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Alexander B. Grannis
Commissioner

November 3, 2008

Ms. Barbara Finazzo
Director
Division of Environmental Planning and Protection
United States Environmental Protection Agency
290 Broadway, 25th Floor
New York, New York 10007-1866

Re: Clean Water Act Section 401 Certification for
Commercial Vessel and Large Recreational Vessel General Permit

Dear Ms. Finazzo:

This certification is issued by the Department of Environmental Conservation (Department or DEC) pursuant to Section 401 of the Federal Clean Water Act (CWA or Act), 33 U.S.C. § 1341, in response to Mr. Walter Mugdan's letter of July 9, 2008 to Mr. James G. DeZolt, P.E., Director, Division of Water, and is based on the information and materials included in Docket ID No. EPA-HQ-OW-2008-0055, available at http://www.regulations.gov.

DEC certifies there is a reasonable assurance that discharges from vessels covered by the United States Environmental Protection Agency General Permit for discharges incidental to the normal operation of commercial vessels and large recreational vessels (VGP) will comply with the applicable provisions of 33 U.S.C §§ 1311, 1312, 1313, 1316, 1317 and 1341, (CWA §§ 301, 302, 303, 306, 307 and 401), and that permittees and their activities will not contravene applicable limitations, standards and other appropriate requirements of State law, provided the following conditions set forth in the Certification are met.

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 propogation 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 further explained herein, Conditions #1-6 of this Certification 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), the CWA and State law provisions cited above form the

basis for each of Conditions #1-6 of this Certification. In accordance with 40 CFR § 124.53 (e)(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, this water quality certification is necessary.

This certification shall expire five years after the date of issuance of the EPA's VGP.

Note that all studies, reports, authorities and other documents cited herein are incorporated into this Certification by reference.

Certification Conditions for the VGP

1. The operator of any vessel covered under the VGP whose voyage originates from within the exclusive economic zone[1] and enters New York waters with ballast on board, shall conduct ballast water exchange at least 50 nautical miles from shore and in water at least 200 meters in depth. Such vessels that carry only residual amounts of ballast water and/ or sediments shall conduct saltwater flushing of their ballast water tanks, at least 50 nautical miles from shore and in water at least 200 meters in depth.

   Ballast water exchange is defined as at least 1 empty and refill cycle of each ballast tank that contains ballast water, resulting in a salinity level of at least 30 parts per thousand (ppt). If the master of a vessel determines that such exchange is impracticable, a sufficient number of flow-through exchanges of ballast water may be conducted to achieve replacement of at least 95 percent of ballast water in ballast tanks of the vessel, resulting in a salinity level of at least 30 ppt.

   Saltwater flushing is defined as the addition of ocean water to ballast water tanks, the mixing of the flushwater with residual water and sediment through the motion of the vessel, and the discharge of the mixed water, such that the resulting residual water has a salinity level of at least 30 ppt.

   All vessels entering New York waters must maintain the ability to measure salinity levels in each tank onboard the vessel so that salinities of at least 30 ppt can be ensured.

   This condition does not apply to vessel(s):
   (i) that operate exclusively in the Great Lakes - St. Lawrence Seaway System upstream of Montreal, Quebec, or
   (ii) operating exclusively within waters of New York Harbor and Long Island Sound, or
   (iii) entering New York waters from ports of call within New Jersey and Connecticut waters which are included in the definition of "waters of New York Harbor and Long Island Sound," provided that the vessel has met the requirements of this

[1] "Exclusive Economic Zone" (EEZ) means the area established by Presidential Proclamation Number 5030, dated March 10, 1983 (48 FR 10605, 3 CFR, 1983 Comp., p. 22) which extends from the base line of the territorial sea of the United States seaward 200 miles, and the equivalent zone of Canada. [source: 33 C.F.R. 151.2025]

condition prior to entering the waters of New York Harbor and Long Island Sound, or

(iv) that have met the requirements of Condition #2 or Condition #3, or

(v) that carry only permanent ballast water, all of which is in sealed tanks that are not subject to discharge, or

(vi) of the Armed Forces, or

(vii) of the National Defense Reserve Fleet that are scheduled to be disposed of through scrapping or sinking.

This condition does not apply to the discharge of ballast water if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition. If a vessel is unable to conduct ballast water exchange, or flushing, as specified, due to serious safety concerns as specified above, the operator of any vessel with ballast on board shall take reasonable measures to avoid discharge of organisms in ballast water and shall inform the Department in writing of the measures taken.

For purposes of this condition, "waters of New York Harbor and Long Island Sound" means waters in and around New York City, consisting of the waters, tributaries, bays, harbors, inlets, coves, channels, and other waterways within Lower and Upper New York Bay, Jamaica Bay, Raritan Bay, Newark Bay, Hudson River south of the Tappan Zee Bridge, Harlem River, East River, Gravesend Bay, Flushing Bay, Eastchester Bay, the Kills, and Long Island Sound.

2. By not later than January 1, 2012, each vessel covered under the VGP that operates in New York waters, shall have a ballast water treatment system that meets the following standards, subject to the exceptions listed below.

(A) *Standard for organisms 50 or more micrometers in minimum dimension*: Any ballast water discharged shall contain less than 1 living organism per 10 cubic meters.

(B) *Standard for organisms less than 50 micrometers in minimum dimension and more than 10 micrometers in minimum dimension*: Any ballast water discharged shall contain less than 1 living organism per 10 milliliters.

(C) *Standards for indicator microbes*:

(i) Any ballast water discharged shall contain less than 1 colony-forming unit of toxicogenic *Vibrio cholera* (serotypes O1 and O139) per 100 milliliters or less than 1 colony-forming unit of that microbe per gram of wet weight of zoological samples;

(ii) Any ballast water discharged shall contain less than 126 colony-forming units of *escherichia coli* per 100 milliliters; and

(iii) Any ballast water discharged shall contain less than 33 colony-forming units of intestinal enterococci per 100 milliliters.

(D) This condition does not apply to vessel(s):

(i) operating exclusively within waters of New York Harbor and Long Island Sound. For purposes of this condition, "waters of New York Harbor and Long Island Sound" has the same meaning as in Condition #1, or
(ii) that carry only permanent ballast water, all of which is in sealed tanks that are not subject to discharge, or
(iii) of the Armed Forces, or
(iv) of the National Defense Reserve Fleet that are scheduled to be disposed of through scrapping or sinking, or
(v) operating exclusively within Lake Ontario or exclusively within Lake Erie.

No extensions will be made to this implementation date, unless an entity covered under the permit makes a request for an extension to the Department and can provide sufficient justification for such a request. Any such extension request shall state and demonstrate that: (1) there is a shortage in supply of the technology necessary to meet the limits set forth in this certification, or a vessel-specific engineering constraint, or other factor related to the availability and installation of technology beyond the vessel owner/operator's control, that delays the technology being available and installed in time to comply with this standard; (2) the unavailability of supply or installation constraint is the only reason the January 1, 2012 date cannot be met; and (3) the vessel has exhausted all other options to comply with this standard. Any extension request must be made no later than June 30, 2010, and the extension request shall indicate when the vessel will come into compliance with this deadline.

3. Each vessel constructed on or after January 1, 2013 that is covered under the VGP and operates in New York waters, shall have a ballast water treatment system that meets the following standards, subject to the exceptions listed below.

(A) *Standard for organisms 50 or more micrometers in minimum dimension*: Any ballast water discharged shall contain no detectable living organisms.

(B) *Standard for organisms less than 50 micrometers in minimum dimension and more than 10 micrometers in minimum dimension*: Any ballast water discharged shall contain less than 0.01 living organism per milliliter.

(C) *Standards for indicator microbes*:
(i) Any ballast water discharged shall contain less than 1 colony-forming unit of toxicogenic *Vibrio cholera* (serotypes O1 and O139) per 100 milliliters or less than 1 colony-forming unit of that microbe per gram of wet weight of zoological samples;
(ii) Any ballast water discharged shall contain less than 126 colony-forming units of *escherichia coli* per 100 milliliters; and
(iii) Any ballast water discharged shall contain less than 33 colony-forming units of intestinal enterococci per 100 milliliters.

(D) *Standard for bacteria*: Any ballast water discharged shall contain less than 1,000 bacteria per 100 milliliters.

(E) *Standard for viruses*: Any ballast water discharged shall contain less than 10,000 viruses per 100 milliliters.

(F) For purposes of this condition, "Constructed" means a stage of vessel construction where:
(i) the keel is laid; or
(ii) construction identifiable with a specific vessel begins; or
(iii) assembly of the vessel has commenced comprising at least 50 tonnes or 1 percent of the estimated mass of all structural material, whichever is less; or
(iv) the vessel undergoes a major conversion.

(G) In the context of this condition, "Major Conversion" means a conversion of a vessel;
(i) which changes its ballast water carrying capacity by 15 percent or greater; or
(ii) which changes the vessel type; or
(iii) which, in the opinion of the Department, is projected to prolong its life by ten years or more; or
(iv) which results in modifications to its ballast water system other than component replacement-in-kind.

(H) This condition does not apply to vessel(s):
(i) operating exclusively within waters of New York Harbor and Long Island Sound. For purposes of this condition, "waters of New York Harbor and Long Island Sound" has the same meaning as in Condition #1, or
(ii) that carry only permanent ballast water, all of which is in sealed tanks that are not subject to discharge, or
(iii) of the Armed Forces, or
(iv) of the National Defense Reserve Fleet that are scheduled to be disposed of through scrapping or sinking, or
(v) operating exclusively within Lake Ontario or exclusively within Lake Erie.

No extensions will be made to this implementation date, unless an entity covered under the permit makes a request for an extension to the Department and can provide sufficient justification for such a request. Any such extension request shall state and demonstrate that: (1) there is a shortage in supply of the technology necessary to meet the limits set forth in this certification or other factor related to the availability and installation of technology beyond the vessel owner/operator's control, that delays the technology being available and installed in time to comply with this standard; (2) the unavailability of supply is the only reason the January 1, 2013 date cannot be met; and (3) the vessel has exhausted all other options to comply with this standard. Any extension request must be made no later than June 30, 2011, and the extension request shall indicate when the vessel will come into compliance with this deadline.

4. Effective January 1, 2012, any vessel covered under the VGP that operates in New York waters may not discharge treated or untreated graywater into New York waters within 3 nautical miles of shoreline, or within Long Island Sound or New York Harbor. This limit is in effect regardless of a vessel's traveling speed.

No extensions will be made to this implementation date, unless an entity covered under the permit makes a request for an extension to the Department and can provide sufficient justification for such a request. Any such extension request shall state and demonstrate that: (1) there is a shortage in supply of the technology necessary to meet the limits set forth in this certification, or a vessel-specific engineering constraint or other factor related to the availability and installation of technology beyond the vessel owner/operator's control, that delays the technology being available and installed in time to comply with this standard; (2) the unavailability of supply or installation constraint is the only reason the January 1, 2012 date cannot be met; and (3) the vessel has exhausted all other options to comply with this standard. Any extension request must be made no later than June 30, 2010, and the extension request shall indicate when the vessel will come into compliance with this deadline.

5. Effective January 1, 2012, any vessel covered under the VGP that operates in New York waters may not discharge treated or untreated bilge water into New York Waters.

   This condition does not apply to the discharge of bilge water if the master of the vessel determines that compliance with this condition would threaten the safety or stability of the vessel, its crew, or its passengers because of adverse weather, equipment failure, or any other relevant condition.

   No extensions will be made to this implementation date, unless an entity covered under the permit makes a request for an extension to the Department and can provide sufficient justification for such a request. Any such extension request shall state and demonstrate that: (1) there is a shortage in supply of the technology necessary to meet the limits set forth in this certification, or a vessel-specific engineering constraint or other factor related to the availability and installation of technology beyond the vessel owner/operator's control, that delays the technology being available and installed in time to comply with this standard; (2) the unavailability of supply or installation constraint is the only reason the January 1, 2012 date cannot be met; and (3) the vessel has exhausted all other options to comply with this standard. Any extension request must be made no later than June 30, 2010, and the extension request shall indicate when the vessel will come into compliance with this deadline.

6. 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 this certification letter 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 this certification letter 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, there is evidence that 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 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 inferring that water quality will be further impaired by additional, future introductions of invasive species and that impairments to New York's water quality will be caused by discharges of such species to adjacent, connected 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,[2] quickly spread into New York waters and throughout the Great Lakes and beyond. The rapid spread of the zebra mussel during the past twenty years 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

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[2] NOAA, National Center for Research on Aquatic Invasive Species, Great Lakes Aquatic Nonindigenous Species List (www.glerl.noaa.gov/res/Programs/ncrais/great_lakes_list.html).

[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/flora-fauna/invasive/goby.html).

[5] U.S. Geological Survey, Nonindigenous 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, Nonindigenous Aquatic Species (NAS) Program (http://nas.er.usgs.gov/AlertSystem/default.asp), NAS Alert System results for New York.

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.

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] 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.[11] Because the Great Lakes contain fresh water, 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).[12] 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.[13]

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.[14] They have harmed the region's commercial and recreational fishing industries and damaged its public water and energy generating infrastructure.[15] 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.[16] The zebra mussel readily attaches to submerged hard surfaces including rocky

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[8] Great Lakes Information Network, "Spiny Water Flea in the Great Lakes Region" (www.great-lakes.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).

[11] 16 U.S.C. §4701(a)

[12] 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).

[13] Id.

[14] 16 U.S.C. §4701(a).

[15] Id.

[16] 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).

shoals, water intake pipes and docks, forming dense layered colonies that have approached one million mussels per square meter.[17] 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.[18] Congress estimates that the economic disruption to communities, just from the zebra mussel, has already cost billions of dollars.[19] 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.[20] 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.[21]

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 last three 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.[22]

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

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

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

[19] 16 U.S.C. §4701(a)(4).

[20] 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).

[21] Corn et al., op. cit.; Michigan Dept. of Natural Resources, op. cit.

[22] 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).

cryptogenic species have been identified in Long Island Sound.[23] 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.[24] 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.[25]

In the Hudson River basin, at least 113 nonindigenous species have established populations.[26] 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 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,[27] causing large declines in valuable open-water fish species such as American shad[28] and the destruction of hundreds of millions of native bivalves.[29] Economic costs of the zebra mussel invasion to water intakes alone have been estimated at $267 million in North

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[23] 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.

[24] Science Daily, Japanese Shore Crabs Invade Penobscot Bay, Maine, http://www.sciencedaily.com/releases/2002/07/020719073146.htm (July 19, 2002).

[25] Long Island Sound Study, 2001 Fall Update, http://www.longislandsoundstudy.net/pubs/news/fall01txt.htm.

[26] 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.

[27] 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.

[28] 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.

[29] 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.

America[30] and in the range of $100,000-$1,000,000 per year in the Hudson River alone.[31] 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.[32] 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.[33]

Less stringent conditions than those set forth in this certification letter are not sufficient to prevent the impairment of New York's waters for their best usage such as fish, shellfish, and wildlife propagation and survival for the following reasons. As stated in a recent California report on ballast water standards, "Reports submitted as part of the IMO Convention suggest that the standards adopted by IMO would only be a marginal improvement on current management practices of ballast water exchange for the largest organisms (>50 μm) and may be similar to unmanaged ballast water for the smaller organisms (<50 μm) (Table V-1, MEPC 49/2/12003) (Section VII 'Scientific Considerations')."[34] These IMO standards – considered to be no more than a marginal improvement over the practice of ballast water exchange – are not included in this certification. The IMO standards are concentration-based, which is beneficial, yet they are not sufficiently protective. More stringent concentration-based standards are needed to protect New York's waters and are specified as conditions in this certification.

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[30] 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.

[31] 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.

[32] 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.

[33] 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.

[34] M. Falkner et al., "California State Lands Commission Report on Performance Standards for Ballast Water Discharges in California Waters," California State Lands Commission, Marine Facilities Division, January 2006, at 34.

In general, concentration-based numerical discharge standards are needed as a replacement for ballast water exchange because the results of ballast water exchange are so highly variable[35] and therefore unprotective as an ongoing permit condition. As stated in the California report, "Concentration based standards...would specify a specific concentration of organisms that could be discharged following treatment, regardless of source port concentrations.... Concentration based standards allow for the consideration of both a protection level to reduce risk, as well as technical consistency, such as detection limits."[36] Both New York and California routinely use concentration-based standards for protection of water and air quality.

The State of California recently promulgated relatively stringent concentration-based standards[37] that "encompass several...desirable characteristics: they are significantly better than ballast water exchange, they are in-line with the best professional judgment from the scientific experts participating in the IMO Convention, and they do approach a protective zero discharge standard."[38] These standards are based primarily on recommendations made by U.S. government representatives participating in the IMO Convention[39] and were subsequently recommended by the California Performance Standards Advisory Panel in its Majority Report.[40] The standards, considered to be approximately a 1000-fold improvement over ballast water exchange,[41] provide a reasonable basis for protection of New York waters and are adopted as a condition (Condition #3) for new ships constructed after January 1, 2013 that operate in New York waters. New York finds that the standards set forth in Condition #3 are needed to prevent impairment of waters for their best usage and are thus needed to comply with the New York State statutes and regulations set forth above. In accordance with 40 CFR 124.53 (e)(3), this condition cannot be made less stringent and still comply with State water quality standards.

New York has set a reasonable compliance schedule for ships operating in New York waters and has allowed an additional year or more beyond the California implementation schedule. This additional time is intended to alleviate possible congestion problems for

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[35] Id., esp. Fig. VII-1 at 18.

[36] Id. at 16.

[37] California Title 2, Division 3, Chapter 1, Article 4.7, Performance Standards for the Discharge of Ballast Water For Vessels Operating in California Waters (2007).

[38] M. Falkner et al., op. cit., at 36-37.

[39] Id. at 19; Submission by the United States to IMO on Ballast Water Discharge Standards, Regulation D-2, document BWM/CONF/14 (2004).

[40] M. Falkner et al., op. cit., at 32; Report and Recommendations of the California Advisory Panel on Ballast Water Performance Standards, October 2005.

[41] M. Falkner et al., op. cit., at 19.

shipyards or possible supply problems for equipment vendors that might occur if simultaneous compliance were required in New York and California.

Other standards, considered to be approximately a 100-fold improvement over ballast water exchange, are adopted as a condition that must be met by all ships covered by the VGP that operate in New York waters after January 1, 2012. These standards are based partly on recommendations made by the International Study Group on Ballast Water and Other Ship Vectors[42] and partly on the widely discussed numeric limits proposed in the recent House of Representatives bill #H.R. 2830. The standards, which provide a reasonable basis for protection of New York waters and are implemented on a reasonable compliance schedule, are adopted as Condition #2 in this certification. New York finds that the standards set forth in Condition #2 are needed to prevent impairment of waters for their best usage and are thus needed to comply with the New York State statutes and regulations set forth above. In accordance with 40 CFR 124.53 (e)(3), this condition cannot be made less stringent and still comply with State water quality standards.

It should be noted that this certification is only effective for the next five years. Since some period of time is required to allow vessels to install the technology needed to meet the conditions of this certification, the Department has sought to provide reasonable notice and time allowance. It is the Department's intention to apply the relatively stringent standards set forth in Condition #3 to all ships operating in New York waters in the next water quality certification to be filed after the expiration of this one.

Ballast water exchange or flushing, as already required by the VGP for many vessels, is widely recognized as a beneficial but imperfect way to reduce invasive species introductions in ballast water discharges. Condition #1 extends the requirement of exchange or flushing to certain other vessels that enter New York waters on coastal voyages, thereby reducing the likelihood of invasions from other coastal waters such as Chesapeake Bay. New York finds that the standards set forth in Condition #1 are needed to prevent impairment of waters for their best usage and are thus needed to comply with the New York State statutes and regulations set forth above. In accordance with 40 CFR 124.53 (e)(3), this condition cannot be made less stringent and still comply with State water quality standards.

Condition #4 and Condition #5 restrict discharges of bilge water and graywater in order to protect New York's coastal waters from contaminants, nutrients, and bacterial and viral agents. New York finds that the standards set forth in Condition #4 and Condition #5 are needed to prevent impairment of waters for their best usage and are thus needed to comply with the New York State statutes and regulations set forth above. In accordance with 40 CFR 124.53 (e)(3), these conditions cannot be made less stringent and still comply with 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.

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[42] Id.

7. The contact point for consultation, submittals, and approvals as referred to in this Certification is:

Francis G. Zagorski
NYS DEC
Divison of Water, 4th Floor
625 Broadway
Albany, New York 12233-3505

The DEC reserves the right to challenge the EPA's VGP.

Should you require further information regarding this Certification, please contact Mr. Francis G. Zagorski at 518-402-8168.

Sincerely,

William R. Adriance

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