



Government
of Canada Gouvernement
du Canada
Embassy
of Canada Ambassade
du Canada

501 Pennsylvania Avenue NW
Washington, D.C. 20001

December 14th, 2023

United States Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

RE: Docket No. EPA-H1-OW-2019-0482 / Comments on Supplemental Notice to the proposed Vessel Incidental Discharge National Standards of Performance

To the United States Environmental Protection Agency,

Canada appreciates the invitation to provide comment on the October 18, 2023, Supplemental Notice to the proposed Environmental Protection Agency (EPA) Vessel Incidental Discharge National Standards of Performance (Docket No. EPA-HQ-OW-2019-0482). These comments focus on standards for ballast water relating to the Great Lakes, in keeping with the long history of co-operation between our two countries on this subject.

Canada values its enduring partnership with the United States across many shared priorities, including in preserving and restoring our shared Great Lakes environment. On March 24, 2023, the United States and Canada recognized the importance of responsible stewardship of the shared Great Lakes, the world's largest freshwater ecosystem and a shared national treasure. The United States and Canada have both made recent and historic public investments to uphold this obligation.¹

Beyond joint environmental protection, sustaining a vibrant Great Lakes marine trade is also in our shared interest, as marine transportation directly supports over 80,000 jobs and almost \$27 billion in annual business revenue in our two countries.² This trade is served by American, Canadian and international vessels that comply with both nations' regulatory requirements. Canada remains committed to providing this industry with a level playing field, which best serves both economies. In light of this, Canada would prefer that both countries continue to prioritize a fair and compatible approach to the

¹ ["Prime Minister Trudeau and President Joe Biden Joint Statement"](#) Prime Minister of Canada, Justin Trudeau March 24, 2024, Ottawa, Ontario.

² Martin and Associates. Economic Impacts of Maritime Shipping in the Great Lakes – St. Lawrence Region, July 2023, p.8, sourced at: https://greatlakes-seaway.com/wp-content/uploads/2023/07/eco_impact_full_2023_en.pdf

regulation of all vessels operating on the Great Lakes that aligns to the extent feasible with generally accepted international agreements.

In this respect, Canada strongly supports the EPA's recognition of binational consistency as a stated regulatory objective, as well as a relevant factor when establishing best available technology. A coordinated approach is the best way to address the environmental and economic risks posed by aquatic invasive species on the Great Lakes, in accordance with the Great Lakes Water Quality Agreement.

Canada remains concerned that our joint indicator for the impact of invasive species in this region is "poor and unchanging", notably due in part to the broader spread of species already introduced.³ The U.S. Coast Guard (USCG) estimates that the invasion of zebra mussels directly costs the United States roughly \$1 billion per year.⁴ Another invasive species, the ruffe, causes over \$300 million in annual damages to Great Lakes commercial and recreational fisheries.⁴

Canada welcomes the inclusion of a ballast water management system (BWMS) equipment standard for New Lakers, which aligns with Canada's Great Lakes standard. Scientific research supports the view that the installation, operation, and maintenance of approved BWMS represents the best path towards reducing the risk posed by aquatic invasive species.

However, this EPA proposal defers regulation of existing Great Lakes vessels, which would not mitigate their current risks or yield concrete environmental benefits in the near term. Canada would prefer that the EPA at this time regulate Lakers built in or after 2009—as Canada has done in alignment with current EPA rules. Maintaining and implementing this reasonable, feasible requirement would advance environmental protection and binational consistency in shared waters.

Canada agrees with the EPA that vessels built before 2009 could benefit from additional time and research and development outputs before installing BWMS. Canada is providing until 2030 for these vessels to comply and urges the EPA to work towards a similar timeframe. Canada appreciated the opportunity to share comments on the United States' *Great Lakes and Lake Champlain Invasive Species Program's* objectives and approaches (see Annex). Canada values our coordinated work on science and R+D under the GLWQA and looks forward to continued collaboration.

³ The Governments of Canada and the U.S. State of the Great Lakes 2022 Report, sourced at: [State of the Great Lakes - 2022 Report \(binational.net\)](#)

⁴ U.S. Coast Guard. 2012. Regulatory Analysis and Final Regulatory Flexibility Analysis: Final Rule, Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. waters. EPA-HQ-OW-2019-0482-0040. Sourced at: <https://www.regulations.gov/document?D=EPA-HQ-OW-2016-0351-0179>

For vessels that do not operate exclusively on the Great Lakes and St. Lawrence River, Canada supports the EPA in re-affirming its previously proposed performance standard, which aligns with that of the *International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004*—to which 95 countries representing 92.5% of global tonnage have acceded. Canada also supports the inclusion of best management practices for the uptake of ballast water within vessels' ballast water management plans.

Please find Canada's detailed comments below.

1. Binational Compatibility

Canada is proud to work jointly with the U.S. in stewarding our shared Great Lakes. Doing so is in our mutual interest in sustaining binational trade within our shared \$6-trillion Great Lakes economy. Not only does our shared environment benefit when we take compatible approaches to addressing risks, so too do our interlinked supply chains when compatible regulatory approaches reflect international rules.

For these reasons, Canada welcomes the EPA's consideration of binational consistency as a statutory factor under the Vessel Incidental Discharge Act⁵, which also aligns with our two countries' long-standing collaboration under the Great Lakes Water Quality Agreement (GLWQA).

As noted by the EPA, Canada's *Ballast Water Regulations* implement its obligations as a Party to the *International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004*, including on the Great Lakes.⁶ The Convention is a widely-accepted international agreement with 95 adhering parties representing 92.5% of the global shipping tonnage. As noted by the EPA, while the U.S. is not a party to the Convention, the U.S. participated actively in standard-setting discussions during the Convention's development.⁷

Regulatory compatibility and consistency with international approaches supports the Canadian, U.S. and international vessels that together carry our countries' domestic, binational and international trade on the Great Lakes. The EPA has previously noted that U.S. vessels must meet Convention requirements when operating in waters of a party,

⁵ U.S. Environmental Protection Agency, "Vessel Incidental Discharge National Standards of Performance: Supplemental Notice of proposed rulemaking", Federal Register, October 18, 2023, p. 71802. EPA 88 FR 71788

⁶ U.S. Environmental Protection Agency, "Vessel Incidental Discharge National Standards of Performance: Supplemental Notice of proposed rulemaking", Federal Register, October 18, 2023, p. 71799. EPA 88 FR 71788

⁷ [Environmental Protection Agency \(2020\) Vessel Incidental Discharge National Standards of Performance, p.67837.](#)

notably in Canada.⁷ Canada agrees that while U.S. requirements do not have to be identical to the Convention, it is important that, to the extent possible, U.S. requirements do not conflict with international obligations for vessels of Convention parties.⁷

Despite operating under different obligations and mandates from the EPA's, Canada has sought to align its regime with U.S. rules where feasible. Notably, Canada selected EPA's 2009 description of New Lakers⁸ in requiring newer vessels to use Ballast Water Management Systems (BWMS) by the Convention compliance timeline of September 8, 2024. Recognizing that vessels built before 2009 reasonably needed more time to arrange retrofits, Canada provided these vessels with additional time until 2030, allowing extra time for binational alignment given the statutory review provisions of VIDA.

Additionally, Canada's rules recognize that it would be more appropriate for the U.S. to regulate voyages between its ports, even if it involves transiting through Canadian waters without loading or discharging ballast water, other than for safety reasons. Canada has also taken other opportunities to align with U.S. approaches, such as allowing U.S. public or commercial potable water to be discharged without further management. In the following sections, Canada makes note of opportunities to further our cooperation towards protection of our shared Great Lakes waters and economy. We look forward to building on our shared efforts to date.

2. Standard

Canada appreciates the new data provided by the U.S. Coast Guard and the substantial analysis provided by the Environmental Protection Agency (EPA) in the Supplementary Notice of Proposed Rulemaking regarding numerical discharge limits for BWMS. Canada agrees with the analysis and its conclusions.

As a party to the Convention, Canada encourages the EPA to align U.S. national standards with the performance standard of the Convention's Regulation D-2, except for vessels loading ballast water on the Great Lakes and St. Lawrence River as further described in section 5, below. As noted in the supplementary notice, a substantial number of vessels calling at U.S. ports are regulated under the Convention. These vessels are currently installing environmentally protective BWMS. Establishing a new standard would require BWMS to be retested, resulting in potential new requirements and modifications.

Although BWMS may be seen to reduce organism concentrations to around 6 organisms per volume of interest during carefully controlled type approval testing—as compared to the current numeric standard of 10 organisms per volume of interest for both

⁸ U.S. Environmental Protection Agency “[2013 Final Issuance of National Pollutant Discharge Elimination \(NPDES\) Vessel General Permit \(VGP\) for Discharges Incidental to the Normal Operational of Vessels Fact Sheet](#)”, EPA, 2013; p. 102. EPA-HQ-OW-2019-0482-0406.

large and small size classes—type approval conditions may not be reflective of system performance in real-world conditions. Canadian data shows that type approved BWMS may not always meet numeric performance standards where the organism concentration in the uptake water is high. However, BWMS are reducing the number of organisms in ballast water by over 98%, which substantially reduces the risks.⁹ Recognizing that BWMS performance depends on multiple factors, some of which are outside the shipowner's control, setting a more stringent standard would compound compliance challenges with this new technology.

Even if there were data to support the view that in-service BWMS could reliably discharge 6 organisms per volume of interest, strengthening the standard accordingly would not necessarily provide greater environmental protection. Although a rule of thumb states that the discharge of fewer organisms is more protective, in practice the specific threshold needed to establish a reproducing population of organisms in a suitable environment is species-specific and not feasible to measure.¹⁰ In Canada's view the difference between 6 and 10 organisms per unit volume is not material. Such a change to the standard would not result in significant improvement to environmental protection and could limit the number of available BWMS models on the market.¹¹

3. Best Management Practices for Ballast Water Uptake

Canada is in agreement with the EPA's proposed standards that would require vessels to maintain vessel-specific plans to adhere to best management practices in ballast water uptake.

Uptake practices have been a standard part of the international ballast water management regime since voluntary international ballast water guidelines were adopted by the International Maritime Organization in 1997.¹² The Convention requires vessels to reduce the risk of their uptake in its Article 2.8, and in its current guidelines.¹³

Canada therefore supports the EPA's revised proposal to require vessels to include these best practices for uptake in their ballast water management plans and implement these practices. However, Canada would emphasize that such management

⁹ Bailey, S. A., Casas-Monroy, O., Kydd, J., Ogilvie, D., Rozon, R. M., and Yardley, S. 2023. Efficacy of ballast water management systems operating within the Great Lakes and St. Lawrence River (2017 – 2022). Can. Data Rep. Fish. Aquat. Sci. 1376: vii + 24 p. EPA-HQ-OW-2019-0482-0891

¹⁰ Boyd, L., Hutchison, E., and Tuttle 2011. *Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13184>. EPA-HQ-OW-2019-0482-0861.

¹¹ U.S Environmental Protection Agency, “Vessel Incidental Discharge National Standards of Performance: Supplemental Notice of proposed rulemaking”, Federal Register, October 18, 2023, p. 71794. EPA 88 FR 71788

¹² International Maritime Organization, “[Resolution A.868\(20\) adopted on 27 November 1997: Guidelines for the Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens](#)” The IMO Library, December 01, 1997.

¹³ Section 1.1 of Part A of the G4 Guidelines

practices should not be considered equivalent to a performance standard or the use of a BWMS in limiting the number of organisms discharged in ballast water or providing environmental protection. This is because they do not reliably reduce the organism concentrations in ballast water to the same degree, and remaining organisms transported may still establish a reproducing population.

4. Risks Posed by Great Lakes Vessels

Canada encourages the EPA to require Great Lakes vessels to use BWMS because effective ballast water management for Lakers on our shared Great Lakes is vital. Canadian and U.S. studies are clear that Great Lakes vessels pose a risk of spreading non-native species throughout the Great Lakes.^{14,15,16,17} This risk is high when compared to the risks posed to the Great Lakes by international vessels (which manage ballast water before arrival and continue to do so while operating in the Great Lakes).^{18,19} Ballast water samples confirm that non-native species are presently being moved by Great Lakes vessels.^{14,17,20}

This unintended movement remains of concern as non-native species are still being spread between Great Lakes ecosystems and across natural boundaries. Canada and the U.S. have jointly concluded that an estimated 187 non-indigenous species are established in the Great Lakes, of which only 20% have spread to all five lakes while 80% still present a risk of inter-lake spread.²¹ This suggests there are nearly 150 species that remain a threat for further spread. There were 30 instances between 2008 to 2019 in which a non-indigenous species, already present in a Great Lake, was introduced to a new

¹⁴ Briski E, CJ Wiley, and SA Bailey. 2012. Role of domestic shipping in the introduction or secondary spread of nonindigenous species: biological invasions within the Laurentian Great Lakes. *Journal of Applied Ecology* 49: 1124-1130.

¹⁵ Rup MP, SA Bailey, CJ Wiley, MS Minton, AW Miller, GM Ruiz and HJ MacIsaac. 2010. Domestic ballast operations on the Great Lakes: Potential importance of Lakers as a vector for introduction and spread of nonindigenous species. *Canadian Journal of Fisheries and Aquatic Sciences* 67:256-268. EPA-HQ-OW-2019-0482-0878.

¹⁶ Environment and Climate Change Canada and the U.S. Environmental Protection Agency. 2017. State of the Great Lakes 2017 Technical Report. Cat No. En161- 3/1E-PDF. EPA 905-R-17-001. Available at binational.net.

¹⁷ Cangelosi, Allegra et al. May 2018. Great Waters Research Collaborative: Great Lakes Ship Ballast Monitoring Project Technical Report. EPA-HQ-OW-2019-0482-0513.

¹⁸ DFO. 2014. Science Advice from the National Risk Assessment for Ballast Water Introductions of Aquatic Nonindigenous Species to Canada. DFO Can.

¹⁹ Casas-Monroy, O., Linley, R.D., Adams, J.K., Chan, F.T., Drake, D.A.R., and Bailey, S.A. 2014. Research Document from the National Risk Assessment for Introduction of Aquatic Nonindigenous Species to Canada. DFO Can. Sci. Advis. Sec. Res. Doc. 2013/128. EPA-HQ-OW-2019-0482-0866.

²⁰ Adebayo AA, A Zhan, SA Bailey and HJ MacIsaac. 2014. Domestic ships as a potential pathway of nonindigenous species from the St. Lawrence River to the Great Lakes. *Biological Invasions* 16: 793-801.

²¹ Environment and Climate Change Canada and the U.S. Environmental Protection Agency. 2021. State of the Great Lakes 2019 Technical Report. Cat No. En161- 3/1E-PDF. EPA 905-R-20-044. Available at binational.net.

Great Lake and became established in its waters.²² Canada considers the ballast water of Lakers to be the highest-risk vector for the spread of non-indigenous species within the Great Lakes region because of the large volume of water moved²³ and the confirmation through sampling that non-indigenous species are transported in this water.^{9,24}

Great Lakes vessels are also likely to move new species introduced into the region in the future, regardless of whether the initial introduction occurs through ballast water or another vector.⁹ In Canada's view, a protective regulatory approach is needed and is supported by predictions that unmanaged Great Lakes ballast water could spread a new species through the basin in as little as ten years²⁵—faster than regulators and vessel owners could react to stop it.

5. Rules for New Lakers

Equipment standard

Given the need to regulate Great Lakes vessels and the importance of binational compatibility, Canada therefore strongly supports the EPA's proposal to adopt an equipment-based standard to ballast water management for the Great Lakes. Doing so would be compatible with the approach Canada adopted in its 2021 *Ballast Water Regulations* following almost a decade of consultations with vessel owners, scientists, engineers, the U.S., and international partners. EPA's proposed standard could materially address these risks in the U.S. with commercially available equipment. Scientific research shows that the use of a BWMS reduces the number of living organisms in ballast water by at least 98% at current levels of equipment performance—corresponding to an 83% reduction in the spread of invasive species if used by all Lakers.^{9,26} The efficacy of these systems is expected to improve as operators gain experience with greater use, reinforcing the benefits of establishing a best available equipment standard now compared to waiting for improved technology.

²² The State of the Great Lakes 2019 Technical Report identifies that during this period, 11 new species were introduced into Lake Superior; 5 into Lake Michigan; 7 into Lake Huron; 4 into Lake Erie; and 3 into Lake Ontario (SOGL 2019, p. 424-425).

²³ DFO. 2019. The risks of spreading aquatic invasive species to Canada by moving unmanaged ballast water from Canada to the U.S. within the Great Lakes region. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/030. EPA-HQ-OW-2019-0482-0871.

²⁴ Bailey, S.A., Chan, F., Ellis, S.M., Bronnenhuber, J.E., Bradie, J.N. and Simard, N. 2012. Risk assessment for ship-mediated introductions of aquatic nonindigenous species to the Great Lakes and freshwater St. Lawrence River. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/104. vi + 224 p. EPA-HQ-OW-2019-0482-0383.

²⁵ Chenery, E. S., D. A. R. Drake, and N. E. Mandrak. 2020. Reducing uncertainty in species management: forecasting secondary spread with expert opinion and mechanistic models. *Ecosphere* 11(4):e03011. 10.1002/ecs2.3011.

²⁶ DFO. 2020. Additional Analyses of Ballast Water Management Scenarios to Reduce the Establishment of Harmful Aquatic Species Across Canada and the Great Lakes. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/053.

The approach also provides regulatory certainty for vessels that face technical and operational challenges in using BWMS in the Great Lakes region. For example, Lakers need to rapidly treat the region's cold, fresh waters that are sometimes mixed with sediment and a high number of organisms. Canada's experience is that such operational challenges are becoming more manageable as experience is gained with BWMS. Transport Canada is working with industry through the Ballast Water Innovation Program (see below) to optimize BWMS for remaining challenges, focusing on certain seasons and locations, which also occur in other regions around the world.²⁷

Canada is supportive of the EPA's proposal for an equipment standard for New Lakers, which would be compatible with Canada's approach. Compatible binational regulatory approaches to ballast water management, using technology that scientific research has shown to be effective, represents an important step forward in mitigating the spread of aquatic invasive species – a significant threat to the health of our shared Great Lakes.

Definition of New Laker

The environmental and economic benefits of the EPA's proposed standard will depend on the number of vessels to which it is applied. As such, Canada agrees with regulating future vessels, but does not agree with the EPA's proposal to roll back requirements in the 2013 Vessel General Permit (VGP) for Lakers built in or after 2009.²⁸ Canada supports the EPA maintaining requirements for these vessels in the form of the proposed equipment standard. Canada regulated these vessels with a view to aligning with the EPA's 2013 VGP and taking account of the Vessel Incidental Discharge Act's (VIDA) provision requiring the EPA to not revise a standard of performance to be less stringent than an applicable existing requirement.²⁹

Applying the equipment standard to post-2009 Lakers is feasible. According to the EPA, vessels built (or converted) in or after 2009 should have been designed to accommodate the retrofitting of a BWMS.⁸ The EPA identifies five post-2009 U.S. Lakers, consisting of: one liquid tank barge, two covered dry cargo barges and two bulk

²⁷ See [What We Heard: Ballast Water Innovation Program Stakeholder Engagement](#), 2023, Transport Canada

²⁸ 2013 VGP (EPA-HQ-OW-2019-0482-0407), Section 2.2.3.5.3.3 requires Lakers built on or after January 1, 2009, to meet treatment limits.

²⁹ Frank LoBiondo Coast Guard Authorization Act of 2018 - Title IX - Vessel Incidental Discharge Act, Section 903(4)(D)(ii)(I) requires that the Administrator (of the EPA) not adopt a standard of performance less stringent than an existing requirement).

carriers.³⁰ Two independent studies^{31,32} confirm that these vessel types have the needed space to install a BWMS suited to their operational needs, and if needed, the required space to install suitable power capacity to feasibly operate a BWMS using ultraviolet (UV) technology. In the years since these studies, several UV BWMS have been type approved for use in fresh water by the USCG. Perhaps most importantly, several Canadian bulk carriers, self-unloading cargo barges, and liquid tankers³³ built in this same era and operating on the same trade routes in the Great Lakes already use BWMS to comply with Canadian and U.S. rules. Canada is particularly concerned about binational compatibility for ships doing business at Canadian ports, which represents a limited number of U.S. ships.

Canada would not recommend waiting for improved technology for recently constructed vessels. Despite efforts over more than a decade by Canada, the U.S., vessel owners, Great Lakes research institutes, the Great Lakes Ballast Water Collaborative, and other working groups, no meaningful options outside of type-approved BWMS have emerged.

Regulating the small number of vessels built after 2009 will also increase the experience of the U.S. fleet in operating BWMS. Maintaining this compliance date would also be a major step towards creating the binational consistency that the shipping industry has long requested, and would avoid potentially challenging scenarios for vessels that are already operating BWMS to comply with U.S. and Canadian rules. Canada and the U.S. both currently regulate vessels operating on the Great Lakes that are of a similar type and operational profile as the post-2009 U.S. Lakers (i.e., self-unloading bulk carriers and tankers).

The cost over 25 years of installing and operating a BWMS on all five post-2009 U.S. vessels to meet the equipment standard would be \$46.89 million (2023 U.S. dollars)—an average of \$1.88 million per year or \$375,000 per vessel per year. The average yearly costs for these five vessels total roughly 0.14% of the \$1.37 billion annual business revenue for all U.S. flag barges and lakers in these waters.³⁴ By

³⁰ See Table 3: List of Laker Vessels (pp. 5-8) in U.S. Environmental Protection Agency, Office of Water “[Economic Analysis of New Lakers for the Supplemental Notice of Proposed Rulemaking for the Vessel Incidental National Standards of Performance](#)” October 18, 2023. EPA-HQ-OW-2019-0482-0889

³¹ Mueller, Jerry and John P. Dooley “Technical Engineering Analysis & Economic Feasibility Study for Ballast Water Management System (BWMS) Installation and Operation on board U.S. Flag Great Lakes Fleet (Lakers)” Choice Ballast Solutions, April 13, 2017. [EPA-HQ-OW-2019-0482-0868](#)

³² STX Marine Canada. 2014. “Assessing the Feasibility Study of Ballast Water Treatment System Installation and Operation by Existing Vessels in the Great Lakes and St. Lawrence”. EPA-HQ-OW-2019-0482-0452. Available here: <https://tc.canada.ca/en/marine-transportation/marine-pollution-environmental-response/managing-ballast-water/ballast-water-management-systems-great-lakes>.

³³ These vessel classes refer to the ship types within the Choice Ballast Solutions study (ref. 31)³⁰

³⁴ Capital and operation costs were determined from the Choice Ballast Solutions study (EPA-HQ-OW-2019-0482-0868) as follows: three ships were considered as 500-800 ft newer build self-unloading ships

comparison, the ruffe causes over \$300 million in annual damages to Great Lakes commercial and recreational fisheries.⁴

6. Older Lakers

Eventual Standards for Older Lakers

Canada would prefer that older Lakers, those constructed before 2009, be regulated by 2030 in alignment with Canada's rules. Canada's extended compliance timeline for older Lakers built before 2009 reflects the greater challenge faced by these vessels that were built before the era of ballast water management. We recognize and share EPA's view that older Lakers do not benefit from the engineering flexibility enjoyed by newer vessels,³⁵ and provide mechanisms for flexibility in cases of undue hardship. Canada sought to balance the need for flexibility and environmental stewardship by providing until 2030 for compliance by these vessels, also recognizing the regulatory timelines envisioned by VIDA. In doing so, Canada ensured that all vessels calling at its Great Lakes ports would eventually manage their ballast water as required by the Convention.

With an average lifespan of 50 years,³⁶ many U.S Lakers will continue operating in the region for the foreseeable future. Over the remaining life of an older, pre-2009 Laker, unmanaged ballast water discharges will continue to harm the environment and reduce the environmental benefits accrued from those newer vessels that have invested in a BWMS. Canada therefore requests that the EPA work towards the application of an equipment standard to older Lakers by 2030.

Research and Development

In this respect, we appreciate and support the EPA's intent to revisit its rules for existing vessels based on research and development from the Great Lakes Ballast Water Research and Development Program.³⁵

and barges, one ship was considered as a purpose-built tank barge, and one ship was considered as a 690-806 ft converted bulker to self-unloader. The sum of capital and annual operation cost for a UV based BWMS was converted to 2023 USD using U.S. CPI. This is compared with the annual U.S. business revenue attributable to the U.S. Laker and Barge fleet from Exhibit II-20 of the 2023 Martin and Associates study (reference 2).

³⁵ U.S Environmental Protection Agency, "Vessel Incidental Discharge National Standards of Performance: Supplemental Notice of proposed rulemaking", Federal Register, October 18, 2023, p. 71803. EPA 88 FR 71788

³⁶ U.S Environmental Protection Agency, "Vessel Incidental Discharge National Standards of Performance: Supplemental Notice of proposed rulemaking", Federal Register, October 18, 2023, p. 71802. EPA 88 FR 71788

Although the EPA expects this program to result in improved and more effective technologies to inform availability and installation on older vessels³⁶, Canada suggests that the structure and focus of the program could be reviewed to better position the program to do so by the program's scheduled end, in 2027. In June 2023, Canada submitted comments (see Annex 1) in response to the EPA's request for feedback on Version 5 of its Research and Development Plan. As noted then, Canada continues to suggest that the U.S. more strongly link project plans and outcomes with the objectives of the program, such as relating to BWMS on commercial vessels on the Great Lakes³⁷ focus on shipboard testing, technology optimization at the ports of greatest ballast water uptake, and focus on solutions rather than characterizing challenges. Canada believes this approach would provide greater support to vessel owners and regulatory compatibility.

Canada agrees with the EPA's assessment that the market for BWMS technologies in the Great Lakes is far smaller than for the seagoing vessels.³⁵ In 2023, Canada established the Ballast Water Innovation Program (BWIP) in recognition of the need to optimize existing BWMS for the Great Lakes and St. Lawrence River region. BWIP is providing funding to industry-led research and development projects (set to conclude by 2027) that optimize ballast water management systems and/or increase the availability of data on in-service BWMS. The scope of BWIP remains focused on solutions and data gathering,³⁸ which Canada maintains is an effective use of resources in the Great Lakes region. As information becomes available on the projects selected for funding, Canada looks forward to EPA's comments and ongoing engagement with this program.

Conclusion

Canada values its ongoing working relationship with the EPA towards meeting our priorities under the Great Lakes Water Quality Agreement. We are pleased that our shared priorities for science and action under this agreement include further coordination between our respective research and development programs. Canada looks forward to continuing its collaboration with the U.S. to establish compatible approaches aimed at protecting our shared Great Lakes water from the introduction and spread of aquatic invasive species.

Canada is encouraged by the new information and considerations contained within this Supplemental Notice and remains hopeful that continued binational

³⁷ *Vessel Incidental Discharge Act*, 2018, S. 140-169 (g)(2)(B) (i-viii)

³⁸ Eligible activities include: i) the development and demonstration of solutions to address BWMS technical challenges and ii) systematic data collection on in-service BWMS with a view to determining the effects on vessel systems and reporting on engineering outcomes such as BWMS operation success/failure, BWMS availability for ballasting, maintenance issues and reliability of BWMS, BWMS biological efficacy and the impacts on vessel operations. See: [BWIP Applicant's Guide](#), Transport Canada, 2023.

cooperation between ballast water regulators will result in binationally compatible solutions to avoid further environmental and economic damage through unmanaged ballast water on the Great Lakes.

Sincerely,

A handwritten signature in blue ink, consisting of a large, stylized 'S' followed by a horizontal line extending to the right.

Sara Cohen
Deputy Head of Mission (Foreign Policy and National Security)
Embassy of Canada to the United States