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Re: Ballast Water Permitting Update (NSGLC-14-04-02)

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Dear Dale,

In December 2013, you requested an update on the issues and obstacles posed by the current legal framework for ballast water management. Below I have summarized the permitting regime and highlighted some areas of concern resulting from a lack of Coast Guard approved systems. This information is intended for research purposes only and does not constitute legal representation of the Minnesota Sea Grant College Program or its constituents. It represents our interpretations of the relevant laws, regulations, and policies.

Legal frameworks developed to address environmental harms are often quite complex, especially when the regulated activity is a global industry such as shipping. Throw in overlapping federal agency authority and state jurisdiction, and you've got yourself a maze of statutes, regulations, and rules that is difficult to navigate, even for lawyers. Currently lost in an environmental law maze are vessel owners struggling to comply with new ballast water treatment requirements implemented to protect U.S. waters from invasive species.

Coast Guard

Since the early 1990s, to minimize the risk of aquatic invasive species introductions, the U.S. Coast Guard has required most vessels desiring to discharge ballast water in U.S. waters to conduct ballast water exchange (BWE) (i.e., exchange the coastal freshwater in their ballast tanks with ocean saltwater while far from shore). Although BWE does reduce the risk that a viable non-native species will be discharged into the environment, BWE is not always possible, due to vessel design, safety, or weather, nor is it completely effective at removing

all organisms. Ballast water treatment, intended to achieve stringent ballast water discharge standards, has emerged as the preferred risk reduction strategy.

In 2012, as authorized by the National Invasive Species Act of 1996 (NISA), the U.S. Coast Guard issued new regulations to phase out BWE as the required management strategy. Coast Guard regulations now require all non-recreational vessels equipped with ballast tanks that operate in U.S. waters, with some exceptions, to install and operate a Coast Guard-approved ballast water management system (BWMS), in addition to adhering to best management practices. Vessels employing a Coast Guard-approved BWMS must meet stringent ballast water discharge standards on a phased-in schedule beginning in January 2014. The Coast Guard discharge standards are identical to the international standards adopted by the International Maritime Organization in 2004 under the auspices of the International Convention for the Control and Management of Ships' Ballast Water and Sediment.

It is important to note that the regulations permit vessel owners to meet the ballast water discharge standard using methods other than BWMS. For instance, vessel owners are permitted to use water from a public water system for ballast, discharge ballast water to a facility onshore, or refrain from discharging any ballast water while in U.S. waters. These options, however, are generally impractical or unfeasible. Vessels may be unable to refrain from discharging ballast water as they load cargo and ports face serious logistical and economic challenges in providing vessels with public water supply or onshore discharge facilities.¹ Given the options, most vessel owners are anticipated to pursue BWMS, as these systems are considered the most feasible means to comply with the standards.

Beginning this year, new vessels constructed after December 1, 2013 must install a Coast Guard-approved BWMS and be in compliance with the discharge standards upon delivery. Existing vessels of a certain size (1500-5000 m³) must be in compliance by their first scheduled drydocking after January 1, 2014. This would seem like a straightforward mandate, except for one big problem: there are currently no Coast Guard approved systems. The Coast Guard's Type Approval process is lengthy and rigorous, requiring land- and ship-based biological testing, environmental testing, and system verification performed by an independent laboratory (IL).² Although the Coast Guard certified two ILs soon after the issuance of the final rule in July 2012,³ the minimum time to complete all the required testing and other steps in the approval process is estimated at 2 years, 4 months.⁴

The lack of Coast Guard approved systems is not a surprise. When the Coast Guard issued its regulations, it anticipated that the approval process would take 3 years, which would be one year after the implementation date.⁵ To avoid having to delay the implementation schedule, the Coast Guard regulations allow manufacturers to apply for temporary approval as an "Alternate Management System" (AMS). These temporary approvals were also intended to address issues that might arise if IMO regulations came into force prior to U.S. regulations. AMS are BWMS that have been approved by a foreign administration pursuant to IMO standards

¹ See, e.g., DENNIS M. KING & PATRICK T. HAGAN, MARITIME ENVIRONMENTAL RESOURCE CENTER, ECONOMIC AND LOGISTICAL FEASIBILITY OF PORT-BASED BALLAST WATER TREATMENT: A CASE STUDY AT THE PORT OF BALTIMORE (USA) (2013), available at http://www.maritime-enviro.org/Downloads/Reports/Other_Publications/Economics_of_Barge_based_BWT_Draft_%207_May_2013.pdf.

² See 46 C.F.R. § 162.060-10.

³ *EQLabs Search*, U.S. COAST GUARD MARITIME INFORMATION EXCHANGE, <http://cgmix.uscg.mil/EQLabs/EqLabsSearch.aspx> (last visited Feb. 19, 2014).

⁴ GARY CROOT, REPORT TO ST. LAWRENCE SEAWAY DEVELOPMENT CORPORATION REGARDING BALLAST WATER TYPE APPROVAL PROCESS AND OBSTACLES ASSOCIATED WITH INSTALLATION OF NON-COAST GUARD TYPE APPROVED BALLAST WATER MANAGEMENT SYSTEMS 2 (2012).

⁵ 77 Fed. Reg. 17,259 (Mar. 23, 2012).

and have applied to the Coast Guard for type approval.⁶ For a vessel to be in compliance with the implementation schedule, the AMS must be installed prior to the vessel's compliance date and may only be used for 5 years. As of January 2014, the Coast Guard has designated 33 BWMS as AMS.⁷

The AMS program contains an important implied assumption – that BWMS that receive AMS status will eventually gain type approval. As the Coast Guard stated in its rulemaking, “The 5-year period should provide the manufacturer or vendor with sufficient time to obtain U.S. approval, either using the data from the tests already completed, or by undergoing new tests designed specifically to comply with [Coast Guard rules].” If a vessel owner installs an AMS that receives type-approval within five years, the AMS program will have worked as intended and the vessel will be in compliance with the Coast Guard regulations. However, if a vessel owner installs an AMS that does not receive type-approval, a type-approved system would have to be retrofitted at great cost to the vessel owner. There is no guarantee that an AMS will receive Coast Guard type approval, as foreign administrations may have granted type approval based on different testing protocols or data. Because of the high stakes involved, most vessel owners have been reluctant to install an AMS and would prefer to delay the choice until type-approved systems are available.

Coast Guard regulations provide a mechanism for delaying the choice. Vessel owners may request an extension to the implementation schedule in cases where they can document that “despite all efforts to meet the ballast water discharge standard requirements” compliance is not possible.⁸ In a recent policy letter, the Coast Guard stated that the limited availability of Coast Guard-approved systems was a permissible ground for an extension request.⁹ To date, ten vessels have received two-year extensions to their implementation schedules (until January 1, 2016).¹⁰ These vessel owners are now in a rather precarious position with the U.S. Environmental Protection Agency (EPA) and their own insurance providers, which will not cover them if they operate out of compliance with any federal regulation.

Environmental Protection Agency

The Coast Guard's jurisdiction under NISA overlaps with the EPA's under the Clean Water Act (CWA). The CWA regulates discharges of pollutants, which include invasive species, into U.S. waters. For several decades, the EPA had exempted ballast water discharges from its permitting requirements because of the Coast Guard's program under NISA. However, in 2009, a federal district court in California ruled that EPA's exemption was improper and that permits were required. EPA now regulates discharges incidental to the normal operation of commercial vessels greater than 79 feet in length, such as ballast water discharges, primarily through the Vessel General Permit (VGP). The current version of the VGP took effect December 19, 2013.

⁶ 33 C.F.R. § 151.2026.

⁷ See U.S. Coast Guard, *Alternate Management Systems (AMS) Accepted by U.S. Coast Guard* (Feb. 12, 2014), available at <https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-18366&channelPage=%2Fep%2Fchannel%2Fdefault.jsp&pageTypeId=13489>.

⁸ 30 C.F.R. §151.2036.

⁹ Memorandum from R.E. Bailey, Commandant, U.S. Coast Guard re: Extension of Implementation Schedule for Vessels Subject to Ballast Water Management (BWM) Discharge Standards, Sept. 25, 2013.

¹⁰ See Extension Approval Letters which can be accessed at *Ballast Water Management Program*, HOMEPORT, U.S. COAST GUARD, <https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-18366&channelPage=%2Fep%2Fchannel%2Fdefault.jsp&pageTypeId=13489>.

All discharges of ballast water by vessels subject to VGP coverage must comply with the ballast water requirements set forth in the permit and with applicable U.S. Coast Guard regulations.¹¹ The ballast water discharge standards and implementation schedule are identical to those adopted by the Coast Guard in its regulations.

In order to achieve the desired pollution reductions, CWA permits must contain technology-based effluent limitations, which for non-conventional pollutants like invasive species are to be based on the Best Available Technology Economically Achievable (BAT).¹² EPA believes, based on its own investigations and a study by its Science Advisory Board, that ballast water treatment systems are available that can effectively meet the numeric discharge limits.¹³ In other words, EPA has concluded that there are treatment systems on the market that can meet the discharge standards.

In a departure from the Coast Guard regulations, the EPA does not mandate the use of Coast Guard type-approved systems or particular technologies. Rather, vessels using BWMS must simply select, install, and properly operate a ballast water management system that is shown to be effective by an independent third party in accordance with the EPA's Generic Ballast Water Treatment Technology Verification Protocol completed in September 2010.¹⁴ The VGP states that Coast Guard-approved systems and AMS would be deemed to meet this standard; however, use of a Coast Guard type-approved system is not actually required.¹⁵

Therefore, in EPA's opinion, there are treatment systems available that can meet the VGP's discharge standards. Vessel owners can comply with the VGP today by installing an AMS or installing a system that they have had tested and independently verified. Although the VGP does not contain the five-year limitation on the use of AMS, the permit is for a five-year period (December 18, 2018) and discharge standards are subject to change in future permits. As stated above, vessel owners run the risk that in order to meet the Coast Guard rule these systems may have to be replaced in five years if they do not receive type approval or the EPA revises the numeric standard during that time period.

Unlike the Coast Guard, the EPA does not have a mechanism in the VGP to extend the implementation schedule. If vessel owners receiving extensions from the Coast Guard wait until 2016 to install a BWMS, the vessel will be non-compliant with the VGP during the intervening two years. The EPA stated, in response to the Coast Guard's policy letter, that in situations where the vessel has received an extension, is not in compliance with its ballast water discharge limits, and is otherwise in compliance with the VGP the agency "will consider such violations of the 2013 VGP ballast water numeric discharge limit a low enforcement priority."¹⁶

Vessel owners have called on the EPA to amend the VGP implementation schedule to align with the *ad hoc* extended schedule the Coast Guard is establishing through its grant of extensions. The VGP does have a reopener clause that expressly contemplates adjustments to the implementation schedule. The VGP states that the permit is subject to modification and that, with respect to ballast water discharges, possible grounds

¹¹ EPA, Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels § 2.2.3 (2013) [hereafter 2013 Vessel General Permit].

¹² 33 U.S.C. § 1311(b)(1)(A).

¹³ EPA, Vessel General Permit Fact Sheet 77 (2013).

¹⁴ See NSF INTERNATIONAL, GENERIC PROTOCOL FOR THE VERIFICATION OF BALLAST WATER TREATMENT TECHNOLOGY, EPA/600/R-10/146 (2010), available at <http://www.epa.gov/nrmrl/pubs/600r10146/600r10146.pdf>.

¹⁵ 2013 Vessel General Permit, *supra* note 11, at §2.2.3.5.1.1.

¹⁶ Memorandum from Cynthia Giles, Assistant Administrator of EPA, to Regional Vessel General Permit Enforcement and Program Directors re: Enforcement Response Policy for EPA's 2013 Vessel General Permit: Ballast Water Discharges and U.S. Coast Guard Extensions under 33 C.F.R. Part 151, Dec. 27, 2013.

for such modification would include whether “treatment technology for a certain vessel(s) will not be available within the timeframe specified ... such that this information would have justified the imposition of a different implementation date had it been known at the time of permit issuance.” EPA has to date, however, declined to reopen the permit and modify the schedule.

Vessel owners are therefore left with two, equally undesirable options: (1) fail to comply with the VGP and hope the EPA does not take enforcement action or (2) apply for an individual CWA permit. The application and review process for individual permits is more burdensome and expensive for applicants than that associated with general permit coverage and is subject to public comment.

EPA has not publicly stated the reasons for its reluctance to amend the implementation schedule. A number of factors are likely at play. As stated above, EPA’s position is that there are treatment technologies currently available that can be installed by vessel owners to comply with the standards in the VGP. In addition, the Natural Resources Defense Council and several other environmental groups filed a lawsuit in June 2013 challenging the 2013 VGP on the basis that it is not strict enough.¹⁷ Industry groups, including the U.S. Lake Carriers Association and the Canadian Shipowners Association have intervened in the litigation. The cases have been consolidated in the U.S. Court of Appeals for the Second Circuit. As a result, the EPA may have less flexibility or desire to take action due to the active litigation.

Where do Things Stand?

Vessel owners are currently on the horns of a dilemma. Imagine you are a vessel owner faced with the above regulatory scenario. Do you delay installation of a BWMS until the Coast Guard awards type approval risking EPA enforcement actions and possible citizen suit enforcement by private environmental groups? Do you install an AMS to meet the original implementation schedule running the risk of costly retrofits if the AMS you chose fails to receive type approval? Although the penalties for non-compliance can be quite steep (up to \$25,000 per day of violation in some cases), the EPA has publicly stated that enforcement will be a low priority in cases where extensions have been granted. Retrofits could run into the millions of dollars, not counting the lost commercial days while the vessel is in dry dock.

Additional Concerns

Although the permitting conflict is currently receiving the most attention, there are a number of other questions and concerns surrounding the BWM legal regime. There are no clear answers or solutions to these policy dilemmas, and the regulatory regime will continue to evolve. When the BWM Convention was negotiated in 2004, the market was expected to quickly supply technology that could achieve the new performance standards. Progress has been made, but the BWM systems available have not been rigorously tested to ensure they will work as designed when installed on particular vessels. Vessel owners, therefore, remain understandably reluctant to purchase a BWM system.

IMO Implementation Schedule

There has also been significant uncertainty on the international level regarding the implementation schedule set forth in the BWM Convention. Under the Convention, vessels are to adopt BWM measures in accordance with the timetable set forth in Regulation B-3. The BW Performance Standards were to become applicable for

¹⁷ See *New Challenge Filed to EPA’s Vessel General Permit*, WINSTON & STRAWN, <http://winston.com/en/maritime-fedwatch/new-challenge-filed-to-epa-s-vessel-general-permit.html> (last visited July 17, 2014).

some vessels starting in 2012, and for all by 2016. As the BWM Convention has not yet come into force, this implementation schedule cannot be enforced nor, due to rules related to international treaty negotiations, can it be amended. When the BWM Convention comes into force, would the schedule be applied retroactively?

Although the schedule cannot be officially amended, the IMO Assembly recently acted to relax the schedule. On December 4, 2013, the IMO adopted Resolution A.1088(22) which recommends the compliance date for existing vessels, defined as all vessels in service and under construction at the time the Convention enters into force, be their first renewal survey after entry into force. Under this recommendation, the implementation schedule would no longer be pegged to a particular year, but rather float until the Convention comes into force. The Resolution encourages governments to use this revised scheduling, as opposed to the official timetable in Regulation B-3.

The Coast Guard and EPA ballast water regulations incorporate the timetable set forth in Regulation B-3. With the adoption of Resolution A.1088(22), the implementation schedule in the United States is now more aggressive than the international timeline. This situation raises important policy questions that the agencies will need to address. The U.S. has not ratified the Ballast Water Convention and is therefore not bound by the implementation schedule or the IMO's recommendation. However, the IMO's decision will impact the decision-making of vessel owners and the development of technology. Does the U.S. have the international standing and political will to impose its timetable on the shipping industry? Should the U.S. relax its implementation schedule to reflect the new international consensus?

Enforcement of Ballast Water Standards

In the longer term, the most challenging ballast water management questions center around enforcement. How will regulatory agencies verify compliance with the ballast water laws and regulations? The existing legal framework requires the installation of approved technology and limits the number of living organisms that a vessel can discharge in its ballast water. Enforcement of the technology requirements should be relatively straightforward, as the Coast Guard and other agencies can verify installation through routine inspections and reporting requirements. Verifying that the BWMS is in good working order and functioning properly will be more difficult. This could lead to a scenario in which BWMS are installed but not used or maintained.¹⁸

Verifying compliance with the discharge standards will be even more challenging. Direct verification through the sampling and testing of ballast water at discharge is the only way to accurately detect ballast water discharge violations, but agencies would have to sample huge volumes of water at a potential cost of \$75,000 - \$125,000 per vessel per sampling event.¹⁹ In addition to being prohibitively expensive, such sampling is probably logistically infeasible due to vessel design or operation of the BWM system.

Given the challenges with direct verification, enforcement agencies will likely need to rely on indirect measures to verify compliance. Sensors, for instance, could be installed to monitor conditions within ballast tanks and validate that treatment systems are working as designed.²⁰ The estimated costs associated with indirect measures are much lower, with installation costs of \$5,000 - \$10,000 and annual operation costs of \$3,000 per vessel.²¹ Sensor technology is currently under development to assist with compliance monitoring.

¹⁸ Dennis M. King & Mario N. Tamburri, *Verifying Compliance with Ballast Water Discharge Regulations*, 41 OCEAN DEV. & INT'L L. 152, 155 (2010).

¹⁹ *Id.* at 157.

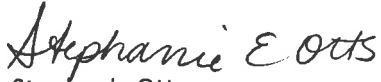
²⁰ *Id.* at 160.

²¹ *Id.* at 157.

As those sensors come to market, regulatory agencies will need to rigorously evaluate their performance to ensure they can effectively verify compliance.

I hope you find this information useful. Please contact me if you would like more information or have follow up questions.

Sincerely,

A handwritten signature in black ink that reads "Stephanie E. Otts". The signature is written in a cursive style with a large initial 'S'.

Stephanie Otts
Director, National Sea Grant Law Center