BALLAST WATER REGULATION IN THE NORTH AMERICAN GREAT LAKES: A COMPLEX REGULATORY ENVIRONMENT AND THE GREAT LAKES BALLAST WATER COLLABORATIVE

Adam Reinhardt[1]

I. INTRODUCTION

Complex environmental issues have become a fixture in the courtrooms of America. With naturally competing interests and ever evolving scientific methods and technology, arbitrating meaningful environmental regulation has become quite daunting. Regulating ballast water discharge in the Great Lakes is complex, with numerous regulators and stakeholders involved. The Great Lakes Ballast Water Collaborative (GLBWC) was created in 2009 in response to the complex nature of ballast water regulation. The GLBWC successfully created a binational forum representing a cross-section of state and federal governments, industry, and academia to share information and understanding in order to speed the pace of policy development. Dealing with a layered and complex web of ballast water regulation, the GLBWC's focus on the frustrations and concerns of ship owners and the constraints of science and technology allowed for new insights and constructive conversation.[2] The format facilitated by the GLBWC represents a model for helping to reduce unnecessary and costly litigation and advance the process of enacting regulation crucial to protecting the environment and economy.

This article first provides an overview of ballast water and aquatic invasive species. This overview includes a discussion of the importance of ballast water to the safe operation of cargo vessels, associated environmental effects of discharging ballast water, and treatment options for ballast water. Next, the article gives an overview of the various regulators with authority over ballast discharge. The article concludes with a discussion of how the GLBWC allowed for new insights and constructive conversation on ballast water regulation by focusing on

[1] The author is an undergraduate student at The University of Minnesota, Duluth. He was provided with the opportunity to participate in the *2016 Great Lakes Law and Policy Symposium* held in Duluth, MN through a sponsorship with the University of Minnesota Duluth Pre-Law Club and Minnesota Sea Grant.

[2] Interview with Dale Bergeron, Maritime Extension Educator, Minnesota Sea Grant (Jan. 2016) [hereinafter Bergeron Interview]; Interview with Sharon Moen, Author of The Great Lakes Ballast Water Collaborative Reports, Communications Coordinator, Minnesota Sea Grant (March 2016) [hereinafter Moen Interview].

ship owners's frustrations while maintaining a firm anchor in the constraints of science and technology.

II. BALLAST WATER AND AQUATIC INVASIVE SPECIES

Ballast water, the water that stabilizes empty and partially full ships in transit,[3] is a known vector for the spread of aquatic invasive species (AIS) to the Laurentian Great Lakes.[4] Organisms brought along with ocean or lake water pumped into the ballast tanks can survive a voyage from one port to another where that water may be discharged, turning once native organisms in one body of water into AIS in another.[5] Once established, AIS can create a host of problems for local species, recreation, and infrastructure. According to the National Wildlife Federation, fifty-five of the eighty-five AIS introduced into the Great Lakes since the opening of St. Lawrence Seaway have been linked to ballast water discharges.[6]

Safe operation of most cargo ships requires taking on and discharging ballast water to stabilize the vessel.[7] Water is taken into ballast tanks located inside the hull of vessels from ports and transported with the vessel to the destination port where this water may be discharged or exchanged (see figure I).[8]

[3] L. David Smith, *Ballast Water Release*, MIT SEA GRANT COASTAL RESOURCES, http://massbay.mit.edu/exoticspecies/ballast/ (last visited Aug. 7, 2018).
[4] *Permit Modification Fact Sheet*, WIS. DEP'T OF NATURAL RES., http://dnr.wi.gov/topic/wastewater/documents/63835_modFS.pdf (last visited Aug. 7, 2018).
[5] *Ballast Water Management*, INT'L MAR. ORG., http://www.imo.org/en/OurWork/Environment/BallastWaterManagement/Pages/Default.aspx (last visited Aug. 7, 2018).
[6] *Stopping Ballast Water*, NAT'L WILDLIFE FED'N, https://www.nwf.org/Our-Work/Environmental-Threats/Invasive-Species/Ballast-Water (last visited Aug. 7, 2018).
[7] *Ballast Water Management*, *supra* note 5.
[8] Smith, *supra* note 3.

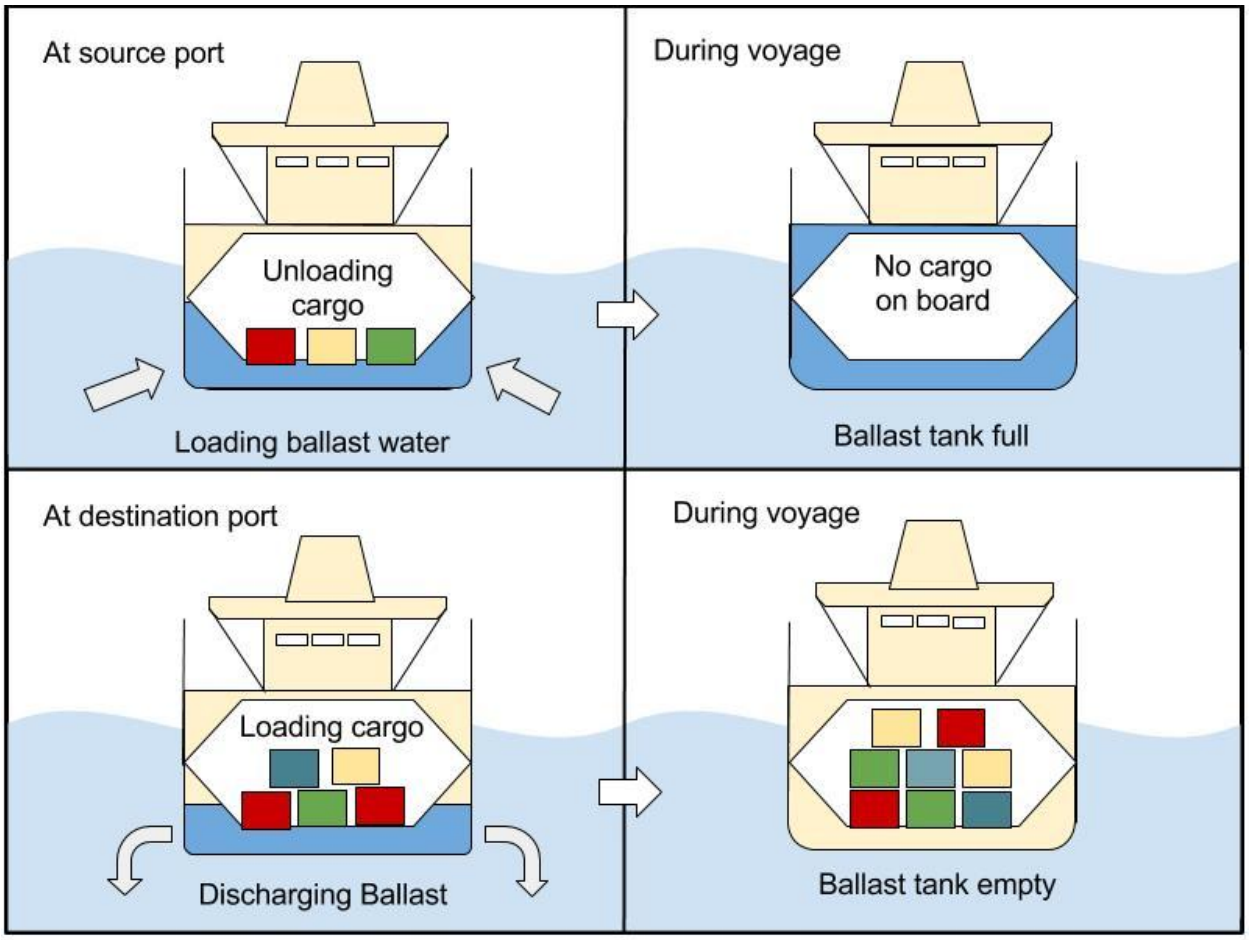

Figure I: Illustration of ballasting and de-ballasting a cargo ship.[9]

Due to the large volume of water that a ship takes on during ballasting, living organisms are frequently pumped into the ship along with the water.[10] Some of these living organisms have survived transoceanic journeys to become AIS in ecosystems where they are not native. The introduction of AIS into an ecosystem presents both environmental and economic problems. Management of AIS is prudent and necessary, as AIS can damage populations of native species

[9] Diagram created by the author with information from www.springer.com/cda/content/document/cda.../9789401793667-c2.pdf?SGWID and http://www.hendersongroup.org/ballast-water-hulls-and-anchors-what-lives-on-it/ (both last visited Aug. 7, 2018).
[10] *Ballast Water Management*, *supra* note 5.

and local economies. Perhaps the most well-known example of an AIS being introduced into the Great Lakes via ballast discharge is the zebra mussel, introduced by a transatlantic cargo ship in the late 1980's.The zebra mussel, *Dreissena polymorpha*, clogs water intake pipes in power plants, obstructs irrigation and drainage pipes, reduces native species populations, and creates a host of negative effects for recreational activities.[11] The cost of damage to water filtration, water intake pipes, and electric generation plants alone are significant, with estimates in the billions of dollars.[12] Due to these concerns, various governing entities have introduced regulations for the control of ballast discharge.[13]

Concerns over AIS introduction through ship ballast led to the use of mid-ocean ballast exchange, formally mentioned in the American Bureau of Shipping's 1999 Advisory Notes on Ballast Water Exchange Procedures.[14] This process involves taking in ballast water at the previous port and discharging and exchanging the ballast water in the ocean at least 200 nautical miles offshore.[15] Referred to as an "intermediate solution" in the 2004 International Convention on Ballast Water Management,[16] mid-ocean exchange has serious drawbacks. For example, the layout of most cargo ship ballast tanks permit sediment to accumulate in certain parts of the tank, allowing dormant organisms within the sediment to potentially survive the voyage despite the mid-ocean ballast exchange. Furthermore, the safe operation of the vessel remains its top priority.

---

[11] *Zebra Mussel Fact Sheet*, INVASIVE SPECIES PROGRAM, MINN. DEP'T OF NATURAL RES., http://files.dnr.state.mn.us/natural_resources/invasives/aquaticanimals/zebramussel/fact_sheet-zebra_mussels.pdf (last visited Aug. 7, 2018).

[12] *Case Study: Zebra Mussels*, U.S. DEP'T OF STATE, https://2001-2009.state.gov/g/oes/ocns/inv/cs/2304.htm (last visited Aug. 7, 2018).

[13] *Ballast Water Management*, *supra* note 5.

[14] AM. BUREAU OF SHIPPING, ADVISORY NOTES ON BALLAST WATER EXCHANGE PROCEDURES (1999), *available at* http://ww2.eagle.org/content/dam/eagle/rules-and-guides/current/other/18_ballastwaterexchangeprocedures/pub18_ballastwater_op.pdf (last visited Aug. 7, 2018).

[15] AM. BUREAU OF SHIPPING, GUIDE FOR BALLAST WATER EXCHANGE, (2010), *available at* https://www.energysupplychain.com/technical_library/ABS-G-Gidue%20for%20Ballast%20Water%20Exchange-Oct-2010.pdf (last visited Aug. 7, 2018).

[16] *International Convention for the Control and Management of Ships' Ballast Water and Sediments*, INT'L MAR. ORG, http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships%27-Ballast-Water-and-Sediments-(BWM).aspx [hereinafter *IMO Convention*].

Therefore, inclement weather may prevent a ship from being able to discharge its ballast at sea.[17]

Due to these drawbacks, the the IMO, U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (EPA), as well as several state-level regulatory bodies have all deemed a dedicated ballast water treatment system (BWTS) as necessary. BWTSs use several different methods to reduce the number of living species in ballast tanks below regulatory limits, from UV and filtration to biocides and chemicals.[18] Various BWTSs have been developed. However, these systems must receive USCG approval before being considered for inclusion in U.S. regulations.[19]

With more than 110 active ports spanning eight U.S. states and two Canadian provinces moving over 160 million metric tons of cargo a year in the Great Lakes region,[20] the importance of managing ballast water cannot be understated. The patchwork of regulations and emerging ballast control technologies developed over the past few decades - in conjunction with a growing understanding of the impact of AIS - have precipitated numerous lawsuits in the United States, considerably slowing the process of addressing the impact of ballast waters on the environment.[21] Further, shipping traffic may increase in the future. The USCG determined that the opening a third lock in the Panama Canal, which occurred in 2016,[22] could substantially increase Great Lakes shipping traffic, making ballast water management all the more important.[23]

---

[17] COMM. ON SHIPS' BALLAST OPERATIONS, NAT'L RESEARCH COUNCIL, STEMMING THE TIDE: CONTROLLING INTRODUCTIONS OF NONINDIGENOUS SPECIES BY SHIPS' BALLAST WATER 36 (1996), available at http://www.nap.edu/read/5294/chapter/5#36 (last visited Aug. 8, 2018).
[18] Corrina Chase, et al., *Marine Bioinvasions Fact Sheet*, MIT SEA GRANT, http://massbay.mit.edu/resources/pdf/ballast-treat.pdf (last visited Aug. 8, 2018).
[19] *Ballast Water Management (BWM) Extension Program Update*, U.S. COAST GUARD, http://american-club.com/files/files/MA_031317_USCG_Ballast_Water_Management_Program_Compliance_Update_p2.pdf (last visited Aug. 8, 2018).
[20] SAINT LAWRENCE SEAWAY DEV. CORP., ANNUAL CORPORATE SUMMARY 2014-2015 (2015), *available at* http://www.greatlakes-seaway.com/en/pdf/slsmc_ar2015_en.pdf (last visited Aug. 8, 2018).
[21] Bergeron Interview, *supra* note 2.
[22] *The Expanded Canal*, CANAL DE PANAMÁ, https://micanaldepanama.com/expansion/ (last visited Aug. 8, 2018).
[23] Moen Interview, *supra* note 2.

III. MULTI-LAYERED REGULATORY OVERSIGHT OF BALLAST WATER MANAGEMENT IN THE GREAT LAKES BASIN

The fundamental issue surrounding ballast water regulation is the multifaceted and often conflicting regulatory mandates established by several governing entities. Consequently, ship owners must navigate a complex network of regulations. This section examines the regulators of ballast water in the Great Lakes region and how their authority overlaps.

A. IMO Regulation

To address the concerns surrounding untreated ballast, the United Nations tasked the International Maritime Organization (IMO) with establishing international standards for the prevention of marine pollution in 1992.[24] In 2004, the International Convention for the Control and Management of Ships Ballast Water & Sediments (Convention) was presented at the Diplomatic Conference in London.[25] The Convention established the IMO D2 standards for ballast water exchange: 95% volumetric exchange of ballast; a discharge with less than ten viable organisms per cubic meter greater than or equal to 50 micrometers in minimum dimension; and less than ten viable organisms per milliliter between 50 micrometers and 10 micrometers in minimum dimension.[26] These standards for ballast water purity were later adopted by the United States in the 2012 USCG Discharge Standard Final Rule and EPA Vessel General Permit 2 (VGP2).[27] Finally, in sections G8, G9, and G10 of the Convention, a comprehensive guideline for IMO ballast water management system type-approval was laid out.[28]

For ratification, at least thirty states representing 35% of the world tonnage of cargo needed to sign the Convention, which went into effect on September 8, 2017.[29] As of August 2018, the Convention had 75 contracting

[24] *IMO Convention*, *supra* note 16.
[25] *Id.*
[26] *Id.*
[27] U.S. ENVTL. PROT. AGENCY, VESSEL GENERAL PERMIT FOR DISCHARGES INCIDENTAL TO THE NORMAL OPERATION OF VESSELS (VGP) (2013), *available at* https://www3.epa.gov/npdes/pubs/vgp_permit2013.pdf [hereinafter VGP2] (last visited Aug. 8, 2018).
[28] *Id.*
[29] *IMO Convention*, *supra* note 16.

states, representing 75.34% of world tonnage.[30] Canada signed on in April of 2010; the United States, however, has not ratified the Convention.[31]

B. U.S. Environmental Protection Agency Regulation

In the late 1990s, environmental groups filed a petition demanding the EPA repeal its long-standing exemption of ballast water from the National Pollutant Discharge Elimination System (NPDES) permit program under Section 402 of the Clean Water Act (CWA).[32] The EPA rejected this request on the grounds of the exceptions' long-standing existence.[33] The EPA's decision was challenged in federal court in 2006, resulting in the court requiring EPA to include ballast water in the NPDES permitting system.[34] However, regulation of ballast water was not an area of expertise for the EPA, thus requiring collaboration with the other federal agency overseeing ballast water in the United States: the USCG. The EPA issued a general permit in 2008 (VGP1) outlining best practice standards for ballast discharge.[35] However, the EPA would not establish numerical limits for ballast water until the updated 2013 Vessel General Permit (VGP2).[36] The VGP2, justified by technology-based effluent limits, adopts discharge standards equivalent to the IMO D2 and does not include ships that operate exclusively within the Great Lakes and were built pre-2009.[37] VGP2 compliance is determined by self-monitoring,[38] a distinction from the compliance exams and inspections performed by the USCG pursuant to its ballast water regulatory regime discussed below.

---

[30] INT'L MAR. ORG., STATUS OF IMO TREATIES 515-16 (2018), available at http://www.imo.org/en/About/Conventions/StatusOfConventions/Documents/Status%20-%202018.pdf (last visited Aug. 8, 2018).
[31] *Id.*
[32] Pac. Envtl. Advocacy Ctr., Petition for Repeal of 40 CFR § 122.3(a) (Jan. 1999), *available at* https://www.epa.gov/sites/production/files/2015-09/documents/2007_07_02_invasive_species_ball_water_pet-2.pdf (last visited Aug. 8, 2018).
[33] Pacific Environmental Advocacy Center, EPA No. 03-5760 (Sept. 2, 2003), https://www3.epa.gov/npdes/pubs/ballast_report_petition_response.pdf (last visited Aug. 8, 2018).
[34] Northwest Environmental Advocates v. EPA, No. C 03-05760 SI, 2006 WL 2669402 (N.D. Cal. 2006), *aff'd*, 537 F.3d 1006 (9th Cir. 2008).
[35] U.S. ENVTL. PROT. AGENCY, VESSEL GENERAL PERMIT FOR DISCHARGES INCIDENTAL TO THE NORMAL OPERATION OF VESSELS (VGP) (2008), *available at* https://www.epa.gov/npdes/vessels-additional-resources (last visited Aug. 8, 2018).
[36] U.S. ENVTL. PROT. AGENCY, FINAL 2013 VGP FACT SHEET (2013), *available at* https://www3.epa.gov/npdes/pubs/vgp_fact_sheet2013.pdf (last visited Aug. 8, 2018).
[37] *Id.*
[38] *Id.*

In August 2014, the Natural Resources Defense Council sued the EPA over the VGP2's leniency and technology-based effluent limits.[39] Ultimately, on October 5, 2015 the United States Court of Appeals for the Second Circuit decided, unanimously, that the EPA acted "arbitrarily and capriciously" in issuing the standards included in the VGP2, and required the EPA to redraft the VGP2[40] While EPA revises the VGP2—a process that will likely take several years—the existing permit standards remain in effect.

C. U.S. Coast Guard Regulation

In many ways, the USCG is set up to address ballast water regulation.[41] The very nature and structure of the Coast Guard coincides well with the requirements of ensuring the proper treatment of ballast.[42] In 2012, the USCG promulgated Standards for Living Organisms in Ships' Ballast Water Discharge in U.S. waters. The standards established discharge standards for both U.S. and non-U.S. ships operating within U.S. waters in line with the IMO Convention.[43] The USCG standards include requirements for ballast water management, record keeping, and recording.[44] Under these rules, the USCG conducts domestic vessel inspections and control exams to determine compliance.[45] In addition, the standards established a unique type-approval process to determine the effectiveness of BWTSs.[46]

There are two methods for receiving type approval from the USCG:

- The vendor of the BWTS can show evidence, in the form of testing results and data, from a previous type approval performed by a foreign administration.[47] The vendor must also show the BWTS performs to USCG standards and is able to pass additional testing.[48]

[39] Natural Res. Def. Council v. U.S. Envtl. Prot. Agency, 808 F.3d 556 (2nd Cir. 2015).
[40] *Id.*
[41] Interview with Craig Middlebrook, Deputy Administrator of the St. Lawrence Seaway Development Corp (Feb. 2016) [hereinafter Middlebrook Interview].
[42] *Id.*
[43] Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters, 77 Fed. Reg. 17253 (March 23, 2012), *available at* https://www.gpo.gov/fdsys/pkg/FR-2012-03-23/pdf/2012-6579.pdf (last visited Aug. 8, 2018).
[44] *Id.*
[45] *Id.*
[46] *Id.*
[47] *Id.*
[48] *Id.*

- A BTWS can also receive type approval by through land-based, onboard, and component testing by an Independent Laboratory (IL). As of December 2015, five laboratories achieved IL status.[49] These labs are certified to perform the tests required to determine if a BTWS meets USCG standards.[50]

D. Canadian Regulation

Because of a shared water boundary, the regulation of ballast in the Great Lakes entails the oversight of the governments of both Canada and the United States. As of April 2010, Canada is a signed member of the Convention.[51] Canada has also established its own ballast water guidelines under the authority of Transport Canada and published by the Department of Transport Infrastructure and Communities.[52]

E. U.S. State Regulation

Various U.S. states have established their own standards for ballast water discharge, either through a 401 certificate filed in conjunction with EPA VGP2, or through their own permitting program.[53] For instance, the California Coastal Ecosystems Protection Act, adopted in 2006, set discharge standards 1000 times more stringent than the standards put forth by the IMO.[54] In regards to shipping in the Great Lakes, Wisconsin proposed ballast water permit standards 100 times that of the IMO, but the standards were not enacted due to a lack of feasibility.[55]

---

[49] *Id.*
[50] *Id.*
[51] *IMO Convention*, *supra* note 16.
[52] Section 657.1 of the 2001 Canada Shipping Act, in 2006, TP 13617, entitled A Guide to Canada's Ballast Water Control and Management Regulations, established regulations on ballast water for all ships operating within the transnational waters of the Great Lakes Basin; entailing similar requirements and standards to the IMO BWM Convention, like requiring the exchange of ballast 200 nm offshore. *See* TRANSPORT CANADA, A GUIDE TO CANADA'S BALLAST WATER CONTROL AND MANAGEMENT REGULATIONS (2006), *available at* https://www.tc.gc.ca/eng/marinesafety/tp-tp13617-menu-2138.htm (last visited Aug. 8, 2018).
[53] MINN. POLLUTION CONTROL AGENCY, FED. CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION OF U.S. ENVTL. PROT. AGENCY VESSEL AND SMALL VESSEL GEN. PERMIT (2012), *available at* https://www.pca.state.mn.us/sites/default/files/bdpacket-201208-vessel.pdf (last visited Aug. 22, 208).
[54] Middlebrook Interview, *supra* note 43.
[55] *Id.*

Inconsistencies in regulations present a challenge to shippers, who may encounter several different state regulations during a voyage through the Great Lakes Basin.

Figure IV: A map depicting how U.S. states are currently regulating ballast in the Great Lakes region. [map courtesy of Minnesota Sea Grant]

The process of regulating ballast embodies the very nature of complex environmental regulation. A large network of sovereign entities, all of whom have their own processes and unique structures, creates a challenging arena to create uniform and effective regulation to prevent the spread of AIS through ship ballast.[56] Furthering this challenge was a general lack of communication between these entities.[57] This lack of communication led to conflicting guidelines and water purity requirements, a challenge to shippers who often pass through several state lines and international borders during a single trip through the Great Lakes.[58] Because of this, implementing meaningful regulation was chronically delayed.[59]

It should be noted that while all actors were working towards the same goal of a lake system protected from AIS, building communication and understanding between these actors required a new and spirited approach.[60]

[56] *Id.*
[57] Bergeron Interview, *supra* note 2.
[58] *Id.*
[59] Middlebrook Interview, *supra* note 43.
[60] *Id.*

IV. THE GREAT LAKES BALLAST WATER COLLABORATIVE

To address some of the confusion and concern surrounding the developing regulation of ballast water, 2009 saw the creation of a collaborative effort to bring together a cross-section of regulators and entities impacted by ballast water and its subsequent regulation.[61] This effort would become known as The Great Lakes Ballast Water Collaborative (GLBWC), and would meet seven times between 2009-2014. Included in these conferences were members of the EPA, USCG, state, local, and foreign government representatives, ship owners, vendors, scientists, and academics.[62] Cognizant of the limits of science and technology and a respect for the timelines and processes of regulatory bodies, these often competing interests came together in an informal manner to discuss practical ways to address many of the issues surrounding ballast water regulation.[63] At its most simple level, the GLBWC is an effort to expedite the regulation of ballast by fostering better communication among stakeholders and sharing relevant and accurate information on the issue of ballast water regulation.[64] In the words of Deputy Administrator of the Saint Lawrence Seaway Development Corporation Craig Middlebrook: "We're not here to debate; we're here to talk about what is practical; what is doable."[65]

A. 2009-2010

On September 24, 2009, the Saint Lawrence Seaway Development Corporation partnered with the International Joint Commission (IJC) to host a collaborative, binational conference on ballast water regulation in the Great Lakes. The GLBWC was facilitated by Minnesota Sea Grant and the Great Lakes Commission and attended by a broad spectrum of stakeholders.[66] The goal of the conference was to pull back some of the confusion and concern surrounding an

---

[61] Bergeron Interview, *supra* note 2; Moen Interview, *supra* note 2.
[62] SHARON MOEN, REPORT FROM THE GREAT LAKES BALLAST WATER COLLABORATIVE MEETING (2010), *available at* http://www.greatlakes-seaway.com/en/pdf/Ballast_Water_Collaborative_Meeting_Report_05-18-10.pdf (last visited Aug. 22, 2018).
[63] Interview with Mark Burrows, Project Manager at International Joint Commission - Great Lakes Regional Office (Feb. 2016) [hereinafter Burrows Interview].
[64] Middlebrook Interview, *supra* note 43.
[65] *Id.*
[66] *September 24, 2009 Great Lakes Ballast Water Collaborative Meeting in Detroit, Michigan*, GREAT LAKES ST. LAWRENCE SEAWAY SYS., http://www.greatlakes-seaway.com/en/environment/ballast_collaborative0909.html [hereinafter *September 2009 Meeting*] (last visited Aug. 22, 2018).

increasingly complex regulatory environment. The collaborative set out specific topics to be addressed, yet allowed for a free flow of thought that created productive insight on key issues.[67]

The first forum was held in Detroit, Michigan and attended by representatives of state governments (Minnesota, Wisconsin, Ohio, Michigan, New York), Canadian Provincial Representatives (Ontario), federal agencies (USCG, EPA, U.S. National Park Service, National Oceanic and Atmospheric Administration, U.S. Geological Survey, Transport Canada, Fisheries and Oceans Canada), U.S. and Canadian fleets, and many of North America's top ballast water researchers.[68] With a critical mass of stakeholders, the stage was set to improve communication and understanding between a wide range of interests in ballast water policy. The one-day convention, and follow-up calls and meetings later in 2009, focused on introductions, identifying research priorities, and laying out some of the fundamental issues that needed to be addressed in regard to ballast water.[69]

In May of 2010, the GLBWC met again in Montreal, Quebec, where viable treatment systems were discussed and a nearly unanimous understanding of the gap between discharge targets and available technology to achieve those targets was established.[70] In July 2010, the third official meeting of the GLBWC took place in Duluth, Minnesota. During this session a focus was put on the complexities of assuring a BWTS works.[71] Type-approval processes were laid out and commented on, and the timeline (often 18-24 months) to get a BWTS type-approved was discussed.[72]

B. 2011-2012

In January 2011, the GLBWC came together in Toronto, Ontario. At the meeting, Susan Sylvester, a representative of the Wisconsin Department of Natural Resources (WDNR), asked for assistance from the collaborative to

---

[67] Burrows Interview, *supra* note 66.
[68] *September 2009 Meeting*, *supra* note 69.
[69] Middlebrook Interview, *supra* note 43.
[70] MOEN, *supra* note 65.
[71] SHARON MOEN, REPORT FROM THE GREAT LAKES BALLAST WATER COLLABORATIVE MEETING: DULUTH (2010), *available at* http://www.greatlakes-seaway.com/en/pdf/Ballast_Collaborative_Report_and_WGReports_Duluth(Final).pdf (last visted Aug. 22, 2018).
[72] *Id.*

determine the feasibility of Wisconsin's desired ballast discharge standard of 100 times IMO Convention standards.[73] The GLBWC enthusiastically took on the topic, providing insight from ballast water researchers, among others, on the feasibility of a 100 times IMO standard.[74] The assistance provided to the WDNR provides an excellent example of how the structure of the GLBWC is a model for helping to mitigate unnecessary litigation. Ultimately, the experts within the GLBWC deemed the standards proposed by the WDNR exceeded the limits of technology.[75]

On September 27, 2011, the GLBWC met in Baltimore, Maryland.[76] During this meeting nearly seventy representatives from the shipping industry, both the U.S. and Canadian governments, and scientists from across the country discussed the movement of ballast water through the Great Lakes and current BWTSs.[77] The challenge of regulating ballast was reinforced in the words of Craig Middlebrook, who stated that "[w]e have a serious challenge on our hands," and "[n]o single entity has all the answers to these questions."[78] Additionally, Middlebrook noted the value of the GLBWC reports and frequency in which they were being cited, which helps frame the value of bringing together competing interests and producing substantive insight.[79]

On August 3-4, 2012, the GLBWC met again in Duluth, Minnesota for what was to become the sixth full-scale conference.[80] This meeting, in essence, continued the discussion goals of the previous meeting in Maryland. Tracking the progression of ballast water regulation, the GLBWC became an extremely valuable resource to all stakeholders within the regulatory environment: a level

---

[73] SHARON MOEN, REPORT FROM THE GREAT LAKES BALLAST WATER COLLABORATIVE MEETING: TORONTO (2011), *available at* http://www.greatlakes-seaway.com/en/pdf/Toronto_Ballast_Water_Collaborative_Report(Final).pdf (last visited Aug. 22, 2018).
[74] *Id.*
[75] *Id.*
[76] SHARON MOEN, REPORT FROM THE FIFTH GREAT LAKES BALLAST WATER COLLABORATIVE MEETING: BALTIMORE (2011), *available at* http://www.greatlakes-seaway.com/en/pdf/Baltimore_BWC_Report_092711.pdf (last visited Aug. 22, 2018).
[77] *Id.*
[78] *Id.*
[79] *Id.*
[80] SHARON MOEN, REPORT FROM THE SIXTH GREAT LAKES ST. LAWRENCE SEAWAY BALLAST WATER COLLABORATIVE MEETING DULUTH, MINNESOTA (2012), available at http://www.greatlakes-seaway.com/en/pdf/BWC_Report_080212.pdf (last visited Aug. 22, 2018).

playing field to discuss the latest news in ballast regulation and an informal environment to build a better understand between naturally competing interests.[81]

C. 2014-

The most recent GLBWC meeting occurred March 3-4, 2014 in Silver Spring, Maryland. During this meeting a focus was placed on discussing the USCG's type-approval process, the EPA's VGP process, Canada's current regulatory environment, specifically regarding the IMO Convention, and the technological progress of BWTSs.[82] Craig Middlebrook also presented a collaborative model laying out what is essential to successfully sharing information in an ever-evolving regulatory environment.[83] This model included: building and strengthening partnership between stakeholders, a forum for unbiased discussion, flexibility and informality, and a heavy emphasis on inclusive participation.[84] Middlebrook laid out how the GLBWC was, and still is, a model for addressing complex environmental issues. This model represents the best practice for advancing regulation and avoiding unnecessary litigation. The need for the GLBWC still exists, and the collaborative could potentially meet in the future.[85]

The GLBWC became an important component of the regulatory process by helping to diffuse the, at times, contentious environment that had developed over regulating ballast water entering the Great Lakes Basin. A thoughtfully laid out and executed meeting of stakeholders allowed for real and substantive conversation on how to address the complex issue of regulating ballast discharge.[86] By providing a forum for an objective conversation anchored in the constraints of science and technology, with an element of informality, and attention to letting all parties participate, the GLBWC became an important tool in the regulatory process.[87] Having the most current information on ballast water, the GLBWC became an important reference tool for regulators at every level.[88]

---

[81] Middlebrook Interview, *supra* note 43.
[82] GREAT LAKES ST. LAWRENCE SEAWAY SYS., FINAL REPORT FROM THE 7TH GREAT LAKES BALLAST WATER COLLABORATIVE MEETING: SILVER SPRING, MARYLAND (2014), *available at* http://www.greatlakes-seaway.com/en/pdf/March_3-4_2014_Great_Lakes_Ballast_Water_030314.pdf (last visited Aug. 22, 2018).
[83] *Id.*
[84] *Id.*
[85] Middlebrook Interview, *supra* note 43.
[86] *Id.*
[87] Bergeron Interview, *supra* note 2.
[88] Middlebrook Interview, *supra* note 43.

The concise and understandable reports provided an important point of reference, and by leveling the informational playing field, allowed for better understanding between parties.[89]

Additionally, in the opinions of Mark Burrows of the IJC and Craig Middlebrook of the Saint Lawrence Seaway Development Corporation, the collaborative also opened lines of communication that otherwise would not exist.[90] This communication helped build an understanding between stakeholders, a factor that cannot be understated in the globalized regulatory climate we live in today.

V. CONCLUSION

AIS do not recognize the boundary lines of countries, requiring, in the case of the Great Lakes Basin, a multinational, and multidisciplinary understanding for managing and regulating ballast water. With so many players in the game, establishing regulations takes time and determination, often resulting in numerous costly and time consuming lawsuits, as in the case of ballast water regulation. With a lawsuit against the EPA requiring that ballast be included under the CWA, and standards from the USCG, U.S. states, Canada, and the IMO, a web of regulators became responsible for ballast discharge.[91] What became clear is that providing explicit and consistent standards are a crucial, yet difficult, step for implementing treatment systems for ballast water. Ship owners simply cannot install treatment systems until they are assured those systems will operate at levels consistent with the standards of every entity with regulatory authority in waters they travel. An initial lack of sufficient communication between these regulators only furthered the issue.[92] Additionally, the timelines involved with setting, establishing, and implementing treatment of ballast proved to be an important, if at times frustrating, element of regulation, and the GLBWC helped build an understanding of that reality between stakeholders.[93] Ultimately progress has been made. The USCG has a type-approval process established[94], discharge standards from states are becoming more consistent under the 401 certificate of EPA VGP2,[95] and communication between regulators has increased.[96]

---

[89] *Id.*
[90] *Id.*; Burrows Interview, *supra* note 66.
[91] *See* U.S. ENVTL. PROT. AGENCY, *supra* note 38.
[92] Middlebrook Interview, *supra* note 43.
[93] Bergeron Interview, *supra* note 2.
[94] *Ballast Water Management (BWM) Extension Program Update*, *supra* note 19.
[95] *See* U.S. ENVTL. PROT. AGENCY, *supra* note 38.

In a more general sense, many of the traditional methods for implementing regulation may not be sufficient in today's globalized environment. The GLBWC was certainly not the first effort to bring together stakeholders from various governing entities, but it provides a case study of how by bringing together stakeholders on a regulatory issue, and allowing everyone a voice to be heard, tangible progress can be made and a better understanding between those involved can be achieved.

[96] Middlebrook Interview, *supra* note 43.