2025 Summary of Great Lakes Seaway Ballast Water Working Group

January 2026

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Chapter 1 – Executive Summary

The Great Lakes Seaway Ballast Water Working Group (BWWG), comprised of representatives from the U. S. Coast Guard (USCG), the U.S. Great Lakes St. Lawrence Seaway Development Corporation (GLS), Transport Canada - Marine Safety & Security (TCMSS), and the Canadian St. Lawrence Seaway Management Corporation (SLSMC), compiled the 2025 Summary of Great Lakes Seaway Ballast Management report. The group's mandate is to develop, enhance, and coordinate binational compliance and enforcement efforts to reduce the introduction of aquatic invasive species via ballast water and residuals. The BWWG is actively engaged in providing response to calls for ballast water regulation of ocean-going vessels transiting the Seaway.

In 2025, 100% of vessels bound for the Great Lakes Seaway from outside the Exclusive Economic Zone (EEZ) received ballast management exams on each Seaway transit. In total, all 9547 ballast tanks were assessed during the 489 vessel transits. Vessels that did not exchange their ballast water or flush their ballast tanks were required to either retain the ballast water and residuals on board, treat the ballast water in an environmentally sound and approved manner, or return to sea to conduct a ballast water exchange. Vessels that were unable to exchange their ballast water/residuals and that were required to retain them onboard received a verification exam during their outbound transit prior to exiting the Seaway. In addition, 100% of Ballast Water Reporting Forms (BWRFs) were screened to assess ballast water history, compliance, voyage information and proposed discharge location. BWWG verification efforts indicated that there was no non- compliant ballast water discharged in the Great Lakes Seaway system. The BWWG anticipates continued high vessel compliance rates for the 2026 navigation season.

Since 2006, ballast water management requirements in the Great Lakes and the St. Lawrence Seaway system have been the most stringent in the world. USCG, TCMSS, and Seaway ballast regulations that include saltwater flushing, detailed documentation requirements, increased inspections, and civil penalties provide a comprehensive regulatory enforcement regime to protect the Great Lakes Seaway system. Independent research by the Fisheries and Oceans Canada (Science) indicates that the risk of a ballast water mediated introduction of aquatic invasive species into the Great Lakes has been mitigated to extremely low levels. These ballast water requirements have been further enhanced by the promulgation of USCG and Environmental Protection Agency (EPA) regulations.

Chapter 2 – Joint Ballast Management

Ballast Management on the Great Lakes Seaway System

Regulations protecting the Great Lakes Seaway system include Ballast Water Regulations SOR/2021-120 under the Canada Shipping Act (2001) that came into force in June 2021 and revoked and replaced the former Ballast Water Control and Management Regulations SOR/2011-237, USCG ballast water regulations pertaining to vessels equipped with ballast tanks, Best Management Practices for No Ballast on Board (NOBOB) vessels entering the U.S., St. Lawrence Seaway's NOBOB requirements, and the EPA's Vessel General Permit (VGP) and Vessel Incidental Discharge Act (VIDA 2018). These regulations apply to all vessels entering waters under Canadian and U.S. jurisdiction from outside the Canadian EEZ and apply to vessels on both oceanic and coastal voyages.

Loaded vessels with residual sediments are required to flush their tanks with water of a salinity equivalent to ballast exchange, i.e., 30 parts per thousand (ppt.) or greater. Regulations require vessels to conduct ocean ballast water exchange during ballast-laden voyages. Vessels with residual sediments and un-pumpable ballast on board must conduct saltwater flushing. Saltwater flushing is defined as the addition of ocean water (7%-20% tank capacity) to empty ballast water tanks while using the Ballast Water Management System (BWMS); the mixing of the flush water with the residual water and sediment through the motion of the vessel; and the discharge of the mixed water, such that the resultant residual water is 30 ppt or greater.

The goal of the program is to inspect each vessel entering the system from outside the EEZ on every transit. All four agencies have committed resources to accomplish the program goals.

St. Lawrence Seaway NOBOB Requirement

The U.S. and Canadian St. Lawrence Seaway agencies enacted requirements effective at the start of the 2008 navigation season that require vessels to conduct saltwater flushing of ballast tanks that contain residual amounts of ballast water and/or sediment in an area 200 nm from any shore before entering waters of the Seaway. 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.

Transport Canada Requirements

Transport Canada (TC) Quebec region monitors all traffic entering the Gulf of St. Lawrence from outside the Canadian EEZ bound for regional ports as well as the St. Lawrence Seaway/Great Lakes Ports on a year-round basis.

Under Ballast Water Regulations SOR/2021-120, there is a requirement for the releases in Canadian Fresh Waters. In addition to meeting the requirements of the Ballast Water Management Convention, a vessel that conducts ballast water management to meet ballast water performance standard (D-2) must not release ballast water in Canadian fresh waters described in TP 13617 unless the ballast water was first exchanged in accordance with the ballast water exchange standard (D-1). In other words, the vessels must conduct saltwater flushing (SWF) and/or ballast water exchange (BWE) using their BWMS if they want to de-ballast in Canadian fresh waters.

Challenges experienced by TC during 2025 in achieving ballast water management compliance for the Seaway/Great Lakes included:

- Crew change;
- Exchange of information between vessel agents and/or owners;
- Reviewing 3441 ballast water reports/queries from 2222 vessel transits in the Gulf of St. Lawrence and St. Lawrence River and Seaway;
- Ensuring that vessels provide proper information if there is an issue with Challenging Water Quality (CWQ) or a prolonged breakdown of the BWMS;
- Addressing routing deviations of coastal vessels in order to meet Great Lakes ballast water management regulations; and
- Ensuring bulk carriers are flushing their hold wash tanks as listed in their ballast water management plan.

TC's efforts were instrumental in raising the compliance level of ballast tanks prior to their entry into the Great Lakes/Seaway.

Transport Canada provided the necessary information to Fisheries and Oceans Canada (Science) for analysis and support of ongoing ballast water compliance projects.

U.S. Coast Guard Discharge Standard

On March 23, 2012, the U.S. Coast Guard established a ballast water discharge standard (BWDS) for U.S. waters and a U.S. Coast Guard type-approval requirement for BWMS used to meet this regulation. This type approval process established requirements for designing, testing, installing, treating, and operating equipment on board vessels.

The USCG BWDS matches the standard adopted by the International Maritime Organization (IMO) in 2004, entered into force globally on September 8, 2017 and further established by seven U.S. states. U.S. Coast Guard implementation efforts are underway and six independent laboratories have been accepted to carry out type approval testing of BWMS. As of January 2025, 54 BWMS have been U.S. Coast Guard type approved.

Currently the U.S. Coast Guard has accepted 125 foreign-approved BWMSs as Alternate Management Systems (AMS)[1]. Vessels operating outside of the Great Lakes may use an AMS in lieu of USCG ballast water exchange requirements prior to the ballast water management (BWM) compliance dates established in the final rule, and in lieu of meeting the BWDS for up to five years after their compliance dates.

The rule's implementation schedule will phase in the BWDS or other accepted BWM practices for new and existing vessels based on the vessel's ballast water capacity and scheduled dry dock date as listed in 33 CFR 151.1512(b) or 33 CFR 151.2035(b).

[1] See https://www.dco.uscg.mil ; Under our organization, Assistant Commandant for Prevention Policy (CG-5P), Commercial Regulations and Standards (CG-5PS), Office of Operating and Environmental Standards. See Alternate Management Systems

Vessels that cannot meet the BWDS or employ one of the other BWM practices by their compliance date can request an extension to their compliance date from the U.S. Coast Guard at least 12 months before they would otherwise have to comply[2].

Owner/operators requesting an extension must provide the U.S. Coast Guard with an explicit statement supported by documentary evidence (e.g., a delay in commercial availability) that installation of the type approved system is not possible for purposes of compliance with the regulatory implementation schedule.

U.S. Environmental Protection Agency Vessel General Permit (VGP) and Vessel Incidental Discharge Act (VIDA)[3]

The Vessel Incidental Discharge Act was signed into law on December 4, 2018, as Title IX of the Frank LoBiondo Coast Guard Authorization Act of 2018, and enacted as a Final Rule by the U.S. EPA on November 8, 2024. VIDA establishes new responsibilities for the U.S. Coast Guard to enforce EPA performance standards for marine pollution control devices (both equipment and management practices) that control discharges incidental to the normal operation of a vessel. These discharges were previously regulated by the EPA under the Vessel General Permit (VGP) process. While the full scope of the U.S. Coast Guard's requirements under VIDA are still being evaluated, U.S. Coast Guard is working closely with the EPA to implement the requirements and ensure environmental protection of U.S. waters. While additional information will be provided as the EPA and U.S. Coast Guard implement the different elements of VIDA, here are some things you might find helpful.

The VGP will not be reissued, and the existing 2013 VGP remains in full force and effect beyond its expiration date until such time that the U.S. Coast Guard finalizes and implements new regulations that VIDA requires. Specifically, the provisions of the 2013 VGP, as currently written, apply until the U.S. Coast Guard publishes implementing regulations for those performance standards. New regulations will be at least as stringent as the current VGP regards to corrective actions, inspections, monitoring, reporting, recordkeeping, and vessel-class specific requirements. New vessels must apply to the EPA for a 2013 VGP until the regulations are finalized.

[2] See https://www.dco.uscg.mil ; Under our organization, Assistant Commandant for Prevention Policy (CG-5P), Commercial Regulations and Standards (CG-5PS), Office of Operating and Environmental Standards. See BW Regs and Policy

[3] For additional information on the EPA's Vessel General Permit Process and VIDA please refer to https://www.epa.gov/npdes/vessels-vgp and https://www.epa.gov/vessels-marinas-and-ports/vessel-incidental-discharge-act-vida or contact EPA via email at vgp@epa.gov.

Chapter 3 – Results of 2025 Ballast Management Exams

Ballast Water Reporting Form

Vessels bound for the Great Lakes from outside the EEZ are required to submit a BWRF before entering Canadian waters and again 24-hours prior to entering the St. Lawrence Seaway. The vessel lists voyage information, ballast water usage/capacity, BWM method, ballast water sources, BWM practices, and proposed discharge location.

Transport Canada has reviewed the process and tools for ballast water reporting by foreign vessels. The Canadian BWRF, reporting procedures and work instructions have been updated and posted on the Ship Safety Bulletin web page. All vessels designed or built to carry ballast water that arrive in Canada must complete the BWRF, no matter their intentions to ballast or de-ballast. It applies to all vessels that are in Canadian waters, including vessels travelling to the Great Lakes.

The web link to the Ship Safety Bulletin # 07/2022: **Instructions for submitting Canadian Ballast Water Reporting Form** (BWRF):

https://tc.canada.ca/en/marine-transportation/marine-safety/ship-safety-bulletins/instructions-submitting-canadian-ballast-water-reporting-form-bwrf-ssb-no-07-2022

100% of BWRFs were screened to assess ballast water history, compliance, and intentions.

Ballast Management Exams

The Joint Ballast Management Exam Program uses a comprehensive approach to vessel inspections. The inspection begins with a detailed review of BWRF, Ballast Water Record Book (BWRB), and Ballast Water Management Plan (BWMP). The crew is interviewed to assess their understanding of the requirements of the vessel's BWMP as well as answer questions on actual practices. Finally, ballast tanks are sampled for salinity and/or the presence of sediment that would suggest a satisfactory management practice was not employed. Most BWMSs are equipped with a filtration stage that minimizes the introduction of sediment in ballast tanks. Thus, the presence of sediment accumulation in the ballast tanks can be caused by improper use of the BWMS and these vessels could be subject to an inspection of the system and records.

For vessels fitted with BWMSs, the U.S. Coast Guard updated its policy regarding ballast water examinations, transitioning from 100% Ballast Water Exchange tank sampling to verification of compliance of the BWMS of the U.S. Coast Guard Approved or Alternate Management System (AMS) method. U.S. Coast Guard Marine Inspectors (MI) and Port State Control Officers (PSCO) will use the following process to determine BWM system requirements by 1) determine a vessel's BWM system compliance date, 2) verify the vessel's BWM method(s), 3) verify required reporting and recordkeeping requirements, and 4) ensure the vessel is in compliance with regulatory requirements in 33 CFR 151, Subparts C and D. The U.S. Coast Guard completed 275 ballast water compliance exams during the 2025 shipping season.

Note: Any tanks the USCG did not physically sample were tested for salinity compliance by one of the partners in the BWWG.

The U.S. Coast Guard's BWM examination is to ensure compliance of the U.S. ballast water regulations and the prevention of the spread of invasive species. To determine regulatory compliance USCG screeners, ascertain whether inbound vessels have operable, approved D-2 BWM systems. If the vessel does not meet these requirements, a comprehensive administrative examination of the vessel's BWMS reporting, record keeping, maintenance, and operations documentation will be conducted. The Captain of the Port may exercise operational controls, restrictions, request additional documentation or implement other measures to gain compliance with ballast water regulations if deficiencies are noted during the administrative examination. Additionally, the U.S. Coast Guard's Investigative Division may take the appropriate level of enforcement option towards the vessel for violations of the ballast water regulations.

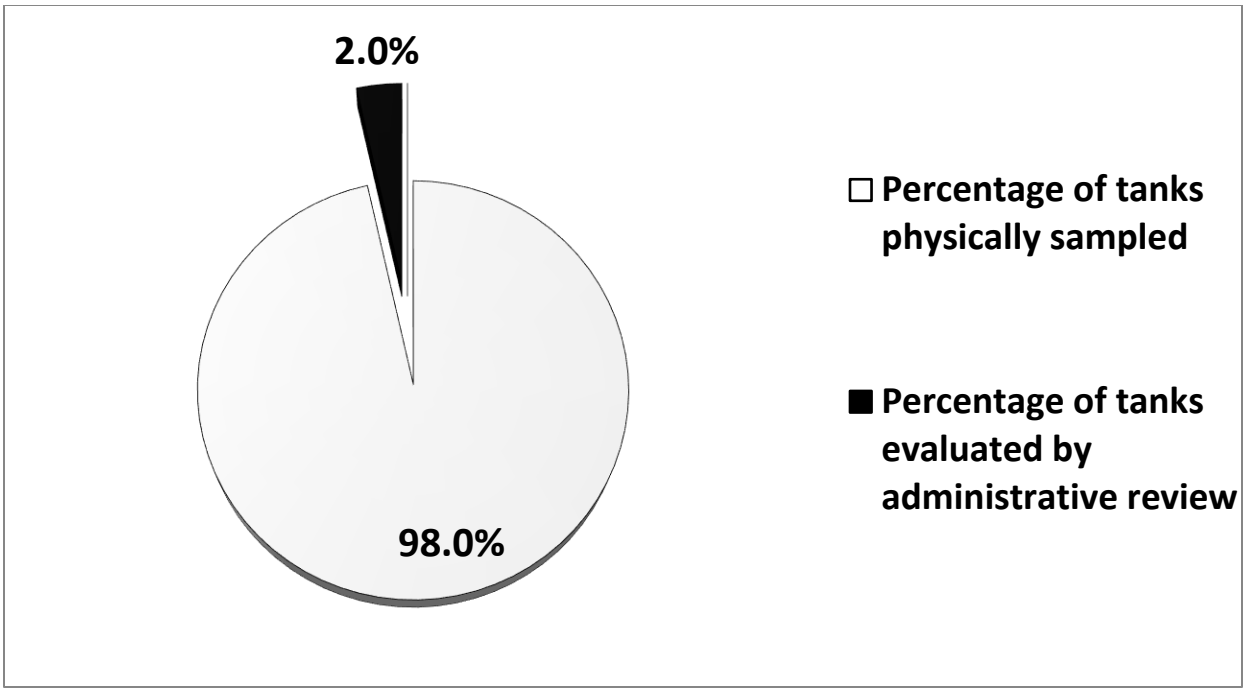
Vessel Inspection Totals

In 2025, 100% of vessels bound for the Great Lakes / Seaway system from outside the EEZ received a BWM exam (on each of the 489 vessel transits). Since 2009, 100% of vessels received a BWM exam.

Ballast Tank Sampling

Ballast water is typically found in wing tanks, double bottom tanks, peak tanks, and cargo holds. Access to these tanks is normally gained through vents, sounding tubes or hatches. Normal procedure calls for the inspector to use the sounding tube or vent for primary access. Manhole covers and hatches may be used if access cannot be gained via a primary means – sounding tubes/pipes. Ballast water salinity is checked using a hand-held salinity refractometer or with an electronic meter. The results of the sampling are captured on a sampling report form created by the BWWG, filled in and then issued to the vessel.

- ***100% of ballast tanks were assessed via sampling or administrative review.***
- ***Total tanks capable of carrying ballast water – 9547***
    - ***Total tanks physically sampled – 9359 (98.0%)***
    - ***Total tanks evaluated by administrative review* – 188 (2.0%)***



*Administrative review means an evaluation of a tank where sampling could not be performed, or the tank was not being used as a ballast tank at the time of the review. This review includes an examination of vessel documents and interviews with vessel officers.

Chapter 4 – Enforcement and Regulatory Action

Regulatory Actions

Regulatory action is limited to the jurisdiction of each agency. Information exchanged between agencies ensures appropriate action is taken to address discrepancies. The various tools commonly used for discrepancies include education, a Letter of Retention, a Letter of Warning, or a fine issued through a Notice of Violation.

Letters of Retention

Vessels that have a low salinity or that choose to retain the contents of their ballast water tanks, in lieu of another management option, are issued a Letter of Retention (LOR). When the vessel departs the St. Lawrence Seaway and the Great-Lakes Basin system, outbound, compliance is verified, and the letter is rescinded, if the identified ballast water tanks are found in compliance to the issued LOR.

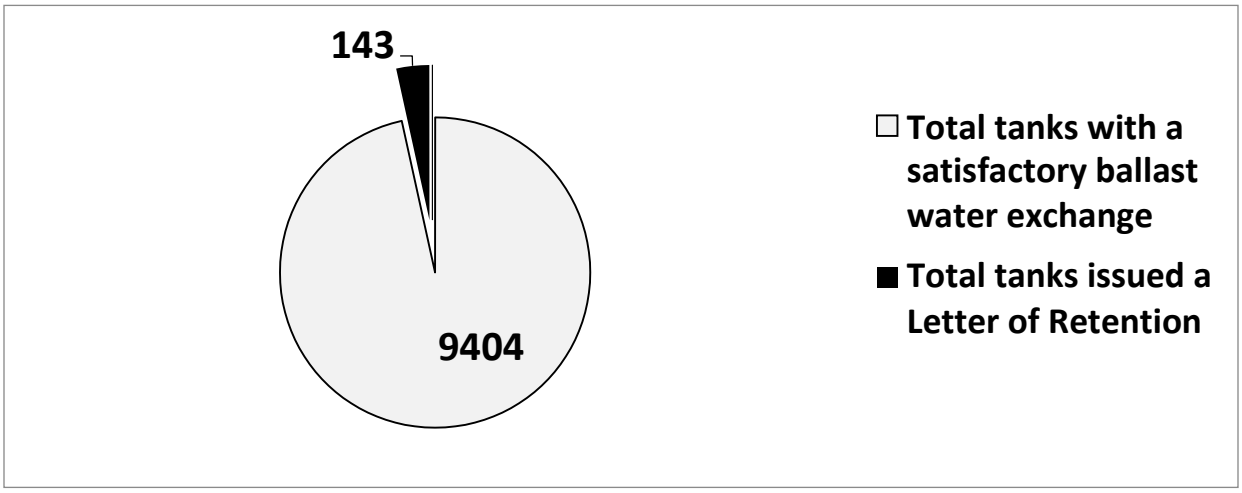
- ***BWWG agencies issued a LOR for 37 vessel transits involving 143 tanks:***
  - ***18 tanks were due to low salinity.***
  - ***125 tanks due to improper reporting, improper management, or not accessible for testing.***
- ***As a result of ballast water tank screening and testing in 2025 no vessel had to pump ballast water to a shore facility.***

Note: In many areas of the Great Lakes Basin, vessels are restricted from discharging sewage, causing vessel operators to temporarily use ballast tanks as holding tanks.

Outbound Verification Exams

Vessel exams for compliance with the LOR are conducted when the vessel is outbound from the Seaway. Documentation is reviewed and relevant tanks sampled to ensure compliance. In 2025, no vessels were found to be in violation of the LOR.

- ***Total tanks capable of carrying ballast water – 9547***
- ***Total tanks with a satisfactory ballast water exchange – 9404***
- ***Total tanks issued a LOR – 143***



Letters of Warning

A Letter of Warning (LOW) is issued when a vessel is found with discrepancies in its ballast water management plan, records, or reports. It is used for minor first-time offenses with a warning of possible assessment of a fine if not corrected.

- **No LOW's were issued in 2025.**

Administrative Monetary Penalties (TCMSS)

In 2025, one vessel received an Administrative Monetary Penalty (AMP).

Notice of Violation (GLS/USCG)

A Notice of Violation imposes a fine on a vessel for failure to comply with regulations. None were issued in 2025.

Form B (USCG)

A Form B (Port State Control Report of Inspection) is issued when a vessel is found with discrepancies in its ballast water management plan, records, or reports. No Form B's were issued in 2025.

Marine Safety Information Bulletin (USCG)

A Marine Safety Information Bulletin is issued by the USCG to vessels that are past their compliance dates for having an installed BWMS. The bulletin outlines the available options for the removal of untreated ballast water, including complete retention, discharge to an onshore facility, or the use of treated water from a U.S. public water system. No Ballast Water related Marine Safety Information Bulletins were issued in 2025

Chapter 5 – Ballast Water Management Systems

BWMS have become a central component of global and binational efforts to prevent the introduction of aquatic invasive species through ballast water discharge. In 2025, 100% of vessels operating outside the EEZ and bound for the Great Lakes were equipped with an approved BWMS. While these systems represent a significant advancement in ballast water management, operational experience has demonstrated that BWMS performance can be affected by environmental conditions, system design limitations, and operational reliability.

Before arrival to the Great Lakes–St. Lawrence Seaway system, BWMSs are used in conjunction with, and not as a replacement for, BWE and SWF, particularly given the freshwater sensitivity of the system. During the BWE, the inspectors will verify if the BWMS was used during the ballast water management process and if the equipment will be available during any ballast operation within the Great Lakes–St. Lawrence Seaway system. If the BWMS is not in service at the time of the inspection, a port state control inspection might be initiated to further investigate the associated action plan and to prevent discharge of untreated ballast water in the Great Lakes–St. Lawrence basin. In 2025, three (3) vessels arrived in the Seaway with BWMSs reported as out of service due to prolonged breakdowns.

CWQ is a very important and significant operational challenge affecting BWMS performance in the Seaway and Great Lakes system. Any bypass of a BWMS due to CWQ is considered a last resort and must include decontamination measures to prevent the spread of aquatic invasive species. In 2025, eight (8) vessels reported BWMS malfunctions or operational limitations attributed to CWQ.

Overall, while BWMSs enhance ballast water management, they do not eliminate the need for BWE, SWF, and rigorous inspection and verification. Continued regulatory oversight, coordinated binational enforcement, and the use of contingency measures ensure that ballast water discharges into the Great Lakes–Seaway system remain compliant and that the risk of aquatic invasive species introduction remains low.

Chapter 6 – Conclusion

The Ballast Water Working Group strives for 100% compliance of the ballast discharge regulations for vessels entering the St. Lawrence Seaway and the Great Lakes. A unified federal agency coordination between Canada and the U.S. in partnership and consultation with the States and Provinces provides a consistent application of the respective regulations and improves vessel compliance and operation. The current effectiveness of ballast water exchange/saltwater flushing, the installation of BWMSs and the BWWG's detailed pre-screening efforts to support aggressive enforcement of current regulations have produced a high compliance rate with industry and are an effective means of managing ballast on the Seaway / Great Lakes system.

The St. Lawrence Seaway is uniquely situated to prevent further introduction of invasive species. With a central inspection point, situated outside of the Lakes, the ballast water tanks of all inbound vessels are inspected by either Canada or the United States as part of our bi-national joint vessel inspection program under the BWWG. Ballast inspections have been regularly conducted pre-Seaway entry since 2006. These inspections have been successful in enhancing the operational and environmental protection of the St. Lawrence Seaway /Great Lakes system. All four agencies work cooperatively in a binational manner to address issues as they arise. Saltwater flushing of empty ballast water tanks (or those containing only residual water) is required through the Seaway NOBOB regulation for vessels transiting the U.S. waters of the Seaway and is required by Transport Canada before discharging ballast water in freshwater areas under Canadian jurisdiction. Saltwater flushing remains effective in the prevention against aquatic invasive species.

The BWWG coordinates and manages implementation of three sets of Ballast Water Regulations, providing effective control against the introduction of aquatic invasive species. The BWWG will continue its work to deter the introduction of aquatic invasive species in the Great Lakes using regulatory, technological, and management-based protocols. The agencies take the threat of aquatic invasive species very seriously and are dedicated to combating the problem.

Chapter 7 – Contributions

Members of the Ballast Water Working Group

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For further information on the Great Lakes Ballast Management Program, please visit the following:

- The Seaway website: https://greatlakes-seaway.com/en/commercial-shipping/transiting-the-seaway/ballast-water
- The NBIC website: https://nbic.si.edu
- The USCG website: https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Commercial-Regulations-standards-CG-5PS/Office-of-Operating-and-Environmental-Standards/Environmental-Standards/
- Transport Canada's website: http://www.tc.gc.ca/eng/marine-menu.htm
- The US Environmental Protection Agency website: http://water.epa.gov/polwaste/npdes/vessels/upload/vgp_permit2013.pdf

Appendix

A Historical Review:

1989:

In response to calls from the International Joint Commission and the Great Lakes Fishery Commission over the discovery of the Ruffe in Lake Superior, Canada established voluntary guidelines requesting all vessels entering the freshwaters of the St Lawrence River and the Great Lakes to exchange their ballast. The use of ballast water exchange was based on the effectiveness of Canadian studies undertaken by Environment Canada to protect the aquaculture facilities in the Magdalen Islands.

Early 1990's to 1997:

The U.S. Coast Guard established regulations based on the Canadian Guideline in 1993 under the authority of the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA). Ballast Water on Board (BOB) vessels are vessels that declare they have ballast tanks that contain ballast water. The U.S. Coast Guard started testing BOB vessels on a voluntary basis in 1991 and on a mandatory basis in 1993. The inspection process included examining vessels between the two U.S. locks in Massena (Eisenhower and Snell) and testing the salinity of the ballast water to ensure salinity was at least 30 ppt. Ballast with a salinity of at least 30 ppt is considered evidence that the tanks have been adequately exchanged with seawater, providing a reasonably harsh environment for any remaining freshwater organisms.

1997 to Present:

The U.S. Coast Guard, Transport Canada and the Seaway Corporations developed a joint inspection program called the "Enhanced Seaway Inspection" (ESI) for foreign flag vessels, which covered applicable safety and environmental equipment onboard vessels and is conducted prior to the vessel's initial transit of the Great Lakes Seaway system.

During the vessel's ESI, one or more of the BWWG member agencies conducts a ballast tank inspection to ensure compliance with U.S., Canadian, and Seaway ballast regulations. The vessel's ballast tanks are sampled to verify compliance with all BWWG members' regulations.

2002 St. Lawrence Seaway Requirement:

The U.S. and Canadian Seaways instituted a requirement that all foreign flag vessels entering the Great Lakes Seaway system comply with the Best Management Practices of the Shipping Federation of Canada (28 September-2000)[4]. In addition, vessels that do not operate beyond the EEZ but do operate within the Great Lakes and Seaway (i.e., lakers) must agree to comply with the Voluntary Management Practices to Reduce the Transfer of Aquatic Nuisance Species within the Great Lakes by U.S. and Canadian Domestic Shipping, dated January 26, 2001. These voluntary management practices require vessels to agree to regular inspections of ballast tanks and regular removal of sediment.

[4] https://greatlakes-seaway.com/wp-content/uploads/2019/10/BW-CodeOfBestPractices.pdf

2004 U.S. Coast Guard National Mandatory Ballast Management Requirements:

This final rule changed the national voluntary BWM program to a mandatory one, requiring all vessels equipped with ballast water tanks and bound for ports or places of the United States to conduct a mid-ocean BWE, retain their ballast water onboard, or use an alternative environmentally sound BWM method approved by the Coast Guard. Penalties were established for failure to comply with the reporting requirements located in 33 CFR part 151 and the applicability of the reporting and recordkeeping requirements were broadened to include most vessels bound for ports or places of the United States.

2005 U.S. Coast Guard NOBOB Best Management Practices:

Because of the risks identified in National Oceanic and Atmospheric Administration (NOAA) and Great Lakes Environmental Research Laboratory (NOAA/GLERL) study published in April 2005, the U.S. Coast Guard and Transport Canada Marine Safety inspectors began examining NOBOB vessels in conjunction with the ESI in May of 2005. In August 2005, the U.S. Coast Guard issued its "NOBOB Best Management Practices". This policy recommends vessels conduct mid-ocean ballast water exchange whenever possible and if not possible, conduct mid-ocean saltwater flushing. The goal of these practices is to raise the salinity level of residual, un-pumpable ballast above 30 ppt. The increase in salinity reduces the likelihood of introducing aquatic nuisance species to the Great Lakes when the tanks are ballasted with Great Lakes fresh water at one port and de-ballasted in another Great Lakes port.

2006 Canadian Regulations:

Canada promulgated the Ballast Water Control and Management Regulations under the Canada Shipping Act in June of 2006. The regulations enact the IMO D1 requirements for ballast water exchange for any vessel entering waters under Canadian jurisdiction from outside Canada's EEZ and include both trans-oceanic and coastal voyages (BOB and NOBOB).

Additionally, vessels coming from outside waters under Canadian jurisdiction declaring no ballast on board must ensure that the residual ballast water in tanks has been exposed to salinity conditions equivalent to ballast water exchange by complying with one of the following options:

- The residual ballast water came from ballast water that was properly exchanged at sea.
- The residual ballast water meets the international standard for treated ballast water.
- The vessel complies with sections 1, 2, 6 and 7 of the Code of Best Practices for Ballast Water Management of the Shipping Federation of Canada dated September 28, 2000.
- The vessel conducted a saltwater flushing at least 200 nm from shore.

Coastal Navigation information for either BOB or NOBOB: Ballast water that has been taken on board the vessel, outside of waters of Canadian jurisdiction, on Coastal or Non-Transoceanic Navigation shall be exchanged to meet the prescriptions of Canadian BWCMR section 7-which means that a Mandatory Deviation if required to meet minimum depth of 500 meters – In winter months Section 6. (3) may apply under exceptional circumstances.

2006 Ballast Water Working Group (BWWG):

The Great Lakes BWWG was formed in January 2006. The mission of the BWWG is to harmonize ballast water management efforts between the U.S. Coast Guard, Transport Canada-Marine Safety, Saint Lawrence Seaway Development Corporation, and the St. Lawrence Seaway Management Corporation. The BWWG coordinates enforcement and compliance efforts for reducing aquatic nuisance species invasions via ballast water and residuals in the Seaway and Great Lakes.

2008 St. Lawrence Seaway NOBOB Requirement:

The U.S. and Canadian St. Lawrence Seaway agencies enacted new requirements effective at the start of the 2008 Navigation Season that requires vessels to conduct saltwater flushing of their ballast tanks that contain residual amounts of ballast water and/or sediment in an area 200 nm from any shore before entering waters of the Seaway. 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.

All four agencies committed resources to accomplishing the additional work required to carry out the increased tank inspection program. The overall goal of the 2008 inspection program was to inspect each vessel entering the system from outside the EEZ on every transit and increase the number of both BOB and NOBOB tanks tested.

2009 Coast Guard Proposed Ballast Water Discharge Standard Rulemaking:

The Coast Guard's 2009 Notice of Proposed Rulemaking proposed a two-phase standard for the allowable concentration of living organisms in vessels' ballast water discharged in U.S. waters.

2010 Canada Ratifies the Ballast Water Management Convention:

At the 60th meeting of IMO's Marine Environmental Protection Committee in March 2010, Canada deposited its instrument of ratification for the International Convention for the Control and Management of Ships' Ballast Water and Sediments, becoming the 27th country to ratify the convention.

2012 Coast Guard Final Rule on Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters

On March 23, 2012, the Coast Guard established a ballast water discharge standard for U.S. waters and a Coast Guard type-approval process for ballast water management systems. This process established requirements for designing, testing, installing, and operating equipment on board vessels.

The Final Rule included an implementation schedule based upon a vessel's construction date and ballast capacity. The earliest implementation date for a BWMS was December 1, 2013.

The Final Rule also included a bridging strategy provision for approval of alternate management systems, which allows for foreign type-approved systems with IMO approval to be installed prior to the vessel's compliance date for a period no longer than five years from the date they would otherwise be required to comply with the ballast water discharge standard.

Effective June 21, 2012, a non-recreational vessel equipped with ballast tanks entering Snell Lock from outside the U.S. EEZ must use one of the following ballast water management practices:

- carry out BWE unless the vessel is required to employ a BWMS,
- retain ballast on board,
- install and operate an approved BWMS, or
- use only water from a U.S. public water system as ballast water.

The ballast water discharge standard matches that adopted by the International Maritime Organization (IMO) in 2004 and further established by seven U.S. states. The numerical limits set by the discharge standard are supported by reports from the National Academy of Sciences and the Environmental Protection Agency Science Advisory Board in 2011 as the most stringent that vessels can practicably implement and that the Coast Guard can enforce at this time.

2013 Environmental Protection Agency Vessel General Permit

The U.S. Environmental Protection Agency (EPA) issued a final vessel general permit regulating discharges from commercial vessels, including ballast water, to protect the nation's waters from ship-borne pollutants and reduce invasive species in U.S. waters.

The final vessel general permit covers commercial vessels greater than 79 feet in length, excluding military and recreational vessels, and replaced the 2008 vessel general permit that expired on Dec. 19, 2013.

This permit regulates 27 specific discharge categories, and will also provide improvements to the efficiency of the permit process, and clarify discharge requirements by the following:

- Reduce the risk of invasive species. The permit includes a numeric discharge standard limiting the release of non-indigenous invasive species in ballast water. The permit also contains additional environmental protection for the Great Lakes, which have suffered disproportionate impacts from invasive species, aligning federal standards with many Great Lakes states by requiring certain vessels to take additional precautions to reduce the risk of introducing new invasive species to U.S. waters.
- Reduce administrative burden for vessel owners and operators. The permit will eliminate duplicative reporting requirements, expand electronic recordkeeping opportunities, and reduce self-inspection frequency for vessels that are out of service for extended periods.

The new discharge standards are supported by independent studies by EPA's science advisory board and the National Research Council and are consistent with those contained in the International Maritime Organization's 2004 Ballast Water Convention.[5]

[5] https://archive.epa.gov/epapages/newsroom_archive/newsreleases/57c36a4a03d6503485257b3c0064f927.html

2018 Environmental Protection Agency Vessel Incidental Discharge Act (VIDA)

The Vessel Incidental Discharge Act (VIDA)[6] was signed into law on Dec. 4, 2018, as Title IX of the Frank LoBiondo Coast Guard Authorization Act of 2018 and enacted as a Final Rule by the U.S. EPA on November 8, 2024. VIDA establishes new responsibilities for the Coast Guard to enforce U.S. EPA performance standards for marine pollution control devices (both equipment and management practices) that control discharges incidental to the normal operation of a vessel. These discharges were previously regulated by the EPA under the Vessel General Permit (VGP) process.

VIDA required EPA to promulgate Federal standards of performance for marine pollution control devices and best management practices, and to control or abate any discharge incidental to the normal operation of a vessel, then, VIDA required the Coast Guard to publish implementing regulations no later than two years after the EPA publishes new or revised standards of performance.

2018 USCG Navigation and Vessel Inspection Circular

In January 2018, the U.S. Coast Guard released Navigation and Vessel Inspection Circular 01-18 (NVIC 01-18)[7], that eliminated salinity testing as a routine method of compliance verification due to the safety hazards of handling treated ballast water and solely testing ballast water did not examine the totality of the vessel's Ballast Water Management System. Therefore, salinity testing alone did not align with current U.S. Coast Guard regulations and policy.

Following the release of NVIC-01-18, the U.S. Coast Guard began reviewing field-operating procedures performed throughout their Area of Responsibility including by Marine Safety Detachment (MSD) Massena to ensure alignment with current U.S. Coast Guard National Ballast Water Management policies and procedures.

2019 Canada proposes new Ballast Water Regulations

Transport Canada published the proposed Ballast Water Regulations in the Canada Gazette, Part I[8], on June 8, 2019. Developed following extensive dialogue with industry, scientists, engineers and international partners, the proposed regulations would strengthen existing rules and further reduce the risks to Canada's environment and economy associated with the introduction and spread of aquatic invasive species through ballast water. The proposed regulations would replace Canada's existing Ballast Water Control and Management Regulations and would address Canada's obligations under the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

2020 USCG Marine Safety Information Bulletin

During the 2020 season, the U.S. Coast Guard transitioned from issuing Letters of Retention on specific vessel ballast tanks, to issuing a U.S. Coast Guard Marine Safety Information Bulletin to the entire vessel that outlines Ballast Water Discharge requirements and standards for the waters of the Great Lakes.

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[6] https://www.epa.gov/vessels-marinas-and-ports/vessel-incidental-discharge-act-vida

[7] https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/5ps/NVIC/2018/NVIC-01_18.pdf

[8] http://www.gazette.gc.ca/rp-pr/p1/2019/2019-06-08/html/reg4-eng.html

2021 New Canadian Ballast Water Regulations SOR/2021-120[9]

On June 23, 2021, Transport Canada announced the publication and coming into force of the new Ballast Water Regulations (the Regulations) in Part II of the Canada Gazette, to strengthen existing rules for vessels in Canadian waters and to Canadian vessels anywhere in the world.

The Regulations repealed Canada's Ballast Water Control and Management Regulations SOR/2011-237 and replaced them.

The regulations address Canada's obligations under the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (the Convention) which came into force on September 8, 2017. This further protects Canadian waters from the introduction and spread of aquatic invasive species and pathogens by Canadian and foreign vessels.

2020-2022 COVID-19 Adaptive Measures

In 2020, with the rise of the novel coronavirus (COVID-19) the U.S. Coast Guard was unable to transit to Montreal, Canada due to border restrictions and conducted Ballast Water Compliance Exams administratively. Despite the COVID-19 pandemic, both the Seaways and Transport Canada agreed that physical tank testing of 100% of the ships entering the Great Lakes should be maintained. To ensure the approach adopted at the 2019 BWWG meeting was met in 2020 both the Seaways and Transport Canada had to quickly adjust and design a new ship targeting matrix to reflect changes in the targeted vessels and incorporate all partner agencies COVID-19 protocols. The three agencies coordinated to ensure that all ships had their examinations conducted at a location that facilitated the ship's transit whether at lower river ports east of Montreal, the Port of Montreal, or during the Seaway transits at the locks.

The newly formed COVID-19 protocols in combination with the shipping industries COVID-19 protocols greatly helped in reducing the chance of exposure to Inspectors and the potential spread of the virus to the ship's crew, while not adversely affecting the ships entering the Seaway. This approach included personal protective equipment, social distancing (where possible), and administratively checking ballast tanks that were located inside the ship's accommodations. In addition, the BWWG still conducted its meetings virtually throughout the pandemic.

2024 Transport Canada updated the TP 13617 - List of Canada's designated alternate ballast water exchange area and fresh waters [10]

This document lists all of Canada's designated alternate ballast water exchange areas and the fresh waters referred to in the Ballast Water Regulations. The new version (05/2024) includes map of Fresh Water areas and Critical Habitat for Aquatic Species at Risk.

2024 End of implementation period for Ballast Water Management System and compliance with D-2 Ballast Water Performance Standard

[9] https://canadagazette.gc.ca/rp-pr/p2/2021/2021-06-23/html/sor-dors120-eng.html

[10] https://tc.canada.ca/en/marine-transportation/marine-safety/list-canada-s-designated-alternate-ballast-water-exchange-area-fresh-waters-tp-13617e-05-2024

According to the IMO International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004, which entered into force on 8 September 2017, require ships to install on a phase-in approach a BWMS on or before the deadline of 8 September 2024 to meet the D-2 performance standard.