



POSITION STATEMENT

January 18, 2006

**Izaak Walton League of America
Position Paper on Ballast Water Management in the Great Lakes**

The Izaak Walton League of America (IWLA) recognizes that commercial navigation on the Great Lakes is an important form of commerce for the Great Lakes states, the U.S., Canada and many foreign countries. Unfortunately, ballast water discharged from oceangoing vessels passing through the Great Lakes contain invasive species and sometimes human pathogens that create significant changes to the Great Lakes ecosystem and are a potential health threat to residents. It is well documented in the Great Lakes and other places that once a nonindigenous species is introduced into an aquatic system, they are difficult to control and likely impossible to eliminate.

The IWLA has established policy on invasive species and the treatment of ballast water.¹ The IWLA has determined that further reforms are necessary to require the shipping industry to comply with best available technology and management practices for the removal or destruction of non-native organisms in ballast water. Without swift and full compliance, additional non-native invasive species will continue to be introduced and the danger to the ecosystem will outweigh the benefits to the Great Lakes' states economies. Economists from Grand Valley State University estimate the cost of existing invasive species ranges from \$200 million to \$5 billion per year, and that the economic benefit of oceangoing commerce in the Great Lakes is approximately \$55 million annually.²

From 1994-2003 an average of 535 oceangoing foreign ships entered the Great Lakes per year.³ It is estimated that about six million metric tones (1.584 billion gallons) of foreign ballast water mixed with lake water is discharged in the Great Lakes each year.⁴

Ballast water is thought to be the source for zebra mussels, Eurasian ruffe, the round and tubenose gobies, spiny water fleas, and quagga mussels. Some 160 other species of fish and invertebrates have invaded the Great Lakes, most since the St. Lawrence Seaway opened in 1959. It is estimated by assistant Professor Anthony Ricciardi of McGill University in Montreal that a new invader is identified in the Great Lakes about every 7 months.⁵ This is unacceptable.

These nonindigenous species disrupt the natural Great Lakes ecosystems, impact the natural reproduction of native fish and invertebrates, exacerbate botulinus toxin outbreaks which kill birds and animals, and have other adverse impacts on native flora and fauna. Further, many of these species quickly spread to inland waters throughout the U.S. The economic impact to the sport and commercial fisheries of the Great Lakes is estimated by the U.S. Fish and Wildlife Service to be \$4 billion annually.

The Viral Hemorrhagic Septicemia (VHS) virus, a fish-killing pathogen that originated in Europe, has now caused large-scale fish-kills in Lakes Ontario, Erie and St. Clair from 2005-07. VHS virus is virulent and contagious through water and infected fish exposure, causing internal and external bleeding followed by death. It has been confirmed in the killing of thousands of Great Lakes fish.⁶ Without immediate action this disease will spread to other Great Lakes by shipment of VHS-containing water used for ballast in vessels and will cause serious damage to many Great Lakes fish populations. All Great Lakes ballast water must be disinfected and made free of pathogens, and any residual disinfectant toxicity must be neutralized before ballast water is released into receiving water.

At present, treatment of ballast water before discharge from the ships is the most effective way to address the introduction of non-native invasive species to the Great Lakes ecosystem. To ensure this protection, the IWLA recommends the immediate use of chlorine for the treatment of all ballast water in ships entering the Great Lakes through the St. Lawrence Seaway (“salties,” or sea-going) and in intra-lake vessels (“lakers”) that carry goods among the different Great Lakes basins. The purpose of the chlorine treatment is 1) to kill as many invasive plants, animals, invertebrates, and human pathogens as possible from “salties” entering the Great Lakes and 2) to control the movement of invasive species and pathogens between different Great Lakes by treating ballast water in “lakers” or “salties” moving between basins.

Chlorine and/or other ballast water treatment have been used in treating ballast water in other countries, including Chile, Argentina, and New Zealand.⁷ Studies show that using chlorine can remove more than 90% of aquatic invasive species when treated to a residual of 10 ppm (parts per million) of sodium hypochlorite.⁸

Professional engineer and IWLA member Frederick Eyer, who has spent his career in management of water treatment facilities, estimates the cost to treat ballast at 10 ppm of sodium hypochlorite and dechlorination of the residual with sodium bisulfite to be \$1.57 per/thousand gallons, or \$157 per million gallons. He further suggests the costs of two metered pumps for application of the sodium hypochlorite and sodium bisulfite to be less than \$1000 each.

The IWLA is aware of the toxic nature of chlorine and therefore believes that any sources used in its manufacture should be free of mercury emissions. Further, ballast water needs to be thoroughly dechlorinated before discharge. Also, tests for residual chlorine levels and neutralizing additives should be required to eliminate negative impacts on the Great Lakes.

Chlorine treatment is only part of the solution. Environmentally protective ballast water standards must be set with an aggressive timeline for implementation. The IWLA encourages the shipping industry to invest in research and development of technologies that may be more

effective than chlorine treatment of ballast water. In addition to on-board solutions such as chlorine treatment, shore treatment facilities should be developed by the industry or the Army Corps of Engineers at several locations along the Seaway. These facilities should be capable of treating ballast water on ships for invasive species and removing bottom sediments. The cost of operation of these facilities should be borne by the shipping industry on a “user pay” basis.

The IWLA further encourages the shipping industry to implement sediment removal on a routine basis as a Best Management Practice. Doing so increases the effectiveness of any ballast water treatment and, in the case of biocides, significantly reduces the amounts of chemicals needed as well as the cost per treatment.

Finally, the IWLA suggests that “empty” ballast water tanks be treated with chlorine or another acceptable biocide. The average residual sediment and water remaining in a ship *after* it has off-loaded its ballast water is 42,000 gallons.⁸ This secondary treatment would further reduce hard-to-treat aquatic invasive species or those that burrow into the sediment on the bottom. The amount of chemical remaining when the ship took on new ballast would be a part of that treatment although it is quite probable little would remain after 24 hours if the ship was under movement.

To assure that rapid progress is made on the best management practices described above, the IWLA supports the enactment of compatible laws by the Great Lakes states requiring Clean Water Act discharge permits for the discharge of ballast water. States could suspend these laws upon demonstration of adequately protective federal regulations.

Since the League was formed in Chicago in 1922, the Great Lakes ecosystem has been considered by our members to be a valuable natural resource. The Great Lakes are a significant economic resource to the Great Lakes states and Canadian provinces. The IWLA urges decision-makers and the shipping industry to seriously address the problem of invasive non-native species and take the necessary steps to protect this national treasure.

¹ Conservation Policies 2005. Izaak Walton League of America. 04 Jan. 2006.
www.iwla.org/policies/conservationpolicies.pdf. See pages 57-58.

² Taylor, John C., and James L. Roach. “Ocean Shipping In the Great Lakes: Transportation Cost Increases That Would Result From A Cessation of Ocean Vessel Shipping.” December 2005.

³ From the affidavit of Raymond Vaughan in support of the petition of the states of New York, Wisconsin, Minnesota, Ohio, Illinois, the Commonwealth of Pennsylvania, the Michigan Department of Environmental Quality, and Great Lakes United to the United States Coast Guard. Contact committee members for more information. See also http://www.oag.state.ny.us/press/2004/jul/jul15b_04.html.

⁴ Reeves, Eric. Analysis of Laws and Policies Concerning Exotic Invasions of the Great Lakes: A Report Commissioned by the Office of the Great Lakes, Michigan Department of Environmental Quality. 15 March 1999. <http://www.deq.state.mi.us/documents/deq-water-great-lakes-aquatics-exotic2.pdf>. *Note: 1 metric tonne is approximately 264 gallons, therefore six million metric tones equals 1.584 billion gallons of foreign ballast.*

⁵ Meersman, Tom. "Invaded Waters." Star Tribune, 13 June 2004.

⁶ USDA-APHIS Emerging Disease Notice, July 2006: http://www.aphis.usda.gov/vs/ceah/cei/taf/emergingdiseasenotice_files/vhsgreatlakes.htm; and http://www.michigan.gov/documents/dnr/Viral-Hemorrhagic-Septicemia-Fact-Sheet-11-9-2006_178081_7.pdf

⁷ Aquatic Nuisance Species in Ballast Water Discharges: Issues and Options. U.S. Environmental Protection Agency. 10 Sept. 2001. http://www.epa.gov/npdes/pubs/ballast_report_attch5.pdf.

⁸ Reeves, Eric. Analysis of Laws and Policies Concerning Exotic Invasions of the Great Lakes: A Report Commissioned by the Office of the Great Lakes, Michigan Department of Environmental Quality. 15 March 1999. <http://www.deq.state.mi.us/documents/deq-water-great-lakes-aquatics-exotic2.pdf>.

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