LCA Ballast Water Studies

In 2016 Lake Carriers' Association (LCA) initiated independent studies to investigate ballast water management options for U.S.-flag Great Lakes vessels ("lakers") and explore links to Lakes trade and non-indigenous species movement in the Great Lakes. These studies brought in subject-matter expertise and binational partnerships to examine and expand the science, technology, and engineering of ballast water management in the Great Lakes.

WHY: The 2nd Circuit of Appeals ruled on October 5, 2015 that the U.S. Environmental Protection Agency (EPA) failed to give "fair and thorough consideration" to onshore ballast water treatment options and failed to adequately explain their exemption of lakers.

SCOPING: LCA, addressing the 2nd Circuit decision, scoped approaches for each issue individually but with common aspects. LCA chose to focus the shore-based options specific to the U.S. side of the Great Lakes.

SHORESIDE: Land-based options for ballast water management include treating ballast water as wastewater or using potable water for ballast. There are 60 public and private commercial harbors on the U.S. side of the Great Lakes. Many ports contain numerous private docks scattered over miles of shoreline. The first step was to map the docks and existing water and wastewater treatment facilities using a geographic information system (GIS). Facility proximity and capacity were examined to measure suitability for use.

Using the GIS data and matching that to the National Ballast Information Clearinghouse data on ballast water discharges, solutions for the acceptability of existing systems, the ability to modify existing, or building new infrastructure were assessed. The study examined the best options for representative ports and extrapolated those across the region.

ONBOARD: LCA needed to gauge the possibilities tied to installation of systems onboard U.S.-flag Great Lakes vessels to manage ballast water in compliance with existing U.S. federal discharge standards. This included various configurations of onboard treatment systems and the installation of systems to connect to shore-based facilities for treatment should that be the only option.

Key Findings:

1. There is insufficient shore-based infrastructure in the Great Lakes to support ballast water management.
2. It could take 10-20 years and tens of billions of dollars to build and operate facilities for ballast water management in the Great Lakes.
3. No ballast water management systems have been successfully operated in the waters of the Great Lakes.
4. There are no Coast Guard type approved onboard management systems that are compatible with the U.S.-flag laker trade.
5. Equipping lakers with ballast water management systems would cost the fleet hundreds of millions of dollars to install, operate and maintain, and result in significant lost cargo capacity to accommodate the systems without any guarantee they can work in the Great Lakes.

RESEARCH: LCA has joined with the Great Waters Research Collaborative, the University of Wisconsin – Superior, and the Minnesota Pollution Control Agency in a ballast water study. This effort is the first of its kind: laker ballast water uptake and discharge and the ports they frequent will be sampled simultaneously. *Hemimysis anomala* – the Bloody red shrimp, the last verified non-native to enter the lakes by ocean-going vessels (2006) – will be the indicator for a risk/release study that will establish baseline conditions for species viability and mobility in targeted harbors of the Great Lakes.

Lake Carriers' was established in 1880. Our members carry dry bulk cargoes consisting iron ore, coal, aggregates and other materials such as sand and grain. They have the capacity to move over 100 million tons annually in the most cost effective way (saving industry $3.6 billion annually), fuel efficient manner (10 times more so than trucks), and with the lowest air emissions (10 times less than trucks).