect the Great Lakes from new aquatic nuisance species, the marine industry has partnered with government to develop strong protections. Today, vessels entering the Great Lakes region undergo the most stringent ballast management and inspection regulations in the world.

All vessels entering the Great Lakes from abroad are required to exchange (pump out) their ballast water while still at sea and flush any empty tanks with ocean water. This practice helps to physically remove organisms from ballast tanks. Further, seawater (which has a high salinity) will kill many freshwater organisms. A recent Canadian government-funded study indicated that these two practices of ballast water exchange and flushing are typically 99.993% effective at removing or exterminating freshwater zooplankton that could potentially invade the eco-system of the Great Lakes.

To ensure compliance, the U.S. and Canadian governments inspect and test every foreign ship entering the Great Lakes in Montreal – the gateway to the St. Lawrence Seaway.

Since these protections were put in place in 2006, there have been no new discoveries of aquatic nuisance species entering the Great Lakes system via ballast water.

COMMITTED TO ELIMINATING RISK

The marine industry is committed to eventually eliminating any risk of new introductions and therefore supports international regulations requiring installation of ballast water treatment technology aboard all ocean-going vessels. Because ships are mobile and operate in numerous jurisdictions, there has been a need for uniform ballast treatment regulations. In 2004, the International Maritime Organization (IMO), a part of the United Nations, adopted a global agreement for the regulation of ships' ballast water. This agreement establishes a specific ballast water quality standard. In 2012, the U.S. Coast Guard issued federal, nation-wide ballast water discharge regulations. These new regulations are consistent with the IMO water quality standard. The new rules also establish a national ballast water treatment technology testing and approval program. The private sector is now working to develop and deploy technology to meet this standard.

WORKING TOGETHER TOWARD SOLUTIONS

- **Great Ships Initiative (GSI)**

To help stimulate the development and deployment of effective ballast water treatment technology, the marine industry has collaborated with federal and state governments in the U.S. and Canada and non-governmental organizations to set up the world's only fresh water ballast treatment technology test facility. The Great Ships Initiative (GSI) was launched in 2006 with seed money contributed by the marine industry. The Northeast-Midwest Institute manages the project with research services provided by the University of Wisconsin-Superior and the University of Minnesota-Duluth.

- **Great Lakes-Seaway Ballast Water Collaborative**

Launched in 2009, this collaborative brings together representatives from industry, state, provincial and federal governments and academia to share relevant information, increase dialogue and discuss ways of further reducing the risk of introduction and spread of aquatic nuisance species via ballast water. Through the efforts of the Great

Lakes Ballast Water Collaborative, it is hoped that governmental efforts to regulate ballast water discharges can be better coordinated to achieve meaningful results while maintaining regulatory stability and continuity.

- **Best Management Practices**

U.S. and Canadian domestic vessels (known as “Lakers”) never leave North America. Consequently, these ships present no risk of introducing foreign species from overseas. Nevertheless, Lakers may play a role in transferring aquatic nuisance species from lake to lake. To address this possibility, vessel operators have taken a pro-active stance. In 2000/2001, the Lake Carriers’ Association (LCA) and the Canadian Shipowners Association (CSA) agreed to a suite of “best management practices” to minimize the transfer of aquatic nuisance species. These voluntary management practices require ship owners to: regularly inspect ballast tanks and remove accumulated sediments; avoid ballast uptake in areas where harmful nuisance species are present; minimize ballast operations in shallow water; cooperate with research and sampling studies; cooperate in testing new ballast water treatment systems.