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EPA's Vessel General Permits: Background and Issues

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Summary

In November 2011 the Environmental Protection Agency (EPA) proposed two Clean Water Act (CWA) permits to regulate certain types of vessel discharges into U.S. waters. The proposed permits would replace a single Vessel General Permit (VGP) issued in 2008 that was due to expire in December 2013. As proposed, the permits would apply to approximately 71,000 large domestic and foreign vessels and perhaps as many as 138,000 small vessels. This universe of regulated entities is diverse as well as large, consisting of tankers, freighters, barges, cruise ships and other passenger vessels, and commercial fishing vessels. Their discharges are similarly diverse, including among other pollutants aquatic nuisance species (ANS), nutrients, pathogens, oil and grease, metals, and toxic chemical compounds that can have a broad array of effects on aquatic species and human health, many of which can be harmful.

EPA proposed two permits, one for large vessels to replace the 2008 VGP, and one for smaller vessels covered by a congressionally enacted temporary moratorium. Both were proposed well in advance of the VGP's expiration to provide ample time for the regulated community to prepare for new requirements. On March 28, 2013, EPA issued a final version of the VGP for large vessels. It took effect December 19, 2013. The permit for smaller vessels, the sVGP, was issued on September 10, 2014, and was scheduled to take effect on December 19, 2014. However, in December 2014, Congress passed legislation (S. 2444/P.L. 113-281) extending until December 18, 2017, the date when small vessels will need a CWA permit.

The CWA requires that all regulated discharges must meet effluent limitations representing applicable levels of technology-based control. The 2013 VGP largely retains the current permit's approach of relying on best management practices to control most discharges, because EPA concluded that it is infeasible to develop numeric effluent limits for most controlled discharges. However, the new VGP includes for the first time numeric ballast water discharge limits, which are consistent with standards in a 2012 Coast Guard rule and an international convention.

The 2013 VGP raises two key issues. One concerns inclusion of specific numeric ballast water discharge limits in the permit. At issue had been whether EPA would propose more stringent numeric limits, as some environmental groups have favored and a few states have already adopted. A second issue concerns the role of states in regulating vessel discharges.

Environmental groups and Canadian shippers challenged the 2013 permit in federal court. In October 2015, the court supported the environmentalists' challenge, ruling that the permit violated the CWA because it did not require the use of best available technology to control discharges of invasive species from ships' ballast water. The court remanded the permit to EPA, but did not vacate it; the permit remains in effect until EPA issues a new permit.

Congressional interest in this topic has been evident for some time. In 2008 Congress enacted two bills to exempt certain vessels from a CWA permit requirement, thus restricting the population of vessels subject to the VGP. One was a permanent permit moratorium for recreational vessels of all sizes. The other act was a temporary permit moratorium for small commercial vessels and commercial fishing vessels, which was extended twice by Congress and would have expired December 18, 2014, had Congress not enacted an additional three-year extension in P.L. 113-281. In the 114th Congress, bills addressing the temporary permit moratorium for small vessels and regulation of ballast water discharges have been introduced (S. 373/H.R. 980 and S. 371). The Senate Commerce Committee approved S. 373 in February 2015; the committee also included provisions of this bill in S. 2829, which the Senate passed in June 2016, and S. 1611. Further, the House has passed H.R. 4909, which includes the text of H.R. 980 as one title of that bill.

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In November 2011 the Environmental Protection Agency (EPA) proposed two Clean Water Act permits to regulate certain types of discharges from vessels into U.S. waters. The proposed permits would replace a single permit issued by EPA in 2008 that was due to expire in December 2013. As proposed, the two permits would apply to approximately 71,000 large domestic and foreign vessels and perhaps as many as 138,000 small vessels. This universe of regulated entities is diverse as well as large, consisting of tankers, freighters, barges, cruise ships and other passenger vessels, and commercial fishing vessels. Their regulated discharges are similarly diverse, including among other pollutants non-native aquatic nuisance species (ANS), nutrients, pathogens, oil and grease, metals, and toxic chemical compounds that can have a broad array of effects on aquatic species and human health, many of which can be harmful.

Developing and administering a regulatory program covering sources so numerous and different from one another is more complicated than for other currently regulated sources. Because the sources themselves are mobile and move between jurisdictions, the traditional mechanism of regulating through state-issued permits is problematic. Many regulated vessels are small entities; thus, the economic impacts of regulatory requirements are an important consideration. Identifying technology-based treatment systems and management practices that can control vessel discharges effectively and economically presents many challenges.

The two permits proposed by EPA in 2011 included one (draft VGP) for large vessels to replace the 2008 VGP, and one for smaller vessels covered by a congressionally enacted temporary moratorium (draft sVGP). On March 28, 2013, EPA issued a final version of the VGP for large vessels. It became effective on December 19, 2013. The permit for smaller vessels was issued on September 10, 2014; it was scheduled to become effective on December 19, 2014, but Congress passed a three-year extension as part of P.L. 113-281.

This report is an overview of the revised VGP for large vessels and two key issues: inclusion of numeric performance standards to limit ballast water discharges from vessels, and controversies about the role of states in regulating vessel discharges. It also reviews the final sVGP for small vessels and Congress's recent interest in these issues.

Background: Clean Water Act Requirements

The Clean Water Act (CWA) prohibits the discharge of pollutants from a point source into the navigable waters of the United States without a permit. Vessels are defined in the statute as point sources. In 1973, EPA promulgated a regulation that excluded discharges incidental to the normal operation of vessels (including ballast water, but not including vessel sewage discharges, which are regulated under CWA Section 312) from CWA permitting requirements. This long-standing regulation was challenged in federal district court by environmental advocacy groups who wanted EPA to address ballast water as a source of ANS in U.S. waters. In 2005 the court found that Congress had directly expressed its intention that discharges from vessels be regulated under the CWA, and that the 1973 regulation contradicted that intention. In September 2006 the court issued a final order vacating (revoking) the regulatory exclusion as of September 30, 2008, and remanding the ruling to EPA for further proceedings. The Ninth Circuit U.S. Court of Appeals upheld the district court's ruling on July 23, 2008.[1] On June 17, 2008, EPA proposed two CWA general permits in response to the court's 2006 order, one applicable to commercial vessels and one applicable to small recreational vessels.[2]

[1] Northwest Environmental Advocates v. U.S. Environmental Protection Agency, 537 F.3d 1006 (9th Cir. 2008).

[2] U.S. Environmental Protection Agency, "Draft National Pollutant Discharge Elimination System (NPDES) General

CWA permits are either individual permits issued to specific facilities or general permits. Both types of permit are issued for a specific period of time (not to exceed five years), after which the permit must be renewed. A general permit covers multiple facilities within a specific category having common elements, such as similar types of operations that discharge the same types of wastes. Because of the large number of potential sources of vessels,[3] EPA believed that it made administrative sense to use general permits, rather than individual permits. In August 2008, the federal district court agreed to EPA's request to delay vacating the regulatory exemption for three months, to ensure that permits could be issued before the exemption was eliminated. EPA finalized a Vessel General Permit for vessels subject to a permit requirement on December 18, 2008. The permit became effective on December 19, 2008. However, on the same day, the federal district court granted an EPA motion to delay vacating the existing regulatory exclusion until February 6, 2009. Thus, the effective date remained December 19, 2008, but regulated sources were not required to comply with terms of the permit until February 6, 2009.

The 2008 Vessel General Permit and 2011 Draft Vessel General Permits

In July 2008, Congress enacted two bills to exempt discharges incidental to the normal operation of certain types of vessels from CWA permitting, thus restricting the population of vessels subject to EPA regulation. The first measure, P.L. 110-288, the Clean Boating Act of 2008, exempted discharges incidental to the normal operation of recreational vessels of all sizes from CWA permitting requirements.[4] The legislation directed EPA and the Coast Guard to create a regulatory regime under new CWA Section 312(o); EPA is currently developing regulations for recreational vessels, as required by the legislation.[5]

The second measure, P.L. 110-299, provided a two-year moratorium on CWA permitting for certain discharges from commercial fishing vessels of all sizes and non-recreational vessels less than 79 feet in length. This moratorium has been extended three times. First, it was extended to December 18, 2013, by P.L. 111-215. During the moratorium, EPA was directed to study the discharges from these vessels and submit a report to Congress.[6] The 112th Congress extended the permit moratorium for one more year, until December 18, 2014, in P.L. 112-213. And in the 113th Congress, legislation providing an additional three-year extension, until December 18, 2017, was enacted as part of a Coast Guard reauthorization bill (S. 2444/P.L. 113-281). Ballast water discharges from vessels less than 79 feet in length are not affected by the moratorium (although EPA believes that few of these smaller vessels use or discharge ballast water) and are required to be authorized by permits. (See "Small Vessel Permit Moratorium" for discussion of legislation.)

Permits for Discharges Incidental to the Normal Operation of Vessels," 73 *Federal Register* 34296-34304, June 17, 2008.

[3] EPA estimated that the universe of vessels potentially affected by the court's order and proposed permits could include over 13 million recreational boats and 98,000 commercial fishing, passenger, cargo and other vessels operating in U.S. waters.

[4] The CWA defines recreational vessels to mean any vessel that is manufactured or used primarily for pleasure, or that is leased, rented, or chartered to a person for the pleasure of that person. CWA Section 502(25); 33 U.S.C. 1362(25).

[5] See http://water.epa.gov/lawsregs/lawsguidance/cwa/vessel/CBA/about.cfm.

[6] U.S. Environmental Protection Agency, Study of Discharges Incidental to Normal Operation of Commercial Fishing Vessels and Other Non-Recreational Vessels Less Than 79 Feet, August 2010, http://water.epa.gov/polwaste/npdes/vessels/Report-to-Congress.cfm.

However, P.L. 110-288 and P.L. 110-299 did not exempt or provide a permitting moratorium for all discharges from all types of vessels. Thus, the Vessel General Permit (VGP) finalized by EPA in December 2008 gave permit coverage to an estimated 72,000 vessels larger than 79 feet in length used in a transportation capacity that were not affected by the moratorium in P.L. 110-299, including tankers, freighters, barges, and cruise ships, and it also applied to ballast water discharges from vessels covered by the moratorium.[7] It applied to pollutant discharges, including ballast water, that are incidental to the normal operation from non-recreational vessels that are 79 feet or more in length, and to ballast water discharges from commercial vessels of less than 79 feet and commercial fishing vessels of any length. Geographically, it applied to discharges into waters of the United States in all states and territories, extending to 3 miles from the baseline (i.e., shoreline).[8]

In the 2008 permit, EPA identified 26 types of waste streams or discharge types from the normal operation of covered vessels (some are not applicable to all vessel types). The types of pollutant discharges subject to the permit included ANS (also known as invasive species), nutrients, pathogens, oil and grease, metals, and pollutants with toxic effects.

The CWA requires that all point source discharges must meet effluent limitations representing applicable levels of technology-based control. Under the 2008 VGP, EPA concluded that, based on available information, it was not practicable to derive numeric effluent limits to achieve technology-based controls for many of the discharge types regulated under the permit. Thus, most discharges covered by the 2008 VGP were controlled by specific best management practices (BMPs), many of which were already in use.[9] Some vessel categories, such as cruise ships, were subject to more detailed requirements for discharges such as graywater (water from showers, baths, sinks, and laundry facilities) and pool and spa water. Monitoring, recordkeeping, and reporting requirements applied, as well.

Procedurally, vessels larger than 79 feet or more than 300 gross tons (an estimated 50,000 domestic and foreign vessels) were required to submit a Notice of Intent (NOI) to be covered by the permit. Smaller regulated vessels were automatically covered. There were no permit fees. Projected industry compliance costs (including paperwork requirements) ranged from a low of $8.9 million to $23.0 million annually; they varied based on assumptions of vessel populations affected and the number of instances in which incremental costs would be incurred.

In anticipation of the expiration of the 2008 VGP on December 18, 2013, in November 2011, EPA proposed two Vessel General Permits, one for large vessels (draft VGP) to replace the 2008 VGP, and one for smaller vessels to authorize discharges from vessels covered by the congressionally enacted temporary moratorium (draft sVGP).

Both draft permits proposed to regulate discharges from 26 types of waste streams (like the 2008 VGP), plus an additional waste stream category—fish hold effluent. Pollutants in these waste streams can include ANS, nutrients, pathogens, oil and grease, metals, and toxic chemical compounds. Both draft permits largely retained the 2008 permit's approach of relying on specific behaviors or BMP techniques to control most regulated discharges, as EPA again concluded that it is infeasible to develop numeric effluent limits for most controlled discharges covered by the permit. The draft VGP for larger vessels contained several changes that are discussed below—

[7] U.S. Environmental Protection Agency, "Final National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges Incidental to the Normal Operation of a Vessel," 73 *Federal Register* 79473-79481, December 29, 2008.

[8] Discharges incidental to the normal operation of military vessels are not subject to the EPA permit; see **Appendix B**.

[9] BMPs include practices that generally are preventive in nature, such as vessel maintenance techniques or training personnel in use of on-board equipment to minimize pollutant discharges.

notably, including for the first time numeric ballast water discharge limits, more stringent effluent limits for oil-to-sea interfaces and exhaust gas scrubber washwater, as well as specifications to manage fish hold effluent. Both draft permits included streamlined recordkeeping and reporting requirements, modifying aspects of the 2008 VGP, such as allowing electronic recordkeeping and requiring an annual report in lieu of a one-time report and annual noncompliance report.

On March 28, 2013, after reviewing over 5,500 public comments on the draft permit, EPA issued a final permit to replace the 2008 VGP.[10] Requirements of the final permit are similar to the draft VGP. Smaller vessels continued to be covered by the congressional moratorium provided by P.L. 112-213 until December 18, 2014. If the moratorium had expired without further congressional action, smaller vessels would have been subject to the sVGP beginning on December 19.[11] However, as described below, Congress enacted an extension of the moratorium until December 18, 2017.

The following sections of this report provide an overview of EPA's revised VGP for large vessels and two issues of particular interest—requirements concerning ballast water management, and federal and state roles. It reviews recent congressional interest in these topics. **Appendix A** describes the sVGP for smaller vessels, now superseded by congressional action.

The 2013 VGP for Large Vessels

The 2013 final VGP applies to seven categories of vessels operating in a capacity of transportation that have discharges incidental to their normal operations into waters subject to the permit: commercial fishing including fish processing, freight barge, freight ship, passenger vessel, tank barge, tank ship, and utility vessel. Freight barges (such as open and covered dry cargo barges, 68% of total), tank barges (e.g., liquid cargo barges, 12%), and utility vessels (such as research vessels and tug vessels, 11%) account for the majority of the 58,600 domestic vessels eligible for coverage under the VGP. Of the 12,430 foreign vessels eligible for coverage, freight ships (e.g., container ships) account for 66%, and tank ships (such as oil tankers) account for 28% of the total. Like the 2008 VGP, "waters subject to the permit" means "waters of the United States," including the territorial seas as defined in the CWA and extending to 3 miles from the baseline.

EPA concluded that requiring all covered vessels to submit an NOI indicating coverage under the replacement VGP would be administratively impracticable, so the permit does not require operators of vessels smaller than 300 gross tons and with capacity to carry less than 8 cubic meters (2,113 gallons) of ballast water to submit NOIs. Consequently, more than 10,000 vessels would be automatically covered by the permit without submitting an NOI. This is essentially the same approach used in the 2008 VGP. However, all covered vessels are subject to the permit's requirements and must complete a Permit Authorization and Record of Inspection form and maintain that form on board at all times. The purpose of the form, according to EPA, is to confirm

[10] U.S. Environmental Protection Agency, "Final National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges Incidental to the Normal Operation of a Vessel; Notice of final permit issuance," 78 *Federal Register* 21928-21945, April 12, 2013. Full text of the permit and accompanying permit fact sheet and economic analysis are available at http://cfpub.epa.gov/npdes/vessels/vgpermit.cfm#final.

[11] U.S. Environmental Protection Agency, "Final National Pollutant Discharge Elimination system (NPDES) Small Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels Less Than 79 Feet," 79 *Federal Register* 53702-53707, September 10, 2014. Full text of the sVGP and accompanying permit fact sheet and economic and benefits analysis are available at http://water.epa.gov/polwaste/npdes/vessels/Small-Vessel-General-Permit.cfm.

that vessels owners and operators have read the terms of the VGP and understand their obligation to comply.

As noted above, CWA permits normally are issued for a specific period of time, not to exceed five years, with a provision for reapplying for further permit coverage prior to the expiration date. EPA had proposed a four-year permit term for the draft VGP, as a way to ensure that the permit keeps pace with developing technologies, especially for ballast water treatment, but the final permit provides a five-year term, consistent with most EPA-issued CWA permits.[12]

The 2013 permit's principal ballast water and non-ballast modifications of the 2008 VGP are discussed next, along with EPA's economic and benefits analysis.

Ballast Water Requirements

Ballast water discharge has been identified as a major pathway for the introduction of ANS. Ships use large amounts of ballast water for stability during transport. Ballast water is often taken on in the coastal waters in one region after ships discharge wastewater or unload cargo, and then discharged at the next port of call, wherever more cargo is loaded, which reduces the need for compensating ballast. Thus, the practice of taking on and discharging ballast water is essential to the proper functioning of ships, because the water that is taken in or discharged compensates for changes in the ship's weight as cargo is loaded or unloaded, and as fuel and supplies are consumed. However, ballast water discharge typically contains a variety of biological materials, including non-native ANS that can alter aquatic ecosystems. Concern about harmful impacts of ballast water discharge was the core of the legal challenge by environmental groups to EPA's 1973 regulations, which ultimately led to issuance of the 2008 VGP.

The ballast water requirements of the 2008 VGP are minimal, largely requiring what current Coast Guard rules require—primarily use of ballast water exchange, or BWE. The 2008 permit mandates mid-ocean BWE for ships traveling outside the 200-nautical-mile exclusive economic zone (EEZ) of the United States. This requirement already applies under a 2004 Coast Guard rule (codified at 33 C.F.R. Part 151). EPA's VGP also requires BWE at least 50 nautical miles from shore for vessels engaged in Pacific nearshore voyages, which are not covered by the Coast Guard's mandatory exchange procedures. Further, the 2008 VGP requires vessels that declare they have "no ballast on board" either to seal the ballast tanks to prevent any discharge or to carry out saltwater flushing. The 2008 permit requires vessel operators to maintain a log book and records of ballast water management and submit reports of noncompliance to EPA annually.

The 2008 VGP does not include numeric limits on living organisms or pathogenic discharges, which some environmental groups have advocated that EPA issue. EPA explained this position in a fact sheet accompanying the 2008 permit.[13]

> EPA is not requiring any numeric treatment standards for the discharge of living organisms as part of this permit issuance and is instead requiring management practices (e.g. ballast water exchange) that decrease the risk of ANS introduction. EPA is proposing this approach because treatment technologies that effectively reduce viable living organisms in a manner that is safe, reliable, and demonstrated to work onboard vessels are not yet commercially available ... [R]equiring a numeric effluent limit for the discharge of living

[12] U.S. Environmental Protection Agency, *2013 Final Issuance of National Pollutant Discharge Elimination System (NPDES) Vessel General Permit (VGP) for Discharges Incidental to the Normal Operation of Vessels*, Fact Sheet, November 30, 2011, p. 12. Hereinafter, VGP Fact Sheet.

[13] U.S. Environmental Protection Agency, *2008 Final Issuance of National Pollutant Discharge Elimination System (NPDES) Vessel General Permit (VGP) for Discharges Incidental to the Normal Operation of Vessels Fact Sheet*, December 2008, pp. 62-63.

> organisms is not practicable, achievable, or available at this time.... EPA will consider establishing treatment requirements in the next generation of permits that will provide for compliance with treatment standards that will be expressed as units of living or viable organisms per unit of volume in ballast water discharge.

While the 2013 VGP contains a number of ballast water BMP and recordkeeping requirements similar to the 2008 permit, the 2013 permit departs from the 2008 permit by specifying ballast water numeric discharge limits. By replacing the non-numeric limitation for ballast water in the 2008 VGP with numeric limits, EPA expects that the changes will achieve significant reductions in the number of living organisms discharged via ballast water into waters subject to the permit. The VGP sets the numeric effluent limits for ballast water in terms of maximum acceptable concentration of living organisms per cubic meter discharged, as shown in the text box below. As discussed further below (see "Ballast Water Standards"), EPA now concludes that treatment technologies are available to meet limits in the VGP, and the requirements are economically practicable and economically achievable.

Ballast Water Numeric Discharge Limits in the 2013 VGP

1. For organisms greater than or equal to 50 micrometers in minimum dimension: discharge must include fewer than 10 living organisms per cubic meter of ballast water.

2. For organisms less than 50 micrometers and greater than or equal to 10 micrometers: discharge must include fewer than 10 living organisms per milliliter (mL) of ballast water.

3. Indicator microorganisms must not exceed:

—For Toxicogenic *Vibrio cholerae* (serotypes O1 and O139): a concentration of less than 1 colony forming unit (cfu) per 100 mL.

—For *Escherichia coli*: a concentration of fewer than 250 cfu per 100 mL.

—For intestinal enterococci: a concentration of fewer than 100 cfu per 100 mL.

The numeric limits in the VGP are identical to performance standards specified in the International Maritime Organization's (IMO's) 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediment.[14] They also are the same as standards finalized by the Coast Guard in 2012 under 33 C.F.R. Part 151 and 46 C.F.R. Part 162.[15] Many ballast water treatment systems produce or use biocides as a disinfection agent to reduce living organisms present in the ballast water tank, but discharges of such substances may cause or contribute to violation of applicable water quality standards. Thus, the VGP also includes biocide effluent limitations to protect aquatic life. The permit sets limits of 200 micrograms per liter

[14] The IMO, a body of the United Nations, sets international maritime vessel safety and marine pollution standards. Numeric discharge limits in the IMO ballast water convention, referred to as the D-2 standards, will enter into force 12 months after ratification by at least 30 nations, representing 35% of the world merchant shipping tonnage. As of April 2016, this convention had been ratified by 44 nations, representing 34.79% of the world merchant shipping tonnage, but has not entered into force. The United States has not ratified the convention.

[15] U.S. Department of Homeland Security, Coast Guard, "Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters; Final rule," 77 *Federal Register* 17254-17320, March 23, 2012. This rule, as proposed in 2009, would have provided standards in two phases. Under that proposal, if a practicability review shows it is feasible, more stringent Phase 2 standards would apply by January 1, 2016, to new vessels constructed after that date and existing vessels that have not installed a ballast water management system by that date. The proposed Phase 2 standards would set concentration limits 1,000 times more stringent than Phase 1 standards for the smallest viable organisms and also would set limits on the discharge concentration for bacteria and viruses. However, the final Coast Guard rule promulgated in March 2012 defers the Phase 2 standard, pending assessment of additional data on available technology and development of a subsequent rule with an economic and environmental analysis to support a Phase 2 standard. The Coast Guard's authority for these rules is the Nonindigenous Aquatic Nuisance Prevention and Control Act, as amended by the National Invasive Species Act (16 U.S.C. 4701 et seq.). The Coast Guard rule does not apply to ballast water discharges from military vessels; see **Appendix B**.

(µg/l) of chlorine dioxide, 500 µg/l of peracetic acid, 100 µg/l of ozone, and 1,000 µg/l of hydrogen peroxide.

Vessels may comply with the concentration-based numeric treatment limits in one of four ways: (1) discharge treated ballast water meeting the applicable numeric limits (i.e., by using treatment technology); (2) transferring the ship's ballast water to a third party for on-shore treatment; (3) use treated municipal/potable water as ballast water; or (4) by not discharging ballast water. EPA estimates that approximately 2,880 domestic and 5,270 foreign vessels are potentially subject to the ballast water standards because they operate with on-board ballast water tanks, and the agency anticipates that about 40% of covered vessels will comply by installing a ballast water treatment system. EPA has concluded that several treatment technologies capable of meeting the permit's numeric limits are commercially and economically available now for shipboard installation.

Under the VGP, new vessels constructed after December 1, 2013, must comply with the permit's numeric limits upon delivery. EPA determined that it would be infeasible to require all existing vessels to be fitted with ballast water treatment systems with a one-to-two year schedule. Thus, the permit requires existing vessels, constructed before December 1, 2013, to comply under a staggered schedule.

- Existing vessels with ballast water capacity of less than 1,500 cubic meters must comply by the time of their first scheduled drydocking after January 1, 2016.
- Existing vessels with ballast water capacity of more than 1,500 and less than 5,000 cubic meters must comply by the time of their first scheduled drydocking after January 1, 2014.
- Existing vessels with ballast water capacity greater than 5,000 cubic meters must comply by the time of their first scheduled drydocking after January 1, 2016.

This time schedule is consistent with the timelines in the Coast Guard's March 2012 rules, described above. The IMO D-2 standard includes a phased schedule for similar ballast water capacity sizes of vessels, but with slightly different implementation dates.

Certain vessel classes would not be subject to the ballast water numeric limits in the VGP. These include vessels engaged in short-distance voyages (e.g., they travel no more than 10 nautical miles), unmanned and unpowered barges, small inland and seagoing vessels (less than 3,000 gross tons), and existing bulk carrier vessels built before January 1, 2009, that operate solely within the Great Lakes (commonly known as Lakers). In general, according to EPA, these vessels face a number of challenges for managing ballast water, and in the case of existing Lakers there currently are no available treatment systems. Thus EPA has concluded that it is more appropriate to require these vessels to use BMPs such as avoiding discharge of ballast water in environmentally sensitive areas, but not require compliance with numeric limits. EPA will follow the state of technologies currently being tested for Lakers and will consider revising permit requirements during the term of the permit if technologies become available.[16]

Non-Ballast Water Requirements

The 2013 VGP contains several more stringent effluent limits/BMPs than in the 2008 VGP for certain vessel discharges. First, it requires all vessels to use "environmentally acceptable lubricants" on mechanical and other equipment that operate at the sea interface, such as wire rope or cables, unless technically infeasible. Vessel operators often use lubricants to maintain the

[16] VGP Fact Sheet, p. 101. Lakers built after January 1, 2009, must meet ballast water treatment limits in the permit.

functionality of such equipment, which can release quantities of oil or grease to water. The permit also requires maintenance BMPs to prevent leaks that could lead to oil discharges.

Second, the permit prescribes BMPs to reduce discharges of fish hold effluent, which was not covered by the 2008 VGP. Commercial fishing vessels use various methods to store seafood after it is caught. Fish hold effluent is composed of seawater, melted ice, or ice slurry that is collected inside fish hold tanks. It contains pollutants such as biological wastes and nutrients which result from seafood catch. In addition, because holding tanks often are cleaned or disinfected between catches, the resulting effluent can contain organic material, oils, nutrients, and bacteria and viruses. BMPs specified in the permit are intended to minimize the discharge of fish hold water and ice while vessels are stationary at a pier.

Third, the VGP includes numeric limits to control discharge to water of harmful exhaust emissions from engines that power ocean going vessels. The permit sets numeric limits and monitoring requirements for pH, turbidity, polycyclic aromatic hydrocarbons (PAHs), and nitrates plus nitrites. The limits are consistent with guidelines established by the IMO to implement engine and fuel standards in Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).[17]

The permit also includes certain administrative modifications of the 2008 VGP, which requires owners/operators to self-inspect their vessels routinely as well as annually in more detail and keep written records. The 2008 permit allowed use of electronic recordkeeping systems, and the 2013 permit includes provisions clarifying how such systems are to be maintained in forms as readable and legally dependable as a paper equivalent. All vessels must report electronically, unless specifically exempted. The 2013 VGP modifies the earlier permit's reporting requirements by consolidating requirements for an annual noncompliance report as part of an annual report, instead of calling for separate reports.

Additional Requirements for Certain Vessel Classes

Under the 2008 VGP, cruise ships are subject to more detailed requirements for certain discharges, such as graywater and pool and spa water, and additional monitoring and reporting. These additional requirements recognize that cruise ships generate considerably more graywater discharges than a container or cargo ship, and onboard amenities such as photo developing and dry cleaning produce chemicals that are toxic to the aquatic environment and, thus, are not authorized by the permit.[18] The 2008 VGP includes BMPs as well as numeric effluent limits for fecal coliform and residual chlorine in cruise ship discharges of graywater that are based on U.S. Coast Guard rules for discharge of treated sewage or graywater in Alaska. It also includes operational limits on cruise ship graywater discharges in nutrient-impaired waters, such as Chesapeake Bay or Puget Sound. The 2013 VGP retains the same numeric limits for graywater discharges, but tightens operational limits: cruise ships are prohibited from discharging graywater within 3 nautical miles of shore (rather than 1 nautical mile from shore under the 2008 VGP) unless it has been treated to the standards specified in the permit. In general, the 2013 permit includes the same requirements for large (more than 500 passengers) and medium cruise ships

[17] MARPOL is an international treaty that regulates discharges from vessels. It includes several annexes that regulate specific types of vessel pollution, such as oil, garbage, and plastic. In the United States, MARPOL is primarily implemented by the Act to Prevent Pollution from Ships (33 U.S.C. 1901). The Coast Guard is the lead agency for implementing this statute.

[18] For background information, see CRS Report RL32450, *Cruise Ship Pollution: Background, Laws and Regulations, and Key Issues*, by Claudia Copeland.

(carrying 100 to 499 passengers), but with some flexibility for the latter category because of differences in graywater holding capacity and operation.

The 2013 VGP also includes additional requirements for large ferries (to minimize potential spills, drips, and leaks associated with carrying vehicles), barges (to prevent contamination of condensation with oily or toxic materials), oil and petroleum tankers (to protect against environmentally harmful discharges of oil during cargo loading and unloading), research vessels (to authorize only discharges for the purpose of conducting research on the aquatic environment or its natural resources), and emergency vessels (specifically to allow discharges incidental to the public safety responsibilities of firefighting and similar boats).

Economic Impacts, Benefits, and Uncertainties

EPA estimates that the total annual incremental costs of implementing the VGP will range from $7.2 million to $23.0 million (in 2010$) for domestic vessels.[19] For vessels covered by this permit, these costs would be in addition to previous costs for complying with the 2008 VGP, described above. About 90% of the costs of the permit are associated with requirements mandating the use of environmentally acceptable lubricants, followed by those for ballast water. Further, EPA's estimates of compliance costs do not include the capital costs of installing, operating, and maintaining ballast water treatment systems, as these costs were previously estimated by the Coast Guard in its 2009 regulatory proposal to be approximately $168 million per year and thus represent baseline for estimating costs of the 2013 VGP.

The average per vessel compliance costs of the 2013 permit range between $51 and $7,004, depending on the number of applicable discharge categories and existing baseline practices. Tank ships are expected to have the highest average compliance costs, due to potential incremental costs for oil tankers exclusively engaged in coastwise trade that may install onboard ballast water treatment systems to comply with the 2013 permit. Overall, EPA concludes that the estimated compliance costs generally represent a small share of per vessel operating revenue. Thus, meeting the 2013 VGP permit requirements is economically practicable and achievable for permittees.[20]

The principal benefits of the VGP will be reduced risk of ANS introduction and enhanced environmental quality from reduced pollutants, according to EPA. EPA concludes that the permit's ballast water management practices—including discharge standards, monitoring, and reporting—should reduce the number of ANS invasions, thus preventing significant future damages to fisheries, water-based recreation and tourism, biodiversity and ecosystems, threatened and endangered species, human health, and infrastructure. However, the agency cannot quantify these benefits.

> [T]he complexity of analyzing the probability of ANS introduction and spread, the wide range and varied nature of impacts ANS invasions can cause, and the great breadth of the scope of this Permit prohibit EPA from developing a quantified estimate of these benefits.[21]

Likewise, EPA concludes that the permit's controls on specific discharges, as well as its general housekeeping requirements, can be expected to generate both monetized benefits—such as preventing fishery closures and adverse human health impacts and increasing recreation

[19] EPA did not estimate compliance costs for foreign vessels subject to the VGP.

[20] U.S. Environmental Protection Agency, *Economic and Benefits Analysis of the Proposed 2013 Vessel General Permit (VGP)*, October 30, 2011, p. x. EPA updated overall compliance cost estimates but did not issue a revised economic analysis when it issued the final 2013 VGP.

[21] Ibid., p. 137.

opportunities—and nonmonetized benefits—such as preventing further stress on biodiversity and ecosystems. The magnitude of benefits is not calculable, according to EPA.[22]

EPA acknowledged significant uncertainty about several assumptions affecting estimated costs of the VGP, including uncertainty regarding discharge control practices currently implemented and the number of vessels expected to implement new practices. There also is uncertainty, EPA said, about costs of certain treatment systems, such as for bilge water, and practices such as use of environmentally acceptable lubricants, because of limited data and unknowns about applicability to different vessels. As a result, EPA concluded that its estimates should be interpreted as illustrative of a range of incremental costs, not as a precise account of costs that a vessel owner may incur for any specific vessel.[23]

Issues

Two prominent issues raised by the 2013 VGP are questions about inclusion of specific numeric ballast water discharge limits in the permit, and controversies about the role of states in regulating vessel discharges.

Ballast Water Standards

Many observers expected EPA to propose numeric limits in the next iteration of the VGP after the 2008 permit, in view of the IMO and Coast Guard performance standards, which were promulgated in 2012. At issue had been whether EPA would propose more stringent numeric limits, as some environmental advocacy groups favor and a few states have already adopted.

Anticipating expiration of the 2008 VGP, in 2010 EPA requested two reports to advise the agency on possible changes to the permit's ballast water management requirements. First, EPA and the Coast Guard jointly asked the National Research Council (NRC) of the National Academy of Sciences to evaluate the state of the science to support a quantitative approach to setting ballast water discharge standards, that is, specific numeric limits. The two agencies sought advice to better understand the relationship between concentrations of living organisms in ballast water discharges and the probability of ANS successfully establishing populations in U.S. waters, that is, whether setting maximum permissible limits on live organisms in ballast effluent can adequately protect against establishment of ANS in aquatic systems. The resulting NRC report concluded that the density of organisms released in a ballast discharge is "but one of scores of variables that can and do influence invasion outcome."[24] The NRC concluded that, while a benchmark discharge standard that reduces the concentration of organisms below levels achieved by open-sea BWE is an important first step, additional research is needed in order to focus on the relationship between the quantity, quality, and frequency of release and the risk of successful invasion by ANS.

Second, EPA asked its Science Advisory Board (SAB) to provide advice on technologies and systems to minimize the impacts of ANS in vessel ballast water discharge. EPA requested the SAB to assess whether existing shipboard treatment technologies can reach specified

[22] Ibid., p. 145.

[23] Ibid., p. 114.

[24] National Research Council, Committee on Assessing Numeric Limits for Living Organisms in Ballast Water, *Assessing the Relationship Between Propagule Pressure and Invasion Risk in Ballast Water*, June 2011, p. 5, http://www.nap.edu/catalog.php?record_id=13184.

concentrations of organisms in vessel ballast water, how these technologies might be improved in the future, and how to overcome limitations in existing data. The SAB's overarching recommendation in its report[25] is that, rather than relying solely on numeric standards, the agency should adopt a risk-based approach to minimize impacts of invasive species in vessel ballast water discharge, including methods to reduce invasion events, process and environmental monitoring, containment, and eradication. The SAB found that several existing technologies have been demonstrated that are capable of meeting the IMO D-2/Coast Guard and more stringent standards, but that technology is not available to reliably test for standards 100 or 1,000 times more stringent than the IMO standard, such as the Phase 2 standard included in the 2009 Coast Guard proposal[26] or those adopted by California and New York.[27] Reaching a more stringent standard would require new treatment systems that have not been tested in order to determine their practicality and cost, according to the SAB.

These reports clearly influenced EPA's development of the 2011 draft VGP, which proposed to harmonize the permit's requirements for controlling ANS in ballast water discharge with the numeric limits in the IMO D-2 standards/Coast Guard rule, plus continued use of BMPs. EPA referenced both reports in explaining its conclusion that a more rapid implementation schedule than in the IMO D-2 standard is not economically achievable at this time, nor are more stringent numeric discharge limits practicable at this time. In particular, EPA concluded that data cited by the California State Lands Commission to justify that state's more stringent discharge limits "are not adequate to determine whether any of the treatment systems can meet a significantly more stringent limit than that proposed for this permit term."[28]

Nevertheless, EPA recognized that some commenters would urge the agency to require numeric limits more stringent than the IMO D-2/Coast Guard standards. Many environmental groups and some states have argued, for example, that setting a higher standard will better protect water quality from ANS invasion while also serving as incentive to industry to develop technology that meets the standard. Thus, EPA requested public comment on the appropriateness of the proposed ballast water controls in the draft VGP and whether to adopt alternative treatment limits (such as the California standards), as well as whether additional management measures discussed in the NRC or SAB reports (such as managing ballast uptake or reducing ballast water discharge volumes) should be incorporated in the permit.

In the 2013 final VGP, EPA retained the position taken in the 2011 draft VGP that, based on current treatment and monitoring technologies, more stringent standards, such as California's, cannot be supported. EPA continues to agree with the NAS that establishing precise, quantifiable

[25] U.S. Environmental Protection Agency Science Advisory Board, *Efficacy of Ballast Water Treatment Systems: A Report by the EPA Science Advisory Board*, EPA-SAB-11-009, July 12, 2011.

[26] The March 2012 final Coast Guard rule does not include Phase 2 standards. See infra footnote 15.

[27] California Public Resources Code Section 71200, enacted in 2006. In response to the law, the California State Lands Commission promulgated standards 1,000 times more stringent than the IMO D-2/Coast Guard proposed Phase 1 standards and requiring compliance beginning January 1, 2009. California's rules also prohibit discharge of detectable living organisms for the largest size classes of organisms (greater than 50 micrometers in size). However, the SAB found that it is not reasonable to assume that current ballast water management systems are able to reliably meet or closely approach a "no detectable living organism" standard. In 2008 the New York Department of Environmental Conservation (DEC) promulgated rules requiring existing vessels to treat ballast waters to a level 100 times more stringent than the IMO D-2 standard in January 2013. Vessels built after that date must include technology to treat ballast water to the same level as California's standards. However, in February 2012, the DEC announced that it would delay the effective date of these more stringent standards until December 19, 2013 (the day after expiration of the 2008 VGP).

[28] U.S. Environmental Protection Agency, *2011 Proposed Issuance of National Pollutant Discharge Elimination System (NPDES) Vessel General Permit (VGP) for Discharges Incidental to the Normal Operation of Vessels*, Draft Fact Sheet, November 30, 2011, p. 83.

ballast water discharge standards more stringent than the IMO D-2/Coast Guard standards is not possible at this time. The final permit does not include additional management measures as a general requirement. However, the 2013 permit acknowledges unique vulnerabilities of the Great Lakes system to ANS invasion through ballast water discharges, and it includes additional protection for these waters. It requires all vessels that operate outside the EEZ and more than 200 nm from any shore to conduct saltwater flushing of ballast tanks before entering Great Lakes waters through the Saint Lawrence Seaway System. Also, all vessels that are equipped to carry ballast water and that enter the Great Lakes must conduct open ocean ballast water exchange.

Federal Preemption and State Role

Preemption of state regulatory programs with a uniform national standard has been a key issue in dispute concerning efforts to regulate discharges from vessels, including ballast water discharges.

The CWA permits EPA to authorize qualified states to administer the act's principal permitting program under Section 402, and EPA has done so for 46 states. Pursuant to CWA Section 402(c)(1), after such authorization, EPA suspends issuance of permits in lieu of the state. In other situations when EPA has issued a CWA general permit covering a similar category of dischargers,[29] the EPA general permit only applies in non-authorized states where EPA retains permitting authority.[30] In such cases, the EPA general permit typically is the model for a general permit issued directly by the authorized state; the state-issued permit must be at least as stringent as the EPA permit, but can be more stringent. Further, CWA Section 510 allows states to adopt standards, discharge limitations, or other requirements more stringent than federal rules, meaning that if a state were to assume the responsibility to issue vessel permits under the CWA, it could do so with alternative requirements no less stringent than the federal requirements. States often want the flexibility to require standards more stringent than federal, and this general authority in the statute gives states the ability to tailor and strengthen their implementation of federal water quality programs to address local conditions and circumstances.

However, because vessels are mobile and frequently travel between jurisdictions, allowing individual states to issue CWA permits to vessels would be administratively more complex than issuing a permit to a factory or other stationary source. Thus, both the 2008 VGP and final 2013 VGP uniquely apply to vessel discharges into U.S. waters in all states and territories, regardless of whether a state is authorized to administer other aspects of CWA permitting.[31] By preempting states from issuing CWA permits for discharges incidental to the normal operation of vessels, the possibility of vessels being subject to potentially conflicting conditions as they move between the waters of different states is theoretically precluded.

However, even without issuing CWA permits, a number of states are effectively requiring vessels to meet their own discharge requirements beyond the VGP through a procedure called 401 certification. Under CWA Section 401, an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the United States must provide the federal

[29] For example, EPA's Multisector General Permit (MGSP) covers stormwater discharges from approximately 4,100 industrial facilities in 29 sectors. EPA's Pesticide General Permit (PGP), issued in October 2011, authorizes point source discharges from the application of pesticides to U.S. waters; this permit will regulate discharges from about 365,000 pesticide applicators.

[30] Idaho, Massachusetts, New Hampshire, and New Mexico, plus the District of Columbia and most of the U.S. territories.

[31] EPA explains that it may issue permits in the 46 authorized states for discharges covered by the VGP because the discharges included in the VGP were formerly excluded from state CWA permitting programs (until the 2006 court ruling previously described, see "Background: Clean Water Act Requirements") and are not considered part of any currently authorized state program. 2013 VGP Fact Sheet, pp. 15-16.

agency with a Section 401 certification. The certification, made by the state in which the discharge originates, declares that the discharge will comply with applicable provisions of the CWA, including state-established water quality standards. Section 401 provides states with two distinct powers: one, the power indirectly to deny federal permits or licenses by withholding certification; and two, the power to impose conditions upon federal permits by placing limitations on certification. Where states impose conditions on a federal permit—such as the VGP—the permittee must meet the additional state limitations as conditions of the federal permit. Prior to issuance of the 2013 VGP, 25 states certified the permit with additional permit conditions covering one or more of the 27 effluent streams. Of the 25 states, 14 certified the permit with conditions applicable to ballast water discharges, either with specific numeric discharge standards, or with more general language prohibiting nuisance conditions or other conditions in order to protect state waters.[32]

A group of commercial shipping operators challenged the state certifications under the 2008 federal permit, contending that the shipping industry is placed in the difficult regulatory position of being subject to a single federal permit with multiple state requirements.[33] In federal court, the vessel operators argued that EPA should have provided notice and opportunity for comment before promulgating the final permit, which included the state certifications. They also argued that EPA erred by failing to consider possible effects and costs of compliance with state conditions. The court rejected the challenge, stating in its ruling that under the CWA, EPA does not have the power to amend or reject state certifications, which must be attached to the permit. The court wrote that petitioners do have recourse, including a challenge in state court to certification conditions imposed by a particular state, a challenge in federal or state court if they believe that a particular state's law imposes an unconstitutional burden on interstate commerce, or seeking modification of the CWA.[34]

States also have used their authority to issue state permits independent of the VGP. Both the commercial shipping industry and environmental groups have challenged these state actions, on differing grounds, but courts have generally upheld the permits. For example, a Minnesota appellate court upheld the state's permit despite challenges from an environmental group alleging that the state did not perform an adequate water quality impact review before issuing the permit and that the state failed to impose numeric limitations for ANS. Additionally, Michigan's permitting program and New York's 401 certification of the 2008 federal permit were upheld after challenges by shipping industry groups.[35]

The role of states in implementing the VGP is likely to remain an issue. EPA plans to provide a clearinghouse of information and other tools to track development of each state's 401 conditions.

Legal Challenges to the VGP

Some environmental advocacy groups criticized the 2013 final permit, asserting that it does not include adequate requirements to stop or reduce the spread of invasive species. Challenges to the final permit were filed by the Natural Resources Defense Council, Inc. and the Northwest

[32] See U.S. Environmental Protection Agency, Final 2013 VGP, Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP), March 28, 2013, Section 6, http://www.epa.gov/npdes/pubs/vgp_permit2013.pdf.

[33] For comparison, 10 states certified the 2008 VGP with ballast water conditions.

[34] Lake Carriers' Association v. EPA, 652 F.3d 1, 10 (D.C. Cir 2011).

[35] Mariel Yarbrough, "Ballast Water Permits Survive Challenges," *SandBar*, a publication of The National Sea Grant Law Center, vol. 8, no. 3 (2009), pp. 9-12.

Environmental Advocates, and the National Wildlife Federation, among others, in several federal appeals courts. All of the challenges were consolidated in the U.S. Court of Appeals for the Second Circuit in New York.

Another party in the consolidated legal challenge to the 2013 permit is the Canadian Shipowners Association (CSA), which asked the court to review the VGP's January 1, 2014, deadline for implementing best available technology for ballast water management systems. At issue is the fact that the Coast Guard has been granting compliance extensions to its ballast water rules because of unavailability of certified technologies.[36] The association argued that the deadline in the VGP, which does not provide for similar extensions, was not realistic—a point that EPA has conceded. EPA officials stated in congressional hearings that enforcement action against vessels that are unable to install Coast Guard-approved technology to meet the numerical limits in the 2013 VGP would have a low priority for the agency. In April 2014, the federal court granted CSA's request to stay the January 1, 2014, VGP deadline for vessels operated by CSA members, and subsequently the court agreed to a joint request by CSA and EPA to sever the shippers' petition for review from the environmental groups' challenge.

In October 2015, the court ruled on the environmentalists' challenge and found that EPA acted arbitrarily and capriciously in issuing parts of the 2013 VGP.[37] The court stated that, in choosing the IMO standard to control ballast water discharges, EPA did not adequately explain why standards higher/more stringent than the IMO standard should be used, given available technology. The court noted that the Science Advisory Board's 2011 report, discussed previously, identified a number of technologies, including onshore treatment, that can achieve standards higher than IMO for one or more organism sizes, which would require only "reasonable/feasible modifications." The court said that EPA should have adjusted its standard in light of available technologies discussed in the SAB report, or explained why it would not do so.

The court also agreed with environmentalists that EPA's decision to exempt Lakers built before 2009 from numeric effluent limits of the VGP was arbitrary and capricious. The court said that EPA's belief that there is a lack of supply of updated shipboard systems for Lakers to meet numeric standards was not a legitimate reason to exempt pre-2009 Lakers from the 2013 VGP.

The court remanded the permit to EPA for proceedings consistent with the opinion, but allowed the 2013 permit to remain in place until EPA issues a new VGP. The Canadian Shipowners Association's challenge to the 2013 VGP is in abeyance until EPA issues its response to the October 2015 remand order.

Congressional Interest

Congressional interest in this topic has been evident for some time—as reflected in the bills enacted in 2008 and described previously to exempt certain vessels from a CWA permit requirement.

Small Vessel Permit Moratorium

As discussed above, a permit moratorium for small non-recreational vessels and commercial fishing vessels enacted in 2008 was temporary, but was extended twice by Congress until

[36] Coast Guard rules require owners and operators of vessels to install treatment technologies that have been certified by two Coast Guard-approved, third-party laboratories. Because no technological system has yet attained approval, the Coast Guard has granted two-year extensions to nearly 350 vessels.

[37] Natural Resources Defense Council et al. v. EPA, No. 13-1745, 2nd Cir., Oct. 5, 2015.

December 18, 2014. The sVGP was to apply to these vessels, if the moratorium had expired without congressional action.

Several bills that included provisions to make that moratorium permanent were introduced in the 113th Congress. These bills included H.R. 3464, which the House passed in May 2014 as a provision of H.R. 4005; S. 2094, approved by the Senate Commerce and Transportation Committee in July 2014; and S. 2963, approved by the Senate Environment and Public Works Committee in December 2014. Supporters of proposals in these bills argued that small vessels covered by the current moratorium—commercial fishing vessels and other small non-recreational vessels—contribute little pollution and are not sources of invasive species, so a permanent permit exemption is appropriate. Others disagree with this view and argued that because of environmental concerns over vessel discharges, a permanent permit moratorium is inappropriate.

Other legislation, to provide a one-year extension of the permit moratorium, also was introduced (H.R. 5769 and S. 2943). The House passed H.R. 5769 on December 3, 2014. Some supporters of the approach in these bills said that a short-term extension would allow for comprehensive congressional attention to a number of vessel issues, including ballast water standards, in the 114th Congress.

As the date for the expiration of the moratorium approached, on December 10, 2014, the Senate and House passed legislation (S. 2444/P.L. 113-281) that includes a three-year extension of the small vessel moratorium, until December 18, 2017. (See **Appendix A** for details of the sVGP that would have become effective without this congressional action.)

Ballast water discharges from vessels less than 79 feet in length are not affected by the moratorium and are required to be authorized by permits. According to EPA, owners and operators of small vessels that discharge ballast water can seek coverage either under the general permit for large vessels, requiring compliance with numeric standards (see "Ballast Water Requirements" above), or the general permit for small vessels, which took effect December 18, 2014. As described in **Appendix A**, the sVGP prescribes best management practices (BMPs) for ballast water discharges, not numeric standards.

In the 114th Congress, several bills that would make the existing temporary permit moratorium for small vessels permanent have been introduced. These bills are S. 371, a bill that only addresses the permit moratorium, and S. 373/H.R. 980, bills that also address ballast water standards, as described next. The Senate Commerce, Science, and Transportation Committee approved S. 373 in February 2015, and it later included the text of the bill as titles of S. 2829, the Maritime Administration Authorization and Enhancement Act for Fiscal Year 2017, which the Senate passed by voice vote on June 29, 2016, and S. 1611, Coast Guard Authorization Act of 2015.

Ballast Water Standards Legislation

Legislation addressing regulation and management of ballast water discharges that can contribute aquatic invasive species into U.S. waters has been introduced in Congress a number of times since 2000. In the 112th Congress, two House Transportation and Infrastructure Committee subcommittees held a hearing that focused on how best to address invasive species problems. Since then, several legislative proposals have sought to harmonize ballast water management requirements in a single authority to be implemented by the Coast Guard, including provisions of H.R. 2838, which the House passed in 2011.This legislation would establish a single federal ballast water management standard (i.e., the IMO D-2/Coast Guard numeric standard described previously). The legislation would supersede existing state standards or permits for any discharge incidental to the normal operation of a commercial vessel, although states could develop a ballast water inspection and enforcement program. It also would supersede EPA's ballast water

management requirements under the CWA. Upon enactment of the legislation, state 401 certifications for ballast water discharge in the 2008 VGP would expire. The Coast Guard would have the primary role for enforcing the ballast water performance standard.

In December 2012, Congress enacted H.R. 2838 with a number of modifications (P.L. 112-213). First, as noted previously, it extended for one additional year the moratorium on CWA permit requirements for small vessels that was first enacted in P.L. 110-299. Second, it deleted all of the comprehensive ballast water management requirements in the House-passed bill.

In the 113th Congress, similar legislation to establish nationally uniform ballast water discharge standards (S. 2094) was approved by the Senate Commerce, Science, and Transportation Committee in July 2014, but no further action occurred.

In the 114th Congress, legislation addressing ballast water standards similar to S. 2094 has been introduced: S. 373 and H.R. 980.[38] As noted above, these bills also would make permanent the existing temporary permit moratorium for small non-recreational vessels and commercial fishing vessels.

The Senate Commerce Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard held a hearing on issues concerning regulation and management of discharges incidental to the normal operation of vessels on February 4, 2015. Maritime industry witnesses discussed the overlapping Coast Guard and EPA regulatory requirements, and they also discussed concerns with additional state-imposed requirements. Two weeks later, the full committee approved S. 373, the Vessel Incidental Discharge Act. As approved, the bill is similar to the legislation that the committee approved in the 113th Congress, with some amendments. The amended bill would allow a state to adopt or enforce a more stringent ballast water performance standard if the Coast Guard determines that compliance with the state standard is achievable and is consistent with obligations under relevant international treaties or agreements. A second amendment would require vessels to conduct saltwater flushing of ballast water tanks prior to entering the Great Lakes (as they are required to do under the 2012 Coast Guard rule). As described above, the Commerce Committee subsequently included the text of S. 373 as titles of S. 2829, the Maritime Administration Authorization and Enhancement Act for Fiscal Year 2017, which the Senate passed by voice vote on June 29, 2016, and S. 1611, the Coast Guard Authorization Act of 2015.

Further, on May 18, the House passed H.R. 4909, the National Defense Authorization Act for FY2017. Title XXXVI of this bill, as passed, is identical to the text of H.R. 980. In the Statement of Administration Policy on H.R. 4909, the Administration indicated that it objects to this title of the bill.[39] The Senate-passed companion bill to H.R. 4909 (S. 2943) does not contain similar provisions.

[38] For additional discussion of the legislation, see CRS Report R44181, *The Vessel Incidental Discharge Act: Background and Issues*, by Claudia Copeland.

[39] Executive Office of the President, Office of Management and Budget, *Statement of Administration Policy, H.R. 4909, National Defense Authorization Act for Fiscal Year 2017*, May 16, 2016.

Appendix A. The sVGP

On September 10, 2014, EPA issued notice of final permit issuance of the sVGP for small vessels. This general permit was scheduled to become effective on December 19, 2014, unless the existing temporary permit moratorium were extended by congressional action—as in S. 2444, passed by Congress on December 10 (see "Small Vessel Permit Moratorium"). By announcing this final permit more than three months ahead of the effective date, EPA intended to give affected vessel owners and operators sufficient lead time to meet the permit's requirements.

The 2014 sVGP was to apply to non-military, non-recreational vessels operating in a capacity of transportation that are less than 79 feet in length. EPA estimated that approximately 115,000 to 138,000 domestic and 156 foreign vessels were potentially subject to the sVGP. They include various types of commercial fishing vessels, tugs and towing vessels, water taxis and small ferries, tour boats, and various other types of vessels used for non-recreational purposes. Approximately 68,000 are commercial fishing vessels, comprising the largest category, which includes vessels involved in fish catching, fish processing, and charter fishing. The second-largest category is "unspecified" vessels (totaling 27,000), followed by passenger vessels (21,000), such as charter fishing vessels and harbor cruise vessels.[40]

These vessels were excluded from the 2008 VGP by the initial moratorium in P.L. 110-299, which Congress subsequently extended—most recently to December 18, 2017, in S. 2444.

The sVGP would have regulated several categories of discharges, including fuel management, engine and oil control, solid and liquid waste management, vessel hull maintenance, graywater, fish hold effluent, and ballast water. It prescribed BMPs such as preventive maintenance of engines and fuel tanks to minimize the occurrence of leaks and spills that could release fuel or oil to receiving waters, and the minimization of graywater discharges that may contain soaps and detergents or nutrients into sensitive water bodies and confined waters. Most of the practices are already widely implemented by vessels subject to the draft sVGP, according to EPA.

EPA concluded that few vessels covered by the sVGP are affected by ballast water management requirements, because vessels less than 100 feet long typically do not load and discharge ballast or rely on ballast for stability. However, for vessels less than 79 feet long that do use ballast as a stability enhancer, the sVGP prescribed BMPs, because in EPA's view, no existing treatment systems are believed to have been developed for vessels with these small amounts of ballast water. Appropriate ballast water management BMPs include avoiding or minimizing ballast water uptake in areas with a high potential to contain harmful organisms and only discharging the minimal amounts of ballast water necessary in U.S. coastal and inland waters.

Because of the large universe of vessels covered by the sVGP, EPA determined that requiring all of these vessels to submit an NOI would be an extremely large administrative burden. Further, requiring an NOI for these vessels would be of little value, because of the limited range of discharge types and the reduced likelihood that they will introduce significant quantities of toxic and conventional pollutants to waterways.[41] However, like the VGP, EPA would have required all vessel operators covered by the permit to comply with its requirements, including signing an

[40] As previously described, Congress permanently exempted recreational vessels of all size from CWA permit requirements in P.L. 110-288 (see "The 2008 Vessel General Permit and 2011 Draft Vessel General Permits").

[41] U.S. Environmental Protection Agency, *2014 Final Issuance of National Pollutant Discharge Eliminations System (NPDES) Small Vessel General Permit (sVGP) for Discharges Incidental to the Normal Operation of Vessels Less than 79 Feet (sVGP) Fact Sheet*, p. 14.

sVGP Permit Authorization and Record of Inspection form and maintaining that form onboard at all times. The terms of the sVGP would expire five years after the permit's effective date.

EPA made several changes in the 2014 sVGP, compared with the 2011 draft permit. For example, the final permit added a condition that accumulated bilgewater must be removed, to the extent practicable, prior to transporting a vessel from one waterbody to another over land.

Overall, EPA estimated that the sVGP requirements could result in total annual costs for domestic vessels ranging between $7.1 million and $16.9 million (in 2010 dollars), in the aggregate.[42] Approximately 35% of these costs were associated with vessel hull maintenance, 25% with recordkeeping and inspection, and 25% with engine and oil control BMPs. The average cost per vessel was estimated to range from $17 per year (for vessels that already implement control practices) to $133 per year. The estimated range depended on the number of applicable discharge categories and baseline practices.

EPA lacks data to quantify the environmental benefits of the sVGP, but qualitatively, the agency expected that reducing discharges incidental to the operation of small non-recreational vessels would have two broad categories of benefits: enhanced environmental quality from reduced loads of pollutants, and reduced risk of introducing and spreading invasive species.

As it did with the VGP, EPA acknowledged uncertainties about impacts of the sVGP, largely due to limitations of data regarding financial and operational characteristics of affected firms and compliance costs that firms may incur. Particularly for the smaller vessels covered by the sVGP, EPA said that uncertainty exists for the revenue data for firms and also on the number of firms that have vessels that could incur cost impacts. For example, EPA assumed the same range of cost per vessel for all industry sectors, based on the best and worst case scenarios, but the agency recognized that this simplifying assumption may be inaccurate, because some vessels may already be implementing discharge control practices and would therefore not incur additional costs. Despite uncertainties, EPA concluded that it is "unlikely that a significant number of firms in the commercial fishing industry incurring material economic impacts as a result of complying with the sVGP." The permit was expected to have some effect on small firms, because of the very large number of small operators, but "the exact impacts on the profitability of these small businesses are difficult to quantify ... due to limitations of the data."[43]

[42] EPA did not estimate the compliance costs for foreign vessels, because their costs are not expected to have a direct impact on U.S. firms. U.S. Environmental Protection Agency, *Economic and Benefits Analysis of the Final 2014 Small Vessel General Permit (sVGP)*, August 2014, p. 17.

[43] Ibid., pp. 84-85.

Appendix B. Discharges Incidental to the Normal Operation of Military Vessels

As noted in the text of this report, discharges incidental to the normal operation of military vessels are not subject to EPA's VGP or the 2012 Coast Guard rule concerning ballast water discharges. Instead, such discharges are subject to separate regulatory requirements, pursuant to CWA Section 312(n), which Congress added to the act in 1996 (Section 325 of P.L. 104-106). Section 312(n) requires EPA and the Department of Defense (DOD) jointly to promulgate uniform national discharges standards (UNDS) for certain discharges incidental to the normal operation of a vessel of the Armed Forces, unless the Secretary of Defense finds that compliance with UNDS would not be in the national security interests of the United States. Once finalized, the standards will be applicable to discharges from U.S. Armed Forces vessels operating in the navigable waters of the United States, the territorial seas, and the contiguous zone.

Since enactment of these provisions, EPA and DOD have been working through a multi-stage rulemaking process to develop the required standards. This process has already been underway for 20 years and is likely to extend for an unknown number of additional years. First, in Phase I, the agencies promulgated regulations in 1999 identifying 25 discharges for which it is "reasonable and practicable" to require a marine pollution control device (MPCD). Phase I also identified 14 discharges as not requiring control with a MPCD. These 1999 regulations are codified at 40 C.F.R. Part 1700.

During Phase II, EPA and DOD are proposing discharge performance standards for the 25 categories of discharges identified in the 1999 rule. Phase II is occurring in three separate rulemakings. The first set of performance standards, which addressed 11 discharges, was published in 2014,[44] and the second set of performance standards, addressing another 11 discharges, was published in October 2016.[45] The third set of performance standards, which will address the final three discharges identified in the 1999 rule—all of which involve ballast discharges—will be published separately in a future rule.

Phase III of the UNDS rulemaking will be a DOD-only rule. It will require DOD, in consultation with EPA and the Coast Guard, to promulgate regulations governing the design, construction, installation, and use of MPCDs necessary to meet the performance standards covered by Phase II. Similar to Phase II, Phase III will be promulgated in three batches. CWA Section 312(n) requires DOD to promulgate the Phase III standards within one year of finalization of the Phase II standards, and these regulations are to become effective upon promulgation, unless DOD specifies another effective date.

EPA and DOD estimate that the universe of Armed Forces vessels affected by the UNDS rulemaking is about 6,230 ships of the U.S. Navy, Army, Marine Corps, Air Force, and Military Sealift Command. Approximately 18% of the total (1,090 vessels, including aircraft carriers, auxiliary ships, patrol ships, and submarines) are larger than 79 feet in length. The remaining 5,140 ships, including a variety of self-propelled boats, are less than 79 feet in length. According

[44] Environmental Protection Agency and Department of Defense, "Uniform National Discharge Standards for Vessels of the Armed Forces—Phase II, Proposed rule," 79 *Federal Register* 6117-6135, February 3, 2014. These proposed standards have not been finalized.

[45] Environmental Protection Agency and Department of Defense, "Uniform National Discharge Standards for Vessels of the Armed Forced—Phase II Batch Two, Proposed rule," 81 *Federal Register* 69753-69772, October 7, 2016. The public comment on this proposal closes on December 6, 2016.

to EPA and DOD, in developing the Phase II discharge performance standards, the agencies are referencing the 2013 VGP and the 2014 sVGP as the baseline for each comparable discharge incidental to the normal operation of a vessel of the Armed Forces.[46]

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[46] Ibid., pp. 69755-69756.