FACT SHEET

Supports the Vessel General Permit (VGP) Certification Letter
issued ***September 26, 2012*** by the
NYS Department of Environmental Conservation (DEC or Department)

This Fact Sheet supports the Department's 2012 draft Certification of EPA's Vessel General Permit which is issued under the Clean Water Act (CWA), 33 U.S.C. § 1341.

Legal basis for Certification

All studies, reports, authorities and other documents cited herein are incorporated into this Fact Sheet by reference. The term "law," as used herein, includes duly promulgated regulations.

The CWA's "objective . . . is to restore and maintain the chemical, physical and biological integrity of the Nation's waters (and) [i]n order to achieve this objective . . .

> (1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;
> (2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;
> (3) it is the national policy that the discharge of toxic pollutants in toxic amount be prohibited.

33 U.S.C. § 1251 (a). In addition, the Act requires that "[i]n order to carry out (its) objective . . .there shall be achieved –

> not later than July 1, 1977, any more stringent limitation, including those necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations (under authority preserved by section 1370 of this title) or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to this chapter.

33 U.S.C. § 1311 (b)(1)(C). The CWA further requires that "water quality standard(s) shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based on such uses." 33 U.S.C. § 1313(c)(2)(A). Moreover, EPA regulations implementing the Act's requirements to "maintain" the chemical, physical, and biological integrity of the nation's waters require States to include in their water quality standards an antidegradation policy. 40 C.F.R. 131.6(d); 40 C.F.R. 131.12. Among other aspects of the required antidegradation policy is the protection of existing uses, 40 C.F.R. 131.12(a)(1), defined as "those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards." 40 C.F.R. 131.3(e).

New York Environmental Conservation Law (ECL) Article 17 is entitled "Water Pollution Control." Its declaration of policy states:

> It is declared to be the public policy of the state of New York to maintain reasonable standards of purity of waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of fish and wild life, including birds, mammals and other terrestrial and aquatic life, and the industrial development of the state, and to that end requires the use of all known available and reasonable methods to prevent and control the pollution of the waters of the state of New York.

ECL § 17-0101. Department regulations adopted pursuant to ECL Article 17 define "pollution" as follows:

> Pollution means the presence in the environment of conditions and/or contaminants in quantities of characteristics that are or may be injurious to human, plant or animal life or to property or that unreasonably interfere with the comfortable enjoyment of life and property throughout such areas of the State as shall be affected thereby.

6 NYCRR § 700.1(a)(47). Both the CWA and the ECL define "pollutant" to include "biological materials". 33 U.S.C. § 1362 (6); ECL § 17-0105 (17). The ECL further defines "pollutant" to include "ballast". Id.

Pursuant to ECL Section 17-0301, DEC has developed water quality standards for the waters of New York State. Title 5 of ECL Article 17 makes unlawful any discharges that violate those water quality standards, providing that:

> [i]t shall be unlawful for any person, directly or indirectly, to throw, drain, run or otherwise discharge into such waters organic or inorganic matter that shall cause or contribute to a condition in contravention of the standards adopted by the department pursuant to section 17-0301.

ECL § 17-0501. Department regulations adopted pursuant to ECL Article 17 broadly define effluent limitations that serve to, inter alia, control the discharges prohibited under ECL § 17-0501.

> Effluent limitations mean any restriction on quantities, qualities, rates and concentrations of chemical, physical, biological, and other constituents of effluents that are discharged into or allowed to run from an outlet or point source or any other discharge within the meaning of section 17-0501 of the Environmental Conservation Law into surface waters, groundwater or unsaturated zones.

6 NYCRR § 700.1(a)(15).

New York's water quality standards establish classifications and designated uses of New York waters. 6 NYCRR Part 701. New York's water quality standards also include the water quality criteria set forth at 6 NYCRR Part 703. Included therein is the criteria, that, for numerous identified classes of waters, limits the discharge of "toxic or other deleterious substances" to "none in amounts that will . . . impair the waters for their best usages." 6 NYCRR § 703.2. The best usages of the classes of waters specified in 6 NYCRR § 703.2 include fish, shellfish and wildlife propagation and survival, fishing, drinking water supply, and primary and secondary contact recreation. Further, consistent with the requirements of the CWA, New York's Water Quality Antidegradation Policy, implemented through State laws including ECL Article 17 and Department regulations adopted pursuant thereto, operates to ensure existing instream water uses and the level of water quality necessary to maintain and protect those existing uses. See DEC Organization and Delegation Memorandum No. 85-40, Water Quality Antidegradation Policy, September 9, 1985.

As explained herein, Conditions #1-6 of the Department's draft Certification dated 2012 are needed to assure compliance with the CWA and the provisions of New York State law set forth above. In accordance with 40 CFR § 124.53(e)(2) and (3), the CWA and State law provisions cited above form the basis for each of Conditions #1-7 of the Certification. In accordance with 40 CFR § 124.53(e)(2) and (3) these conditions cannot be made less stringent and still comply with the requirements of State law, including State water quality standards. Since the requirements of New York State law, including water quality standards, are more stringent than the protections the VGP would provide, the Department's 2012 Certification is necessary.

<u>The need to reduce water quality impacts from ballast water discharges</u>

Pursuant to the Clean Water Act, the inclusion of a state water quality certification requirement in the draft VGP appropriately preserves the lawful authority of the individual States to implement more protective ballast water pollution controls as part of the EPA general permit within their respective waters. Pursuant to the Clean Water Act, the States also have the authority to adopt more stringent ballast water requirements than currently proposed under the draft VGP.

As part of New York's certification of the draft VGP, DEC finds that the additional discharge standards set forth as conditions in the Department's 2012 Certification are necessary to reduce the unintentional discharge of invasive species, disease organisms and other pollutants that have the potential to disrupt the ecological balance of New York's waters and negatively impact the fish and wildlife resources of the State, as well as other states, and to comply with the requirements of federal and State law, including State water quality standards.

The additional discharge standards set forth as conditions in the Department's 2012 Certification are necessary for the following reasons. *First*, there is overwhelming evidence that water quality, including fish, shellfish, and wildlife propagation and survival, has been impaired in recent decades in New York's waters by invasive species. *Second*, direct discharge of invasive species into New York waters is not a necessary condition for impairment by invasive species; discharges into adjacent, connected waters have already severely impaired New York waters for their best usage such as fish, shellfish, and wildlife propagation and survival. *Third*, the above points provide a reasonable basis for determining that water quality will be further impaired by additional, future introductions and spreading of invasive species; and that impairments to New York's water quality will be caused by discharges of such species to adjacent, connected waters.

Invasive species spread to New York waters. The ability of various invasive species to spread into adjacent, connected waters is well known. The zebra mussel is a prime example. This mussel, introduced in or near Lake St. Clair where it was discovered in 1988,[1] quickly spread into New York waters and throughout the Great Lakes and beyond.[2] The rapid spread of the zebra mussel since 1988 can be seen, for example, on a series of maps available on the website of Sea Grant's National Aquatic Nuisance Species Clearinghouse.[3] As another example, the round goby was introduced into the St. Clair River in 1990, "probably via contaminated ballast water of transoceanic ships."[4] Following this discharge in adjacent, connected waters, the round goby has moved into New York waters and contributed to the impairment of these waters for their best usage such as fish, shellfish, and wildlife propagation and survival.[5] Round gobies "have shown a rapid range of expansion through the Great Lakes"[6] and have been found in the upper St. Lawrence River and the lower Genesee River, among other New York waters.[7] Yet another example is the spiny water flea, "first found in Lake Huron in 1984 – probably imported in the ballast water of a trans-oceanic freighter. Since then, populations have exploded and the animal can now be found throughout the Great Lakes and in some inland lakes,"[8] including New York waters.

Invasive species in the Great Lakes. As recognized by EPA,[9] the predominant pathway for aquatic invasive species entry into the Great Lakes is the ballast water of oceangoing ships.[10] The Great Lakes, while accounting for only a small fraction of global shipping, are closely connected to other ports worldwide, with most such ports being separated from the Great Lakes by no more than two ship voyages.[11] Invasive species introduced into the Great Lakes from vessels' untreated ballast water discharges have created serious, damaging impacts that threaten the resource's ecological and economic health.[12] Because the Great Lakes contain fresh water,

[1] NOAA, National Center for Research on Aquatic Invasive Species, Great Lakes Aquatic Non-indigenous Species List ⟨www.glerl.noaa.gov/res/Programs/ncrais/great_lakes_list.html⟩.
[2] D. Strayer, Twenty years of zebra mussels: lessons from the mollusk that made headlines, Front Ecol Environ 7(3), 135-141 (2009).
[3] New York Sea Grant, National Aquatic Nuisance Species Clearinghouse (www.aquaticinvaders.org).
[4] Great Lakes Information Network, "Goby in the Great Lakes Region" (www.great-lakes.net/envt/florafauna/invasive/goby.html).
[5] U.S. Geological Survey, Non-indigenous Aquatic Species (NAS) Program, Species Fact Sheet, "Apollonia (Neogobius) melanostomus (Pallas 1814); Common Name: round goby," ⟨http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=713⟩; M. Walsh et al., Occurrence and Food Habits of the Round Goby in the Profundal Zone of Southwestern Lake Ontario, 33 J. of Great Lakes Research 83 (2007).
[6] U.S. Geological Survey, Species Fact Sheet, op. cit.
[7] U.S. Geological Survey, Non-indigenous Aquatic Species (NAS) Program ⟨http://nas.er.usgs.gov/AlertSystem/default.asp⟩, NAS Alert System results for New York.
[8] Great Lakes Information Network, "Spiny Water Flea in the Great Lakes Region" (www.greatlakes.net/envt/flora-fauna/invasive/spinyflea.html).; DEC, Spiny Flea Confirmed in First "Inland" Water (October 30, 2008).
[9] EPA, Aquatic Nuisance Species in Ballast Water Discharges: Issues and Options, 4, 6 (September 10, 2001), identified at 66 Fed. Reg. 49381 (September 27, 2001).
[10] E. Mills et al., Exotic Species in the Great Lakes: A History of Biotic Crises and Anthropogenic Introductions, 19 J. of Great Lakes Research 1 (1993); Kipp et al., Transoceanic ships as vectors for non-indigenous freshwater bryozoans, Diversity and Distributions 16, 77-83 (2010).
[11] R. Keller et al., Linking environmental conditions and ship movements to estimate invasion species transport across the global shipping network, Diversity and Distributions 17, 93–102 (2011).
[12] 16 U.S.C. §4701(a).

some of the most damaging ballast water-induced species are native to other fresh or brackish waters, particularly those in the Ponto-Caspian region (the Black, Caspian and Azov Seas).[13] These Ponto-Caspian invaders are now abundant in European waters used extensively by ships destined for the Great Lakes, and their continued invasion into the Lakes is considered highly probable.[14]

Invasive species adversely affect native species. Such invasive species have competed with, preyed upon and otherwise altered the Great Lakes' environment, resulting in population declines and compromised species viability of the region's native plants, fish and wildlife.[15] They have harmed the region's commercial and recreational fishing industries and damaged its public water and energy generating infrastructure.[16] The insidious effects of these species have been costly to deal with and show no signs of dissipating. The harm caused by exotic nuisance species such as the zebra mussel, round goby, and spiny water flea in the Great Lakes is widespread. For example, large zebra mussel populations reduce food and oxygen for native fauna, and have been observed completely covering native mussels and snails, threatening their survival.[17] The zebra mussel readily attaches to submerged hard surfaces including rocky shoals, water intake pipes and docks, forming dense layered colonies that have approached one million mussels per square meter.[18] Power companies and others must repeatedly remove mats of these mussels from their infrastructure. In addition, selective feeding by zebra mussels has been implicated in recurring nuisance algae blooms in the Great Lakes, causing taste and odor problems and increased treatment costs for municipal water supplies.[19] Congress estimates that the economic disruption to communities, just from the zebra mussel, has already cost billions of dollars.[20] The round goby, an invader from the Black and Caspian Seas, feeds on mollusks, crustaceans, and lake trout eggs and fry, injuring Great Lakes native species through competition for food and predation.[21] The invasive *Hemimysis anomala*, an omnivorous Ponto-Caspian

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[13] A. Ricciardi and H. MacIsaac, Recent Mass Invasion of the North American Great Lakes by Ponto-Caspian Species, 15 Trends in Ecology and Evolution 62 (2000); L. Campbell et al. 2009, Re-engineering the eastern Lake Erie littoral food web: The trophic function of non-indigenous Ponto-Caspian species, Journal of Great Lakes Research 35, 224-231 (2009).

[14] Ricciardi and MacIsaac, *op. cit*.; U.S. EPA, Predicting future introductions of non-indigenous species to the Great Lakes. National Center for Environmental Assessment, Washington, DC, EPA/600/R-08/066F (2008); Wikipedia entry for *Dikerogammarus villosus*, http://en.wikipedia.org/wiki/Dikerogammarus_villosus; D. Platvoet et al., Flexible Omnivory in *Dikerogammarus villosus* (Sowinsky, 1894) (Amphipoda) – Amphipod Pilot Species Project (AMPIS) Report 5, Crustaceana 82 (6), 703-720 (2009).

[15] 16 U.S.C. §4701(a).

[16] Id.; K. Limburg et al., The good, the bad, and the algae: perceiving ecosystem services and disservices generated by zebra and quagga mussels, Journal of Great Lakes Research 36, 86-92 (2009).

[17] U.S. Dept. of the Interior, National Biological Survey, A. Benson, et al., "Invasion of the Zebra Mussel into the United States," Our Living Resources: A Report to the Nation on the Distribution, Abundance, and Health of U.S. Plants, Animals and Ecosystems, 445-46 (1995).

[18] Id.; D. Pimentel, et al., Environmental and Economic Costs of Non-Indigenous Species in the United States, 50 Bioscience 53, 58 (2000).

[19] National Oceanic and Atmospheric Administration, Great Lakes Environmental Research Laboratory, Aquatic Invasive Species (AIS) and the Great Lakes: Simple Questions, Complex Answers, (September 2002).

[20] 16 U.S.C. §4701(a)(4).

[21] M.L. Corn et al., "Invasive Non-Native Species: Background and Issues for Congress," Congressional Research Service, Report for Congress, RL30123 (updated November 25, 2002); Michigan Dept. of Natural Resources, Annual Report, State of the Great Lakes, 32 (1993); J. Young et al., Demography and substrate affinity of the round goby (*Neogobius melanostomus*) in Hamilton Harbour, Journal of Great Lakes Research 36, 115-122 (2010).

mysid which quickly became a major part of the alewife diet after it was first observed in southeastern Lake Ontario in May 2006, has the potential to alter energy flow in Great Lakes foodwebs.[22] Another exotic invader from the Black and Caspian Seas, the spiny water flea, rarely more than a centimeter in length, competes with newly hatched Great Lakes native fish populations by feeding on zooplankton. The sharp spines characteristic of the spiny water flea prevent most small fish from swallowing it, thereby allowing this invader to reach a disproportionate population abundance.[23]

Since 2000, significant mortality of lake sturgeon, Common Loon, Red-breasted Merganser, and other fish and waterbirds have been documented on Lake Erie. More recently, since 2002, similar mortality events have been noted, with increasing regularity, distribution and magnitude on Lake Ontario. Over the past several years Caspian Tern, and several other waterbird species, have been impacted. Nonnative invasive species, the quagga mussel and round goby, appear to be the biological transport mechanism bringing deadly Type E botulism toxin from the benthic environment to within foraging range of nesting and migrating waterbirds.[24]

Invasive species in New York coastal waters and the Hudson River basin. Aquatic invasive species also pose a serious threat to the ecological health and biodiversity of native ecosystems of Long Island Sound and can affect the economic interests and public health of residents. To date, more than 50 non-native and 40 cryptogenic species have been identified in Long Island Sound.[25] The Asian shore crab, believed to have been introduced via ballast water discharge, was first found in the U.S. in 1988 in southern New Jersey and is now found from Maine to North Carolina.[26] The Asian shore crab arrived in New York Harbor and Long Island Sound in 1994 or 1995, and has since become the dominant crab in the intertidal zone in these areas, reaching densities greater than 300 per square meter in western Long Island Sound and causing population declines of native crabs such as common mud crab, green crab, and Atlantic rock crab. Atlantic rock crab has not been found since 1998, green crab densities have decreased 50% from 1998 to 2001, and common mud crab densities are down 96%. Overall, the diversity of the intertidal crab community in portions of western Long Island Sound have dropped greatly since 1998.[27]

In the Hudson River basin, at least 113 non-indigenous species have established populations.[28] Most came from Eurasia or the Mississippi-Great Lakes basin, and some are ballast-water invaders, many of which cause large economic damage and irreversible ecological changes. The best-known of these is the zebra mussel, which appeared in the Hudson in 1991 following introduction to the Great Lakes via ballast water. Zebra mussels now constitute more

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[22] B. Lantry et al., Occurrence of the Great Lakes' most recent invader, *Hemimysis anomala*, in the diet of fishes in southeastern Lake Ontario, Journal of Great Lakes Research 36, 179-183 (2010).
[23] Corn et al., op. cit.; Michigan Dept. of Natural Resources, op. cit.
[24] K. Roblee, W. Stone and D. Adams, "Waterbird Mortality as a Result of Type E Botulism in Lake Erie and Lake Ontario," Northeast Natural History Conference IX, New York State Museum, Albany, NY (2006).
[25] Balcom, Nancy. 2007. Long Island Sound Interstate Aquatic Invasive Species Management Plan. New England Interstate Water Pollution Control Commission, US Environmental Protection Agency, Long Island Sound Study, State of Connecticut and New York State.
[26] Science Daily, Japanese Shore Crabs Invade Penobscot Bay, Maine, http://www.sciencedaily.com/releases/2002/07/020719073146.htm (July 19, 2002).
[27] Long Island Sound Study, 2001 Fall Update, http://www.longislandsoundstudy.net/pubs/news/fall01txt.htm.
[28] Mills, E., M. Scheuerell, D. Strayer and J. Carlton. 1996. Exotic Species in the Hudson River Basin: A History of Invasions and Introductions. 18 Estuaries 814-823.

than half of consumer biomass in the river, and have completely altered the river's ecosystem by consuming 80% of the plankton in the river,[29] causing large declines in valuable open-water fish species such as American shad[30] and the destruction of hundreds of millions of native bivalves.[31] Economic costs of the zebra mussel invasion to water intakes alone have been estimated at $267 million in North America[32] and in the range of $100,000-$1,000,000 per year in the Hudson River alone.[33] Other invaders that are thought to have arrived in ballast water have caused large ecological changes in the Hudson River; these include the Asian shore crab, now very common along the lower Hudson, where it displaces native crabs, the wedge rangia (*Rangia cuneata*), which dominates the waters of the lower Hudson, and the Chinese mitten crab, which appeared in numbers in the Hudson for the first time in 2008, and which has the potential to damage infrastructure (levees and embankments) as well as harm native populations of plants and shellfish.[34] Many other species now traveling around the world in ballast water (e.g., the golden mussel *Limnoperna fortunei*, the amphipod *Corophium curvispinum*, and the ruffe *Gymnocephalus cernuus*) would be able to survive and prosper in the Hudson, where they could contribute to further economic and ecological damage.[35]

<u>Basis for Water Quality Based Effluent Limitation (WQBEL)</u>

The conditions in the Department's 2012 Certification combine water quality protection with operational flexibility. The conditions are protective and provide flexibility to the industry by allowing further development of treatment technology and test protocols before setting a WQBEL.

Under the CWA (40 CFR 131.6(d); 40 CFR 131.12), EPA is obligated to issue WQBELs that will not cause a contravention of any state's water quality standards. This obligation exists even if the supporting data are sparse , as is often the case. Agencies are typically able to issue numerical WQBELs "by making 'conservative' assumptions, using safety factors similar to those used in ecological risk assessments for pollutants, and/or by setting the standards based on the upper confidence limits of predictions of invasions."[36] EPA has often relied on this type of

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[29] Strayer, D.L., N.F. Caraco, J.J. Cole, S. Findlay, and M.L. Pace. 1999. Transformation of freshwater ecosystems by bivalves: a case study of zebra mussels in the Hudson River. 49 BioScience 19-27.
[30] Strayer, D.L., K. Hattala, and A. Kahnle. 2004. Effects of an invasive bivalve (*Dreissena polymorpha*) on fish populations in the Hudson River estuary. 61 Canadian Journal of Fisheries and Aquatic Sciences 924-941.
[31] Strayer, D.L., and H.M. Malcom. 2007. Effects of zebra mussels (*Dreissena polymorpha*) on native bivalves: the beginning of the end or the end of the beginning? Journal of the North American Benthological Society 26: 111-122.
[32] Connelly, N.A.; O'Neill, C.R.; Knuth, B.A. and Brown, T.L. 2007. Economic impacts of zebra mussels on drinking water treatment and electric power generation facilities. 40 Environ. Mgmt. 105-112.
[33] Strayer, D.L. 2006. Alien species in the Hudson River, pp. 296-310 in: J.S. Levinton and J.R. Waldman (eds.). The Hudson River estuary. Cambridge University Press.
[34] Id.; MacDonald, J.A., R. Roudez, T. Glover, and J.S. Weis, 2007, The invasive green crab and Japanese shore crab: behavioral interactions with a native crab species, the blue crab, 9 Biological Invasions 837- 848; NOBANIS, 2008, Invasive species fact sheet. Eriocheir sinensis. http://www.nobanis.org/files/factsheets/Eriocheir_sinensis.pdf.
[35] Ricciardi, A., 1998, Global range expansion of the Asian mussel Limnoperna fortunei (Dunker, 1857) (Bivalvia: Mytilidae): another fouling threat to freshwater systems, 13 Biofouling 97-106; Ricciardi, A., and J.B. Rasmussen, 1998, Predicting the identity of future biological invaders: a priority for aquatic resource management, 55 Canadian Journal of Fisheries and Aquatic Sciences 1759-1765.
[36] H. Lee et al., Density Matters: Review of Approaches to Setting Organism-Based Ballast Water Discharge Standards, U.S. EPA Office of Research and Development, National Health and Environmental Effects Research Laboratory, Western Ecological Division, EPA/600/R-10/031 (2010), at 6.

conservative approach to derive water quality standards or limits for heavy metals and organic chemicals when toxicological datasets have been incomplete. In cases where a federal agency issues a permit such as the VGP that does *not* include a numerical WQBEL, states can and should do so. New York's obligation to do so is driven by its water quality standards, set forth in 6 NYCRR Section 703.2, which prohibit the discharge to state waters of any "deleterious substances" that would violate the best usage of those waters. Biological pollutants, such as AIS, qualify as such substances, and have already significantly impacted the biological integrity of New York's waters. New York has maintained, and successfully defended in Court (*Port of Oswego Auth. v. Grannis*, 70 A.D.3d 1101 (3rd Dep't), *lv. to appeal denied*, 14 N.Y.3d 714 (2010)), its rights to assert this standard in a water quality certification, and to exercise its statutory and regulatory authority to adopt WQBELs containing standards at least two orders of magnitude more stringent than the IMO D-2 standard.

In general, WQBELs are necessary to control pollutants which EPA "determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." 40 C.F.R. § 122.44(d)(1)(i). WQBELs are not based on available control technology, but on what is necessary to achieve water quality standards, *see Am. Paper Inst., Inc., v. U.S. EPA*, 996 F.2d 346, 350 (D.C. Cir. 1993); 40 C.F.R. § 122.44(d)(1). EPA has a legal obligation to ensure that water quality standards are protected in any permit that it issues, including the VGP. *See, e.g.*, *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1163 (9th Cir. 1999) (noting that, under the CWA, EPA "is under specific obligation to require that level of effluent control which is needed to implement existing water quality standards"). This water quality obligation extends to ensuring that the VGP is consistent with the CWA's anti-degradation policy and to provide full protection of existing and designated uses such as the protection and propagation of fish, shellfish, and wildlife, as well as recreation, from aquatic invasive species. *See* 40 C.F.R. § 131.12(a) (anti-degradation); *id.* § 131.6 (designated uses); *see also PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 715-19 (1994). In addition, it is clear that narrative water quality standards can be the basis for a Section 401 Water Quality Certification. S*ee PUD No. 1.*

The requirements for a WQBEL in the VGP are consistent with the established CWA procedures for developing any NPDES permit. EPA – or otherwise a State or Tribe – must evaluate the discharge to determine compliance with Sections 101 and 301(b)(1)(C) of the CWA, and 40 CFR 122.44(d)(1). These require that permits include limits for all pollutants or parameters which are or may be discharged at a level that will cause or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. Therefore, any limits must be stringent enough to ensure that water quality standards are met.

As explained by the U.S. Supreme Court in *PUD No. 1*, the purpose of narrative standards is to allow states to develop numeric limits to address unforeseen new issues that might arise in individual locations on specific facts. Narrative criteria such as "there shall be no discharge of toxic pollutants in toxic amounts" therefore "must be translated into specific limitations for individual projects " *PUD No. 1 v. Washington Dep't of Ecology*, 511 U.S. 700, 716 (1994). The Supreme Court explained that it would be burdensome for a state to be required to study every surface water in the state to a level of great specificity before establishing numeric criteria for a specific site. The Court thus provided states with the flexibility to use narrative criteria that can be translated into numeric limitations for new individual projects with the level of specificity required based on the particular characteristics and designated best uses of the water body where the discharge would occur. Id. at 717-18. See also *Islander East Pipeline Co. v. McCarthy*, 525 F.3d 141, 145 (2d Cir. 2008), which notes that "In applying open-ended standards, ... a state is expected to translate its narrative criteria into 'specific limitations for individual projects'."

EPA's own 'narrative' WQBEL in the draft VGP incorporates the general requirement that the vessel owner/operator must control the discharge(s) such that states' water quality standards are not violated. However, since the IMO D-2 standard may not adequately treat all AIS,[37] *any* discharge of ballast water at the IMO D-2 concentration has the potential to violate state water quality standards and thus violate the VGP. It has been found, for example, that "even with the IMO standards, per-ship discharges in excess of 10^6 total zooplankton remain possible."[38] This would result in a strong likelihood that ballast water discharges subject only to the IMO D-2 standard would have the potential to discharge AIS under the draft VGP.

Thus, a numeric WQBEL is needed but will apparently not be provided by EPA in the foreseeable future. According to the VGP Fact Sheet, EPA determined that it is infeasible to calculate numeric WQBELs for ballast water because "at this time the lack of available data and information prevents a precise quantification of the invasion risk associated with ballast water discharges." Draft VGP Section 1.9.1 (Modification of the VGP) indicates that EPA will consider modifying the permit after the "scientific understanding of …invasion biology has evolved such that new information would have justified the application of significantly more stringent effluent limitations …had this been understood at the time of permit issuance…" The National Research Council (NRC) Committee's report indicates a 10 to 15 year time horizon will be required to obtain the experimental and field data needed to parameterize and ground-truth the risk/release models. While these concerns about data gaps cannot be dismissed, they need to balanced against the likelihood of additional invasions of U.S. and state waters during EPA's proposed WQBEL development period of 10 to 15 years. During this period, the IMO D-2 standard will not be adequately protective. New York finds that numeric WQBELs more stringent than IMO D-2 are justified, and can be developed in the future based on additional data collection, analysis, and modeling. Putting in place a process for developing technologies to meet such standards is consistent with the CWA's technology-forcing requirements.

<u>Basis for Certification conditions</u>

Condition #2 of the Department's 2012 Certification, applicable to vessels entering New York waters from outside the EEZ, effectively serves as an *interim WQBEL* that will be protective of state water quality until a numeric WQBEL is developed and implemented. Condition #2

[37] U.S. EPA, Draft VGP Fact Sheet, p. 125 ("...even at the IMO level of discharge, reasonable potential exists for such discharges to cause or contribute to violations of applicable water quality standards..."); also U.S. Coast Guard, Final Programmatic Environmental Impact Statement for the Ballast Water Discharge Standard, February 2012, esp. pp. ES-7, 4-13 through 4-16, G-11, and G-23..
[38] M.S. Minton et al., "Reducing propagule supply and coastal invasions via ships: Effects of emerging strategies," Front. Ecol. Environ. 3(6), 304-308 (2005).

requires operation of a treatment system that meets IMO D-2 requirements *in conjunction with ballast water exchange or flushing*. This interim WQBEL, justified partly by the known effectiveness of exchange and flushing alone[39] and partly by recent research by Canada's Department of Fisheries and Oceans on the benefits of *combining* exchange and flushing with treatment,[40] has recently undergone land-based testing at the GSI test facility in Superior, Wisconsin.[41] Early results from the GSI land-based tests are consistent with the goal of reducing propagule pressure,[42] at least for fresh and brackish receiving waters, in order to achieve an invasion risk "at least 10 times lower" than would be achieved using ballast water treatment alone.[43] In DEC's judgment, the interim WQBEL meets antidegradation and anti-backsliding requirements relative to DEC's currently effective certification because 1) the treatment-system performance will exceed IMO D-2 for the reasons described above; 2) the exchange and flushing alone will keep "risky" organism concentrations at or below an adverse effects level; and 3) the more stringent conditions of DEC's existing certification are not yet considered technologically achievable and are not yet in effect. In accordance with 40 CFR § 124.53(e)(2), this condition cannot be made less stringent and still comply with the requirements of State law, including State water quality standards.

Condition #4 of the Department's 2012 Certification, setting best management practices (BMPs) for confined laker vessels, is needed to control impacts from these vessels which collectively transport ~70 million tons of ballast water per year within the Great Lakes. Their transfers of ballast water transfers may contribute to species introductions and "are likely the most important ballast-mediated pathway of secondary spread within the Great Lakes."[44] In accordance with 40 CFR § 124.53(e)(2), this condition cannot be made less stringent and still comply with the requirements of State law, including State water quality standards.

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[39] Most of the water and most of the organisms carried in a vessel's ballast tanks are physically expelled during mid-ocean exchange or flushing, and many of the remaining organisms are then killed by salinity shock (osmotic stress) from the ocean water with which the ballast tanks are refilled. *See* paper submitted by Canada to the IMO, BLG 15/5/7, S.A. Bailey et al., "Evaluating Efficacy of an Environmental Policy to Prevent Biological Invasions," Environ. Sci. Technol. 45, 2554–61 (2011), at 2557 and 2559, paragraphs 8 and 9; S.A. Bailey et al. (2011), *op. cit*., at 2555-56. In our existing certification dated 2008, we indicated that ballast water exchange produces variable results and is "therefore unprotective as an ongoing permit condition;" however, the effectiveness of exchange and flushing has been (re)confirmed by recent work. *See* S.A. Bailey et al. (2011), *op. cit*., E. Briski et al., Efficacy of 'saltwater flushing' in protecting the Great Lakes from biological invasions by invertebrate eggs in ships' ballast sediment, Freshwater Biology 55, 2414-2424 (2010); S. Ellis and H. MacIsaac, Salinity tolerance of Great Lakes invaders, Freshwater Biology 54, 77-89 (2009); S. Santagata et al., Effects of osmotic shock as a management strategy to reduce transfers of non-indigenous species among low-salinity ports by ships, Aquatic Invasions 3, 61-76 (2008); D.F. Reid et al., Identifying, Verifying, and Establishing Options for Best Management Practices for NOBOB Vessels, Final Report, NOAA (June 2007).

[40] Paper submitted by Canada to the IMO, BLG 15/5/7, *op. cit*. Note that, in addition to the benefits derived from physical expulsion and salinity shock, the combined process allows treatment systems to operate on a more uniform and more biologically sparse feed water.

[41] Publication of test results pending.

[42] Sarah Bailey, DFO Canada, *pers. comm.* (describing early results in general terms).

[43] Paper submitted by Canada to the IMO, BLG 15/5/7, *op. cit*., paragraph 18.

[44] M.P. Rup et al., Domestic ballast operations on the Great Lakes: potential importance of Lakers as a vector for introduction and spread of non-indigenous species, Canadian Journal of Fisheries and Aquatic Sciences 67(2), 256-268 (2010).

In Condition #5 of the Department's 2012 Certification, the monitoring requirements for >50 µm and 10-50 µm organisms are needed as a check on the effectiveness of Conditions #2 and #3 as interim WQBEL measures, *i.e*., whether they serve as protective interim substitutes for the WQBEL. The monitoring condition will thus satisfy 40 CFR § 122.44 (i), which requires monitoring to assure compliance with permit limitations at a minimum frequency of once per year. Implementation of the above monitoring requirements will also build capacity for the expertise and types of specialized equipment needed for effective and economical monitoring of ballast water discharges. Note that the results of such monitoring will need to be interpreted with caution for fresh and brackish receiving waters, since total organism concentrations will typically differ from "risky" organism concentrations. "Non-risky" organisms may include those discussed above that are unlikely to survive in brackish and freshwater environments, and may also include those that cannot be considered invasive because they are native to and/or already established in the receiving waters.[45] In accordance with 40 CFR § 124.53(e)(2), this condition cannot be made less stringent and still comply with the requirements of State law, including State water quality standards.

Condition #6 the Department's 2012 Certification, prohibiting discharge of bilge water in New York waters, is consistent with Condition #5 of the Department's currently effective certification dated December 17, 2008. The bilge water discharge prohibition in Condition #6 is necessary because the suite of bilge water BMPs proposed in the VGP is insufficient. These BMPs include prohibitions on releases of certain chemicals, including dispersants, detergents, emulsifiers, chemicals, and other substances that remove the appearance of a visible sheen from bilge water discharges; however, DEC finds that an outright prohibition on bilge water discharge is needed to protect water quality. Bilge water is waste water accumulated in the bottom part of a vessel from the engine room and other mechanical parts of the vessel. It is typically contaminated with petroleum including volatile and semi-volatile organic compounds like benzene and polycyclic aromatic hydrocarbons. Even with the BMPs in the VGP, bilge water could contain elevated level of hazardous chemicals that could be harmful to the ecosystem. The discharge of bilge water qualifies as a pollutant discharge from a point source, pursuant to the Clean Water Act and State law, and should be properly regulated to protect the waters of the United States. In accordance with 40 CFR § 124.53(e)(2), this condition cannot be made less stringent and still comply with the requirements of State law, including State water quality standards.

It should be noted that the discharge of sewage is not covered by either this certification or the VGP because sewage discharge is governed by the Marine Sanitation Devices requirements of the Clean Water Act, 33 U.S.C. 1322.

[45] See comment on NOBOB vessels submitted 2/21/12 by B. Smith, Docket No. EPA–HQ–OW–2011–0141-0553.