

The Ballast Water Challenge on the Great Lakes



Zebra Mussel, photograph taken by the EPA, Great Lakes National Program Office, www.bugwood.org

The Situation

Taking on and discharging ballast water is key to navigational safety, but in recent years, a variety of harmful aquatic invasive species ("AIS") (zebra mussels, for example) have begun to travel in such water, and have a significant environmental impact when released into a marine ecosystem.

Pending the ratification of the International Convention for the Control and Management of Ship's Ballast Water and Sediments (BWM Convention 2004), a number of countries have implemented their own rules and regulations.

Not least Canada and the United States, where the incidence of the Zebra Mussels in the 1980s in the Great-Lakes-St. Lawrence Seaway was the catalyst to the eventual BWM Convention.

The Convention itself is not far away from ratification, coming in to force 12 months after 30 countries representing 35% of the World GRT sign up. Latest : 40 countries representing 30.25% World GRT have taken steps to ratify the Convention.

Canadian Perspective

In the last twenty years, Canada and the United States have cooperated in efforts to better manage the challenge posed by AIS in ballast water on the Great Lakes and the St. Lawrence Seaway. In 2006, Canada adopted the *Ballast Water Control and Management Regulations*¹ under its *Canada Shipping Act, 2001*.²

These Regulations apply to vessels entering Canadian waters from outside Canada's 200-nautical mile Exclusive Economic Zone (EEZ), on either trans-oceanic or coastal voyages.

Such vessels must carry ballast water management plans. They may perform ballast water exchange in mid-ocean (at least 200 nautical miles from shore in waters at least 2000 m. deep). Other management techniques approved include retaining ballast water onboard, transferring unexchanged ballast water to a reception facility or fitting ballast water treatment technology.

Vessels opting for ballast water exchange must flush any residual sediment in otherwise empty tanks with open ocean water if bound for the Great Lakes, to prevent invasions via residual ballast water and sediments. Vessels bound for the Great Lakes from outside the EEZ are required to submit a ballast water reporting form before entering Canadian waters and again 24 hours prior to entering the St. Lawrence Seaway.³



A Water Ballast Tank, empty. When filled it can be the unintended “passenger” compartment for a significant variety of marine life.

¹ SOR/2011-237. See *Canada Gazette*, Part II, Vol. 145, No. 23, November 9, 2011 at p. 2334 *et seq.* These Regulations repeal and replace earlier ones enacted under the former *Canada Shipping Act*, R.S.C. 1985, c. S-9.

² S.C. 2001, c. 26, in force July 1, 2007, subsections. 35(1) and sect. 190.

³ The Ballast Water Reporting Form lists voyage information, ballast water usage/capacity, ballast water management method, ballast water sources, ballast water management practices and proposed discharge location.

The two Seaway agencies (the St. Lawrence Seaway Management Corporation in Canada and the St. Lawrence Seaway Development Corporation in the U.S.) since 2008 have required vessels to conduct saltwater flushing of ballast tanks containing residual amounts of ballast water and/or sediment in an area 200 nautical miles from shore before entering Seaway waters. Vessels must also maintain the ability to measure salinity levels in each tank onboard, so that final salinities of at least 30 ppt can be ensured.

Throughout the year, Transport Canada's Quebec Region monitors marine traffic entering the Gulf of St. Lawrence from outside the Canadian EEZ bound for regional ports, as well as for the Seaway and Great Lakes ports. In 2013, for example, 100% of vessels bound for the Great Lakes and Seaway from outside the EEZ received "ballast water management exams" on each Seaway transit, with 6,803 tanks being assessed on 371 vessel transits. These rigorous and coordinated measures have resulted in no new non-native species attributed to ships' ballast water being reported on the Great Lakes since 2006.⁴

"Ballast water management exams" include a detailed review of ballast water reports, logs, records and ballast water management plans; crew interviews to verify their understanding of the management plan's requirements; and questions on actual practices. Ballast tanks are sampled for salinity. Vessels retaining their ballast water are issued a Letter of Retention (LOR) and, when departing the Seaway, compliance is verified and the LOR is rescinded. Ninety-one such letters were issued in 2013, and no vessel was found in breach of its LOR. Letters of Warning are issued when discrepancies are found in the ballast water management plan, records or reports. Only two such letters were issued in 2013. Administrative Monetary Penalties may be issued for violations. Only one AMP was issued in 2013.⁵



Vessel engaged in pumping out.

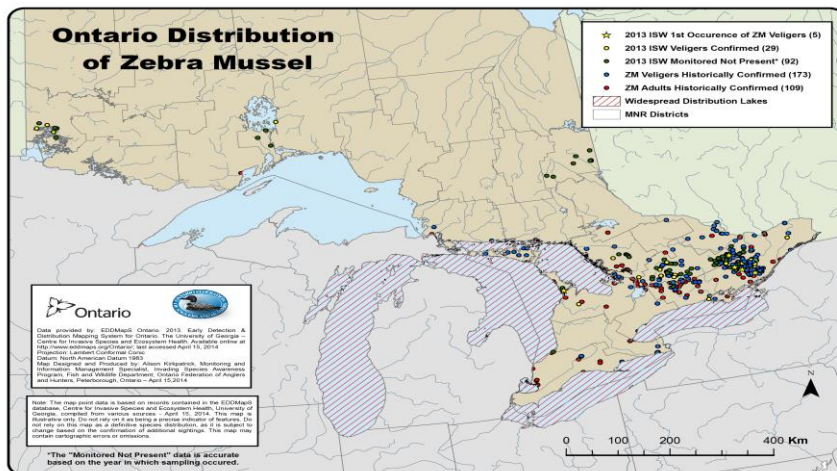
⁴ See *2013 Summary of Great Lakes Seaway Ballast Water Working Group*, February 2014, at pp. 2 and 5; on-line at http://www.greatlakes-seaway.com/en/pdf/2013_BW_Rpt_EN.pdf. The 100% inspection rate has been attained in every year since 2009.

⁵ See *2013 Summary of Great Lakes Seaway Ballast Water Working Group*, February 2014, at pp. 5 and 8; on-line at http://www.greatlakes-seaway.com/en/pdf/2013_BW_Rpt_EN.pdf. The AMP imposed was for \$6,000.00.

In 2004, the International Maritime Organization (IMO) adopted the *International Convention for the Control and Management of Ships' Ballast Water and Sediments*.⁶ Some forty (40) States are now party to this BWM Convention, including Canada, which acceded to it in 2010,⁷ but it is not yet in force, because the States Parties as yet account for only approximately 30.25% of the gross tonnage of the world's merchant fleet,⁸ whereas the Convention will come into force only upon its ratification by thirty (30) States accounting for at least **35%** of such tonnage.⁹

The Convention will apply to most foreign and domestic ships operating in Canadian waters. Vessels concerned will have to carry valid Ballast Water Convention Certificates, have a ballast water record book on board, an approved Ballast Water Management Plan and meet the Convention's exchange and performance standards. The performance standards are numeric, with deadlines for vessel compliance, depending on the date of the ship's construction and the timing of its intermediate or renewal surveys, although there is a limited right for States Parties to grant extensions to those timelines, after consulting other affected States and notifying the IMO. States Parties are also free to enact more rigorous standards than those of the Convention.¹⁰ There are also provisions on sediment reception facilities, research and monitoring, surveys, certification and port state control inspection and technical assistance.

Another challenge has to do with ballast water treatment systems. Under the BWM Convention, treatment systems must be type-approved and comply with Convention Guideline G8 (*Guidelines for Approval of Ballast Water Management Systems*). There are grave concerns that existing treatment systems will not meet applicable performance standards in the freshwater of the Great Lakes or in alternating fresh and salt water environments.



Zebra Mussel Distribution Map, kindly provided by Alison Kirkpatrick, Monitoring & Information Management Specialist, Aquatic Invasive Species Outreach Liaison, Ontario Federation of Anglers and Hunters,
www.invadingspecies.com

⁶ Adopted at London, February 13, 2004, but not yet in force (hereinafter designated as the "BWM Convention" or the "BWM").

⁷ Canada acceded to the BWM Convention on April 8, 2010. See Canada Treaty Information on-line at: <http://www.treaty-accord.gc.ca/details.aspx?id=105233>.

⁸ See *Status of Multilateral Conventions and Instruments in respect of which the International Maritime Organization or its Secretary-General performs Depositary or Other Functions*, August 31, 2014, p. 500; on-line at: <http://www.imo.org/About/Conventions/StatusOfConventions/Documents/Status%20-%202014.pdf>.

⁹ BWM Convention, art. 18(1).

¹⁰ Canada, for example, will likely retain its requirement that flushing of ballast tanks beyond the EEZ occur in waters at least 2,000 m. deep, whereas the BWM Convention permits a minimum depth of only 200 m.

U.S. Perspective:

The efforts in the U.S. to address the issue of aquatic invasive species (AIS) arising from ballast water discharge in the Great Lakes began nearly twenty-five (25) years ago. The Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990 was intended to prevent the introduction of and control the spread of AIS into the Great Lakes¹¹. NANPCA created an Aquatic Nuisance Species Task Force, whose purpose was to develop programs to prevent and control infestations of AIS. The Task Force is comprised of thirteen (13) federal agencies, including its co-chairs, the U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Coast Guard. The Task Force continues to function today.

Based on its authority under NANPCA, the U.S. Coast Guard, beginning in 1993, required vessels entering the Great Lakes to perform ballast water exchange mid-ocean. The National Invasive Species Act (NISA) of 1996, reauthorized and amended NANPCA, and imposed mandatory ballast management reporting, including number of ballast tanks, volume of ballast water onboard, and the origin of the ballast water. NISA also specified voluntary ballast water exchange guidelines for all vessels arriving from outside the 200-mile U.S. Exclusive Economic Zone (EEZ). Vessels which declared “no ballast on board” were exempt from NISA’s requirements.

U.S. Coast Guard findings, however, indicated that ballast water exchange requirements were not desirable long-term. The “results from several studies have shown the effectiveness of [ballast water exchanges] varies considerably and is dependent on vessel type (design), exchange method, ballasting system configuration, exchange location, and method of study.”¹² The safety of ballast water exchange was also an important consideration. The U.S. Coast Guard determined that ballast water exchange was not the best method for serving the objectives of NISA.



Zebra Mussel (Dreissena polymorpha), Amy J. Benson, US Geological Survey, www.bugwood.org

¹¹ 16 U.S.C. §§ 4701.

¹² U.S. Coast Guard. Standard for Living Organisms in Ships’ Ballast Water Discharged in U.S. Waters; Final Rule. Federal Register, Vol. 77, No. 57. March 23, 2013. <http://www.gpo.gov/fdsys/pkg/FR-2012-03-23/pdf/2012-6579.pdf>.

In June 2012, the U.S. Coast Guard's Final Rule, *Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters*, went into effect. This Final Rule established standards for the allowable concentration of living organisms in ballast water which is discharged into U.S. waters. Specifically, all ocean-going vessels must operate an approved ballast water treatment system that complies with a numeric discharge standard. This standard is consistent with the IMO's BWM Convention. The Final Rule also imposes reporting and recordkeeping obligations on all vessels calling at U.S. ports, and requires that these vessels follow practices aimed at reducing the presence of AIS. The requirements of the Final Rule are being phased in over a period of several years.

Although the U.S. has implemented requirements that are the similar to those of the BMW Convention, it is not a party to the Convention. In addition, timelines for compliance are longer under the U.S. federal regime and they are based on dates of scheduled drydocking and the vessel's ballast water capacity, rather than dates of intermediate or renewal surveys. Vessels whose ballast water capacity is between 1500 and 5000 cubic meters were required to comply with the Final Rule requirements after January 1, 2014, while vessels with a ballast water capacity less than 1500 cubic meters or greater than 5000 cubic meters must comply by the first scheduled drydocking after January 1, 2016.

The U.S. Environmental Protection Agency (EPA) also plays an important role in ballast water regulation. In December 2008, the EPA issued the first Vessel General Permit (VGP), which regulated the discharge of ballast water, and essentially adopted the ballast water exchange requirements already in place under NISA. The 2008 VGP expired in December 2013; however, the EPA issued a 2013 VGP, which will expire in December 2018. The 2013 VGP requires that vessels meet a discharge standard which is equivalent to the standard under the IMO's BWM Convention. Further, it requires that all vessels operating outside the U.S. EEZ to conduct saltwater flushing of ballast tanks and mid-ocean ballast water exchange before entering the Great Lakes. Several Great Lakes states, including Wisconsin and Minnesota, have imposed state-specific requirements on the 2013 VGP, which could result in major conflict of law issues for marine operators on the Great Lakes.



Ballast Water Treatment System on a vessel

Looking to the Future:

Effective ballast water management in the future years will require Canada and the U.S. to coordinate their laws and practices in this area and to implement technology yet to be developed that will provide the level of desired protection from AIS.

The Great Lakes Water Quality Agreement¹³ of September 2012 between Canada and the U.S.A. requires both federal governments to work to establish and implement programs and measures that protect the Great Lakes Basin ecosystem from the discharge of Aquatic Invasive Species in ballast water. Achieving such a goal will pose a significant challenge to legislators, administrators and the shipping industry in both countries in the coming years.

Shipowners that have the Great Lakes as part of their regular trading pattern would do well to keep themselves closely informed about continued State, Federal and International regulatory developments that will impact on their vessels.

Credits

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¹³ See http://www.ijc.org/en_/Great_Lakes_Water_Quality.