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Re: Notice of Violations of the Endangered Species Act Regarding Approval of Water Quality Standards in New Hampshire, Vermont, Maine, and Connecticut

On behalf of the Center for Biological Diversity and Northwest Environmental Advocates (collectively, "Environmental Groups"), we hereby provide notice of the Environmental Groups' intent to sue the United States Environmental Protection Agency ("EPA"), pursuant to section 11(g) of the Endangered Species Act ("ESA" or "Act"), 16 U.S.C. § 1540(g)(2)(A)(i), for violations of the ESA. The Center is a non-profit, public interest corporation with approximately one million members and supporters throughout the United States. The Center and its members are dedicated to protecting diverse native species and habitats through science, policy, education, and law. The Center's freshwater campaigns seek to improve water quality across the country and avert the extinction of freshwater and anadromous species that are harmed by degraded water quality. Northwest Environmental Advocates ("NWEA") is a non-profit environmental organization founded in 1969 and based in Portland, Oregon, with members located throughout the country, including in New England. NWEA's mission is to work through advocacy and education to protect and restore water and air quality, wetlands, and wildlife habitat. NWEA has spent decades working to improve water quality and water quality programs both in the Northwest and on a national level. The Environmental Groups and their members are harmed by EPA's continuing failures to take meaningful action to protect threatened and endangered species through ESA consultation on EPA-approved water quality standards.

EPA has violated the ESA's section 7(a)(2) consultation requirement regarding its discretionary decisions to approve substantive changes to the water quality standards for aquatic life for various pollutants in Vermont, New Hampshire, Maine, and Connecticut. Because EPA's actions cross the "may affect" threshold, and could negatively impact species listed under the ESA, EPA's failure to initiate consultations with the U.S. Fish and Wildlife Service ("FWS")

and the National Marine Fisheries Service (“NMFS”) (collectively “the Services”) violates the ESA. EPA’s failure to consult with the Services also harms the Environmental Groups and their members’ interests by undermining the procedural requirements of the ESA, which ensure that agencies, such as EPA, make informed decisions and act in conformity with the Act’s substantive requirements.

The substantive changes to water quality standards, approved by EPA, could jeopardize federally-listed species and adversely modify the critical habitat of listed species, but most certainly “may affect” ESA protected species and habitat. Although some of the changes have made the standards more stringent, the purpose of consultations is to not only avoid jeopardy and adverse modification of critical habitat, but to also minimize take of listed species and move them towards recovery.

LEGAL BACKGROUND

A. The Endangered Species Act

The ESA was enacted, in part, to provide a “means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...[and] a program for the conservation of such endangered species and threatened species....”¹ The ESA vests primary responsibility for administering and enforcing the statute with the Secretaries of Commerce and Interior, who have delegated this responsibility to NMFS and FWS, respectively.²

Section 2(c) of the ESA establishes that it is “the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.”³ The ESA defines “conservation” to mean “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.”⁴

In order to fulfill the substantive purposes of the ESA, federal agencies are required to engage in consultation with the Services to “insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species.”⁵

Section 7 consultation is required for “any action [that] may affect listed species or critical habitat.”⁶ Agency “action” is broadly defined in the ESA’s implementing regulations to include “all activities . . . of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies.”⁷ The Services’ regulations provide the following examples of agency actions:

¹ 16 U.S.C. §§ 1531-1544; 16 U.S.C. § 1531(b).

² 50 C.F.R. § 402.01(b).

³ 16 U.S.C. § 1531(c)(1).

⁴ 16 U.S.C. § 1532(3).

⁵ 16 U.S.C. § 1536(a)(2).

⁶ 50 C.F.R. § 402.14.

⁷ 50 C.F.R. § 402.02.

- (a) actions intended to conserve listed species or their habitat;
- (b) the promulgation of regulations;
- (c) granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or
- (d) actions directly or indirectly causing modifications to the land, water, or air.⁸

At the completion of consultation, FWS or NMFS issues a biological opinion that determines whether the agency action is likely to jeopardize the species or adversely affect its critical habitat. If jeopardy, or adverse modification or destruction of critical habitat, is found, then the biological opinion must specify reasonable and prudent alternatives (“RPAs”) that will avoid jeopardy and allow the agency to proceed with the action.⁹ Where an action does not jeopardize a listed species or adversely modify or destroy critical habitat, the Services must provide an incidental take statement (ITS) and must also provide reasonable and prudent measures (“RPMs”) to minimize the impact of any taking of listed species.¹⁰

Section 7 requires that EPA consult with the Services on any of its agency actions “in which there is discretionary Federal involvement or control.”¹¹ EPA’s approval of new or revised state water quality standards qualifies as an agency action over which EPA exercises considerable discretionary involvement and control.¹² EPA has ample discretion in administering the state water quality standard review process “to consider the protection of threatened or endangered species as an end in itself.”¹³

B. The Clean Water Act

The objective of the Clean Water Act (“CWA”) is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”¹⁴ The CWA sets a “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.”¹⁵

Under section 303(c)(3), states must set water quality standards, and then must review them every three years, and consider whether to revise their standards.¹⁶ Water quality standards under the CWA must protect all existing uses in a waterbody. States must submit all new or revised water quality standards to EPA for review.¹⁷ EPA is required to review these changes to ensure revisions in designated water uses are consistent with the CWA and that new or revised criteria protect the designated uses. If EPA disapproves a state’s water quality standards, EPA must specify “the changes needed to assure compliance with the requirements of the Act and this regulation, and shall explain why the State standard is not in compliance with such

⁸ *Id.*

⁹ 16 U.S.C. § 1536(b).

¹⁰ 50 C.F.R. § 402.14.

¹¹ 50 C.F.R. § 402.03

¹² 50 C.F.R. § 402.02 (defining “action”).

¹³ *Florida Key Deer v. Paulison*, 522 F.3d 1133, 1141 (11th Cir. 2008) (citing *Nat’l Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 671 (2007)); see also *NRDC v. Jewell*, 749 F.3d 776, 784 (9th Cir. 2014); *Am. Rivers, Inc. v. United States Army Corps of Eng’rs.*, 421 F.3d 618, 630-631 (8th Cir. 2005)

¹⁴ 33 U.S.C. § 1251(a).

¹⁵ 33 U.S.C. § 1251(a)(2).

¹⁶ 33 U.S.C. § 1313(c)(3).

¹⁷ *Id.*

requirements.”¹⁸ If the state fails to adopt the changes within 90 days, then EPA “shall promptly propose and promulgate such standard.”¹⁹

Section 303(c)(2)(B) requires states to adopt water quality criteria for toxic pollutants listed pursuant to section 307(a)(1) for which EPA has published criteria under 304(a) where the discharge or presence of these toxics could reasonably be expected to interfere with the designated uses adopted by the state. When formulating such standards, the State should establish numerical values based on (1) the 304(a) Guidance; (2) 304(a) guidance modified to reflect site-specific conditions; or (3) other scientifically defensible methods.²⁰

EPA’S APPROVAL OF WATER QUALITY STANDARDS IN NEW HAMPSHIRE, VERMONT, MAINE, AND CONNECTICUT

A. New Hampshire

On January 14, 2013, New Hampshire submitted proposed changes to its water quality standards for aquatic life to EPA for approval. On September 17, 2013, EPA approved the following changes to the New Hampshire aquatic life water quality standards:²¹

- An update to the criteria in Env-Wq 1703.21 Table 1703.1 for selenium, cadmium and silver to protect aquatic life, consistent with EPA’s National Recommended Water Quality Criteria.
- The addition of Streamlined Water-Effect Ratio and Biotic Ligand Model procedures as options for determining site specific criteria for copper in Env-Wq 1703.21 and 1704.02(b).

B. Vermont

On October 27, 2014, Vermont submitted its proposed changes to its water quality standards for aquatic life to EPA for approval. On September 15, 2015, EPA approved the following changes to the Vermont aquatic life water quality standards:²²

- Adoption of new chloride criteria and revisions to the toxic substances criteria for the protection of aquatic life consistent with EPA’s guidance under section 304(a) of the federal Clean Water Act.
- Adoption of new numeric criteria for phosphorus in combination with appropriate response variables to protect the designated uses of aesthetics in lakes and reservoirs and aquatic life in medium and high-gradient wadeable streams.

¹⁸ 40 C.F.R. § 131.21.

¹⁹ *Id.*

²⁰ 40 CFR § 131.11(b).

²¹ U.S. EPA. 2013. Letter to Mr. Thomas S. Burack, Commissioner, New Hampshire Department of Environmental Services. Attached as Appendix A.

²² U.S. EPA. 2015A. Letter to Alyssa Schufen, Commissioner, Vermont Department of Environmental Conservation. Attached as Appendix A.

Specifically, Vermont changed the following criteria:²³

- The cadmium acute aquatic life standard was changed from 1.74 µg/l to 1.03 µg/l, and the chronic aquatic life standard was changed from 0.62 µg/l to 0.15 µg/l.
- The chromium acute aquatic life standard was changed from 311 µg/l to 322 µg/l, and the chronic aquatic life standard was changed from 101 µg/l to 42 µg/l.
- The copper acute aquatic life standard was changed from 8.8 µg/l to 7.0 µg/l, and the chronic aquatic life standard was changed from 6.24 µg/l to 4.95 µg/l.
- The nickel acute aquatic life standard was changed from 786 µg/l to 260 µg/l, and the chronic aquatic life standard was changed from 87.4 µg/l to 29 µg/l.
- The silver acute aquatic life standard was changed from 1.05 µg/l to 1.02 µg/l
- The zinc acute aquatic life standard was changed from 63.5 µg/l to 65.13 µg/l, and the chronic aquatic life standard was changed from 58.0 µg/l to 65.6 µg/l.
- The arsenic acute aquatic life standard was changed from 360 µg/l to 340 µg/l, and the chronic aquatic life standard was changed from 190 µg/l to 150 µg/l.
- The selenium acute aquatic life standard was changed from 20 µg/l to $1/[(f1/MAC1) + (f2/MAC2)]$ where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and MAC1 and MAC2 are 185.9 g/l and 12.82 g/l, respectively.
- The pentachlorophenol acute aquatic life standard was changed from $\exp(1.005)(\text{pH})-4.86$ to $19(1.005(\text{pH})-4.869)$ corresponding to a pH level of 7.8, and the chronic aquatic life standard was changed from $\exp(1.005)(\text{pH})-5.13$ to $15(1.005(\text{pH})-5.134)$ for chronic exposure, corresponding to a pH value of 7.8.
- The endrin acute aquatic life standard was changed from 0.18 µg/l to 0.086 µg/l, and the chronic aquatic life standard was changed from 0.0023 µg/l to 0.036 µg/l
- The ammonia standards were changed to reflect the CWA section 304(a) criteria set by EPA in 2013.
- A chloride acute aquatic life standard was established at 860 µg/l, and a chronic aquatic life standard was set at 230 µg/l.
- An acrolein acute and chronic aquatic life standard was established at 3 µg/l.
- An aldrin acute aquatic life standard was set at 3.0 µg/l for acute exposure.
- A carbaryl acute and chronic aquatic life standard was established at 2.1 µg/l.
- A diazinon acute and chronic aquatic life standard was established at 0.17 µg/l.
- The benzene hexachloride gamma (lindane) acute aquatic life standard was changed from 2.0 µg/l to 0.95 µg/l, and the chronic aquatic life standard was removed entirely.
- The nonylphenol acute aquatic life standard was established at 28 µg/l and the chronic aquatic life standard was established at 6.6 µg/l.
- The mercury acute aquatic life standard was changed from 2.4 µg/l to 1.4 µg/l.
- The aquatic life standards for individual polychlorinated biphenyl (“PCB”) congeners were removed and replaced with a new Total PCB chronic aquatic life criterion of 0.014 µg/l for freshwater.

²³ Unless otherwise stated in the NOI, the listed aquatic life standards approved by EPA apply to freshwater.

C. Maine

On January 14, 2013, the Maine Department of Environmental Protection submitted revisions of its surface water quality standards to EPA for approval. On February 2nd, 2015, EPA approved in part and disapproved in part Maine's submission.²⁴ EPA approved the following standards for aquatic life that may affect listed species:

- A diazinon acute and chronic aquatic life standard for freshwater was established at 0.17 µg/l, and an acute and a chronic aquatic life standard for saltwater was established at 0.82 µg/l.
- A nonylphenol acute aquatic life standard for freshwater was established at 28 µg/l, and a chronic aquatic life standard was established at 6.6 µg/l; an acute aquatic life standard for saltwater was established at 7 µg/l, and a chronic aquatic life standard was set at 1.7 µg/l.
- An acrolein acute and chronic aquatic life standard was established at 3 µg/l.

On June 5, 2015, EPA approved several additional standards criteria for aquatic life that may affect listed species:²⁵

- 38 M.R.S. § 464(4.H) – Habitat and aquatic life criteria for new (post-1992) hydropower projects.
- 38 M.R.S. § 464(9-A.D and 9-A.E) – Habitat and aquatic life criteria for existing hydropower impoundments managed as great ponds.
- 38 M.R.S. § 464(10) – Habitat and aquatic life criteria for existing hydropower impoundments managed under riverine classifications.
- 38 M.R.S. 464(9-A.A.) – Habitat and aquatic life criteria for existing hydropower impoundment above the Ripogenus dam.
- 38 M.R.S. 464(11) – Habitat and aquatic life criteria for four river segments downstream of existing hydropower impoundments.

D. Connecticut

On January 4, 2011, Connecticut submitted its proposed changes to its water quality standards for aquatic life to EPA for approval. On February 24, 2011, EPA approved the following changes to the Connecticut aquatic life water quality standards:²⁶

- Adoption of numeric criteria for the protection of freshwater aquatic life for acrolein, chloride, and aluminum consistent with EPA's National Recommended Water Quality Criteria.
- Update of numeric criteria for cadmium for the protection of freshwater and saltwater aquatic life consistent with EPA's National Recommended Water Quality Criteria.

²⁴ U.S. EPA. 2015B. Letter to Patricia W. Aho, Commissioner, Maine Department of Environmental Protection. Attached as Appendix A.

²⁵ U.S. EPA. 2015C. Letter to Patricia W. Aho, Commissioner, Maine Department of Environmental Protection. Attached as Appendix A.

²⁶ U.S. EPA. 2011. Letter to Amey W. Marrella, Commissioner, Connecticut Department of Environmental Protection. Attached as Appendix A.

- Update of the numeric criterion for silver for the protection of saltwater aquatic life consistent with EPA’s National Recommended Water Quality Criteria.
- Update of the numeric criteria for arsenic, cyanide, mercury and selenium to apply to the total form of each of these inorganics.
- Revisions of dissolved oxygen criteria for Class SA and SB waters.

Specifically, Connecticut made the following changes to its water quality standards:

- The cadmium acute aquatic life standard was changed from 2.02 µg/l to 1.0 µg/l for freshwater and from 42 µg/l to 40 µg/l for saltwater; the chronic aquatic life standard was changed from 1.35 µg/l to 0.125 µg/l for freshwater and from 9.3 µg/l to 8.8 µg/l for saltwater.
- The silver acute aquatic life standard for saltwater was changed from 1.96 µg/l to 1.9 µg/l.
- The acrolein acute aquatic life standard was changed from a narrative criteria to 3 µg/l, and the chronic aquatic life standard was changed from a narrative criteria to 3 µg/l.
- The aluminum acute aquatic life standard was changed from a narrative criteria to 750 µg/l, and the chronic aquatic life standard was changed from a narrative criteria to 87 µg/l.
- The chloride acute aquatic life standard was changed from a narrative criteria to 860,000 µg/l, and the chronic aquatic life standard from a narrative criteria to 230,000 µg/l.

POLLUTION-BASED THREATS TO THREATENED AND ENDANGERED AQUATIC SPECIES IN NEW HAMPSHIRE, VERMONT, MAINE, AND CONNECTICUT

At least four ESA-listed species are being adversely affected by water pollution in the four states noticed herein where EPA has failed to comply with the ESA in agency actions covered by this notice letter. The dwarf wedgemussel is the only one of these species under the jurisdiction of FWS, and is found in Vermont, Connecticut and New Hampshire. The Atlantic salmon is found in Maine, but was historically present as far south as New York. The Atlantic sturgeon and the shortnose sturgeon are found in Connecticut, New Hampshire and Maine. The latter three species are under the primary jurisdiction of NMFS.

The dwarf wedgemussel was listed as endangered in 1990. At the time of listing, FWS explained that the disappearance of the mussel from most of its historic sites “can best be explained by agricultural, domestic, and industrial pollution of its aquatic habitat. Mussels are known to be sensitive to potassium...zinc, copper, cadmium, and other elements...Pesticides, chlorine, excessive nutrients, and silt carried by agricultural runoff also present a threat to this species.”²⁷ The 1993 recovery plan for the dwarf wedgemussel highlighted the threat that water pollution represents to freshwater mussels, which because of their life-history, often have higher concentrations of contaminants than surrounding waters.²⁸ The recovery plan noted that zinc was the most toxic heavy metal to mussels, but other pollutants such as arsenic, cadmium,

²⁷ *Determination of Endangered Status for the Dwarf Wedge Mussel*, 55 Fed. Reg. 9447 (Mar. 14, 1990).

²⁸ USFWS 1993. DWARF WEDGEMUSSEL (*ALASMIDONTA HETERODON*) RECOVERY PLAN at 13-15(1993) available at: https://ecos.fws.gov/docs/recovery_plan/dwm%20recovery%20plan.pdf; *see also*, Mathis, B.J. and T.F. Cumming 1973. *Selected metals in sediments, water, and biota in the Illinois River*, Water Pollut. Contr. Fed. 45:1573-1583.

chlorine, copper, iron, mercury, silver, nitrogen, phosphorus, and potassium were also harmful.²⁹ In addition, insecticides have significant negative effects on mussels,³⁰ as does chlorinated effluent from sewage treatment plants.³¹ In its most recent five-year review, FWS determined that pollution continues to be a significant threat to the mussel.³²

The Atlantic salmon was originally listed as endangered in 2000,³³ and in 2009 critical habitat was designated.³⁴ Like the dwarf wedgemussel, the Atlantic salmon is also disproportionately impacted by water pollution, particularly by heavy metals like copper and cadmium, as well as insecticides released into water from nearby agriculture activities.³⁵ For example, the organophosphate insecticide Diazinon has been linked to inhibited embryo development and emergence in Atlantic salmon.³⁶ In the 2016 joint draft recovery plan, the Services noted the importance of recovering the Atlantic salmon, indicating that the species' recovery would provide "ancillary benefits" to the surrounding environment including "improved water quality and flow in salmon rivers, an enhanced understanding of sustainable management for numerous aquatic resources, and a reduction of stressors that affect not only Atlantic salmon but general environmental quality."³⁷

The Shortnose sturgeon was protected as endangered in 1967³⁸ and the Atlantic sturgeon was protected as endangered in 2012.³⁹ Sturgeon often are called "living fossils" because of their "primitive" features and because of their historic lineage.⁴⁰ Both the Atlantic and shortnose sturgeons are particularly slow-growing and long-lived — they do not reach sexual maturity until they are several years old and only spawn once every three to five years.⁴¹ Because of their

²⁹ S.L.H. Fuller 1997. *Freshwater and terrestrial mollusks*, In: J.E. Cooper, (eds.), *Endangered and threatened plants and animals of North Carolina*, 143-194.

³⁰ Salanki and I. Varanka, 1978. *Effect of some insecticides on the periodic activity of the freshwater mussel*, 29 Acta. Biol. Acad. Sci. Hung. 2:173-180.

³¹ S.E. Goudreau, *Effects of sewage treatment plant effluents on mollusks and fish in the Clinch River in Tazewell County*, 127 (1988) (M.S.Thesis, University of Virginia), Virg. Polytech. Inst. and State Univ., Blacksburg, VA.

³² DWARF WEDGEMUSSEL (ALASMIDONTA HETERODON) 5-YEAR REVIEW: SUMMARY AND EVALUATION at 15 (2007) available at: http://ecos.fws.gov/docs/five_year_review/doc1098.pdf

³³ *Final endangered status for a distinct population segment of anadromous Atlantic salmon (Salmo salar) in the Gulf of Maine*, 65 Fed. Reg. 69469 (2000).

³⁴ *Designation of Critical Habitat for Atlantic Salmon (Salmo salar) Gulf of Maine Distinct Population Segment*, 74 Fed. Reg. 29,300 (June 19, 2009).

³⁵ See generally, A.-K. Lundebye, et al. 1999 *Biochemical and Physiological Responses in Atlantic Salmon (Salmo salar) Following Dietary Exposure to Copper and Cadmium*, 39 Marine Pollution Bull. 1-12:137; see also, Katherine Nieves-Puigdoller, 2007. *Physiological Effects of Pesticides on Different Life Stages of Atlantic Salmon (salmo salar)* (Ph.D. Dissertation, University of Massachusetts Amherst).

³⁶ *Exposure to insecticides inhibits embryo development and emergence in Atlantic salmon (Salmo salar L.)* Fish, Physiology and Biochemistry 28:431-432 (2003).

³⁷ NMFS 2015. DRAFT RECOVERY PLAN FOR THE GULF OF MAINE DISTINCT POPULATION SEGMENT OF ATLANTIC SALMON, available at: http://atlanticsalmonrestoration.org/resources/documents/atlantic-salmon-recovery-plan-2015/copy_of_Atlanticsalmondraftrecoveryplan.pdf/index_html.

³⁸ NMFS 1998. FINAL RECOVERY PLAN FOR THE SHORTNOSE STURGEON at 4 (1998) available at: http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf

³⁹ NMFS 2010. SHORT NOSE STURGEON BIOLOGICAL ASSESSMENT at 7 (Nov. 1, 2010) available at: http://www.nmfs.noaa.gov/pr/pdfs/species/shortnosesturgeon_biological_assessment2010.pdf

⁴⁰ *Id.*

⁴¹ *Id.* at 11-12.

benthic feeding life-history, they are particularly susceptible to pollutants that accumulate in sediment and those that can bioaccumulate in the food chain.⁴²

As described in the Shortnose sturgeon's 1998 recovery plan, pollution is one of the main contributors to the species' decline. Atlantic sturgeon also are impacted by changes in water quality, particularly changes in oxygen levels, salinity, and temperature.⁴³ NMFS noted in 2010 that "water quality continues to be a problem even with existing controls on some pollution sources and water withdrawal. . . ."⁴⁴ Increasing development and sprawl in recent years has caused "impervious surface cover in many drainage basins, further altering water quantity and quality."⁴⁵ In particular, NMFS determined that water quality pollution is a moderate threat in the Penobscot River, Kennebec river system, Merrimack River, Connecticut River, the Housatonic River, and the Hudson River.

Water quality is degraded throughout these four states and continues to be an impediment to the recovery of listed species. Vermont currently has 13 lakes and ponds, and 68 streams and rivers that are designated as impaired under CWA section 303(d).⁴⁶ This includes 54 waterbodies that include aquatic life as designated uses. Sixteen of those waterbodies are listed because they are polluted with toxic metals in excess of current water quality standards, yet even the criteria used to determine their impairment status may not be protective of the endangered Dwarf Wedgemussel and its designated critical habitat.

Connecticut has 288 waterbodies designated as impaired under section 303(d) of the CWA. The most common stressors in waters with aquatic life uses were identified to be habitat alterations, flow regime changes, toxics, nutrients, interactions between multiple pollutants, and low dissolved oxygen.⁴⁷ Toxics present in water bodies include mercury, copper, ammonia, zinc, cadmium, lead, and iron.

According to Maine's annual summary report 2012 report, Maine designated 84,564 acres of lakes, 1,206 miles of rivers and streams, and 399 acres of wetlands as impaired by some type of pollutant.⁴⁸ Of these, 408 miles of rivers were listed as unsuitable for aquatic life in the 2012 review.⁴⁹ Additionally, 879 miles of rivers showed traces of toxic pollutants, including metals, organics, DDT, and other pesticides.⁵⁰

⁴² *Id.* at 32.

⁴³ *Designation of Critical Habitat for Atlantic Salmon (Salmo salar) Gulf of Maine Distinct Population Segment*, 74 Fed. Reg. 29300 (June 19, 2009).

⁴⁴ *Id.*

⁴⁵ Karen Limburg and John Waldman, 2009. *Dramatic Declines in North Atlantic Diadromous Fishes*, 59 BioScience Mag. 11: 955-962.

⁴⁶ Vermont Dep't of Env'tl. Conservation, *2014 303(d) List of Impaired Waters* at 1. While CWA section 303(d) lists are often outdated or incomplete and are often based on outdated and unprotective standards, they still serve as useful tools to evaluate the quality and impairments of states' waterbodies.

⁴⁷ Connecticut Dep't of Energy and Env'tl. Prot., *2014 Integrated Water Quality Report* at 212.

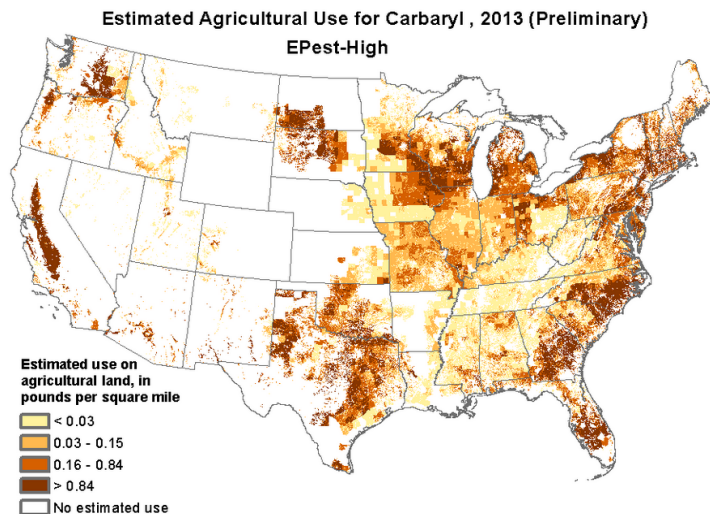
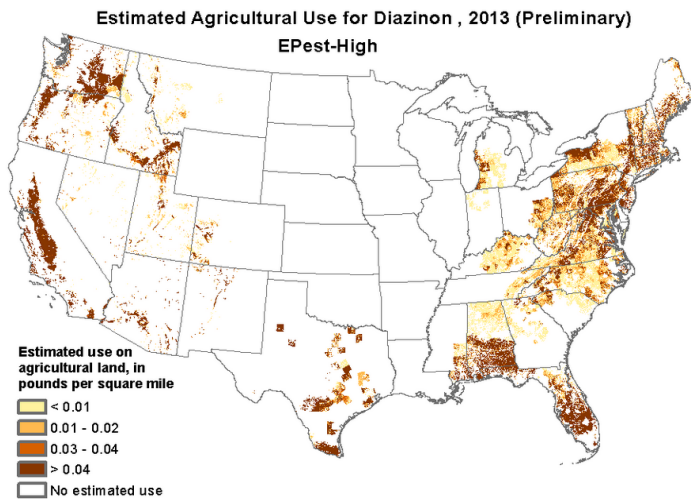
⁴⁸ Maine DEP. *2012 Integrated Water Quality Monitoring and Assessment Report* at 9. Maine implements a five category system to assess rivers, lakes, wetlands and marine waters. The categories are as follows: (1) attains all designated uses, no threat; (2) attains most designated uses, no threat; (3) insufficient data regarding threat to uses; (4) impaired or threatened; (5) waters impaired or threatened by a pollutant.

⁴⁹ *Id.* at 70.

⁵⁰ *Id.* at 71.

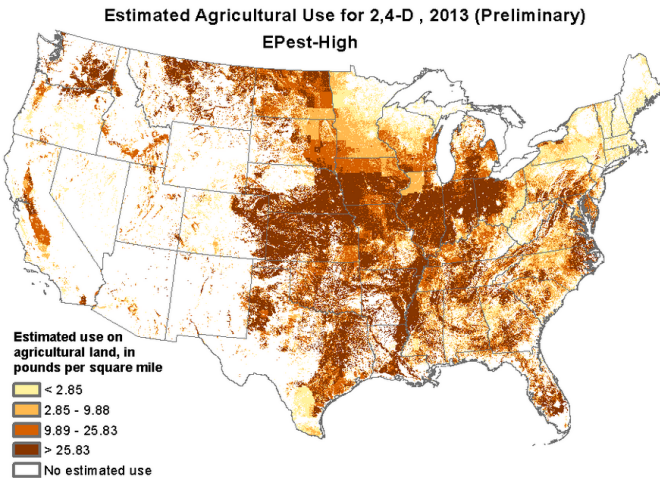
In New Hampshire's 2012 report, a probabilistic assessment found that 14.3% of the mileage of wade-able streams is not supporting aquatic life and 47.8% could not be assessed due to insufficient information. In lakes and ponds, approximately 0% of the acreage is fully supportive of aquatic life, 84.8% is not supporting and 15.2% could not be assessed due to insufficient information.⁵¹

Pesticide pollution is also a significant threat to listed species. In the noticed EPA-approvals, EPA approved several revisions to water quality standards for three pesticides — Diazinon, Carbaryl, and 2,4-D — all of which continue to be used in large amounts in the northeast United States.⁵²



⁵¹ New Hampshire Environmental Services. *2012 List of Threatened or Impaired Waters that Require a TMDL*. 2014.

⁵² See generally, U.S. Gov't Serv., *Pesticide Use Maps* (last visited June 14, 2016), http://water.usgs.gov/nawqa/pnsp/usage/maps/compound_listing.php.



VIOLATIONS ESA SECTION 7(A)(2)

Consultation under section 7 of the ESA is required whenever a discretionary agency action “may affect” any listed species or its critical habitat.⁵³ The “may affect” threshold is very low, and ensures that “actions that have any chance of affecting listed species or critical habitat — even if it is later determined that the actions are ‘not likely’ to do so — require at least some consultation under the ESA.”⁵⁴ According to the Fish and Wildlife ESA Consultation handbook, the “may affect” threshold is met if “a proposed action may pose **any** effects on listed species or designated critical habitat.”⁵⁵ This analysis includes an examination of both the direct effects of the action as well as its indirect effects, which are defined as “those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur.”⁵⁶ Consultation is still required even if the effects of the action are entirely beneficial or unknown.⁵⁷ Thus, to whatever extent that EPA believes its actions in approving water quality standards in New Hampshire, Vermont, Maine or Connecticut are beneficial, that fact is irrelevant regarding the consultation duty. As explained above, the Services have always interpreted the consultation requirement to apply to purportedly “beneficial” agency actions — thus, an action agency must consult in every situation except those where the agency determines there is “no effect.”

⁵³ 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a) (“Each Federal agency shall review its actions at the earliest possible time to determine whether any action may affect listed species or critical habitat. If such a determination is made, formal consultation is required ...”); see also *Wash. Toxics Coalition v. EPA*, 413 F.3d 1024, 1032 (9th Cir. 2005); see also *Defenders of Wildlife v. Administration*, 882 F.2d 1294 (8th Cir. 1989).

⁵⁴ *Karuk Tribe of Cal. v. U.S. Forest Serv.*, 681 F.3d 1006, 1028 (9th Cir. 2012).

⁵⁵ U.S. Fish and Wildlife Serv. & Nat’l Marine Fisheries Serv., *Endangered Species Consultation Handbook: Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act* at xvi(1998)(hereafter “CONSULTATION HANDBOOK”) (emphasis in original).

⁵⁶ 50 C.F.R. § 402.02

⁵⁷ *Cal. ex rel. Lockyer v. U.S. Dep’t of Agric.*, 575 F.3d 999, 1018 (9th Cir. 2009) (“any possible effect, whether beneficial, benign, adverse or of an undetermined character, triggers the requirement.” (quoting 51 Fed. Reg. 19,926, 19,949 (June 3, 1986))); 50 C.F.R. § 402.02 (agency “action” includes “actions intended to conserve listed species or their habitat”).

There is a very good reason to consult with the Services even in situations where EPA is approving water quality standards that are somewhat more stringent than a State's existing standards. Because EPA Region 1 has historically failed to consult on its approvals of State water quality standards, there is no consultation baseline against which the agency can measure the new and revised standards that are the subject of this notice letter. Likewise, EPA has also failed to complete a single consultation on the development of section 304(a) recommended national criteria that are either adopted by the states as their standards or are used to establish the baseline for water quality. Without consultations, and without the procedural requirements of the ESA, the severity and magnitude of the threats to listed species is simply unknown—as is the amount of take that has occurred in the past due to water pollution, which has never been assessed or quantified, let alone legally authorized. If the water quality standards are still insufficiently protective of endangered species — often the most sensitive species to water pollution — then harm and take will continue to occur, and the recovery of those endangered species will be delayed or precluded.

The ESA makes completely clear that an agency cannot proceed on actions that cause take without an incidental take statement (“ITS”) from the Services. As part of an incidental take statement, the Services must provide reasonable and prudent measures (“RPMs”) to minimize the impact of any taking of listed species.⁵⁸

Indeed, in 2001, EPA and the Services entered into a Memorandum of Agreement Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act (“MOA”).⁵⁹ As the joint MOA between the Services and EPA explains, consultation could result in RPMs that would provide significant benefits in the context of EPA approvals of State water quality standards:

If the Service anticipates that incidental take will occur, the Service's biological opinion will provide an incidental take statement that will normally contain reasonable and prudent measures to minimize such take, and terms and conditions to implement those measures. Reasonable and prudent measures can include actions that involve only minor changes to the proposed action, and reduce the level of take associated with project activities. These measures should minimize the impacts of incidental take to the extent reasonable and prudent. Measures are considered reasonable and prudent when they are consistent with the proposed action's basic design, location, scope, duration, and timing. The test for reasonableness is whether the proposed measure would cause more than a minor change to the proposed action. 50 CFR 402.14(i)(2).

Appropriate minor changes can include, for example, a condition stating that the EPA Regional Office will work with the State or Tribe to obtain revisions to the water quality standards in the next triennial review. Where either of the Services

⁵⁸ 50 C.F.R. § 402.13.

⁵⁹ U.S. EPA, U.S. FWS, and NMFS, 2001. *Memorandum of Agreement Between the Environmental Protection Agency, Fish and Wildlife Service and National Marine Fisheries Service Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act* January 18, 2001, EPA-823-F-01-002 (hereafter “2001 MEMORANDUM”)

believe that there is a need for the standards to be revised more quickly, the Service should work with EPA and the State or Tribe to determine whether any revisions could be developed more quickly than the next anticipated triennial review. Because reasonable and prudent measures should not exceed the scope of EPA actions, reasonable and prudent measures in a water quality standards consultation should not impose requirements on other CWA programs unless agreed to by both EPA and the Services.

The Services may include research or data gathering undertakings as conditions of an incidental take statement contained in a biological opinion where it determines that the way to minimize future incidental take is through research and data gathering. However, to the maximum extent possible, the Services will work with EPA to identify research needs that will be addressed in the National Research and Data Gathering Plan. The Plan identifies high priority data and information needed to reduce the uncertainty inherent in the degree to which water quality criteria would protect listed species. Research and data identified in the Plan has the goal of minimizing any incidental take associated with water quality standards.

Where site specific research or data are needed that are not addressed in the Plan, the biological opinion will explain how the research or data gathering will minimize such take while not altering the basic design, location, scope, duration, or timing of the action.⁶⁰

It is clear that EPA approved substantive changes to water quality standards for aquatic life in New Hampshire, Vermont, Maine and Connecticut that may affect threatened and endangered species without consulting under the ESA. By completely ignoring the potential effects of its approval actions on threatened and endangered species, EPA has violated section 7(a)(2) of the Act.

PERSONS GIVING NOTICE AND REPRESENTING ATTORNEYS

The full name, address, and telephone number of the parties providing this notice are:

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Nina Bell
Executive Director
Northwest Environmental Advocates

⁶⁰ *Id.* at 17.

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(503) 295-0490

The attorneys representing the parties in this notice are:

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CONCLUSION

Additional information, including information in EPA's possession, may reveal additional EPA actions on Maine, Connecticut, Vermont, and New Hampshire water quality standards for which EPA was required to but never initiated consultation. The Environmental Groups have thoroughly reviewed the public record in an attempt to capture all such EPA actions here, but the complexity of EPA's actions over the course of many years leaves open the possibility that further violations will be uncovered. This letter puts EPA on notice that it is intended to cover such violations of the same type as described here — EPA actions on Maine, Connecticut, Vermont, and New Hampshire water quality standards for which EPA failed to initiate consultation — that have occurred since the species identified in this notice letter were first listed on the ESA.

If EPA does not act within 60 days to correct the violations described in this letter, we will pursue litigation. If you have any questions, believe any of the information contained above is in error, or would like to discuss this matter, please do not hesitate to contact me.

Sincerely,



Kevin Cassidy
Attorney for the Environmental Groups

Cc: The Honorable Sally Jewell
Secretary
U.S. Department of the Interior
1849 C Street NW
Washington, D.C. 20240

The Honorable Penny Pritzker
Secretary
U.S. Department of Commerce
1401 Constitution Avenue NW
Washington, D.C. 20230

APPENDIX A

Supporting Documents



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

February 24, 2011

Amey W. Marrella, Commissioner
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06105-5127

Re: Review and Action on Water Quality Standards Submissions

Dear Ms. Marrella:

By letter of January 4, 2011, the Connecticut Department of Environmental Protection ("DEP") submitted revisions to its 2002 Water Quality Standards ("WQS") to Region I of the Environmental Protection Agency ("Region" or "EPA") for review. The revisions were certified by the DEP Legal Director on January 4, 2011 as having been duly adopted pursuant to state law.¹ DEP subsequently submitted several changes to the January 4, 2011 revisions, by letter dated February 23, 2011, which address concerns the Region raised regarding obstacles to approval of some of the revisions and correct typographical errors. The Region has completed its review of the revisions, as amended by the submittal of February 23, 2011, along with the Hearing Officer's Report and responses to public comments. The results of that review are described below.

I commend DEP for adopting many revisions to its water quality standards that strengthen the ability to protect Connecticut's waters, such as updating the State's numeric water quality criteria for chemical constituents; adopting numeric criteria for aluminum, chloride, and 2,4-dichlorophenol; expanding the narrative biological condition gradient; adopting new and revised narrative nutrient criteria; and adopting antidegradation implementation procedures.

The Region's review of DEP's WQS submissions was limited to the provisions that are new or revised compared to the 2002 WQS, consistent with the authority provided in Section 303(c)(3) of the Clean Water Act ("CWA").² Pursuant to Section 303(c)(3) of

¹ Upon approval by EPA, notice of the effective date of these revisions will be published in the Connecticut Law Journal as required by Conn. Gen. Stat. § 22a-426(c).

² Some of the amendments submitted on February 23, 2011 resulted in a return to the previous (2002) WQS provisions. The Region does not consider these resulting provisions to be new or revised and therefore the Region is not acting on them. These provisions include descriptions of the mesotrophic and eutrophic categories in table 1 of the lake trophic categories; the definitions of "point source" and "surface water"; and the description of the shellfishing designated use for Class SA waters in Appendix B.

the CWA and 40 C.F.R. Part 131, I hereby approve the following surface water quality standards revisions³:

Designation of Uses (40 C.F.R. § 131.10)

Removal of Dual Annotation of Classifications

- Deletion of Standards 31, 9(C), and 9(D), and revisions to the classification maps which result in the classifications being descriptors solely of designated uses; and
- Revisions to the definition of “Classification” in Appendix A of the WQS, clarifying that classifications are categories only of designated uses (and not of existing water quality)

Numeric Criteria (40 C.F.R. § 131.11)

Chemical Constituents⁴

- Adoption of numeric criteria for the protection of freshwater aquatic life for acrolein, chloride, and aluminum, as listed in Attachment A of this letter, consistent with EPA’s National Recommended Water Quality Criteria (“NRWQC”);
- Update of numeric criteria for cadmium for the protection of freshwater and saltwater aquatic life, as listed in Attachment A, consistent with EPA’s NRWQC;
- Update of the numeric criterion for silver for the protection of saltwater aquatic life, as listed in Attachment A, consistent with EPA’s NRWQC;
- Update of the numeric criteria for arsenic, cyanide, mercury and selenium to apply to the total form of each of these inorganics, as listed in Attachment A, consistent with EPA’s NRWQC;
- Adoption of numeric criteria for 2,4-dichlorophenol for the protection of human health, as listed in Attachment A, consistent with EPA’s NRWQC; and
- Update of numeric criteria for the protection of human health for 82 chemical constituents, as listed in Attachment A, consistent with EPA’s NRWQC;

Site-Specific Copper Criteria⁵

- Adoption of site-specific copper criteria for the Pootatuck River, from the Newtown POTW to the confluence with the Housatonic River

³ DEP’s January 4, 2011 submission contained ground water quality standards as well as surface water quality standards. Ground water quality standards (“GWQS”) are not within EPA’s scope of review and approval authority under section 303(c) of the CWA and therefore we are taking no action on the GWQS.

⁴ The Region is not acting on the new formaldehyde criteria contained in the January 4, 2011 revisions because DEP withdrew those revisions by its February 23 submittal. The Region is not acting on the revised beryllium criterion for fish consumption contained in the January 4, 2011 revisions because it was a typographical error and was corrected back to the 2002 criterion in DEP’s February 23 submittal.

⁵ The Region is not acting on the application of site-specific copper criteria to a segment of Indian Lake Creek (Appendix D, footnote 10), because DEP withdrew those revisions by its February 23 submittal.

Fecal Coliform

- Revision in Appendix B of the 90% fecal coliform criterion for protection of shellfishing uses in Class SA waters; and
- Revision in Appendix B of the shellfishing designated use for Class SB waters from “Commercial Harvesting” to “Indirect Consumption.”

Dissolved Oxygen

- Revisions of dissolved oxygen criteria for Class SA and SB waters in Appendix C

Lake Trophic Categories

- Addition of macrophyte coverage as a defining criterion, along with water column parameters, for assessments of trophic states

Narrative Criteria (40 C.F.R. § 131.11)

Natural Causes

- Revisions to Standard 8 that narrow the scope of what is considered to be natural causes or conditions; and
- Addition of the definition of “Natural” to Appendix A

Biological Condition Gradient

- Revisions to Standard 16 replacing “Benthic Invertebrate” with “Biological Condition” and removal of the second sentence to broaden the use of biological indicators in the assessment of the biological integrity of Connecticut’s surface waters;
- Replacement of the narrative “Benthic Invertebrate” criteria for Class AA, A, and B waters with broader narrative criteria for “Biological Condition,” and adoption of the corresponding Biological Condition Gradient Model provided in a new Appendix F;
- Addition of narrative criteria for “Biological Condition” for Class SA and SB water bodies; and
- Addition of definitions for “Biological Condition Gradient Model,” “Biotic Community (Aquatic),” “Biotic Community Structure,” “Ecosystem Function,” “Sensitive-rare Taxa,” “Sensitive-ubiquitous Taxa,” “Significant Natural Communities,” “Special Concern Species,” “Trophic State,” and “Tolerant Taxa” to the list of definitions in Appendix A

Nutrients

- Revisions to narrative nutrient criteria for Class AA and Class A waters to clarify protection of designated uses; and
- Addition of narrative nutrient criteria for Class B, SA, and SB waters

Antidegradation (40 C.F.R. § 131.12)

- Revisions to Standard 3 to clarify that, in the evaluation of a proposed lowering of water quality, both local and statewide social or economic benefits must be considered;
- Revisions to Standard 4 to clarify expectations for discharges and activities in high quality waters;
- Revisions to Appendix E, Connecticut Antidegradation Implementation Policy;
- Revisions to Standard 19 to broaden the requirement for use of best management practices to control phosphorus and nitrogen pollution to include sources which have the potential to cause impairment even if such impairment has not yet occurred, consistent with the federal requirement to maintain and protect water quality (40 C.F.R. § 131.12(2)); and
- Revisions to the definitions of “Antidegradation Policy,” “High Quality Waters,” and a new definition of “Outstanding National Resource Waters” in Appendix A

General Policies (40 C.F.R. § 131.13)

Zone of Influence

- Revision to Standard 10 requiring that a zone of influence be limited to the extent practicable for all discharges (not just thermal discharges) and related change to the definition of “Zone of Influence” in Appendix A;

Minimum Flow

- Revisions to Standard 11 removing the exception to the application of the WQS to 7Q10 minimum flow if the surface water was, but is no longer, regulated by dams or water withdrawals sanctioned by law to result in flows below that level; and
- Revisions to Standard 11 requiring that tidal water bodies be evaluated under low tide conditions unless another low flow regime is demonstrated to the DEP Commissioner’s satisfaction to be protective of water quality and aquatic resources

Also pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. Part 131, I am hereby approving all additional revisions of the water quality standards contained in the January 4, 2011 submittal, as modified by the February 23, 2011 submittal. While the revisions approved in this group are also important, they are generally more “housekeeping” in nature, or clarifications, or administrative changes related to implementation. Such revisions include, for example, language changes in the Preface and Introduction which explain the Connecticut WQS; revision to Standard 2 clarifying that water quality (not just water) necessary to support uses must be maintained and protected; revisions to Standard 21 to be consistent with state practice in the identification and designation of Class AA surface waters; expanded use of abbreviations (such as “WQS” for “Water Quality Standards”); additions of definitions for “Endangered Species,” “Native,” and “Threatened Species”; revisions to the definitions of “Indicator” and “Indicator

Bacteria”; removal of definitions which are not used in the WQS; and formatting and organizational changes.

Supporting Discussion of Approvals

Designation of Uses (40 C.F.R. § 131.10)

Removal of Dual Annotation of Classifications

The removal of dual annotation of classifications for water bodies is an improvement in the WQS in that it results in a clearer identification of what the designated uses are for each water body. In the new nomenclature, waterbody classification no longer includes the identification of the water quality currently attained in that waterbody. The designated uses, whether the water quality to support those uses is attained or not, are now the sole classification indicated for each water body. Water body attainment data will continue to be available in the Connecticut Integrated Water Quality Reports published every two years. EPA finds that this change in annotation methodology is an improved method for specifying designated uses to be achieved and protected, as required by 40 C.F.R. § 131.10(a), and approves the revisions identified above that relate to this change on that basis.

Numeric Criteria (40 C.F.R. § 131.11)

Chemical Constituents

EPA’s approval of DEP’s revisions to its numeric criteria for chemical constituents in Appendix D (with the exception of the site-specific copper revisions discussed below) is based on a review of whether the criteria protect the applicable designated uses, including a consideration of EPA’s National Recommended Water Quality Criteria published pursuant to Section 304(a) of the CWA. EPA finds that the newly adopted and revised criteria are at least as protective as the EPA recommended criteria in all cases, and are protective of designated uses for the reasons explained in the EPA criteria documents for each chemical constituent.⁶

Site-Specific Copper Criteria

On October 20, 1997, EPA approved Connecticut’s adoption of site-specific copper criteria for 16 water bodies, based on the supporting documentation DEP submitted by letters of April 12, 1996 and May 28, 1997, including “Derivation of Site-Specific Dissolved Copper Criteria for Selected Freshwater Streams in Connecticut.” DEP’s analysis indicated that criteria based on the reference site Water Effects Ratios (“WERS”) were expected to provide conservative protection of designated aquatic life uses when applied to waters where the instream waste concentration (“IWC”) of treated sewage effluent is 20% or greater under critical low flow (7Q10) conditions.

Connecticut’s 2011 revisions include the adoption of site-specific copper criteria for the Pootatuck River, from the Newtown publically owned treatment works (“POTW”) to the confluence of the Housatonic River, on the basis that the IWC for this water body is also

⁶ The National Recommended Water Quality Criteria and support documents are available at <http://water.epa.gov/scitech/swguidance/waterquality/standards/current/index.cfm>.

greater than 20% under critical low flow conditions. According to DEP calculations,⁷ the IWC under low flow conditions for the Pootatuck River reach in question is 38%.

The new site-specific copper criteria for the specified segment of the Pootatuck River are approved on the basis that they incorporate new scientific information specific to this waterbody, maintain consistency with EPA recommendations for the development of site-specific copper criteria, and are protective of designated and existing uses.

Fecal Coliform

EPA approves the change to the fecal coliform criterion in Appendix B for Class SA waters from 90% of samples less than 43/100ml to 90% of samples less than 31/100ml (based on utilizing the mTec method, as specified by the United States Food and Drug Administration) because the new criterion is consistent with most recent (2007) recommendations from the National Shellfish Sanitation Program (NSSP) for the protection of the shellfishing designated use.

DEP changed the shellfishing designated use for Class SB waters to "Indirect Consumption" from "Commercial Harvesting." This represents a helpful clarification, since commercial harvesting also occurs in Class SA waters, and EPA approves the change on that basis.

Dissolved Oxygen

EPA's approval of DEP's revisions to its dissolved oxygen ("DO") criteria is based on a review of whether the criteria protect the applicable designated uses, including a consideration of EPA's *Ambient Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras*, EPA-822-R-00-012, dated November 2000. The revised DO criteria are based on this criteria guidance. As the Region recommended in comments on the December 2009 draft WQS revisions, DEP conducted a literature search to see if any research had been published since 2000 on the survival and growth of larvae that are sensitive to dissolved oxygen concentration, an area of limited data at the time the 2000 DO criteria were issued. DEP found no information that supported a re-evaluation of the data provided in the criteria document.⁸

During review of the final DO revisions, the Region requested clarification from DEP of the time frame over which the exposure allowance days identified in Table 1 may occur. In its February 23, 2011 submission, DEP clarified that the number of days during which an excursion will be allowed will be evaluated over a calendar year. By implementing the criteria in this manner, DEP assures that the criteria do not allow multiple chronic exposures within a short period of time.

EPA approves the revised DO criteria because they are as protective as the EPA criteria guidance for dissolved oxygen, are protective of designated uses for the reasons

⁷ Calculations provided by email with attached memo of January 19, 2011 from Traci Iott, DEP to Ellen Weitzler, EPA.

⁸ Ruzicka, Denise, Revisions to Connecticut Water Quality Standards Hearing Officer's Report, January 4, 2011, page 52.

explained in that guidance document, and will be implemented within protective duration boundaries.⁹

Macrophyte Criteria

The revisions include the addition of macrophyte¹⁰ coverage as a parameter to be used to categorize lakes as oligotrophic, mesotrophic, eutrophic or highly eutrophic. This additional parameter measures the percentage of the lake that is observed to be covered by macrophytes. Prior to these revisions, the WQS included only water column trophic status indicators for lakes (total phosphorus, total nitrogen, chlorophyll-a, and secchi disk transparency), although DEP has in practice considered macrophyte coverage in lake assessment, as indicated in the 2008 Integrated Water Quality Report.¹¹ The purpose of the macrophyte coverage criteria is to ensure that the biological response to nutrient enrichment (due to natural or anthropogenic sources) is not under-reported in lakes where that response is characterized more by macrophyte growth than by non-plant algal blooms. The macrophyte criteria adopted into the WQS are consistent with macrophyte thresholds DEP previously used to classify 49 lakes according to trophic condition and acidification condition pursuant to Section 314 of the CWA.¹²

EPA approves of the addition of the aquatic macrophyte criteria to the lake trophic status standards on the basis that the criteria provide an additional tool to assess the attainment of designated and existing uses.

Narrative Criteria (40 C.F.R. § 131.11)

Natural Causes and Definition of "Natural"

EPA approves of the revisions to Standard 8, which eliminate "normal uses of the land" from being a basis for allowing excursions from criteria based on natural causes or conditions, and approves the addition of a definition of "natural" that refers to conditions and communities that are unaffected or minimally affected by human influences, because they strengthen the ability of the WQS to protect existing and designated uses. As discussed in EPA's March 18, 2010 comments on the December 2009 draft WQS revisions, the use of the word "natural" in narrative criteria for biological condition, pH, color, silt and sand deposits, taste and odor, temperature, and nutrients, make it an underlying component of the WQS. The revisions in Standard 8 also remove considerations of cost and convenience from the criterion, consistent with 40 C.F.R. § 131.11, which requires criteria to be based on sound scientific rationale.

EPA's approval of revised Standard 8 is also based on the assurances provided in DEP's response to EPA's request for clarification. In its February 23, 2011 submission, DEP explained that Standard 8 applies when natural causes lead to an excursion of a criterion above that specified in the Water Quality Standards. In that case, the condition that arises

⁹ We note that while Appendix C refers to the State's Consolidated Assessment and Listing Methodology ("CALM") for information about how compliance with the criteria should be interpreted, the Region does not review the CALM pursuant to Section 303(c) of the CWA, and is not by this action approving the State's CALM and interpretations contained therein.

¹⁰ Macrophytes are aquatic plants that are large enough to be seen without magnification.

¹¹ August 2008, Connecticut DEP, *2008 State of Connecticut Integrated Water Quality Report*.

¹² 1991, Connecticut DEP Bureau of Water Management, *Trophic Classifications of Forty-nine Connecticut Lakes*.

from natural causes becomes the applicable criterion. However, except for the criterion based upon natural causes, all the water quality standards unaffected by natural causes remain applicable to the water body.

Biological Condition Gradient

EPA's approval of the revisions to the WQS related to the introduction of the narrative biological condition gradient is based on their potential to increase protection of designated and existing uses. The new language broadens the consideration of biological indicators of ecological response to include assemblages beyond the macroinvertebrates currently assessed to measure aquatic life uses.

Nutrients

EPA's approval of the new narrative nutrient criteria is based on their consistency with 40 C.F.R. § 131.11(b)(2), which allows states to establish narrative criteria, and on the fact that, while lacking the specificity of numeric criteria, they are protective of designated uses.

As stated in our March 18, 2010 comments on the proposed WQS revisions, EPA continues to strongly encourage states to adopt numeric criteria for total phosphorus and total nitrogen, as the most effective approach to achieving reductions in nutrient enrichment in the long term.

Antidegradation (40 C.F.R. § 131.12 and 40 C.F.R. § 131.13)

EPA approves the revisions to the standards and definitions related to antidegradation because they strengthen Connecticut's ability to protect water quality from new sources of pollution. The antidegradation policy, set forth in Standards 2, 3, 4 and 5, meets the minimum requirements of federal regulation, as described in 40 C.F.R. § 131.12. In particular, the revisions to Standard 3, which requires that the social and economic benefits to the local area be considered in deciding whether a lowering of water quality is necessary, renders Connecticut's antidegradation policy consistent with 40 C.F.R. § 131.12(a)(2) (which requires a finding that "allowing lower water quality is necessary to accommodate important economic or social development *in the area in which the waters are located.*" [emphasis added]).

EPA approves the substantial revisions to Appendix E, Connecticut's antidegradation implementation policy (as amended by the February 23, 2011 submittal), because it is consistent with Connecticut's antidegradation policy and meets EPA's current antidegradation guidance. Implementation of Connecticut's antidegradation policy using the procedures described in Appendix E will enhance Connecticut's ability to protect existing and designated uses and high quality waters. Revisions made from the December 2009 draft to the final version of Appendix E were responsive to comments from both EPA and the public. In particular, DEP has narrowly constrained the circumstances under which full Tier 2 antidegradation review would not be required, specifying only three circumstances in which the Commissioner *may* (but is not obligated to) determine that there would not be a significant lowering of water quality in high quality waters. These circumstances are narrowly and precisely defined in the implementation procedures, and it is reasonable to conclude that discharges and activities

found not to significantly lower water quality within the three specified categories would, both individually and cumulatively, maintain high quality waters.

General Policies (40 C.F.R. § 131.13)

Zone of Influence

EPA approves the revision to Standard 10, which applies the narrative requirement to limit the zones of influence for all discharges to the extent practicable, based on the increased protection this will provide to designated and existing uses and its consistency with EPA's mixing zone policies, which generally recommend the smallest mixing zone practicable. Previously this limitation only applied to thermal discharges.

Minimum Flow


The first revision to Standard 11 removes the exception to the application of the WQS to 7Q10 minimum flow for surface waters that had historically been regulated by dams or sanctioned water withdrawals. This is a reasonable revision, since surface waters that are flowing without anthropogenic flow controls should be regulated at the currently occurring low flow and not an artificial low flow that no longer occurs. EPA finds that by broadening the application of the 7Q10 minimum flow, the revision provides appropriate protection of designated and existing uses and approves the revision on that basis.

The second revision to Standard 11 adds a requirement that tidal water bodies be evaluated under low tide conditions unless another low flow regime is demonstrated to be protective of water quality and aquatic resources. Again, EPA finds that this is a reasonable revision that defines a protective, worst case low flow condition for tidal waters. Therefore, EPA approves the revision on the basis that it will provide greater protection for designated and existing uses.

EPA's approval of Connecticut's surface water quality standards revisions does not extend to waters that are within Indian territories and lands. EPA is taking no action to approve or disapprove the State's revisions with respect to those waters at this time. EPA will retain responsibility under Sections 303(c) and 303(d) of the CWA for those waters.

We look forward to continued cooperation with Connecticut in the development, review and approval of water quality standards pursuant to our responsibilities under the Clean Water Act. Please contact Ellen Weitzler (617-918-1582) if you have any questions.

Sincerely,


Stephen S. Perkins, Director
Office of Ecosystem Protection

Attachment

cc: Lori Nordstrom, USFWS
Mary Colligan, Protected Resources, NMFS
Peter Colosi, Habitat Conservation Division, NOAA
Thomas Chapman, USFWS

ATTACHMENT A
Connecticut Numeric Water Quality Criteria Revisions Approved by EPA 2011¹

Chemical Constituent	CASRN	Aquatic Life				Human Health	
		Freshwater		Saltwater		Organisms Only	Consumption of: Water & Organisms
		Acute	Chronic	Acute	Chronic		
Antimony	7440360					4300 640	6 5.6
Arsenic (As) (total)	7440382						
Cadmium	7440439	2.02 1.0	1.35 0.125	42 40	9.3 8.8		
Cyanide (HCN + CN ⁻) (Total)	57125					320,000 140	200 140
Mercury (Dissolved) (Total)	7439976						
Selenium (Dissolved) (Total)	7782492					11,000 4,200	
Silver	7440224			1.96 1.9			
Thallium	7440280					6.3 0.47	1.7 0.24
Zinc	7440666					68,740 26,000	9,100 7,400
Acrolein	107028	NG ² 3	NG 3			780 9	320 6
Acrylonitrile	107131					0.66 0.25	0.059 0.051
Benzene	71432					71 51	
Bromoform	75252					360 140	
Carbon Tetrachloride	56235					4.4 1.6	0.25-0.23
Chlorobenzene	108907					21,000 1600	
Chlorodibromomethane	124481					34 13	0.41 0.40
Dichlorobromomethane	75274					46 17	0.56 0.55
1,2-dichloroethane	107062					99 37	
1,2 T-Dichloroethylene	156605					140,000 10,000	
1,2-Dichloropropane	78875					39 15	0.52 0.50
1,3-Dichloropropylene	54256					1,700 21	10 0.34
Ethylbenzene	100414					29,000 2,100	700 530
Methyl Bromide	74839					4,000 1,500	48 47
Methylene Chloride	75092					1,600 590	4.7 4.6
1,1,2,2-Tetrachloroethane	79345					11 4	
Tetrachlorethylene	127184					8.85 3.3	0.8 0.69
Toluene	108883					200,000 15,000	
1,1,2-Trichloroethane	79005					42 16	0.6 0.59
Trichloroethylene	79016					81 30	2.7 2.5
Vinyl Chloride	75014					525 2.4	2 0.025
2-Chlorophenol	95578					400 150	120 81
2,4-Dichlorophenol	120832					790 290	93 77
2,4-Dimethylphenol	105679					NG 850	NG 380
2-Methyl-4,6-dinitrophenol	534521					765 280	13.4 13
2,4-Dinitrophenol	51285					14,000 5,300	70 69
Pentachlorophenol	87865					8.2 3.0	0.28 0.27

ATTACHMENT A

Connecticut Numeric Water Quality Criteria Revisions Approved by EPA 2011¹

Chemical Constituent	CASRN	Aquatic Life				Human Health	
		Freshwater		Saltwater		Organisms Only	Water & Organisms
		Acute	Chronic	Acute	Chronic		
Phenol	108952					4,600,000 860,000	21,000 10,000
2,4,6-Trichlorophenol	88062					6-5 2.4	2-1 1.4
Benzidine	92875					0-00054 0.00020	0-00012 0.000086
Benzo(a)anthracene	56553					0-49 0.018	0-044 0.0038
Benzo(a)pyrene	50328					0-049 0.018	0-0044 0.0038
Benzo(b)fluoranthene	205992					0-49 0.018	0-044 0.0038
Benzo(k)fluoranthene	207089					0-49 0.018	0-044 0.0038
Bis(2-chloroethyl)ether	111444					1-4 0.53	0-031 0.030
Bis(2-chloroisopropyl)ether	108601					170,000 65,000	
Bis(2-ethylhexyl)phthalate	117817					5-9 2.2	1-8 1.2
Butyl benzyl phthalate	85687					5,200 1900	3,000 1500
2-Chloronaphthylene	91587					4,300 1,600	1,700 1,000
Chrysene	218019					4-92 0.018	0-44 0.0038
1,2-Dichlorobenzene	95501					17,000 1,300	2,700 420
1,3-Dichlorobenzene	541731					2,300 960	400-320
1,4-Dichlorobenzene	106467					2,600 190	400 63
3,3'-Dichlorobenzidine	91941					0-077 0.028	0-04 0.021
Diethyl phthalate	84662					120,000 44,000	23,000 17,000
Dimethyl Phthalate	131113					2,900,000 1,100,000	313,000 270,000
Di-n-butyl Phthalate	84742					12,000 4,500	2,700 2,000
2,4-dinitrotoluene	121142					9-1 3.4	
1,2-Diphenylhydrazine	122667					0-54 0.2	0-04 0.036
Hexachlorobenzene	118741					0-00077 0.00029	0-00075 0.00028
Hexachlorobutadiene	87683					50 18	
Hexachlorocyclopentadiene	77474					17,000 1100	50 40
Hexachloroethane	67721					8-9 3.3	1-9 1.4
Indeno(1,2,3-cd) pyrene	193395					0-49 0.018	0-044 0.0038
Isophorone	78591					2,600 960	36 35
Nitrobenzene	98953					1-900 690	
N-Nitrosodimethylamine	62759					8-1 3	
N-Nitrosodi-N-propylamine	621647					1-4 0.51	
N-Nitrosodiphenylamine	86306					16 6.0	5 3.3
1,2,4-Trichlorobenzene	120821					940 70	70 35
Aldrin	309002					0-00014 0.00005	0-00013 0.000049
Chlordane	57749					0-0022 0.00081	0-0021 0.0008
DDT	50293					0-00059 0.00022	0-00059 0.00022

ATTACHMENT A
Connecticut Numeric Water Quality Criteria Revisions Approved by EPA 2011¹

Chemical Constituent	CASRN	Aquatic Life				Human Health		
		Freshwater		Saltwater		Organisms Only	Consumption of:	
		Acute	Chronic	Acute	Chronic		Water	& Organisms
DDD	72548					0.00084 0.00031	0.00083 0.00031	
DDE	72559					0.00059 0.00022	0.00059 0.00022	
Dieldrin	60571					0.00014 0.000054	0.00014 0.000052	
Endosulfan Alpha	95988					240 89	110 62	
Endosulfan Beta	33213659					240 89	110 62	
Endosulfan Sulfate	1031078					240 89	110 62	
Endrin	72208					0.81 0.060	0.76 0.059	
Endrin Aldehyde	7421934					0.81 0.30	0.76 0.29	
Heptachlor	76448					0.00021 0.000079	0.00021 0.000079	
Heptachlor epoxide	1024573					0.00011 0.000039	0.00010 0.000039	
Hexachlorocyclohexane alpha	319846					0.013 0.0049	0.0039 0.0026	
Hexachlorocyclohexane beta	319857					0.046 0.017	0.014 0.0091	
Polychlorinated Biphenyls						0.00017 0.000064	0.00017 0.000064	
Toxaphene	8001352					0.00075 0.00028	0.00073 0.00028	
Aluminum	7429905	NG 750		NG 87				
Chloride	16887006	NG 860,000	NG 230,000					

NOTES:

¹ All units in micrograms per liter (ug/L)

² NC = no previous criteria



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

September 17, 2013

Mr. Thomas S. Burack, Commissioner
New Hampshire Department of Environmental Services
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095

By letter of January 14, 2013, the New Hampshire Department of Environmental Services (“DES”) submitted revisions to its surface Water Quality Standards (“WQS”) rule for United States Environmental Protection Agency (“EPA”) review. DES adopted the revisions on May 21, 2008 and August 23, 2011, and New Hampshire’s Chief Assistant Attorney General certified the revisions on January 4, 2013 as having been duly adopted pursuant to state law. EPA has completed its review of the submitted revisions.

I commend DES for adopting many revisions to its water quality standards that strengthen the ability to protect New Hampshire’s waters, such as updating criteria for metals and improving antidegradation implementation procedures.

EPA’s review of DES’s WQS submission was limited to the provisions that are new or revised compared to the 1999 WQS, consistent with the authority provided in Section 303(c)(3) of the Clean Water Act (“CWA”). Pursuant to Section 303(c)(3) of the Clean Water Act and 40 C.F.R. Part 131, I hereby approve the following revisions:

Criteria (40 C.F.R. § 131.11)

- Update to the criteria in Env-Wq 1703.21 Table 1703.1 for selenium, cadmium and silver to protect aquatic life, consistent with EPA’s National Recommended Water Quality Criteria (“NRWQC”);
- Addition of Streamlined Water-Effect Ratio and Biotic Ligand Model procedures as options for determining site specific criteria for copper in Env-Wq 1703.21 and 1704.02(b);
- Revision of the footnote letter “I” at Env-Wq 1703.22(l) as it applies to barium, beryllium, 2,4-D chlorophenoxy herbicides, hexavalent chromium, 1,2-trans-dichloroethylene, methoxychlor, selenium, toluene, and 1,1,1-trichloroethane and the resulting effective criteria revisions as explained in the supporting discussions below. The footnote requires use of the 2013 Maximum Contaminant Levels¹ (MCL) as the criteria where they are more stringent than the ones in the criteria table at Env-Wq 1703.1; and

¹ The MCL is the maximum amount of a contaminant allowed in water delivered to a user of any public water system under the Safe Drinking Water Act.

Antidegradation Implementation Procedures (40 C.F.R. §131.12)

- Revision of procedures for alternatives analysis and determination of net economic or social benefits in Env-Wq 1708.10.

EPA finds that the revision to Env-Wq 1703.11, which adds a paragraph regarding minimum state enforcement of the turbidity requirement, is not a water quality standard requiring EPA review and approval pursuant to Section 303(c)(3) of the Clean Water Act and 40 C.F.R. Part 131, because it does not revise the existing turbidity criteria. The turbidity criteria for Class A and B waters state:

Class A waters shall contain no turbidity unless naturally occurring.

Class B waters shall not exceed naturally occurring conditions by more than 10 NTUs. (Env-Wq 1703.11(b)).

The revision adds the following paragraph:

For purposes of state enforcement actions, if a discharge causes or contributes to an increase in turbidity of 10 NTUs or more above the turbidity of the receiving water upstream of the discharge or otherwise outside of the visible discharge, a violation of the turbidity standard shall be deemed to have occurred. (Env-Wq 1703.11(c)).

Our understanding is that the new language identifies the circumstances in which a violation of the turbidity standards *must* be deemed to have occurred in any enforcement action brought by the State against a discharger to directly enforce the water quality standards. It is also our understanding that the new paragraph does not affect the State's ability to assess water bodies' attainment or nonattainment of the turbidity criteria which call for comparisons against naturally occurring conditions. In addition, the new paragraph does not affect how the turbidity criteria would be evaluated when EPA, in issuing NPDES permits, determines under 40 C.F.R. § 122.44(d) whether a discharge has a reasonable potential to cause or contribute to a violation of water quality standards, even if that discharge is contributing to an increase of less than 10 NTU above the turbidity of the receiving water.

EPA also finds that the revisions to Env-Wq 1708.12 regarding the transfer of water from one basin to another are not water quality standards requiring EPA review and approval pursuant to Section 303(c)(3) of the Clean Water Act and 40 C.F.R. Part 131 because the revisions do not affect criteria, designated uses or antidegradation requirements.

We are still reviewing the addition of uncontaminated geothermal cooling water to the list of permanent discharges in Env-Wq 1708.09(c) that are pre-determined to cause an insignificant lowering of water quality. We request that DES submit a technical basis for adding uncontaminated geothermal cooling water explaining why DES expects elevated temperatures, potentially associated with geothermal cooling water discharges, to cause insignificant lowering of water quality.

In addition, we are still reviewing the revision of the footnote letter "I" at Env-Wq 1703.22(l) as it applies to antimony, cyanide, 1,2-dichlorobenzene, 1,2-trans-dichloroethylene, ethylbenzene, and 1,2,4-trichlorobenzene. The revision of footnote letter "I" effectively revises the human health criteria (for water and fish ingestion) for

those pollutants to the current MCLs (which are more stringent than New Hampshire's previous criteria for those pollutants). However, current EPA recommendations for human health criteria are lower than the MCLs for these six pollutants. We request that DES submit a scientific basis to show how the MCL levels for these six pollutants are sufficient to support designated recreational and fishing uses in New Hampshire waters. Alternatively, DES could further revise its WQS to adopt EPA's recommended criteria for these pollutants.

We are also still reviewing the revision to the aquatic life ammonia criteria. EPA has recently issued updated 304(a) recommendations for aquatic life ammonia criteria that are lower than New Hampshire's ammonia criteria revisions. Therefore, we request that DES submit a scientific basis to show how New Hampshire's revised ammonia criteria are sufficient to support aquatic life uses. Alternatively, DES could further revise its WQS to adopt EPA's recommended aquatic life ammonia criteria.

Pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. Part 131, I am approving all additional changes to the WQS contained in the January 14, 2013 submission that are not specifically identified above. While the revisions approved in this group are also important, they are more "housekeeping" in nature, or clarifications, or administrative changes related to implementation.

Supporting Discussion of Approvals

Criteria (40 C.F.R. § 131.11)

Revisions to selenium, cadmium and silver criteria

EPA's approval of the revisions to the numeric criteria for selenium, cadmium and silver in Env-Wq 1703.21 is based on a review of whether the criteria protect the applicable designated uses, including a consideration of EPA's National Recommended Water Quality Criteria published pursuant to Section 304(a) of the CWA. EPA finds that the newly adopted and revised criteria are at least as protective as the EPA recommended criteria in all cases, and are protective of designated uses for the reasons explained in the EPA criteria documents for each chemical constituent.²

Site Specific Copper Criteria Development Procedures

EPA's approval of the inclusion of language in Env-Wq 1703.21 and 1704.02, which authorizes the use of the "Streamlined Water-Effect Ratio Procedure for Discharges of Copper" (EPA-822-R-01-005) or the Biotic Ligand Model (freshwater only) (EPA-822-R-07-001) to develop site specific copper criteria for the protection of aquatic life uses is based on a review of whether these procedures could derive revised criteria that are at least as protective as the EPA recommended criteria. The EPA criteria documents and methodologies referenced above, and in the new WQS language, explain the reasons why criteria developed using those methodologies are protective of aquatic life uses. Please be aware that while EPA is approving the inclusion of these methodologies in the WQS, any site specific criteria developed using either the Water-Effect Ratio, the Biotic Ligand Model, or any other methodology, must be submitted to EPA for review and approved by

² The National Recommended Water Quality Criteria and support documents are available at <http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>.

EPA, pursuant to Section 303(c)(3) of the Clean Water Act and 40 C.F.R. Part 131, before they can be effective for federal law purposes.

Revision of the footnote letter “I” at Env-Wq 1703.22(l)

Footnote “I”, which applies to Table 1703.1, was revised as follows (new language underlined):

- (1) The letter “I” shall indicate that a more stringent drinking water maximum contaminant level (MCL) has been issued by EPA and the department shall use the MCL if it is more limiting of the two criteria. The MCL for chromium is for total chromium (Cr+6 plus Cr+3).

The revision of footnote letter “I” effectively establishes lower human health criteria (for water and fish ingestion) for certain pollutants than the criteria published in the New Hampshire water quality standards. Table 1 identifies the nine criteria annotated with footnote letter “I” for which EPA is taking action. As can be seen from Table 1, for eight of the nine pollutants, the MCLs are lower than the published New Hampshire criteria, and so the MCLs are the effective criteria. For one, barium, the published New Hampshire criterion is lower than the MCL and so footnote “I” has no effect.

Table 1 – Summary of Criteria and Effects of Footnote Letter “I”

Pollutant	Published NH Water Quality Criteria (units/liter)	MCL as of 2013	Effective NH Water Quality Criteria (units/liter)
Barium	1.0 mg	2.0 mg	1.0 mg
Beryllium	No criteria	4 ug	4 ug
2,4-D chlorophenoxy herbicides	100 ug	70 ug	70 ug
Chromium +6	No criteria	100 ug	100 ug
1,2 trans-dichloroethylene	700	100 ug	100 ug
Methoxychlor	100 ug	40 ug	40 ug
Selenium	170 ug	50 ug	50 ug
Toluene	6.8 mg	1 mg	1 mg
1,1,1-Trichloroethane	No criteria	200 ug	200 ug

EPA’s approval of the revision of the footnote letter “I” at Env-Wq 1703.22(l) as it applies to barium (which resulted in no change), beryllium, 2,4-D chlorophenoxy herbicides, hexavalent chromium, 1,2-trans-dichloroethylene, methoxychlor, selenium, toluene, and 1,1,1-trichloroethane is based on a review of whether the resulting effective criteria, as identified in Table 1, protect the applicable designated uses, including a consideration of EPA’s National Recommended Water Quality Criteria published pursuant to Section 304(a) of the CWA. EPA finds that the newly adopted and revised

criteria are at least as protective as the EPA recommended criteria in all cases, and are protective of designated uses for the reasons explained in the EPA criteria documents for each chemical constituent. EPA's approval is also based on consideration of the current (2013) MCLs for these pollutants and not on future revisions which may or may not meet designated uses.

Antidegradation Implementation Procedures (40 C.F.R. §131.12)

Revision of procedures for alternatives analysis and determination of net economic or social benefits in Env-Wq 1708.10

EPA approves the adopted revisions to the procedures for conducting an alternatives analysis and determining net economic and social benefits because the new language defines these processes more clearly; improves the ability to protect existing uses, high quality waters, and Outstanding Resource Waters of New Hampshire; and is consistent with 40 C.F.R. § 131.12 and EPA guidance.

Recommendations for Future WQS Revisions

EPA offers the following recommendations to improve the clarity, transparency and protectiveness of New Hampshire's WQS in future revisions.

- Revise or remove footnote letter "1" and make any future revisions to criteria based on more stringent MCLs by specifically adopting such criteria and including them in Env-Wq 1703.21 Table 1703.1, rather than through operation of the footnote;
- Publish the criteria approved herein for beryllium, 2,4-D chlorophenoxy herbicides, hexavalent chromium, 1,2-trans-dichloroethylene, methoxychlor, selenium, toluene, and 1,1,1-trichloroethane in Env-Wq 1703.21 Table 1703.1; and
- As discussed above, consider adoption of EPA's updated recommended criteria for ammonia, antimony, cyanide, 1,2-dichlorobenzene, 1,2-trans-dichloroethylene, ethylbenzene, 1,2,4-trichlorobenzene as well as numerous other pollutants for which EPA has updated criteria.

We look forward to continued cooperation with New Hampshire in the development, review and approval of water quality standards pursuant to our responsibility under the Clean Water Act. If you have any questions, please contact Ellen Weitzler (617-918-1582).

Sincerely,



Ken Moraff, Acting Director
Office of Ecosystem Protection



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 1

5 Post Office Square, Suite 100

Boston, MA 02109-3912

September 15, 2015

Alyssa Schuren, Commissioner
Vermont Department of Environmental Conservation
1 National Life Drive, Main 2
Montpelier, VT 05620-3520

Re: Review and Action on Vermont Water Quality Standards 2014 Triennial Review

Dear Ms. Schuren:

By letter of October 27, 2014, the Vermont Department of Environmental Conservation ("VTDEC") submitted revisions to its Water Quality Standards ("WQS") to Region 1 of the Environmental Protection Agency ("Region" or "EPA") for review. The revisions were certified by the Vermont Attorney General on December 16, 2014 as having been duly adopted pursuant to state law. On April 23, 2015 EPA approved most of the revisions to the human health criteria enumerated in Appendix C of the Vermont Water Quality Standards. The Region has completed its review of the remainder of the revisions to the Water Quality Standards and the results of that review are described below.

We commend VTDEC for adopting many revisions to its water quality standards that strengthen the ability to protect Vermont's waters, such as revisions to the *E. coli* criteria to protect swimming designated uses; the adoption of new chloride criteria and many revisions to toxics criteria; and numeric phosphorus and response variable criteria to protect the designated uses of aquatic life in wadeable streams¹ and aesthetics in lakes and reservoirs². We would also like to thank VTDEC scientists for providing high quality and timely analytical work as questions arose during our review process.

EPA's review of VTDEC's WQS submission was limited to the provisions that are new or revised compared to the 2011 WQS, consistent with the authority provided in Section 303(c)(3) of the Clean Water Act ("CWA"). Pursuant to Section 303(c)(3) of the Clean Water Act and 40 C.F.R. Part 131, I hereby approve the following revisions:

Criteria (40 C.F.R. § 131.11)

- Revisions to the language contained in Vermont's WQS that now reflects the correct rulemaking authority for WQS in Vermont. Previous language that referred to the

¹ Specifically, the criteria apply to three of four wadeable stream types in Vermont (small high-gradient streams, medium high-gradient streams, and warm-water medium-gradient streams).

² Specifically, the criteria apply to lakes and reservoirs greater than 20 acres in surface area with a drainage area to surface area ratio less than 500:1, excluding Lake Champlain and Lake Memphremagog.

Natural Resources Board has been replaced by language that references the Agency of Natural Resources as the correct authority.

- Update of the *E. coli* criteria to protect the primary contact recreation designated use of swimming in fresh waters. Vermont's revised bacteria criteria are protective of the designated use and largely reflect EPA's guidance under Section 304(a) of the federal Clean Water Act.
- Adoption of new chloride criteria and revisions to the many toxic substances criteria for the protection of aquatic life. These criteria are located in Appendix C of the WQS and are now consistent with EPA's guidance under Section 304 (a) of the federal Clean Water Act and protective of the uses.
- New numeric criteria for phosphorus in combination with appropriate response variables to protect the designated uses of aesthetics in lakes and reservoirs and aquatic life in medium and high-gradient wadeable streams.

Supporting Discussion of Approvals

Criteria (40 C.F.R. § 131.11)

Revisions to Recreational Bacteria Criteria to Protect Human Health

Vermont's new recreational bacteria criteria consist of a geometric mean ("GM") of samples over a representative period and a statistical threshold value ("STV") not to be exceeded in more than 10 % of the same set of samples. Vermont's geometric mean values are set at EPA's nationally recommended Recreational Water Quality Criteria³ ("RWQC") levels, and Vermont's STVs are lower (more protective) than EPA's recommendations. Vermont's representative period (duration) for Class B waters that are combined sewer overflow ("CSO")-impacted is set at the EPA- recommended 30 day level, while the duration for all other waters is set at 60 days.⁴

The duration component of the Agency's recommended criterion represents a critical exposure period during which the distribution of fecal indicator bacteria values should provide adequate protection for a population of recreational water users. During this critical exposure period, there should not be numerous events or lengthy periods of time where very high levels of fecal indicator bacteria occur, as this could lead to unacceptably high risk of illnesses. In recommending a 30 day duration the Agency expressed its concern that a very long critical exposure period could allow an excessive number of high exposure events over a shorter term to be "averaged out" over the long-term. EPA considers 30 days, which Vermont has adopted for

³ <http://water.epa.gov/scitech/swguidance/standards/criteria/health/recreation/>

⁴ Class B waters: *Escherichia coli*- In all Class B waters - Not to exceed a geometric mean of 126 organisms /100ml obtained over a representative period of 60 days, and no more than 10% of samples above 235 organisms/100 ml. In waters receiving combined sewer overflows, the representative period shall be 30 days. The Secretary may, by permit condition, waive compliance with this criterion during all or any portion of the period between October 31 and April 1, provided that a health hazard is not created. The Secretary shall provide written notice to the Vermont Department of Health prior to issuing a permit waiving compliance with the *Escherichia coli* criterion. Class A waters: Class A(1) as well as A(2) waters: *Escherichia coli* not to exceed a geometric mean of 126 organisms/100ml obtained over a representative period of 60 days, and no more than 10% of samples above 235 organisms/100ml. None attributable to the discharge of wastes.

CSO-impacted waters, to be an optimal duration period to capture both short-term and long-term variability of exposure conditions to protect recreational uses.

Additionally, EPA considers Vermont's adoption of a 60 day duration for those waters not impacted by CSOs to represent an acceptable critical exposure period to protect recreational uses for the following reasons. Field studies used to develop criteria recommendations were conducted over exposure periods of up to 90 days, and a shorter 60 day duration is thus scientifically defensible. Analysis of data from waters that experience short-term variability, or "transient fluctuations," from periodic high concentration releases exhibit very similar criteria attainment assessment outcomes using a 30 day or 90 day assessment period, when both the GM and STV criteria components are evaluated. The small percentage of outcomes where only a 30 day assessment period indicate non-attainment are predominantly the result of a single monthly measurement that lies between the GM and STV over the period of record, and may thus have a low probability of reflecting excessive risk of illness. It is the combination of field study duration and subsequent data analysis that makes 60 days an acceptable duration period in Vermont.

EPA's review of Vermont's revised recreational bacteria criteria is based on whether the criteria are protective of recreational uses including consideration of EPA's nationally recommended RWQC. EPA finds that the revised recreational criteria are scientifically defensible and protective of recreational uses for the reasons explained above and in EPA's 2012 RWQC document.⁵

Revisions to Criteria for Protection of Aquatic Life

Vermont has updated the State's aquatic biota criteria in Appendix C of the Vermont WQS for arsenic, selenium, pentachlorophenol, endrin, benzene hexachloride gamma (lindane), PCBs⁶, ammonia and chloride to be consistent with EPA's current nationally recommended water quality criteria ("NRWQC") and has adopted EPA's recently recommended aquatic life criteria for acrolein, aldrin, carbaryl, diazinon, and nonylphenol. In addition, Vermont has updated the equations used for setting hardness-dependent metals criteria (resulting in new aquatic life criteria for cadmium, chromium (III), copper, mercury, nickel, silver, and zinc) and adopted EPA's recommended conversion factors for determining the dissolved fraction from the total recoverable amount for metals.

EPA's review of Vermont's new and revised aquatic life criteria is based on whether the criteria protect aquatic life uses, including consideration of EPA's NRWQC published pursuant to Section 304(a) of the CWA. EPA finds that the revised criteria are scientifically defensible and are protective of designated uses for the reasons explained in the EPA criteria documents for those pollutants.

⁵ EPA, *Recreational Water Quality Criteria*, Office of Water, 820-F-12-058.

⁶ The revision for PCB criteria is a new Total PCB criterion to replace criteria for individual PCB congeners.

Nutrient Criteria (Phosphorus and Response Variables)⁷

Vermont's new nutrient criteria are based on the "bioconfirmation" or "combined criterion" approach for expressing numeric phosphorus and response criteria to protect the designated uses of aquatic life in medium and high-gradient wadeable streams ("wadeable streams") and aesthetics in lakes and reservoirs other than Lake Champlain and Lake Memphremagog⁸. Vermont's combined criterion approach is supported⁹ by EPA guidance on using stressor-response relationships in developing numeric nutrient criteria¹⁰ and the guiding principles that are applicable to water quality standards and are set forth in sections I and II of EPA's 2013 document for integrating causal (in this case phosphorus) and response parameters into a single nutrient criterion.¹¹ The combined criterion approach integrates both causal (phosphorus) and response (biological and chemical) variables into a single water quality criterion. The combined criteria can be satisfied either by meeting the applicable numeric nutrient concentration values or by meeting all of the applicable nutrient response conditions.

EPA's review of Vermont's nutrient criteria is based on whether they satisfy the major elements of applicability, protectiveness and sound science rationale outlined in the EPA guiding principles for developing combined criteria for nutrients, as explained in the following paragraphs.

Applicability: Vermont is well qualified to use a combined criterion approach, having relied heavily on biological assessments to monitor Vermont waters for more than 20 years. In 2011, Vermont's biological assessment program was rated 3+, with a score of 93.3%, just short of the 95% score required for the highest level of 4. The following statement summarized the Critical Elements Evaluation (CEE):

The VT DEC bioassessment program is technically very strong resulting in a CEE score of Level 3+. The "+" designation indicates the score is within 3 points of the next higher level, which, in VT's case is Level 4, the highest CEE level. Because of the credibility and accuracy of the VT biological program the agency routinely utilizes environmental response indicators (of both physical and biological condition) in the assessment process.¹²

⁷ Proposed Nutrient Criteria for Vermont's Inland Lakes and Wadeable Streams. Vermont Department of Environmental Conservation, Watershed Management Division. February 21, 2014.

⁸ The new criteria adoption does not apply to low-gradient wadeable streams or rivers, which continue to be protected by previously approved narrative criteria. Previously approved numeric total phosphorus criteria continue to apply to Lake Champlain and Lake Memphremagog.

⁹ While Vermont does not have an explicit measure of primary productivity, it showed in paired analyses of macroinvertebrate, periphyton and nutrient data that its biotic index and algal index are strongly correlated meaning that the biotic index could serve as an appropriate surrogate measure of primary productivity (see footnotes 10 and 11)

¹⁰ Using Stressor-response Relationships to Derive Numeric Nutrient Criteria. Office of Water, EPA-820-S-10-001. November 2010.

¹¹ Guiding Principles on an Optional Approach for Developing and Implementing a Numeric Nutrient Criterion that Integrates Causal and Response Parameters. Office of Water, EPA-820-F-13-039. September 2013.

¹² Region 1 Biological Assessment Programs Review: Critical Technical Elements Evaluation (2006-2010). Maine Department of Environmental Protection & Midwest Biodiversity Institute, March 10, 2011, page 28.

The criteria account for variability by including criteria for six different medium to high gradient stream types (combinations of small and medium size; high and medium gradient; and Classes A(1), A(2) and B)) and criteria for three types of lakes and reservoirs (Classes A(1), A(2) and B)).

Protectiveness: The new criteria include protective causal total phosphorus (TP) values for each waterbody class. Wadeable stream values range from 9-27 $\mu\text{g/L}$, which are lower than the applicable EPA recommended Ecoregion VIII reference criteria concentrations of 31.25 $\mu\text{g/L}$ for rivers and streams. The response variables for wadeable streams include pH, turbidity, dissolved oxygen, and aquatic biota, wildlife, and aquatic habitat. All response variable values must be met in order for the wadeable stream to be considered fully supporting of the aquatic life designated use.

Total Phosphorus ("TP") values for lakes and reservoirs range from 12-18 $\mu\text{g/L}$. The State has also selected appropriate and protective response variables for lakes that include chlorophyll-a values from 2.6-7.0 $\mu\text{g/L}$, secchi disk values from 2.6-5.0 meters, pH, turbidity, dissolved oxygen, and aquatic biota, wildlife, and aquatic habitat. Again, all response variables must be met in order for a lake or reservoir to be considered fully supporting the aesthetic designated use.

Sound Science Rationale: Vermont used an analysis that is comparable to the EPA-recommended stressor-response approach to deriving nutrient criteria.¹³ A statistical approach was used that balances the false positive and false negative sampling error rates in making impairment decisions to account for the inherent variability that is involved in sampling aquatic systems. This approach provides statistical probability that a site will not be determined to be impaired when it is not impaired and vice versa.

Wadeable Streams

For the purposes of deriving criteria to protect the aquatic life designated use in wadeable streams, VT DEC analyzed total phosphorus concentrations in conjunction with the eight disaggregated macroinvertebrate metrics discussed below.¹⁴ The macroinvertebrate metrics also serve as a biological response variable within the combined criterion.

Vermont's expertise in biological sampling and assessment is highlighted by the use of its Macroinvertebrate Bioassessment protocol, which is unique in that each of the eight metrics that make up the Macroinvertebrate Bioassessment protocol must be considered "Full Support" for the assessment to be considered meeting the aquatic life designated use. The Macroinvertebrate Bioassessment protocol consists of the following disaggregated metrics, which are scored

¹³ Using Stressor-response Relationships to Derive Numeric Nutrient Criteria. Office of Water, EPA-820-S-10-001. November 2010.

¹⁴ VT DEC also analyzed TP and data on microalgal biofilm thickness as part of the State's pebble count methodology in an effort to develop a measure of primary productivity to support the aesthetics designated use in wadeable streams. VT DEC concluded, however, that the available data were insufficient to support the development of nutrient criteria to protect aesthetic uses in Vermont streams, because there had been no direct assessment (via user survey) of aesthetic impacts on stream users, and there was a relatively weak relationship between nutrients and microalgal biofilm thickness.

individually for assessment of nutrient impacts: density, richness, EPT Index¹⁵, percent model affinity of orders, Hilsenhoff Biotic Index, percent Oligochaeta, EPT/EPT & Chironomidae¹⁶, and the Pinkham-Pearson coefficient of similarity-functional groups. The macroinvertebrate metrics are compared directly to reference condition, which provides measurements of impacts to multiple macroinvertebrate assemblages. Vermont has a scientifically robust sampling program that is combined with valid statistical analyses of all appropriate data. Peer-reviewed scientific literature also provides additional support for the use of macroinvertebrates as a sensitive indicator of nutrient pollution.¹⁷

Vermont conducted three analyses, in addition to the analyses described in the technical support document for the criteria, using the State's macroinvertebrate, phosphorus, and algal measure data. These analyses demonstrate the effectiveness of the macroinvertebrate metrics in detecting responses to a gradient of phosphorus concentrations and provide the basis for concluding that one of Vermont's macroinvertebrate metrics, the Hilsenhoff Biotic Index metric, can serve as a surrogate for a measure of primary productivity. The first analysis,¹⁸ which compared phosphorus impacted and reference condition sites against each of the individual macroinvertebrate metrics, demonstrated the sensitivity of the macroinvertebrate metrics to a gradient of phosphorus conditions. This analysis also included an example (Crystal Brook, Derby, VT) of how Vermont uses the macroinvertebrate metrics to assess streams and determine impairment or compliance with the aquatic life designated use.

The second analysis¹⁹ focused on the relationship between periphyton and the macroinvertebrate metrics along a phosphorus gradient in Vermont streams from sites where periphyton, macroinvertebrates and phosphorus were all sampled concurrently. This analysis demonstrated that several of the Vermont macroinvertebrate metrics were more strongly associated with phosphorus than the periphyton index. The Hilsenhoff Biotic Index metric was particularly strongly associated with total phosphorus.

The third analysis²⁰ quantified the strength of the relationship between the periphyton index and the Hilsenhoff Biotic Index, while accounting for the sampling variability for each index. This analysis shows strong correlation between the periphyton index and the Hilsenhoff Biotic Index metric, demonstrating that the Hilsenhoff Biotic Index provides a surrogate measure for primary productivity in these types of Vermont streams.

¹⁵ EPT Index: EPT Index is comprised of the three environmentally sensitive Orders of aquatic insects Ephemeroptera, Plecoptera and Tricoptera

¹⁶ EPT/EPT & Chironomidae: Index that compares the three environmentally sensitive Orders of aquatic insects Ephemeroptera, Plecoptera and Tricoptera with the environmentally tolerant family of Chironomidae.

¹⁷ Appendix A. Supplemental documentation providing justification for the use of Vermont's existing macroinvertebrate biocriteria to provide a biological response variable for the application of VTDEC proposed nutrient criteria for Wadeable Streams. VTDEC, May 13, 2014.

¹⁸ Appendix A. Supplemental documentation providing justification for the use of Vermont's existing macroinvertebrate biocriteria to provide a biological response variable for the application of VTDEC proposed nutrient criteria for Wadeable Streams. VT DEC, May 13, 2014.

¹⁹ Memorandum: VTDEC additional analysis of the relationship between periphyton cover and macroinvertebrate metrics for the application of numeric nutrient criteria. VT DEC, April 13, 2015.

²⁰ Memorandum: VT DEC further additional analysis of the relationship between periphyton cover and macroinvertebrate metrics for the application of numeric criteria. VT DEC, June 5, 2015.

Based on these analyses, EPA finds that Vermont has demonstrated that the State's macroinvertebrate metrics include measures that are at least as sensitive as the algae index in identifying impairment of the aquatic life designated use and that the Hilsenhoff Biotic Index metric can serve as an appropriate surrogate measure for primary productivity in these types of Vermont streams.

Lakes and Reservoirs

For the purpose of deriving criteria to protect the aesthetics designated use in lakes and reservoirs, Vermont DEC used two methods. For Class A(1) waters, Vermont DEC calculated the TP concentrations that should exist in lakes with little or no development or agriculture in their watersheds. For Class A(2) and Class B lakes and reservoirs, Vermont examined the relationships between user perception survey responses and data on total phosphorus concentrations, chlorophyll-a concentrations, and Secchi disk depths, and set criteria values for Class A(2) lakes and reservoirs based on the "excellent or very good" aesthetics standard, and for Class B lakes and reservoirs based on the "good" standard.

EPA finds that the numeric phosphorous values and corresponding biological and chemical response variables are based on sound science and protect the designated uses of aquatic life protection in wadeable streams and aesthetics in lakes and ponds.

Technical and scientific bases for Vermont's new nutrient criteria were described in the State's October 30, 2014 *Nutrient Criteria for Vermont's Inland Lakes and Wadeable Stream Technical Support Document*. While EPA has relied on this document as well as other technical correspondence to support decision making regarding the scientific rationale for the new combined criteria, EPA, in this letter, is not approving or disapproving any element of the implementation approaches discussed in the document since they are not new or revised WQSs.²¹ EPA expects that Vermont will implement the new combined criteria in a manner that is consistent with existing implementation requirements that ensure the protectiveness of the CWA, including those applicable to the National Pollutant Discharge Elimination System (NPDES) program in 40 C.F.R. Part 122. Section 122.44(d) of the permitting regulations, and guiding Principle III B²², which applies to the NPDES program, state that NPDES permits must contain limits for any pollutants or pollutant parameters that are or may be discharged at levels that will cause, have the reasonable potential to cause, or contribute to an excursion above any WQS. (40 CFR 122.44(d) (1)) Under this approach, where reasonable potential exists, permit writers must include limits in permits to achieve the WQS and, in doing so, should develop water quality-based effluent limits based on the numeric nutrient causal parameters.

We look forward to continued cooperation with Vermont in the development, review, and approval of water quality standards pursuant to our responsibilities under the Clean Water Act.

²¹ See *What is a New or Revised Water Quality Standard Under CWA 303(c)(3)? - Frequently Asked Questions*, EPA Publication 820F12017, October 2012.

²² Guiding Principles on an Optional Approach for Developing and Implementing a Numeric Nutrient Criterion that Integrates Causal and Response Parameters. Office of Water, EPA-820-F-13-039. September 2013.

Please contact Ralph Abele (617-918-1629) if you have any questions.

Sincerely,



Kenneth Moraff, Director
Office of Ecosystem Protection

cc: Pete LaFlamme, VT DEC
Neil Kamman, VT DEC
Eric Smeltzer, VT DEC
Leslie Welts, VT DEC
Corey Buffo, EPA
Christina Christensen, EPA
Dana Thomas, EPA
Galen Kaufman, EPA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
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BOSTON, MASSACHUSETTS 02109-3912

February 2, 2015

Patricia W. Aho, Commissioner
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

Re: Review and Decision on Water Quality Standards Revisions

Dear Commissioner Aho:

By letter of January 14, 2013, the Maine Department of Environmental Protection ("DEP") submitted revisions of the State's surface water quality standards ("WQS") to Region 1 of the United States Environmental Protection Agency ("EPA" or "Region") for review and approval or disapproval. The revisions were adopted by the DEP on July 13, 2012. By letter to EPA dated January 9, 2013, Maine's Assistant Attorney General in the Natural Resources Division certified the revisions as having been duly adopted pursuant to state law. By letter of May 16, 2013, EPA approved the revision to the arsenic criteria to protect human health in state waters outside of Indian territories and lands, but did not act on the arsenic criteria for waters in Indian territories and lands. In the approval letter EPA also indicated that the additional revisions submitted by DEP were still under review.

I commend DEP for the 2012 adoption of revisions to its water quality standards that strengthen the ability to protect Maine's waters including the adoption of new aquatic life criteria for acrolein, diazinon, and nonylphenol.

DEP submitted additional revisions of the State's surface water quality standards to the Region for review and approval or disapproval by letter of February 27, 2014. The revisions were certified on February 26, 2014, by Maine's Assistant Attorney General in the Natural Resources Division as having been duly adopted pursuant to state law. Before now, EPA had not acted on any of these revisions for any waters in Maine.

In both of the above-referenced submission letters, DEP requested that EPA approve Maine's WQS in Indian territories and lands ("Indian lands"). As discussed in the attached Decision Support Document (Attachment A), EPA has concluded that the State of Maine has the authority to adopt WQS that are applicable to waters in Indian lands. Accordingly, EPA is herein responding to the remaining unapproved elements of the 2013 and 2014 WQS revisions for waters throughout the State, including in Indian lands.

In addition to the 2013 and 2014 submissions, DEP submitted numerous WQS revisions to EPA from August 26, 2003, through July 8, 2011, for review and approval or disapproval.¹ In EPA's letters approving WQS revisions contained in those submissions, EPA noted that it was not taking action on the WQS with respect to any waters in Indian lands. In light of EPA's determination that the State of Maine has the authority to adopt WQS for waters in Indian lands, EPA is herein responding to those WQS revisions for those waters.²

Many of the WQS revisions under review for approval or disapproval for waters in Indian lands are water quality criteria, and the Clean Water Act ("CWA") requires that criteria be protective of designated uses. As discussed in the Decision Support Document, EPA has not yet approved any WQS, including designated uses, for waters in Indian lands.

Therefore, in order to evaluate whether the submitted criteria are protective of designated uses, EPA must first approve designated uses for these waters. Accordingly, EPA is herein approving Maine's surface water classifications and corresponding designated uses for waters in Indian lands.³ Because EPA has not previously approved these WQS for waters in Indian lands, EPA considers them to be "new" WQS as applied to such waters. EPA is also approving 38 M.R.S. § 6207(4) and (9) (a provision of the Maine Implementing Act, or MIA, which settled the Maine Indian land claims as a matter of Maine law), as an explicit designated use for certain waters in Indian lands.

The following paragraphs state EPA's decisions on Maine's new and revised WQS described above. The decisions include approvals and disapprovals, and the detailed explanations for the decisions are provided in Attachment A. EPA has also identified several provisions that EPA is not taking action on, primarily because DEP is planning to update them soon, and some provisions that EPA is not taking action on because we have concluded that they are not WQS requiring EPA review and approval; these are also explained in Attachment A. EPA is not responding to new or revised Maine WQS other than those explicitly identified in this letter.

Approvals

Pursuant to Section 303(c)(3) of the Clean Water Act and 40 C.F.R. part 131, I hereby approve the following new or revised WQS:

Classifications and Designated Uses

For all waters in Indian lands:

- Maine's standards for classification and corresponding designated uses in 38 M.R.S. § 465(1.A), (2.A), (3.A) and (4.A)(for fresh waters); § 465-A(1.A) (for great ponds and natural lakes and ponds less than 10 acres in size, and impoundments of rivers that are

¹ A list of these submissions is provided in Section 4.10 of Attachment A.

² Maine's July 8, 2011 submission was for EPA's review of a reclassification of the Kennebec River. Although EPA's July 20, 2011 letter approving the reclassification included the caveat about not acting with respect to waters in Indian lands, the Kennebec River is nowhere near Indian lands. Therefore, EPA is taking no further action today with respect to that submission.

³ EPA intends to review and approve or disapprove all remaining Maine WQS that could apply to waters in Indian lands, such as dissolved oxygen criteria, definitions, antidegradation provisions, etc., as soon as possible.

defined as great ponds pursuant to 38 M.R.S. § 480-B), including the definition of “great ponds” in 38 M.R.S. § 480-B(5); and § 465-B(1.A), (2.A) and (3.A) (for estuarine and marine waters);

- The classification of specific waters in 38 M.R.S. § 467 (Classification of major river basins) and § 468 (Classification of minor drainages); and § 469 (Classification of estuarine and marine waters);
- The addition of agriculture as a designated use to freshwaters (Classes AA, A, B, C, and GPA), submitted to EPA on August 26, 2003; and
- The reclassifications, submitted to EPA on December 7, 2009, of Otter Creek, a tributary of Sebobeis Stream, Alder Stream, and South Branch Stream, a tributary to the Mattamiscontis Stream, from Class B to Class A; and of Grand Falls Flowage between Route 1(Princeton and Indian Township) and Black Cat Island from Class B to Class GPA.

Criteria

For waters throughout the State of Maine, including in Indian lands, the following water quality criteria provisions contained in DEP Rule Chapter 584, Surface Water Quality Criteria for Toxic Pollutants, Appendix A, submitted to EPA on January 14, 2013:

- Freshwater and marine aquatic life criteria for diazinon and nonylphenol;
- Freshwater aquatic life criteria for acrolein;
- Corrections of Federal Register Cites/Sources in Tables I and II of Appendix A; clarifications in footnote II in Table I, and footnotes A and C and Additional Note 4 in Table II; and
- Footnote aME in Table I of Appendix A *except* for the first sentence related to arsenic, which EPA is taking no action on.

For all waters in Maine *except* for waters in Indian lands, the following water quality criteria contained in DEP Rule Chapter 584, Surface Water Quality Criteria for Toxic Pollutants, Appendix A, submitted to EPA on January 14, 2013:

- Human health criteria for the consumption of water plus organisms for acrolein; and
- Human health criteria for the consumption of organisms only for acrolein and phenol.

For all waters in Indian lands, the following water quality criteria provisions:

- The provision regarding dissolved oxygen measurement requirements in riverine impoundments contained in 38 M.R.S. § 464(13), submitted to EPA on August 26, 2003;
- Aquatic life criteria provisions in 38 M.R.S. § 420(1-B.A.(1)),(1-B.C),(1-B.D), and (1-B.E), submitted to EPA on May 14, 2004, *except for* revisions made at in 38 M.R.S. § 420(1-B.C.(1)) and (1-B.C.(2)) that describe the state regulatory procedures for establishing site-specific bioaccumulation factors and which are not WQS (see below);
- The Classification Attainment Evaluation Using Biological Criteria for Rivers and Streams, contained in DEP Rule Chapter 579, submitted to EPA on May 14, 2004;
- All provisions of DEP Rule Chapter 584, Surface Water Quality Criteria for Toxic Pollutants, including Appendix A, submitted to EPA on January 11, 2006, *except for*:
 - All human health criteria in Appendix A, which EPA is disapproving (see below);

- the ammonia aquatic life criteria in Appendix A and 7.C, on which EPA is taking no action at this time (see below); and
- provisions which are not WQS (see below);
- The 30-day average dissolved oxygen criterion of 6.5 ppm for certain Class C waters, contained in 38 M.R.S. § 465(4.B), submitted to EPA on January 11, 2006;
- The instream design flows for the application of water quality criteria for aquatic life and human health protection, which are consistent with EPA's current guidance (1Q10 low flow for acute aquatic life criteria, 7Q10 low flow for chronic aquatic life criteria, and harmonic mean flow for human health criteria), contained in DEP Rule Chapter 530, § 4.B, submitted to EPA on January 11, 2006; and
- Revisions at 38 M.R.S. § 465(3.C.(2)) and § 465-B(2.C) enacted in Chapter 291, L.D. 1274, "An Act to Allow the Discharge of Aquatic Pesticides Approved by the Department of Environmental Protection for the Control of Mosquito-borne Diseases in the Interest of Public Health and Safety,"), submitted to EPA on April 8, 2008.

General

For all waters in Indian lands:

- The provisions in 38 M.R.S. § 464(3.B) that ensure that a hearing will be held at least once every three years for the purpose of reviewing Maine's water quality standards, and revising them as appropriate, consistent with 40 C.F.R. § 131.20, submitted to EPA for review on May 14, 2004.

Disapprovals

Pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. part 131, I hereby disapprove the following new and revised water quality standards:

For all waters in Indian lands:

- The mercury human health criteria revision at 38 M.R.S. § 420(1-B.A.(2)), submitted to EPA May 14, 2004;
- All human health criteria in DEP Rule Chapter 584, Surface Water Quality Criteria for Toxic Pollutants, Appendix A, submitted to EPA on January 11, 2006; and
- Human health criteria revisions related to arsenic, acrolein, and phenol in DEP Rule Chapter 584, Surface Water Quality Criteria for Toxic Pollutants, Appendix A, and the last sentence in Ch. 584, § 5.C related to the fish consumption rate, submitted to EPA on January 14, 2013.

Revisions for Which EPA is Not Making a Decision at This Time

EPA is not deciding to approve or disapprove the following new or revised WQS at this time:

For all waters in Indian lands:

- The ammonia criteria for protection of aquatic life in DEP Rule Chapter 584, Appendix A, submitted to EPA on January 11, 2006;

- The recreational (bacteria) numeric criteria for the protection of primary contact recreation for Class B and C waters in 38 M.R.S. § 465(3.B) and (4.B), submitted to EPA on January 11, 2006;
- The revisions made in L.D. 1450 at 38 M.R.S. § 465-B(2.B) and (3.B), which extended the applicability of the bacteria criteria for Class SB and Class SC waters to include bacteria of domestic animal origin, submitted to EPA on January 11, 2006; and
- The first sentence of Footnote aME in Table I of Appendix A and the last sentence in Ch. 584, § 4 (the cancer risk level to be used to calculate human health criteria for inorganic arsenic).

For all waters throughout Maine, including in Indian lands:

- The revision made in L.D. 1304 at 38 M.R.S. § 464(4.A(3)(a)), and § 465((3.C.(1)) and (4.C), related to certain pesticide discharges, submitted to EPA on January 11, 2006;
- The revisions made in L.D. 1304 at 38 M.R.S. § 465(3.B) and (4.B), which extended the applicability of the bacteria criteria for Class B and Class C waters to include bacteria of domestic animal origin, submitted to EPA on January 11, 2006;
- The revision made in L.D. 1778 at 38 M.R.S. § 465-A(1.B), which extended the applicability of the bacteria criteria for Class GPA waters to include bacteria of domestic animal origin, submitted to EPA on April 8, 2008;
- The phenol criteria for the protection of human health consumption of water plus organisms, in DEP Rule Chapter 584, Appendix A, submitted to EPA on January 14, 2013; and
- The revision made in L.D. 1430 at 38 M.R.S. § 464(4.A(3)(b)), related to certain pesticide discharges to tributaries of GPA waters, submitted to EPA on February 27, 2014.

For waters outside of waters in Indian lands:

- The reclassification of a 0.3 mile segment of Long Creek that flows through Westbrook from Class B to Class C, submitted to EPA on December 7, 2009.

Revisions That are not WQS and do Not Require an EPA Decision

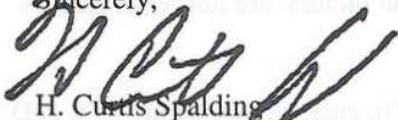
I have concluded that the following revisions, which relate to exemptions from discharge prohibitions, testing and licensing provisions related to discharges, updates of federal statutory and regulatory references, and procedural provisions that establish processes for adopting alternative criteria and establishing site-specific bioaccumulation factors, are not water quality standards requiring EPA review and approval or disapproval:

- Revisions made at 38 M.R.S. § 465(1.C.(2)) and (2.C.(2)), enacted as Chapter 574, L.D. 1833 "An Act to Amend Water Quality Laws to Aid in Wild Atlantic Salmon Restoration," submitted to EPA on May 14, 2004;
- Revisions made at 38 M.R.S. § 420(1-B.B) related to discharger compliance, submitted to EPA on May 14, 2004;
- Revisions made at in 38 M.R.S. § 420(1-B.C.(1)) and (1-B.C.(2)) that describe the state regulatory procedures for establishing site-specific bioaccumulation factors, submitted to EPA on May 14, 2004;

- Revisions made at 38 M.R.S. § 361-A(1-J) and (1-K), enacted as Chapter 330, L.D. 1588, Sections 7 and 8, which updated the definitions of "Code Of Federal Regulations" and "Federal Water Pollution Control Act" to include their amendments through January 1, 2005, submitted to EPA on January 11, 2006;
- Revisions made at 38 M.R.S. § 464(4.A.(1)(c) and (d)); § 465(1.C.(3)) and (2.C.(3)); and § 465-A(1.C), enacted as Chapter 182, L.D. 1304 "An Act Concerning Invasive Species and Water Quality Standards," submitted to EPA on January 11, 2006;
- Revisions made at DEP Rule Chapter 584 § 3, submitted to EPA on January 11, 2006, regarding adoption procedures for alternative statewide and site specific criteria. This includes: the requirement in Chapter 584 § 3(A.(2)) that "statewide criteria must be initiated in accordance with the petition for rulemaking provisions of the State Administrative Procedures Act, 5 M.R.S.A., Section 8055"; the provision in the first paragraph of Chapter 584 § 3(B) that site specific criteria "must only be adopted by the Board as part of a waste discharge license proceeding pursuant to 38 MRSA Sections 413, 414 and 414-A"; and the first two sentences of the second paragraph of Chapter 584 § 3(B);
- Revisions made at 38 M.R.S. § 464(4.A.(1)(e)); § 465(1.C.(4)) and (2.C.(4)); § 465-A(1.C.(4)); and § 465-B(1.C.(2)), enacted as Chapter 291, L.D. 1274, "An Act to Allow the Discharge of Aquatic Pesticides Approved by the Department of Environmental Protection for the Control of Mosquito-borne Diseases in the Interest of Public Health and Safety," submitted to EPA on April 8, 2008;
- Revisions made at 38 M.R.S. § 420(1-B)(F) and § 464(4)(J) and (K), related to testing and licensing requirements for waste discharges that were included in LD 515, submitted to EPA on January 14, 2013; and
- Revisions made at 38 M.R.S. § 464(4.A.(1)(f)); § 465(1.C.(5)) and (2.C.(5)); § 465-A(1.C.(5)); and § 465-B(1.C.(4)), enacted as Chapter 193, L.D. 1430, "An Act to Clarify the Permitted Use of Aquatic Pesticides," submitted to EPA on February 27, 2014.

EPA looks forward to continued cooperation with Maine in the development, review and approval of water quality standards pursuant to our responsibilities under the Clean Water Act. EPA would like to begin discussions with DEP as soon as possible about the criteria that EPA is disapproving and those about which EPA is making no decision. EPA will contact you next week to schedule such discussions. In the meantime, please contact Ellen Weitzler (at weitzler.ellen@epa.gov or 617-918-1582) if you have any questions.

Sincerely,



H. Curtis Spalding
Regional Administrator



UNITED STATES ENVIRONMENTAL PROTECTION
AGENCY
REGION I
5 POST OFFICE SQUARE SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

June 5, 2015

Patricia W. Aho, Commissioner
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

Re: Review of and Decisions on Maine Water Quality Standards

Dear Commissioner Aho:

On February 2 and March 16, 2015, EPA issued decisions approving or disapproving Maine's new and revised water quality standards ("WQS") adopted between 2003 and 2014 (as well as certain WQS that were adopted prior to 2003) as they relate to waters in Indian lands in Maine. In the February 2 decision, EPA explained that EPA had never approved (or disapproved) any WQS for waters in Indian lands in Maine until that date, and stated its intent to review and approve or disapprove all remaining Maine WQS that could apply to waters in Indian lands as soon as possible. This letter contains EPA's decisions on those remaining WQS that EPA has not yet acted on as applied to waters in Indian lands.¹ In addition, as explained below, this letter includes some decisions regarding new or revised WQS provisions that EPA had never before approved or disapproved for any waters in Maine, and these decisions apply to all waters of the State.

In order to determine what WQS still needed to be reviewed and approved or disapproved for waters in Indian lands, EPA reviewed the statutes and rules submitted by Maine Department of Environmental Protection ("DEP") on May 23, 2000 (which updated Maine's initial submittal of June 21, 1999) to EPA's water quality standards repository for Maine,² and also searched its files for any WQS submitted between May, 2000 and December, 2003. EPA reviewed all of the provisions in those statutes and rules and identified those WQS that EPA had not yet approved or disapproved in the decisions referenced above.³ EPA's decisions on these remaining WQS are set forth below and discussed in the paragraphs that follow.

¹ Because EPA has never acted on pre-2003 WQS for waters in Indian lands, they remain "new or revised" WQS as to those waters and thus subject to EPA review and approval or disapproval pursuant to CWA § 303(c).

² http://water.epa.gov/scitech/swguidance/standards/wqslibrary/me_index.cfm.

³ Of those submissions, the only new or revised WQS that EPA did not review is DEP Rule Chapter 530.5, which was repealed in 2005.

EPA learned during review of its historic files that the Agency had never formally approved or disapproved some of the State's new or revised WQS for any waters in Maine (or could find no record of ever having done so), most of which Maine submitted before May 30, 2000,⁴ but one of which Maine submitted in 2001. For those WQS, EPA's decisions today apply to waters both inside and outside Indian lands, and we have identified such WQS decisions below.^{5, 6} EPA today is disapproving on a statewide basis several new or revised WQS that were adopted and submitted before May 30, 2000. Pursuant to 40 C.F.R. § 131.21(c), those WQS took immediate effect in waters outside Indian lands for Clean Water Act purposes upon submission to EPA, and following EPA's disapproval they will remain in effect in waters outside Indian lands until the State promulgates (and EPA approves), or EPA promulgates, replacement WQS.

Lastly, EPA identified a number of provisions that EPA is not taking action on because we have concluded that they are not WQS requiring EPA review and approval; these are identified at the end of this letter.

EPA has attempted to be as thorough as possible, but if we inadvertently overlooked a WQS that would apply to waters in Indian lands, we would appreciate DEP's bringing that to our attention as soon as possible so that we can take action on any such WQS.

Approvals

Pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. part 131, I hereby approve the following new and revised water quality standards for all waters throughout Maine, including in Indian lands:

- 38 M.R.S. § 361-A – Definitions: Discharge, Agricultural activities, Commissioner, Board, Department, Pollutant, and Waters of the state;
- 38 M.R.S. § 413(11.D) – Antidegradation provision for mercury discharges;
- 38 M.R.S. § 414-A(1.A, 1.B, and 1.C) – Tier 1 and 2 antidegradation provisions; and § 414-A(2) – language that authorizes the use of compliance schedules in discharge licenses to meet final effluent limitations based on a water quality standard adopted after July 1, 1977;
- 38 M.R.S. § 464(2-A) – Requirements and limitations for the removal of designated uses and creation of subcategories of uses;

⁴ For some new or revised WQS in Maine, it is not clear from EPA's records whether the State submitted them to EPA for review at the time of enactment. However, EPA considers any WQS included as part of Maine's May 23, 2000 submission to the WQS repository to have been submitted to EPA before May 30, 2000 for the purposes of 40 C.F.R. § 131.21(c).

⁵ In the event it comes to light that EPA did previously approve any such standards in state waters, then the date of that earlier action would be the operative approval date.

⁶ EPA is not specifically identifying ministerial or nonsubstantive revisions (e.g., changing "department" from "commissioner," or changing "is" from "shall be") to previously approved WQS but is hereby approving them as applicable to all waters.

- 38 M.R.S. § 464(2-B) – Temporary removal of uses, use attainability analysis, and creation of subcategories of uses for combined sewer overflows;
- 38 M.R.S. § 464(4.D) – Policy for determining the assimilative capacity of a river or stream (second and third sentences);
- 38 M.R.S. § 464(4.H) – Habitat and aquatic life criteria for new (post-1992) hydropower projects;
- 38 M.R.S. § 464(9-A.D and 9-A.E) – Habitat and aquatic life criteria for existing hydropower impoundments managed as great ponds;
- 38 M.R.S. § 464(10) – Habitat and aquatic life criteria for existing hydropower impoundments managed under riverine classifications;
- 38 M.R.S. § 465(1.C.(3) and (5)) – Certain exceptions to prohibition on discharges to Class AA waters;
- 38 M.R.S. § 465(4.B., the last two sentences) – Direction to adopt rules for identification of fish spawning areas; and
- 38 M.R.S. § 465-B(1.C.(3) and (4)) – Certain exceptions to prohibition on discharges to Class SA waters.

Pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. part 131, I hereby approve the following new and revised water quality standards for specific waters outside of waters in Indian lands:

- 38 M.R.S. § 464(9-A.A) – Habitat and aquatic life criteria for existing hydropower impoundment above the Ripogenus dam; and
- 38 M.R.S. § 464(11) – Habitat and aquatic life criteria for four river segments downstream of existing hydropower impoundments.

Pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. part 131, I hereby approve the following new and revised water quality standards for all waters in Indian lands:

- 38 M.R.S. § 361-A – Definitions: Fresh surface waters and Estuarine and marine waters;
- 38 M.R.S. § 414-C(3) – Instream color pollution standard;

- 38 M.R.S. § 420(2) and (2.A-G)⁷ – Introductory paragraph of section 2, which addresses the definition of “toxic substance” and how toxic substances are to be addressed in WQS; the requirement in 2.A to regulate toxic substances at the levels recommended by EPA, pursuant to CWA Chapter 304(a), and the exception to that requirement for naturally occurring toxic substances but only as it pertains to aquatic life criteria⁸; and the provisions in 2.B through 2.G, related to responsibility and authority for the adoption of statewide and site specific criteria for toxic substances in regulation;
- 38 M.R.S. § 464(1) – Language that identifies the findings, objectives and purpose of Maine’s WQS;
- 38 M.R.S. § 464(2) – Procedures for reclassification;
- 38 M.R.S. § 464(4.A(3)) – Language providing Tier 1 protection, but not including the exceptions at 4.A(3)(a) and (b), which EPA disapproved in its February 2, 2015 decision; § 464(4.A(4)) – narrative criteria related to color, taste, and other properties; and § 464(4.A(5)) – pH criterion for estuarine and marine waters⁹;
- 38 M.R.S. § 464(4.B) – Narrative criteria for settled and floating substances;
- 38 M.R.S. § 464(4.C)) – Natural conditions clause as it applies to aquatic life criteria¹⁰;
- 38 M.R.S. § 464(4.D) – Policy for determining the assimilative capacity of a river or stream (first sentence);
- 38 M.R.S. § 464(4.E) – Waters in excavations for wastewater treatment purposes;
- 38 M.R.S. § 464(4.F.(1) – (5)) – Antidegradation policy;
- 38 M.R.S. § 465(1.B) – Narrative criteria for aquatic life and dissolved oxygen in Class AA waters;
- 38 M.R.S. § 465(1.C.(2) and (4)) – Prohibition, and certain exceptions to prohibition on discharges to Class AA waters;
- 38 M.R.S. § 465(2.B) – Narrative criteria for aquatic life in Class A waters;
- 38 M.R.S. § 465(2.C, first paragraph) – General requirements on discharges to Class A waters;

⁷ We note that 38 M.R.S. § 420(2.H) is obsolete and therefore not before EPA for action.

⁸ EPA is disapproving the exception in 38 MRS §420(2.A) for naturally occurring toxic substances as it applies to human health criteria. See below.

⁹ EPA is disapproving the pH criterion for freshwaters in 38 M.R.S. § 464(4.A(5)). See below.

¹⁰ EPA is disapproving the natural conditions clause in 38 M.R.S. § 464(4.C)) as it applies to human health criteria. See below.

- 38 M.R.S. § 465(3.B) – Numeric criteria for dissolved oxygen in Class B waters;
- 38 M.R.S. § 465(3.C) – Narrative criteria for aquatic life in Class B waters;
- 38 M.R.S. § 465(4.C) – Narrative criteria for aquatic life in Class C waters;
- 38 M.R.S. § 465-A(1.B) – Narrative eutrophication criteria in Class GPA waters;
- 38 M.R.S. § 465-B(1.B) – Narrative criteria for estuarine and marine life and dissolved oxygen in Class SA waters;
- 38 M.R.S. § 465-B(1.C.(2)) – Prohibition, and certain exception to prohibition on discharges to Class SA waters;
- 38 M.R.S. § 465-B(2.B) – Numeric dissolved oxygen criteria and bacteria criteria for the protection of shellfishing in Class SB waters;
- 38 M.R.S. § 465-B(2.C, first sentence) – Narrative criteria for estuarine and marine life in Class SB waters;
- 38 M.R.S. § 465-B(3.B) – Numeric dissolved oxygen criteria and bacteria criteria for the protection of shellfishing in Class SC waters;
- 38 M.R.S. § 465-B(3.C) – Narrative criteria for estuarine and marine life in Class SC waters;
- 38 M.R.S. § 466 – Definitions: Aquatic life, As naturally occurs, Color pollution unit, Combined sewer overflow, Community function, Community structure, Direct discharge, Estuarine and marine life, Indigenous, Invasive species, Natural, Resident biological community, Unimpaired, Use attainability analysis, and Without detrimental changes in the resident biological community;
- 38 M.R.S. § 636(8) – Certification and reclassification provisions related to proposed hydropower impoundments;
- DEP Rule Chapter 581 – Regulations relating to water quality evaluations including: hydrologic conditions for computing assimilative capacity in rivers and streams and in great ponds; minimum flows on regulated streams; zone of passage; and great ponds trophic state;
- DEP Rule Chapter 582(1) – Freshwater temperature criteria¹¹; and
- DEP Rule Chapter 585– Identification of fish spawning areas and designation of salmonid spawning areas.

¹¹ EPA is disapproving the tidal temperature criteria in DEP Rule Chapter 582(2). See below.

Disapprovals

Pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. part 131, I hereby disapprove the following new and revised water quality standards for all waters throughout Maine, including in Indian lands:

- 38 M.R.S. § 363-D – Waiver or modification of protection and improvement laws;
- 38 M.R.S. § 465(2.B) – Numeric criteria for dissolved oxygen in Class A waters; and
- 38 M.R.S. § 465(1.C.(1)) and § 465-B(1.C.(1)) – Exceptions to prohibitions on discharges to Class AA waters and Class SA waters, respectively.

Pursuant to Section 303(c)(3) of the CWA and 40 C.F.R. part 131, I hereby disapprove the following new and revised water quality standards for all waters in Indian lands:

- 38 M.R.S. § 420(2.A) – Exception for naturally occurring toxic substances from the requirement to regulate toxic substances at the levels recommended by EPA, as it applies to human health criteria;
- 38 M.R.S. § 451 – Mixing zone policy;
- 38 M.R.S. § 464(4.A.(5)) – pH criterion for freshwaters;
- 38 M.R.S. § 464(4.C)) – Natural conditions clause, as it applies to human health criteria;
- 38 M.R.S. § 465(1.B), § 465(2.B) and § 465-B(1.B) – Narrative criteria for bacteria in Class AA, A, and SA waters, respectively; and
- DEP Rule Chapter 582(5) – Tidal temperature criteria.

Supporting Discussion of Approvals

Findings, Objectives and Purpose [38 M.R.S. § 464(1)]

EPA is approving the findings, objectives and purpose expressed in 38 M.R.S. § 464(1) because they are consistent with the goals expressed in Section 101(a) of the CWA.

Definitions [38 M.R.S. § 361-A and 38 M.R.S. § 466]

EPA is approving the definitions in 38 M.R.S. §§ 361-A and 466 specified above because they are integral to the WQS program and, in the case of definitions of terms that are also contained in the CWA and the federal WQS, they are generally as broad and protective as the federal

terms.¹² We note that § 361-A refers to the Code of Federal Regulations and the Federal Water Pollution Control Act, both as amended through July 1, 2009. We encourage Maine to update these references when it makes other revisions to its WQS.

Procedures for Reclassifications, Removals of Designated Uses, and Creation of Subcategories of Uses [38 M.R.S. § 464(2), (2-A), and (2-B)]

EPA approves the provisions of 38 M.R.S. § 464(2), (2-A), and (2-B) because they are consistent with the requirements of section 303 of the CWA and with provisions regarding designated uses, removals of uses and creations of subcategories of uses in 40 C.F.R. §131.10.

Natural Conditions Clauses as They Apply to Aquatic Life Criteria [38 M.R.S § 464(4.C) and 38 M.R.S § 420(2.A)]

EPA’s review of Maine’s natural conditions clauses at 38 M.R.S § 464(4.C) and § 420(2.A) as they apply to aquatic life criteria is based on whether the clauses protect designated aquatic life uses. The clause in 38 M.R.S § 464(4.C) says that, “Where natural conditions, including but not limited to, marshes bogs and abnormal concentrations of wildlife cause the dissolved oxygen criteria or other water quality criteria to fall below the minimum standards...those waters shall not be considered to be failing to attain their classification because of those natural conditions.” The clause in 38 M.R.S. § 420(2.A) says, “Except as naturally occurs or as provided in paragraphs B and C, the board shall regulate toxic substances in the surface waters of the State at the levels set forth in federal water quality criteria as established by the United States Environmental Protection Agency pursuant to the Federal Water Pollution Control Act....”

These provisions are consistent with EPA’s interpretation of the relationship between natural conditions and the protection of designated aquatic uses, which is articulated in EPA's November 1997 guidance entitled *Establishing Site Specific Aquatic Life Criteria Equal to Natural Background*.¹³ EPA recognizes that there may be naturally occurring concentrations of pollutants which exceed the national criteria published under section 304(a) of the CWA. The policy states that "For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."

EPA approves the natural conditions clauses at 38 M.R.S §464(4.C) and § 420(2.A) as they apply to criteria that protect aquatic life because the application of this provision protects designated aquatic life uses as required by the CWA and federal water quality standards regulations at 40 C.F.R. § 131.11(a).

¹² In any case, for Clean Water Act purposes, federal definitions would apply in the event they are broader than state definitions.

¹³ Davies, Tudor, EPA. [*Establishing Site Specific Aquatic Life Criteria Equal to Natural Background*](#), November 5, 1997.

Hydrologic Conditions for Computing Assimilative Capacity [38 M.R.S. § 464(4.D) and DEP Rule Chapter 581(1) - (3)]

Title 38 M.R.S. § 464(4.D) requires that the minimum 7-day low flow which can be expected to occur with a frequency of one in ten years (7Q10 low flow) be used for the purpose of computing whether a discharge will violate the classification of any river or stream, unless otherwise provided for toxic substances and consistent with the risk being addressed. This provision is supplemented by DEP Rule Chapter 530(4.B), which provides greater specificity for flows to be used with acute aquatic life criteria (1/4 of 1Q10) and with human health criteria (harmonic mean flow). EPA approved DEP Rule Chapter 530(4.B) for waters in Indian lands in our February 2, 2015 decision.

Sections 1, 2, and 3 of DEP Rule Chapter 581 also address the hydrologic assumptions to be used when calculating whether a discharge will violate the classification of rivers, streams and great ponds. Section 1 repeats the requirements in at 38 M.R.S. § 464(4.D) by requiring that the 7Q10 low flow be used for the purpose of computing assimilative capacity in rivers and streams. Section 2 authorizes DEP to establish minimum flow requirements in regulated rivers and streams where necessary to maintain WQS. Finally, section 3 requires that hydraulic residence time be used in great ponds for the purpose of computing assimilative capacity and provides a formula for calculating the hydraulic residence time.

As explained in Section 5.2 of EPA’s Water Quality Standards Handbook, critical low flow values are important for criteria implementation, to help ensure that criteria are protective of uses.¹⁴ In the *Technical Support Document for Water Quality-based Toxics Control*,¹⁵ EPA also explained that critical flows are necessary to provide a dimension of frequency and duration of pollutant exposure for the evaluation of “reasonable potential”¹⁶ and the derivation of permit effluent limits. EPA approves the provisions related to hydrologic assumptions for critical flow, maintenance of critical flow, and hydraulic residence time in 38 M.R.S. § 464(4.D) and DEP Rule Chapter 581(1), (2), and (3) because they are consistent with EPA’s recommendation that states provide critical low flow values in their WQS, and the values themselves are protective of designated uses.

Antidegradation Policy and Related Provisions [38 M.R.S. § 464(4.F.(1)-(5)); 38 M.R.S. § 414-A(1.A, 1.B, and 1.C); 38 M.R.S § 413(11.D); and 38 M.R.S. § 465(2.C, first paragraph)]

1. 38 M.R.S. § 464(4.F.(1)-(5)) – Maine’s antidegradation policy is set forth in 38 M.R.S. § 464(4.F.(1)-(5)). As described below, EPA approves 38 M.R.S. § 464(4.F.(1)-(5)) because it is consistent with the federal antidegradation policy at 40 C.F.R. § 131.12.

Subsection 1 requires existing instream water uses and the water quality necessary to protect the existing uses to be maintained and protected, and it identifies various factors DEP must

¹⁴ EPA, [Water Quality Standards Handbook - Chapter 5: General Policies](#), Section 5.2, 2015 online version.

¹⁵ EPA, [Technical Support Document for Water Quality-based Toxics Control](#), EPA/505/2-90-001, March 1991, Appendix D, page D-6.

¹⁶ “Reasonable potential” refers to the requirement in 40 C.F.R. § 122.44(d) that limitations control all pollutants that that may be discharged at a level which will have the reasonable potential to cause an excursion above any state water quality standard.

consider in determining the existing uses of a water body. Often referred to as “Tier 1” protection, this provision is consistent with 40 C.F.R. § 131.12(a)(1). Subsection 1-A further provides that any proposed activity will not have a significant impact on or cause significant degradation of existing uses.

Subsection 2 provides that where high quality waters constitute an outstanding national resource, that water quality must be protected and maintained. It also identifies the waters that are considered to be outstanding national resource waters (“ONRWs”), including all Class AA and SA waters, and waters in national and state parks, wildlife refuges, and public reserved lands. Often referred to as “Tier 3” protection, the ONRW provision affords the highest level of protection for waters, and it is consistent with 40 C.F.R. § 131.12(a)(3).

Subsection 3 provides protection for both existing and designated uses by allowing discharge licenses to be issued only if the receiving waterbody is meeting applicable WQS and antidegradation requirements; or, where the water body is not meeting applicable WQS, only if the discharge will not cause or contribute to the failure to meet WQS.

Subsection 4 adds further protection of uses by requiring that if the quality of water in a waterbody exceeds the minimum standards of the next highest classification, the Board of Environmental Protection must recommend to the Legislature that the waterbody be reclassified to that next highest classification.

Subsection 5 protects against the lowering of existing water quality in any water body unless DEP finds, after an opportunity for public participation, that the action is necessary to achieve important economic or social benefits to the State and that the action is in compliance with subsection 3 (described above). The protection of high quality waters in subsection 5, often referred to as “Tier 2” protection, ensures that water quality that is better than the minimum needed to attain WQS will be maintained unless the lowering of water quality satisfies specific requirements. EPA interprets the finding required in subsection 5, that “the action [i.e., the lowering of water quality] is necessary to achieve important economic or social benefits to the State,” to include a required finding that such lowering is necessary to achieve such benefits “in the areas in which the waters are located,” as required in 40 C.F.R. § 131.12(a)(2), and therefore concludes that it is consistent with the federal regulation.

In addition to the statutory Tier 2 provisions, EPA considered DEP’s waste discharge license guidance and regulations to determine how Maine interprets those provisions when implementing Tier 2 of its antidegradation policy. DEP’s waste discharge program guidance for implementing antidegradation (2001) provides that, in allowing the lowering of water quality, “there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint sources,” as required by 40 C.F.R. § 131.12(a)(2). Further, although 38 M.R.S. § 366, which DEP previously relied on to satisfy the intergovernmental coordination requirement of § 131.12(a)(2), has been repealed, DEP Rule Chapter 522, which governs waste discharge license issuance procedures, provides for intergovernmental coordination in § 8.c, by requiring notice of permit applications and public hearings to be provided to multiple state agencies, ensuring that such agencies would have the opportunity to comment on any wastewater discharge project that proposes a lowering of water quality. Therefore, EPA has determined that 38 M.R.S. § 464(4.F(5)) meets the requirements of EPA’s regulations at 131.12(a)(2).

EPA approved some sections of 38 M.R.S. § 464(4.F) in 1986 and did not act on others; disapproved a section in 1987; and then approved the remainder of § 464(4.F), including revisions that satisfactorily addressed the disapproval, in 1990. EPA is today approving 38 M.R.S. § 464(4.F(1)-(5)) in its entirety for tribal waters because it is consistent with 40 C.F.R. § 131.12. At the same time, EPA recommends that Maine clarify and strengthen certain aspects of its Tier 2 protection for all waters. The upcoming triennial review would be a good opportunity for Maine to revise § 464(4.F(5)) to explicitly provide for intergovernmental coordination, and to require the assurance related to point and nonpoint sources quoted above. Such revisions would clarify and ensure that these requirements will apply to projects that are the subject of CWA section 401 certifications from Maine, as well as to waste discharge licensees.

2. 38 M.R.S. § 414-A(1.A, 1.B, and 1.C) – EPA approves the antidegradation provisions in 38 M.R.S. § 414-A(1.A, 1.B, and 1.C). Section 414-A(1.A and 1.B) provide Tier 1 antidegradation protection by ensuring that discharges, either alone or in combination with others, will not lower the water quality of a water body below its classification (subsection 1.A) or below the classification which the board expects to adopt for such water body (subsection 1.B). Section 414-A(1.C) provides Tier 2 antidegradation protection by prohibiting discharges from lowering existing water quality unless 38 M.R.S. § 464(4.F), and certain specified elements of Tier 2 of the antidegradation policy, are satisfied. All of these provisions supplement and are consistent with 38 M.R.S. § 464(4.F), and they are consistent with 40 C.F.R. § 131.12(a)(1) and (2).

3. 38 M.R.S. § 413(11.D) – EPA approves the antidegradation provision in 38 M.R.S. § 413(11.D) related to mercury discharges. The end of the first paragraph in 38 M.R.S. § 413(11) requires facilities that discharge mercury to meet interim limits established under paragraph 11, “notwithstanding” 38 M.R.S. § 464(4.F)) (Maine’s antidegradation policy). Among such interim limits are those that may be established under § 413(11.D) for a new or expanded discharge of mercury provided that specified requirements, which are essentially a restatement of Tier 2 antidegradation provisions, are satisfied. EPA’s approval of § 413(11.D) is based on the understanding that it is merely a confirmation that a new or expanded discharge of mercury must satisfy Tier 2 antidegradation requirements, and that the introductory “notwithstanding” language does not mean that the full scope of the antidegradation policy at § 464(4.F), including Tier 1 and Tier 3 protection, is inapplicable to such discharges. Because of the ambiguity created by the introductory “notwithstanding” clause, however, EPA requests confirmation from Maine’s Attorney General that EPA’s interpretation upon which it bases this approval is correct.

4. 38 M.R.S. § 465(2.C) – The first paragraph of 38 M.R.S. § 465(2.C) requires discharges to Class A waters licensed after January 1, 1986 to meet an effluent quality equal to or better than the receiving water, and to demonstrate that the discharge is necessary and there are no reasonable alternatives available; and it allows discharges licensed before that date to continue only until practical alternatives exist. EPA approves these provisions because they supplement the antidegradation provisions of § 464(4.F) and strengthen the protection of the designated uses of Class A waters.

Class GPA Trophic State Criteria [38 M.R.S § 465-A(1.B) and DEP Rule Chapter 581(6)]

EPA's review of the narrative criteria, in 38 M.R.S § 465-A(1.B), for the trophic state of Class GPA waters and the numeric criteria for the trophic state of great ponds and lakes, in DEP Rule Chapter 581(6), is based on whether the criteria support designated uses for those waters.

The narrative criteria in 38 M.R.S § 465-A(1.B) state that Class GPA waters must have a stable or decreasing trophic state (as measured by chlorophyll "a" content, Secchi disk transparency, total phosphorus content and other appropriate criteria), subject only to natural fluctuations, and must be free of culturally induced algal blooms that impair their use and enjoyment. The narrative criteria are explicitly protective of uses and are based, at least in part, on a causal measure (phosphorus) and response indicators (chlorophyll "a" and Secchi disk transparency) that EPA agrees are good indicators of eutrophication.¹⁷

DEP Rule Chapter 581(6) is entitled "Great Ponds Trophic State," but includes references to "all lakes" and GPA waters. Therefore, EPA understands that DEP Rule Chapter 581(6) applies to all Class GPA waters as defined in 38 M.R.S § 465-A(1) to be "great ponds and natural ponds and lakes less than 10 acres in size" and that it is intended to provide a numeric interpretation of the "stable or decreasing trophic state" part of the narrative criteria in 38 M.R.S § 465-A(1.B). Chapter 581(6) provides that a GPA water cannot be considered to have a stable or declining trophic state if values of the Maine Trophic State Index (TSI) are increasing or there is an onset of algal blooms. The TSI is calculated using chlorophyll "a" unless the lake is colored (less than 30 standard platinum units), in which case the basis for the calculation is total phosphorus concentration or mean Secchi disk transparency. Algal blooms are defined as planktonic growth of algae which causes Secchi disk transparency to be less than 2.0 meters. EPA finds that these are reasonable measures for identifying whether the trophic state of a lake is increasing, which can be an early warning sign that cultural eutrophication is occurring.

EPA approves both the narrative criteria in 38 M.R.S. § 465-A(1.B), because they explicitly protect designated uses, and the provisions of DEP Rule Chapter 581(6), because they provide a scientifically sound numeric interpretation of a part of the narrative criteria, which enhances the protection of uses.

Zone of Passage [DEP Rule Chapter 581(5)]

EPA's review of the provision in DEP Rule Chapter 581(5) is based on whether the provision is protective of designated uses. The provision requires that all discharges shall provide for a zone of passage for free-swimming and drifting organisms that is at least three quarters of the cross-sectional area at any point in the receiving water. The zone of passage can be smaller if the discharger can demonstrate that because of physical phenomena in the receiving water body, such a minimum zone cannot be maintained and the minimum zone is not necessary to protect organisms in the receiving water from substantial adverse effect.

¹⁷ EPA, *Nutrient Criteria, Technical Guidance Manual, Lakes and Reservoirs, First Edition*, EPA-822-B00-001, April 2000, pages 1-12 to 1-13.

EPA guidance provided in the *Water Quality Standards Handbook*¹⁸ recommends that where there is incomplete mixing in a receiving water, pollutant loading be limited so that mixing zones are small enough to allow a zone of passage for free swimming and drifting organisms without significant adverse effects on their populations, including migration for anadromous and catadromous species. EPA approves Maine's provision because it ensures that there will be ample passage for free-swimming and drifting organisms outside the mixing zone, and where the zone of passage needs to be smaller, the provision guards against substantial adverse effects to such organisms. Therefore the provision is consistent with EPA's guidance and protective of the aquatic life designated use.

Waters Contained in Excavations Approved for Wastewater Treatment Purposes [38 M.R.S. § 464(4.E)]

The provision in 38 M.R.S. § 464(4.E) identifies as unclassified (and thus without designated uses) those waters contained in excavations approved for wastewater treatment purposes. EPA approves this provision with the understanding that it is limited to waters that are "waste treatment systems" that do not fall within Clean Water Act jurisdiction as "waters of the United States," as provided at 40 C.F.R. § 122.2.

WQS Related to Hydropower Projects [38 M.R.S. § 464(4.H), (9-A.A), (9-A.D), (9-A.E), (10), and (11); and 38 M.R.S. § 636(8)]

1. 38 M.R.S. § 464(4.H), (9-A.D), (9-A.E), (10), and (11) – EPA has reviewed the revised WQS related to hydropower projects in 38 M.R.S. § 464(4.H), (9-A.D), (9-A.E), (10), and (11), all of which were initially enacted in essentially the same form in 1992 (P.L. 1992, c. 813), and which clarify water quality classifications and criteria applicable to hydropower impoundments and water segments immediately downstream of hydropower dams. EPA approves all of these revisions for the reasons discussed below.

The revisions at 38 M.R.S. § 464(9-A.D) and (9-A.E) (originally enacted as the last two paragraphs of § 464(9)), apply to existing hydropower impoundments classified as Great Ponds under 38 M.R.S. § 465-A. They reflect the legislature's purpose of clarifying that the Class GPA criterion that "habitat must be characterized as natural" was not intended to apply to existing human-constructed great pond impoundments. Accordingly, § 464(9-A.D) requires such waters to, at a minimum, meet Class C habitat and aquatic life criteria, and § 464(9-A.E) requires that where the actual water quality in such impoundments attain any more stringent criteria required by the GPA classification, such water quality must be protected and maintained.

The revisions at 38 M.R.S. § 464(10) apply to existing hydropower impoundments managed under riverine classifications under 38 M.R.S. § 465. These reflect the legislature's purpose of clarifying that Class A and B habitat and aquatic life uses and criteria defined as "natural" and "unimpaired" were intended to apply to free-flowing streams, and not to existing hydropower impoundments. Accordingly, § 464(10) provides that the Class A and B habitat characteristics

¹⁸ EPA, [Water Quality Standards Handbook - Chapter 5: General Policies](#), Section 5.1.1, subsection on mixing zone size, 2015 online version.

and aquatic life criteria are deemed to be met in existing hydropower impoundments as long as Class C aquatic life criteria are met. It further provides, however, that if reasonable changes can be made that would result in the improvement of habitat and aquatic life, such changes must be implemented and the resulting improved water quality must be achieved and maintained. In addition, where the actual water quality in such impoundments attain any more stringent criteria required by the applicable Class A or Class B criteria, that water quality must be protected and maintained.

The revisions at 38 M.R.S. § 464(11) apply to downstream stretches below two existing hydropower projects on the Kennebec River and two existing hydropower projects on the Saco River.¹⁹ These revisions also reflect the legislature's purpose of clarifying that Class A habitat and aquatic life uses and criteria defined as "natural" were intended to apply to unaffected, free-flowing streams. Accordingly, § 464(11) provides that the Class A habitat characteristics and aquatic life criteria applicable to these segments are deemed to be met as long as Class C aquatic life criteria are met.

The revisions at 38 M.R.S. § 464(4.H) allow hydropower projects constructed after 1991 to cause some change to the habitat and aquatic life of the project's impoundment and the waters immediately downstream of and measurably affected by the project, so long as the habitat and aquatic life criteria of the applicable waters' classifications under § 465 (standards for classifications of freshwaters), § 465-A (standards of classification for lakes and ponds), § 467 (classifications of major river basins), and § 468 (standards of classification for minor drainages) are met. It specifically provides that it does not alter the habitat and aquatic life criteria under §§ 465 and 465-A.

It is not clear that EPA ever approved 38 M.R.S. § 464(4.H), (9-A.D), (9-A.E), (10), and (11).²⁰ Therefore, EPA is today approving these provisions as applied to all waters in Maine. As EPA acknowledged in several letters to Maine in 1992 and 1993,²¹ the requirements to meet "natural" or "unimpaired" habitat and aquatic life characteristics are not necessarily appropriate for existing hydropower impoundments since they are, by their very nature, artificial. In its review of proposed legislation in 1992, EPA informed DEP that it was willing to accept, as satisfying federal UAA requirements, a single legislative finding that the "natural" and "unimpaired" criteria were not intended for existing impoundments to justify a change in the habitat and aquatic life criteria applicable to such impoundments, as long as Class C criteria at 38 M.R.S. § 465(4.C) are required to be met. The Class C criteria allow some changes to aquatic life as long as the waters are of sufficient quality to support all species of indigenous

¹⁹ These segments are not waters in Indian lands.

²⁰ EPA disapproved § 464(9), contained in "Part A" of P.L. 1992 c. 813, on January 14, 1993. Section 464(9) included the original versions of current subsections (9-A.D) and (9-A.E)), but EPA's disapproval did not relate to those provisions. EPA did not act at that time, or apparently at any later time, on other portions of the statute (including § 464(4.H) and (10)). On March 25, 1993, EPA approved a UAA that Maine prepared to address the January 14, 1993 disapproval and to support a subsequent amendment of § 464(9). It is not apparent that Maine ever submitted revised § 464(9) at any time before its May 2000 submission of all of its WQS to EPA's repository. In 2005, § 464(9) was repealed and its provisions were relocated to new § 464(9-A), and entirely new provisions were also added to section 9-A. Maine submitted the new provisions to EPA by letter dated January 11, 2006, and EPA approved them by letter dated April 17, 2006, but not the relocated provisions from § 464(9).

²¹ Letters dated January 28, 1992, from Tonia Bandrowicz, EPA to Stephen Groves, DEP; February 4, 1992, from Tonia Bandrowicz, EPA to Stephen Groves, DEP; November 25, 1992, from Ronald Manfredonia, EPA to Stephen Groves, DEP; and March 25, 1993, from Paul Keough, EPA to Dean Marriott, DEP.

fish and maintain the structure and function of the resident biological community. EPA concludes that the revisions at 38 M.R.S. § 464(9-A.D), (9-A.E), and (10) are consistent with EPA's advice to DEP in 1992 and 1993; are reasonable in light of the legislature's statement of original intent to apply "natural" and "unimpaired" to free-flowing waters and not artificially impounded waters; and by requiring attainment of at least Class C criteria (or better), are protective of existing and designated aquatic life uses. EPA concludes that the same reasoning applies to 38 M.R.S. § 464(11), for which the legislature provided a similar statement of original intent to apply the "natural" habitat and aquatic life criteria only to unaffected and free-flowing waters, and that by requiring attainment of at least Class C criteria, § 464(11) is protective of existing and designated aquatic life uses.

EPA concludes that 38 M.R.S. § 464(4.H) is protective of existing and designated uses because it specifies that any new (post-1992) hydropower project must meet the habitat and aquatic life criteria applicable to the water body's classification. While this section allows some change to habitat and aquatic life, EPA interprets this change to be allowed only if consistent with the antidegradation policy in 38 M.R.S. § 464(4.F), since nothing in § 464(4.H) precludes the applicability of § 464(4.F). EPA's approval is based on this interpretation.

2. 38 M.R.S. § 464(9-A.A) – EPA has reviewed 38 M.R.S. § 464(9-A.A), which establishes habitat and aquatic life criteria for the impounded segment of the West Branch of the Penobscot River above the Ripogenus dam.²² In 1993, EPA disapproved the original version of this section (enacted in 1992 as § 464(9)), and Maine subsequently prepared a Use Attainability Analysis ("UAA") to support the establishment of less stringent habitat and aquatic life criteria than would otherwise apply. EPA approved the Ripogenus UUA on March 25, 1993, consistent with 40 C.F.R. § 131.10(g)(4), based on the determination that the existence and operation of the dam precludes the attainment of Class C aquatic life and habitat criteria. EPA further found that it would not be possible to operate the dam in a manner that could attain the use, in part because the aquatic community that had evolved in the impoundment and downstream was an important fishery that would be placed at risk if dam operations were significantly changed. Maine subsequently revised § 464(9) consistent with the UAA, and then relocated it to new § 464(9-A.A) in 2005 (see footnote 19 for additional information). EPA has no record of having previously approved revised § 464(9). EPA approves the provision today in its current form of § 464(9-A.A), consistent with EPA's approval of the UAA.

3. 38 M.R.S. § 636(8) – EPA has reviewed the revised WQS in 38 M.R.S. § 636(8), which requires that there be reasonable assurance that a proposed hydropower project will not violate applicable WQS, including antidegradation requirements, both in the impounded area and in waters downstream of the impoundment. It further directs DEP to reclassify impounded waters from a proposed project as GPA if certain showings are made, including that the project would comply with antidegradation requirements.

Maine enacted this provision in response to EPA's May 25, 1987 disapproval of prior legislation that automatically deemed such proposed impoundments to be GPA. EPA approved 38 M.R.S. § 636(8) on December 20, 1990. EPA today approves this provision for waters in Indian lands, because it ensures that WQS, including antidegradation requirements, will be met both upstream and downstream of the proposed project, and it provides for reclassification to

²² This segment is not a water in Indian lands.

GPA only if the DEP makes specific findings, including that antidegradation requirements will not be violated. EPA approves this provision with the understanding that the procedures for reclassification in 38 M.R.S. § 464(2), particularly regarding public participation, still apply to any reclassification pursuant to this section. This provision is protective of both designated and existing uses and consistent with the requirements of section 303 of the CWA and 40 C.F.R. part 131.

Downstream Protection for Class GPA Waters [38 M.R.S § 464(4.A(3))]

EPA's review of the downstream protection provision in 38 M.R.S § 464(4.A(3)) is based on whether the provision is protective of designated uses. The provision prohibits discharges to tributaries of Class GPA waters that would impair the characteristics and designated uses of downstream GPA waters or cause an increase in the trophic state of those GPA waters. EPA approves this narrative protection of downstream waters because it is protective of designated uses in Class GPA waters and is consistent with the requirement in 40 C.F.R. § 131.10(b) that States take into consideration the water quality standards of downstream waters and ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.

Criteria for Color, Taste, Turbidity, Toxicity, Radioactivity and Other Properties [38 M.R.S § 464(4.A(4))]

EPA is approving the narrative criteria in 38 M.R.S § 464(4.A(4)) because the provision protects designated uses by prohibiting levels of these substances that would cause the waters to be unsuitable for the designated uses.

Criterion for pH in Estuarine and Marine Waters²³ [38 M.R.S § 464(4.A(5))]

EPA's review of the pH criterion for estuarine and marine waters in 38 M.R.S § 464(4.A(5)) is based on whether the criterion protects aquatic life uses in those waters. The criterion prohibits discharges that cause pH in estuarine and marine waters to fall outside of the 7.0 to 8.5 range. EPA's current pH recommendation is included in the 1986 Gold Book, which recommends pH in the range of 6.5 to 8.5 to protect marine aquatic life²⁴. Since Maine's pH range for estuarine and marine waters is within that range, EPA finds that the pH criterion for estuarine and marine waters in 38 M.R.S § 464(4.A(5)) is protective of designates uses and approves it accordingly.

Criteria for Settled and Floating Substances [38 M.R.S. § 464(4.B)]

EPA's review of Maine's narrative criteria for settled and floating substances in 38 M.R.S. § 464(4.B) is based on whether the criteria are protective of designated uses. The provision states that "surface waters shall be free of settled substances which alter the physical or chemical nature of bottom material and of floating substances, except as naturally occur, which impair the characteristics and designated uses ascribed to their class." EPA approves of the narrative criteria because they are explicitly protective of designated uses.

²³ As discussed below, EPA is disapproving the pH criterion for freshwaters.

²⁴ EPA, [Quality Criteria for Water 1986](#), EPA 440/5-86-001, pH, May 1, 1986.

Instream Color Pollution Standard [38 M.R.S § 414-C(3)]

EPA approves the instream color pollution standard in 38 M.R.S § 414-C(3). This provision is protective of applicable designated uses because it defines a maximum total impact from discharges and thus provides an numeric threshold for waters to meet the narrative color criteria in 38 M.R.S. § 464(4.A.(4)) and is at least as protective as the EPA-recommended narrative criterion, which says that “waters shall be virtually free from substances producing objectionable color for aesthetic purposes.”²⁵

Dissolved Oxygen (“DO”) for Class AA and SA Waters, and Aquatic Life Criteria for Class A, AA, and SA Waters [38 M.R.S. § 465(1.B and 2.B) and 38 M.R.S. § 465-B(1.B)]

EPA's review of the narrative criteria for aquatic life for Class AA, A and SA waters (in 38 M.R.S. § 465(1.B and 2.B) and § 465-B(1.B), respectively) and the narrative criteria for dissolved oxygen in Class AA and SA waters (in 38 M.R.S. § 465(1.B) and § 465-B(1.B), respectively) is based on whether the narrative criteria are protective of the designated uses of habitat for fish and other aquatic life. The criteria require that aquatic life for Class AA, A and SA waters and DO for Class AA and SA waters be as naturally occurs. Since the term “as naturally occurs” is defined in 38 M.R.S. § 466(2) to mean “conditions with essentially the same physical, chemical and biological characteristics as found in situations with similar habitats free of measurable effects of human activity,” EPA finds that these narrative criteria are protective of the aquatic life designated uses. Therefore EPA approves these criteria.

Narrative Aquatic Life Criteria for Class B, C, SB and SC Waters [38 M.R.S. § 465(3.C); 38 M.R.S. § 465(4.C); 38 M.R.S. § 465-B(2.C); and 38 M.R.S. § 465-B(3.C)]

EPA’s review of the narrative criteria for aquatic life in Class B, C, SB and SC waters expressed in the first sentences of 38 M.R.S. § 465(3.C); 38 M.R.S. § 465(4.C); 38 M.R.S. § 465-B(2.C); and 38 M.R.S. § 465-B(3.C), respectively, is based on whether the narrative criteria for aquatic life, expressed as a minimum condition remaining following the impact of discharges, support the designated uses for these water classifications.

The designated uses for Class B and SB waters are similar: “habitat for fish and other aquatic life” and “habitat must be characterized as unimpaired” for Class B waters (at 38 M.R.S. § 465(3.A)); and “habitat for fish and other estuarine and marine life” and “habitat characterized as unimpaired” for Class SB waters (at 38 M.R.S. § 465-B(2.A)). The narrative criteria to support these uses require that the waters be of sufficient quality to support all aquatic, estuarine, and marine species (as appropriate) indigenous to those waters without detrimental changes in the resident biological community. Maine defines “unimpaired” as “without diminished capacity to support aquatic life” at 38 M.R.S. § 466(11); “residential biological community” as “aquatic life expected to exist in a habitat which is free from the influence of the discharge of any pollutant” at 38 M.R.S. § 466(10); “indigenous” as “supported in a reach of water or known to have been supported according to historical records compiled by State and Federal agencies or published scientific literature” at 38 M.R.S. § 466(8); and “without detrimental changes to the resident biological community” as “no significant loss of species or

²⁵ EPA, [Quality Criteria for Water 1986](#), EPA 440/5-86-001, Color, May 1, 1986.

excessive dominance by any species or group of species attributable to human activity” at 38 M.R.S. § 466(12). Based on these definitions, EPA finds that the narrative criteria for Class B and SB waters in the first sentences of 38 M.R.S. § 465(3.C) and 38 M.R.S. § 465-B(2.C), respectively, do support the designated uses, including the designated use of unimpaired habitat, and EPA therefore approves these criteria.

The designated uses for Class C and SC waters are also similar: “habitat for fish and other aquatic life” at 38 M.R.S. §465(4.A) and “habitat for fish and other estuarine and marine life” at 38 M.R.S. § 465-B(3.A). The narrative criteria to support these uses require that “discharges to Class C waters may cause some changes to aquatic life, except that the receiving waters must be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.” Similarly, “discharges to Class SC waters may cause some changes to estuarine and marine life provided that the receiving waters are of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.” Maine defines “community function” as “mechanisms of uptake, storage, and transfer of life-sustaining materials available to a biological community which determines the efficiency of use and the amount of export of the materials from the community” at 38 M.R.S. § 466(3), and “community structure” as the organization of a biological community based on numbers of individuals within different taxonomic groups and the proportion each taxonomic group represents of the total community” at 38 M.R.S. § 466(4). Based on these definitions, combined with the pertinent definitions in the previous paragraphs, EPA finds that the narrative criteria for Class C and SC waters in the first sentences of 38 M.R.S. § 465(4.C) and 38 M.R.S. § 465-B(3.C), respectively, do support the designated uses, and EPA therefore approves these criteria.

Freshwater Temperature Criteria [DEP Rule Chapter 582(1)]

EPA’s review of Maine’s freshwater temperature criteria in DEP Rule Chapter 582(1) is based on whether the criteria protect designated aquatic life uses, including all life stages of indigenous and endangered species. The criteria include several components, all expressed as measured at a point outside a mixing zone established by the Board of Environmental Protection. The maximum allowable temperature increase (“delta T”) due to any discharge is 3° F in the epilimnion of any lake or pond and 5° F in all other freshwaters. The ambient temperature due to discharges may not exceed 85° F, nor may it exceed EPA’s “national ambient water quality criteria established to protect all species of fish that are indigenous to the receiving waters.” Site specific criteria that are protective of indigenous species may also be developed. In addition, when ambient temperatures of the receiving water naturally exceed the maximum temperature criteria provided in Chapter 582(1), then the delta T is limited to 0.5° F.

EPA is approving the freshwater temperature criteria with the understanding that EPA’s recommended criteria will generally be the applicable criteria, because, with few exceptions, the maximum allowable temperature of 85° F is not protective of aquatic life uses, especially for many fish species that are indigenous to Maine waters. For example, the maximum allowable temperature of 85° F (29.4° C) is above temperatures which cause lethality in all life

stages of endangered Atlantic salmon (including adult migration and smolt emigration).²⁶ Brook trout exhibit a similar temperature tolerance range, where temperatures above 24° C (75° F) result in little to no growth.²⁷ EPA also finds that the delta T of 5° F may not adequately protect aquatic life in some waters, because, depending on the starting temperature, a 5° F temperature rise could result in temperatures that do not support various life stages of indigenous fish. For example, National Marine Fisheries Service, in providing input to EPA regarding the appropriateness of Maine's freshwater temperature criteria related to the endangered Atlantic salmon, said the following about the delta T of 5° F:

We are particularly concerned that the five degree (Fahrenheit) limit...could increase the temperature of nearly every salmon river in the State of Maine above the survival thresholds for the freshwater life stages of Atlantic salmon.... Warming of rivers and streams during the spring and summer could increase temperatures outside of the optimal window for feeding and possibly outside the window for survival of fry and parr. Spring and summer warming may also inhibit adult migration or result in direct or indirect mortality. Warming of river temperatures in the spring would narrow the window of time that would allow successful passage of salmon smolts (the life stage where salmon are transitioning from freshwater to saltwater) that can only occur between 5 and 10° C. Any warming of river temperatures in the winter would have the effect of advancing development of eggs and alevins. If this occurs too quickly, they may use up available energy stores in the egg before food in the river is available. This too could have the effect of narrowing the window of a key development phase. Given the precarious state of salmon in the GOM DPS [Gulf of Maine Distinct Population Segment], anthropogenic changes in water temperatures that alter temperatures in a way that could interfere with Atlantic salmon migratory behaviors or embryonic and juvenile development may pose a significant risk to the species.²⁸

Therefore, EPA expects that the requirement in Maine's freshwater temperature criteria that ensures that ambient temperatures do not exceed EPA's national ambient water quality criteria recommendations for all species of indigenous fish will typically supersede the default maximum 85° F temperature limit and 5° F delta T. EPA's recommended temperature criteria provide a methodology for deriving temperature criteria on a site specific basis, depending on the species present or expected to be present and the pertinent life stages. EPA recommends, as described in the Gold Book,²⁹ that temperature criteria for any time of the year consist of two upper limiting temperatures for a specific location based on the important sensitive species and life stages found there during that time of year. One limit is a maximum temperature for short exposures that is time dependent and based on the results of experimental data for the sensitive species. The second value is a weekly average temperature which would vary seasonally and also be based on temperature sensitivity of the species present. Four species dependent options for deriving the weekly average temperature thresholds are provided in the Gold Book.

²⁶ May 13, 2015 Letter from John K. Bullard, National Marine Fisheries Service, to Ralph Abele, EPA.

²⁷ Picard C, Bozek M and Walter Momot, [*Effectiveness of Using Summer Thermal Indices to Classify and Protect Brook Trout Streams in Northern Ontario*](#), North American Journal of Fisheries Management 23:206–215, 2003

²⁸ May 13, 2015 Letter from John K. Bullard, National Marine Fisheries Service, to Ralph Abele, EPA, page 5.

²⁹ EPA, [*Quality Criteria for Water 1986*](#), EPA 440/5-86-001, Temperature, May 1, 1986.

EPA approves DEP Rule Chapter 582(1) because it requires that temperatures in the receiving waters not exceed EPA recommended criteria for indigenous species, which include temperature sensitive species such as brook trout and the endangered Atlantic salmon. EPA's recommended criteria are based on sound science and provide a methodology for deriving ambient temperatures that are protective of such species. By incorporating EPA's recommended criteria, Maine's criteria are protective of aquatic life uses.

EPA approves the criteria as applicable to freshwaters, whether or not there is a mixing zone. If the Board does establish a mixing zone, then compliance for dischargers is to be measured at the edge of the mixing zone. As a result of EPA's disapproval today of Maine's mixing zone policy, discussed below, EPA expects that Maine will revise its policy and ensure that subsequently established mixing zones, including for temperature, will be protective of all uses, including aquatic life uses for indigenous species such as the endangered Atlantic salmon.

DO Criteria for Class B, SB and SC Waters [38 M.R.S. § 465(3.B); 38 M.R.S. § 465-B(2.B); and 38 M.R.S. § 465-B(3.B)]

EPA's review of Maine's DO criteria for aquatic life for Class B fresh waters in 38 M.R.S. § 465(3.B), is based on whether the criteria protect aquatic life uses, including consideration of EPA's National Recommended Water Quality Criteria published pursuant to Section 304(a) of the CWA. The criteria require that DO content be at least 7 mg/l or 75% of saturation, whichever is higher, from May 15th to September 30th. From October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean DO content must be at least 9.5 mg/l and the 1-day minimum DO content must be at least 8 mg/l in identified fish spawning areas. The spawning and egg incubation criteria are consistent with EPA's *Quality Criteria for Water 1986* ("Gold Book")³⁰ recommendations for protection of early life stages of coldwater species. The minimum DO criterion of 7 mg/l year-round for non-spawning areas and during the summer months for spawning areas, is at least as protective as EPA's recommendations for other life stages of coldwater species and all life stages of warmwater species (3 to 6.5 mg/l). EPA approves the DO criteria for Class B waters because they are based on sound science and protective of designated uses for the reasons provided in EPA's Gold Book.

EPA's review of the DO aquatic life criteria in 38 M.R.S. § 465-B(2.B) (for Class SB estuarine and marine waters, DO at least 85% saturation); and § 465-B(3.B) (for Class SC waters, DO at least 70 % saturation) is similarly based on whether the criteria protect aquatic life uses, including consideration of EPA's National Recommended Water Quality Criteria published pursuant to Section 304(a) of the CWA and DO criteria for Canadian marine waters.

EPA's current recommendations for saltwater DO criteria³¹ of 4.8 mg/l for chronic exposure and 2.3 mg/l for acute exposure were developed to protect aquatic life in east coast Atlantic and estuarine waters in the Virginia Province (ranging from Cape Cod, Massachusetts to Cape Hatteras, North Carolina). These values are not directly comparable to Maine's criteria, which are expressed as percent saturation rather than as a DO concentration. However, it is possible

³⁰ EPA, *Quality Criteria for Water 1986*, EPA 440/5-86-001, Dissolved Oxygen, May 1, 1986.

³¹ EPA, *Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras*, EPA-822-R-00-012, November 2000.

to compare EPA's DO recommendations for the Virginia Province to Maine criteria for coastal waters by accounting for the differences in ambient temperatures. During the critical summer period (May 15th through September 30th), ambient monthly average coastal temperatures range up to 52° F (11° C) at the National Oceanic and Atmospheric Administration's ("NOAA") ambient water temperature monitoring location near Eastport, Maine. Using the 52° F ambient temperature and a DO-to-percent-saturation conversion table,³² EPA's recommended minimum values for the Virginia Province translate to 32% saturation for chronic exposure and 21% saturation for acute exposure, both well below Maine's criteria of 70% and 85% saturation.

In evaluating Maine's criteria, EPA also reviewed the Canadian Water Quality Guidelines for the Protection of Aquatic Life for marine dissolved oxygen.³³ Canadian guidelines recommend a minimum concentration of DO in marine and estuarine waters of 8.0 mg/l, or at 11° C, 73% DO saturation³⁴, within the range of Maine's criteria of 85% and 70% saturation for Class SB and SC waters respectively.

EPA approves Maine's DO criteria for SB and SC waters because they are protective of aquatic life uses in estuarine and marine waters.

Identification of Spawning Areas and Applicable DO Criteria [DEP Rule Chapter 585 and the last two sentences of 38 M.R.S. § 465(4.B)]

EPA's review of DEP Rule Chapter 585, which specifies how fish spawning areas in Class B waters and salmonid spawning areas in Class C waters are to be identified and the applicable DO criteria for such areas, is based on whether the requirements are supportive of aquatic life uses in Class B and C waters.

DO criteria set forth in 38 M.R.S. § 465(3.B) and (4.B) for Class B and C waters, respectively, include special numeric DO criteria for October 1 - May 14 in all spawning areas in Class B waters and narrative DO criteria in salmonid spawning areas in Class C waters, and § 465(4.B) further directs the Board to adopt rules for designation of spawning areas. The identification of spawning areas in these waters is critical to the protection of the use. In accordance with Chapter 585, prior to licensing or relicensing any wastewater discharge that may affect DO, DEP is required to request that the Maine Department of Inland Fisheries and Wildlife (DFW) identify existing or potential fish spawning areas. As the state agency with responsibility for managing fisheries, DFW has the resources and expertise, such as fisheries biologists, habitat inventories, and river reports, to make such identifications.

In addition, Chapter 585(1) includes the DO requirements that are specified in § 465(3.B) for spawning areas in Class B waters; and Chapter 585(3) specifies that in designated spawning areas in Class C waters, DO criteria shall not fall below the EPA recommended criteria for spawning for the period October 1- May 14. If levels of DO fall below EPA's recommended criteria, then corrective action is required or a UAA must be conducted,

³² <http://www.usawaterquality.org/volunteer/pdf/Special/DOConvTbl.pdf>

³³ Canadian Council of Ministers of the Environment, Canadian Water Quality Guidelines for the Protection of Aquatic Life, Dissolved Oxygen (Marine), Excerpt from Publication No. 1299; ISBN 1-896997-34-11999.

³⁴ Conversion to % saturation using conversion table at <http://www.usawaterquality.org/volunteer/pdf/Special/DOConvTbl.pdf>

EPA approves the last two sentences of 38 M.R.S. § 465(4.B) related to the adoption of rules governing designation of spawning areas, and all of Rule Chapter 585. EPA approves the requirements for spawning area identification in Chapter 585 because this coordination is necessary to ensure that DO criteria are implemented in a manner that protects aquatic species with reproductive cycles that are sensitive to low DO levels. EPA approves the DO criteria for Class B spawning areas for the reasons discussed above related to 38 M.R.S. § 465(3.B), and approves the DO criteria for Class C spawning areas because they require DO to be at least as high as EPA's recommended criteria, which are based on sound science and are protective of the designated use.

Shellfishing Bacteria Criteria for Class SB and SC Waters [38 M.R.S. § 465-B(2.B and 3.B)]

EPA's review of Maine's bacteria criteria for the protection of shellfishing uses in Class SB and SC waters (in 38 M.R.S. § 465-B(2.B and 3.B), respectively) is based on whether the criteria are protective of the "propagation and harvesting of shellfish" use in Class SB waters and the "propagation and restricted harvesting of shellfish" use in Class SC waters.

The shellfishing criteria for Class SB and SC waters are identical: "The numbers of total coliform bacteria or other specified indicator organisms in samples representative of the waters in shellfish harvesting areas may not exceed the criteria recommended under the National Shellfish Sanitation Program ["NSSP"], United States Food and Drug Administration." Since this reference to the NSSP recommendations was enacted in 1986,³⁵ the NSSP recommendations in effect in 1986 are the applicable criteria for Class SA and SB waters. NSSP's bacteria recommendations for unrestricted (as for Class SB waters) and restricted (as for Class SC waters) harvesting of shellfish have not changed since 1986.³⁶ EPA's recommendation for shellfishing bacteria criteria, provided in the 1986 Gold Book,³⁷ are the same as the NSSP criteria for unrestricted harvesting of shellfish. EPA does not have a bacteria criteria recommendation for restricted harvesting of shellfish.

EPA approves the shellfishing bacteria criteria for Class SB and SC waters in 38 M.R.S. § 465-B(2.B and 3.B), because they reflect the current NSSP and EPA recommendations and are therefore protective of the designated uses. While we approve these provisions, we recommend that Maine adopt the NSSP numeric shellfishing bacteria criteria directly into WQS rather than by reference to undated recommendations. This would ensure that the requirements are clear on their face, and would avoid confusion if NSSP recommendations change in the future.

Compliance Schedule [38 M.R.S. § 414-A(2)]

EPA approves 38 M.R.S. § 414-A(2), which authorizes the use of compliance schedules in discharge licenses to meet final effluent limitations based on a water quality standard adopted

³⁵ "An Act to Amend the Classification System for Maine Waters and Change the Classification System of Certain Waters," Maine Public Laws, 112th Legislature, Chapter 698 (the "Reclassification Act").

³⁶ See National Shellfish Sanitation Program Manual of Operations Part I, Sanitation of Shellfish Growing Areas, revised 1986; and NSSP, Guide for the Control of Molluscan Shellfish, 2013 Revision.

³⁷ EPA [Quality Criteria for Water 1986](#), EPA 440/5-86-001, Bacteria, May 1, 1986

after July 1, 1977. The purpose of such a schedule is, where appropriate, to afford a permittee adequate time to comply with permit requirements that are based on new or revised water quality standards. EPA approves this provision because it is consistent with EPA's interpretation of the circumstances under which such compliance schedules may be provided consistent with the federal Clean Water Act.

Toxic Substances [38 M.R.S. § 420(2) and (2.A) through (2.G)]

EPA's review of the WQS provisions in 38 M.R.S. § 420(2) and (2.A) through (2.G), which provide direction to the Board of Environmental Protection ("Board") regarding the establishment of water quality criteria for toxic substances, is based on whether the resulting criteria would be protective of designated uses.

The introductory text in 38 M.R.S. § 420(2) generally identifies the scope of toxic substances to be regulated and defines the term "toxic substance." The provision requires that the Board take into consideration the toxicity, persistence and degradability of the substance as well as the sensitivity of organisms, including humans, potentially affected by the substance, either alone or in combination with substances already present. The definition of "toxic substance" is generally consistent with the CWA's definition of "toxic substances" in CWA § 502(13). EPA approves the introductory text in 38 M.R.S. § 420(2) because it is consistent with the requirements in 40 C.F.R. § 131.12(a)(2), which require states to adopt water quality criteria for toxic pollutants and to protect designated uses, and because the provisions explicitly require that sensitive organisms be protected.

The provisions in 38 M.R.S. § 420(2.A) through (2.G) instruct and authorize the Board of Environmental Protection to adopt statewide criteria for toxic substances that are consistent with EPA recommendations or to adopt site-specific criteria or alternative statewide criteria that are based on sound scientific rationale and protective of the most sensitive designated uses. EPA approves these provisions (except for the clause related to naturally occurring toxic substances in § 420(2.A), which EPA is separately partially approving and partially disapproving, as discussed on pages 7 and 27-28, respectively) because they are consistent with the requirements in 40 C.F.R. § 131.11 for state adoption of water quality criteria.

Prohibitions and Exceptions to Prohibitions on Discharges to Class AA and Class SA Waters [38 M.R.S. § 465(1.C); 38 M.R.S. § 465(1.C.(2)); 38 M.R.S. § 465(1.C.(3)); 38 M.R.S. § 465(1.C.(4)); 38 M.R.S. § 465(1.C.(5)); 38 M.R.S. § 465-B(1.C.(2)); 38 M.R.S. § 465-B(1.C); 38 M.R.S. § 465-B(1.C.(3)); and 38 M.R.S. § 465-B(1.C.(4))]

In EPA's February 2, 2015 decision letter related to Maine WQS revisions submitted to EPA between 2004 and 2014, EPA identified, among others, the following statutory revisions that EPA concluded were not WQS and therefore EPA did not act on them in that decision letter: 38 M.R.S. § 465(1.C.(2)); 38 M.R.S. § 465(1.C.(3)); 38 M.R.S. § 465(1.C.(4)); 38 M.R.S. § 465(1.C.(5)); 38 M.R.S. § 465-B(1.C.(2)); and 38 M.R.S. § 465-B(1.C.(4)). EPA now recognizes that this characterization was in error. All of these revisions allow exceptions from the general prohibitions on direct discharges to Class AA and SA waters in 38 M.R.S. § 465(1.C) and § 465-B(1.C), respectively. Class AA and SA waters are specifically identified as outstanding national resource waters ("ONRWs") in 38 MRS § 464(4.F.(2)) and are therefore afforded the highest (Tier 3) protection under federal and state antidegradation policies. The

exceptions to the prohibitions on discharges that would otherwise apply to these ONRWs are integrally related to the extent of Tier 3 antidegradation protection afforded to these waters. Consequently, EPA has concluded that they are WQS revisions. EPA today approves these provisions, along with the pre-2003 general prohibitions in 38 M.R.S. § 465(1.C) and § 465-B(1.C) and an additional revision at 38 M.R.S. § 465-B(1.C.(3)), having determined that they are consistent with the federal antidegradation requirement at 40 C.F.R. § 131.12(a)(3) for the reasons discussed below.³⁸ It is important to note that any discharges authorized under these provisions must also meet all other applicable water quality standards.

EPA's antidegradation policy requires the quality of ONRWs to be "maintained and protected." 40 C.F.R. § 131.12(a)(3). EPA interprets this requirement to mean that there shall be no new or increased discharges to ONRWs or their tributaries that would lower water quality, with some exception for limited activities that result in temporary and short-term changes in water quality (Water Quality Standards Handbook: Second Edition, EPA-823-B-94-005a, August 1994, at section 4.7).

EPA approves the general prohibitions on direct discharges to Class AA and SA waters in 38 M.R.S. § 465(1.C) and § 465-B(1.C), respectively, because they clearly afford protection of ONRWs consistent with the antidegradation policy.

EPA approves the revision at 38 M.R.S. § 465(1.C.(2)), which allows discharges approved by DEP to aid in wild Atlantic salmon restoration, for the same reasons stated in EPA's January 25, 2005 approval of the revisions for state waters outside Indian lands. Specifically, the discharge provision is not an authorization to lower water quality. Rather, the discharges must be for the express purpose of assisting in the restoration of endangered Atlantic salmon by restoring water quality that has been degraded by anthropogenic activity. This is consistent with 40 C.F.R. § 131.12(a)(3). Further, the intent to restore natural ambient water chemistry to aid in the restoration of endangered salmon is consistent with the overall objective of the CWA at 101(a).

EPA approves the revision at 38 M.R.S. § 465(1.C.(3)), which allows aquatic pesticide or chemical discharges approved by DEP for invasive species control. EPA finds that since such discharges are, by their nature, short-term and temporary, and are for the express purpose of restoring biological communities affected by invasive species, the provision will not result in a lowering of water quality of ONRWs and therefore is consistent with 40 C.F.R. § 131.12(a)(3).

EPA approves the revisions at 38 M.R.S. § 465(1.C.(4)) and 38 M.R.S. § 465-B(1.C.(2)), which allow licensed discharges of aquatic pesticides approved by DEP for the control of mosquito-borne diseases, for the same reasons stated in EPA's August 19, 2009 approval of the revisions for state waters outside Indian lands. EPA finds that since the discharges of aquatic pesticides for mosquito control are, by their nature, short-term and temporary, and will use methods and materials that are protective of non-target species, the provisions will not result in a lowering of water quality and are consistent with 40 C.F.R. § 131.12(a)(3).

³⁸ EPA addresses two additional WQS revisions at 38 M.R.S. § 465(1.C.(1)) and 38 M.R.S. § 465-B(1.C.(1)), which allow stormwater discharges to Class AA and SA waters, respectively, in the disapproval section below.

EPA approves the revision at 38 M.R.S. § 465-B(1.C.(3)), which allows overboard discharges licensed prior to January 1, 1986. Because this provision relates to discharges that existed before 1986, it does not authorize new or increased discharges to Class SA waters and therefore will not result in a future lowering of water quality and is consistent with 40 C.F.R. § 131.12(a)(3).

EPA approves the revisions at 38 M.R.S. § 465(1.C.(5)) and 38 M.R.S. § 465-B(1.C.(4)), which allow the discharge of pesticides approved by DEP that are unintended and the incidental result of spraying of pesticides as long as they are applied consistent with federal labeling restrictions and in compliance with state pesticide rules and best management practices. Because such discharges would be short term and temporary, and in compliance with federal and state pesticide requirements, EPA concludes that these provisions will not result in a lowering of water quality and are thus consistent with 40 C.F.R. § 131.12(a)(3).

Supporting Discussion of Disapprovals

Waiver or Modification of Protection and Improvement Laws [38 M.R.S. § 363-D]

Under 38 M.R.S. § 363-D, the DEP Commissioner or her designee may waive or modify any provision of Chapter 3 (Protection and Improvement of Waters), which includes water quality standards, to assist in any oil spill response activity conducted in accordance with the national or state contingency plans, or as otherwise directed by the federal on-scene coordinator or the Commissioner or her designee.

Waivers or modifications of WQS that would have the effect of removing a designated use or creating a subcategory of use, including waiving or modifying criteria necessary to support the use, may occur under the Clean Water Act but only in accordance with 40 C.F.R. § 131.10(g) (which, among other things, requires a use attainability analysis). Before taking such action, states must provide public notice and an opportunity for a public hearing, and revised WQS are subject to EPA review and approval. Because 38 M.R.S. § 363-D does not contain any of these requirements, it is not consistent with minimum federal requirements. Therefore EPA is disapproving 38 M.R.S. § 363-D as it relates to water quality standards.³⁹ EPA has no record of ever having previously acted to approve or disapprove this statute for any waters in Maine, so this disapproval applies to all waters in the State. Because 38 M.R.S. § 363-D was submitted to EPA before May 30, 2000, it will remain applicable for Clean Water Act purposes in state waters outside Indian lands until either EPA approves a revision promulgated by Maine or EPA promulgates a revision. See 40 C.F.R. § 131.21(c).

Maine may remedy this disapproval either by specifying in the statute that it does not apply to water quality standards, or by including requirements that must be satisfied before any waiver

³⁹ EPA regulations, at 40 C.F.R. § 122.3(d), provide a limited exception from the need to get an NPDES permit and, indirectly, to comply with water quality standards, for “any discharge in compliance with the instructions of an On-Scene Coordinator pursuant to 40 CFR part 300 (The National Oil and Hazardous Substances Pollution Contingency Plan) or 33 CFR 153.10(e) (Pollution by Oil and Hazardous Substances).” Maine has a similar permitting exemption at 38 M.R.S. § 413(2-G.B). By contrast, 38 M.R.S. § 363-D does not limit the waiver to discharges conducted in compliance with the instructions of the federal On-Scene Coordinator, nor is it limited to discharges associated with removal efforts at the scene of the oil spill, which is the purpose of EPA’s regulation.

or modification of WQS takes effect under the statute, including public participation, use attainability analysis, and EPA review and approval.

Dissolved Oxygen (“DO”) Aquatic Life Criteria for Class A Fresh Waters [38 M.R.S. § 465(2.B)]

EPA's review of the DO criterion for aquatic life in 38 M.R.S. § 465(2.B) for Class A fresh waters is based on whether the criterion is protective of aquatic life uses, including all life stages of indigenous species. The criterion requires a minimum of 7 mg/l DO year round. EPA's Gold Book recommends criteria for DO that are protective of coldwater and warmwater species at all life stages. These include freshwater DO criteria of at least 9.5 mg/l as a 7-day mean and at least 8 mg/l as a 1-day minimum to protect early life stages of coldwater species, including salmonids, and 3 to 6.5 mg/l for adult coldwater species and all life stages of warm water species. Maine's DO criterion for Class A freshwaters is protective of all life stages of warmwater species and adult coldwater species, but is not high enough to protect the early life stages of coldwater species.

In 1986, EPA declined to approve Maine's Class A criterion and requested that Maine adopt criteria for Class A waters that are protective of salmonid spawning, as had been done in Class B waters.⁴⁰ EPA reminded DEP of this request again in 1988.⁴¹ So far, Maine has not remedied this deficiency in the DO criteria for Class A fresh waters.

Because the DO criterion for aquatic life in 38 M.R.S. § 465(2.B) does not protect early life stages of coldwater species and, therefore, the full aquatic life designated use, EPA is disapproving the criterion. This disapproval applies in all waters of Maine, including waters in Indian lands, because EPA never previously acted on the criterion for state waters. Because 38 M.R.S. § 465(2.B) was submitted to EPA before May 30, 2000, it will remain applicable for Clean Water Act purposes in state waters outside Indian lands until either EPA approves a revision promulgated by Maine or EPA promulgates a revision. See 40 C.F.R. § 131.21(c). Maine may remedy this disapproval by adopting DO criteria for Class A fresh waters that are protective of all life stages of indigenous aquatic life.

Mixing Zones [38 M.R.S. § 451]

Maine's mixing zone policy, which is set forth in 38 M.R.S. § 451, allows the Commissioner to establish mixing zones that would allow the “reasonable” opportunity for dilution or mixture of pollutants before the receiving waters would be evaluated for WQS compliance.

States have the discretion to adopt mixing zone policies into their WQS, subject to EPA review and approval. 40 C.F.R. § 131.13. EPA's mixing zone guidance explains that a mixing zone is a limited area or volume of water where initial dilution of a discharge takes place, and where certain numeric criteria may be exceeded, so long as the designated uses of the waterbody as a whole are protected.⁴² While mixing zones serve to dilute concentrations of pollutants in effluent discharges, they also allow increases in the mass loading of the pollutant to the

⁴⁰ July 16, 1986, Letter from Michael R. Deland, EPA to Kenneth C. Young, DEP, page 3.

⁴¹ November 3, 1988, Letter from David A. Fierra, EPA to Stephen W. Groves, DEP, page 4.

⁴² EPA, [Water Quality Standards Handbook – Section 5: General Policies](#), Section 5.1, 2015 online version.

waterbody (more so than would occur if no mixing zone were allowed). Therefore, if not applied appropriately, a mixing zone could adversely affect mobile species passing through the mixing zone as well as less mobile species (e.g., benthic communities) in the immediate vicinity of the discharge. Because of these and other factors, mixing zones should be applied carefully so that they do not result in impairment of the designated use of the waterbody as a whole or impede progress toward the CWA goals of restoring and maintaining the physical, chemical, and biological integrity of the Nation's waters.⁴³

EPA's guidance includes specific recommendations that a state's mixing zone policy should include to ensure the protection of uses. Among other things, mixing zone policies should ensure that mixing zones do not impair the designated uses of the water body as a whole; that pollutant concentrations in the mixing zone are not lethal to organisms passing through and do not cause significant human health risks; and that mixing zones do not endanger critical areas such as breeding or spawning grounds, drinking water intakes and sources, shellfish beds, or endangered or threatened species habitat.^{44,45} Maine's mixing zone law does not contain any of these or other scientifically sound safeguards to ensure the protection of designated uses. The only specific statutory limitation on mixing zones in Maine's mixing zone policy is that they be "reasonable."

In 1985, EPA requested DEP to develop a mixing zone policy consistent with EPA's guidance.⁴⁶ DEP's response did not include agreement to develop a written policy or rule, saying instead that "Decisions regarding mixing zones considers [*sic*] the factors in E.P.A.'s 'Water Quality Standards Handbook,' Chapter 2."⁴⁷ On October 29, 1998, DEP acknowledged that EPA had, several years previously, asked Maine to develop a mixing zone rule.⁴⁸ To EPA's knowledge, no rule was ever promulgated or submitted to EPA.⁴⁹

EPA is disapproving 38 M.R.S. § 451 for waters in Indian lands because it does not ensure that mixing zones will protect designated uses. Maine may remedy this disapproval by revising the statute or promulgating a regulation which contains explicit conditions on the scope and extent of mixing zones adequate to protect designated uses. EPA recommends that any revision extend to all waters in Maine, not just waters in Indian lands.

pH Criterion for Fresh Waters [38 M.R.S. § 464(4.A(5))]

EPA's review of Maine's pH criterion in 38 M.R.S. § 464(4.A(5)) for fresh waters is based on whether the criterion is protective of aquatic life uses. The criterion prohibits discharges from

⁴³ Id.

⁴⁴ Id., Section 5.1.1

⁴⁵ EPA, [Technical Support Document For Water Quality-based Toxics Control](#), EPA/505/2-90-001, March 1991, pages 70-71.

⁴⁶ Letters dated February 20, 1985 from Michael Deland, EPA to Henry Warren, Maine DEP; and March 7, 1985 from David Fierra, EPA to Stephen Groves, DEP.

⁴⁷ April 1, 1985, Letter from Stephen W. Groves, DEP to Michael R. Deland, EPA, Attachment page 2.

⁴⁸ October 29, 1998, Email from Barry Mower, DEP to William Beckwith, EPA

⁴⁹ EPA is today approving for tribal waters the zone of passage provision in DEP Rule Chapter 581(5). While related to the establishment of a mixing zone, it does not itself constitute a mixing zone policy or provide the necessary protection of designated uses.

causing pH to fall outside of the 6.0 to 8.5 range. EPA's recommended criterion for pH in fresh waters, which has been unchanged since 1976, specifies that pH be in the range from 6.5 to 9.0 to protect freshwater aquatic life.^{50, 51}

In September of 1976, EPA recommended that Maine adopt pH criteria consistent with EPA's 1976 *Water Quality Criteria*.⁵² At the time, Maine's freshwater pH criterion, which had been part of Maine's WQS since at least 1972, was already 6.0 to 8.5 for fresh waters.⁵³ States may adopt, and EPA may approve, statewide or site specific criteria that are less stringent than EPA's recommendations if there is a scientific basis that shows that a less stringent criteria is protective of designated the designated uses. However, EPA is not aware of correspondence or other documentation in our records indicating that such a scientific basis has ever been provided to justify Maine's pH criterion for fresh waters.

EPA disapproves Maine's pH criteria in 38 M.R.S. § 464(4.A(5)) for fresh waters in Indian lands because the low end of the pH range (6.0) is below EPA's recommended criterion of 6.5 for the low end of the pH range, and it is not protective of aquatic life uses. Maine may remedy this disapproval by adopting criteria that are consistent with EPA's recommendations or by demonstrating, based on sound scientific rationale, why pH in the range of 6.0 to 6.5 is protective of freshwater aquatic life uses. EPA recommends that any revision extend to all waters in Maine, not just waters in Indian lands.

Natural Conditions Clauses as They Apply to Human Health Criteria [38 M.R.S § 464(4.C) and 38 M.R.S. § 420(2.A)]

EPA's review of Maine's natural conditions clauses at 38 M.R.S § 464(4.C) and § 420(2.A) as they apply to human health criteria is based on whether the clauses protect designated human uses. The clause in 38 M.R.S § 464(4.C) says that, "Where natural conditions, including but not limited to, marshes bogs and abnormal concentrations of wildlife cause the dissolved oxygen criteria or other water quality criteria to fall below the minimum standards...those waters shall not be considered to be failing to attain their classification because of those natural conditions." The clause in 38 M.R.S. § 420(2.A) says, "Except as naturally occurs or as provided in paragraphs B and C, the board shall regulate toxic substances in the surface waters of the State at the levels set forth in federal water quality criteria as established by the United States Environmental Protection Agency pursuant to the Federal Water Pollution Control Act...."

These provisions are not consistent with EPA's interpretation of the relationship between natural conditions and the protection of designated human health uses, which is articulated in EPA's November 1997 guidance entitled *Establishing Site Specific Aquatic Life Criteria Equal to Natural Background*.⁵⁴ As discussed above in EPA's approval of these natural conditions clauses as they relate to aquatic life, EPA recognizes that there may be naturally occurring concentrations of pollutants which exceed the national criteria published under section 304(a)

⁵⁰ EPA, *Quality Criteria for Water*, July 1976, page 178.

⁵¹ EPA, [Quality Criteria for Water 1986](#), EPA 440/5-86-001, pH, May 1, 1986.

⁵² September 23, 1976, Letter from Kenneth L. Johnson, EPA, to William R. Adams, Jr., DEP

⁵³ EPA and DEP, *Water Quality Standards Summary*, 1972, pages I-4 to I-5.

⁵⁴ Davies, Tudor, EPA. [Establishing Site Specific Aquatic Life Criteria Equal to Natural Background](#), November 5, 1997.

of the CWA that are still protective of aquatic life. However, in contrast with aquatic life uses, a natural level of a naturally occurring pollutant does not necessarily protect designated human uses. Naturally occurring levels of a pollutant are assumed to protect aquatic life species that have naturally developed in the affected waters. However, human health does not adapt to higher ambient pollutant levels, even if they are naturally caused. Consequently, the same assumptions of protectiveness cannot be made with regard to designated uses that affect human health (e.g., people eating fish or shellfish from Maine waters, and recreating in Maine waters). For this reason, EPA's 1997 guidance also states that where the natural background concentration exceeds the state-adopted human health criterion, at a minimum, states should re-evaluate the human health use designation.⁵⁵

Therefore, EPA disapproves the natural conditions clauses at 38 M.R.S §464(4.C) and § 420(2.A) for waters in Indian lands as they apply to criteria that protect human health because the application of these provisions fails to protect designated human health uses as required by the CWA and federal water quality standards regulations at 40 C.F.R. § 131.11(a). Maine may remedy this disapproval by clarifying in statute, or, if appropriate, in a rule, that these provisions do not apply to human health criteria. EPA recommends that any revisions extend to all waters in Maine, not just waters in Indian lands. If there are naturally occurring pollutants which exceed Maine's criteria to protect human health, Maine may revise its WQS on a site-specific basis to remove or modify a use, in accordance with the procedures of 40 C.F.R. § 131.10(g) and 38 M.R.S. § 464(2-A).

EPA is aware of the error made in our approvals of similar provisions in DEP Rule Chapter 584(2) and (3), which allow for naturally occurring pollutants which impart toxicity. These provisions were approved by EPA in state waters in 2007⁵⁶ and in waters in Indian lands in 2015.⁵⁷ We recommend that at the same time that Maine revises the natural conditions clauses in 38 M.R.S §464(4.C) and § 420(2.A) to pertain only to aquatic life uses, Maine also remedy the corresponding clauses currently in DEP Rule Chapter 584 for toxic substances.

Narrative Bacteria Criteria for Class AA, A, and SA Waters [38 M.R.S. § 465 (1.B and 2.B) and 38 M.R.S. § 465-B(1.B)]

EPA's review of Maine's narrative bacteria criteria for Class AA, A, and SA waters in 38 M.R.S. § 465(1.B and 2.B) and 38 M.R.S. § 465-B(1.B) is based on whether the criteria are protective of recreational uses and, in SA waters, also shellfishing uses. The criteria specify that bacteria content of these waters shall be "as naturally occurs."

EPA recognizes that the intent of these criteria, similar to DO and aquatic life criteria for these waters, is to reflect conditions unaffected by human activity. However, in the case of bacteria, human pathogens can result from naturally occurring sources such as wild animals. Therefore there is potential human health risk from recreational and shellfishing exposure to bacteria in naturally occurring, wild animal-impacted waters (2012 Recreational Water Quality Criteria, see section 3.5.1-2). This concern underlies EPA's disapproval on March 16, 2015 of Maine's recreational bacteria criteria as applied to waters in Indian lands, because the criteria did not

⁵⁵ Id, page 3.

⁵⁶ July 7, 2007, Letter from Linda M. Murphy, EPA to David P. Littell, DEP, page 1.

⁵⁷ February 2, 2015, Letter from H. Curtis Spalding, EPA to Patricia W. Aho, DEP, page 3.

address bacteria from wild animal sources. Similarly, EPA disapproves the narrative criteria, “as naturally occurs” for bacteria in Class AA, A and SA waters in Indian lands, because they do not adequately protect recreation in and on the waters in Class AA, A, and SA waters, and propagation and harvesting of shellfish in Class SA waters.

To address this disapproval, EPA recommends that Maine adopt bacteria criteria for Class A, AA and SA waters in Indian lands to support recreational and shellfishing uses, including EPA’s 2012 recommendations for recreational criteria⁵⁸ and EPA’s 1986 Gold Book recommendations for shellfishing⁵⁹ or the NSSP’s most recent recommendations for shellfish harvesting without depuration.⁶⁰ EPA also recommends that any revision extend to all waters in Maine, not just waters in Indian lands.

Exceptions to Prohibitions on Discharges to Class AA and Class SA Waters [38 M.R.S. § 465(1.C.(1)) and 38 M.R.S. § 465-B(1.C.(1))]

EPA’s review of 38 M.R.S. § 465(1.C.(1)) and 38 M.R.S. § 465-B(1.C.(1)), which allow an exception from the general prohibitions on direct discharges to Class AA and SA waters, respectively, for stormwater discharges that comply with state and local requirements, is based on whether they are consistent with the federal antidegradation requirement at 40 C.F.R. § 131.12(a)(3).

Class AA and SA waters are specifically identified as outstanding national resource waters (“ONRWs”) in 38 MRS § 464(4.F.(2)) and are therefore afforded the highest (Tier 3) protection under the antidegradation policy. The quality of such waters must be “maintained and protected,” which EPA interprets to mean no new or increased discharges to ONRWs or their tributaries that would lower water quality, with some exception for limited activities that result in temporary and short-term changes in water quality (Water Quality Standards Handbook: Second Edition, EPA-823-B-94-005a, August 1994). Stormwater discharges may be short-term, but they are not temporary in most cases, and we have not found provisions in other state laws that would ensure that any such stormwater discharges are controlled or treated such that the Class AA and SA water quality will be maintained and protected. Therefore, these provisions are not consistent with Tier 3 antidegradation requirements.

EPA is disapproving 38 M.R.S. § 465(1.C.(1)) and § 465-B(1.C.(1)) as they apply to all Class AA and SA waters in Maine, because EPA never acted on these provisions for any waters previously. These provisions were submitted to EPA before May 30, 2000 and therefore will remain in effect in state waters outside Indian lands until either EPA approves a revision promulgated by Maine or EPA promulgates a revision. See 40 C.F.R. § 131.21(c). Maine may remedy the disapprovals by removing or narrowing these exceptions to the prohibitions on direct discharges to ONRWs.

⁵⁸ EPA, [Recreational Water Quality Criteria](#), Office of Water 820-F-12-058, 2012.

⁵⁹ EPA, [Quality Criteria for Water 1986](#), EPA 440/5-86-001, Dissolved Oxygen, May 1, 1986.

⁶⁰ NSSP, [Guide for the Control of Molluscan Shellfish 2013 Revision](#), 2013.

Tidal⁶¹ Waters Temperature Criteria [DEP Rule Chapter 582(5)]

EPA's review of the temperature criteria for tidal waters in DEP Rule Chapter 582(5), is based on whether the criteria protect estuarine and marine life uses for waters in Indian lands. Chapter 582(5) provides limits on the allowable rise in ambient temperature from individual discharges and provides a maximum allowable temperature from cumulative discharges. The allowable rise from individual dischargers is 4° F from September 2nd to May 30th and 1.5° F from June 1st to September 1st, as measured outside of any mixing zone. The maximum temperature allowed is 85° F, also as measured outside of any mixing zone.

EPA approved the temperature criteria for tidal waters in state waters in 1973⁶², which were based, in part, on the U.S. Department of Interior's ("DOI") 1968 "Green Book" recommendations for temperature differentials in marine waters.⁶³ DOI's 1968 recommendations were replaced in 1976 by EPA's "Red Book" recommendations⁶⁴ and again, most recently, in 1986 by EPA's Gold Book recommendations. While DEP updated its freshwater temperature criteria in 1989 and, among other things, added reference to EPA's recommended criteria to protect indigenous species, DEP has not updated its tidal temperature criteria since 1973. They make no reference to EPA's recommended criteria or to the development of equally protective site specific criteria.

The Gold Book recommendations include 1) a maximum acceptable increase in the weekly average temperature resulting from artificial sources of 1° C (1.8° F) during all seasons of the year, providing the summer maxima are not exceeded; 2) daily temperature cycles characteristic of the water body segment should not be altered in either amplitude or frequency; and 3) summer thermal maxima, which define the upper thermal limits for the communities of the discharge area, should be established on a site-specific basis. Baseline thermal conditions should be measured at a site where there is no unnatural thermal addition from any source, which is in reasonable proximity to the thermal discharge (within 5 miles) and which has a similar hydrography to that of the receiving waters at the discharge.⁶⁵

The Gold Book also explains the importance of maintaining ambient water temperatures close to the baseline:

...life associated with the aquatic environment in any location has its species composition and activity regulated by water temperature. Since essentially all of these organisms are so-called "cold blooded" or poikilotherms, the temperature of the water regulates their metabolism and ability to survive and reproduce effectively.⁶⁶

⁶¹Although no definition of "tidal waters" is currently included in Maine's WQS, EPA assumes that the term "tidal waters" means "estuarine and marine waters," as defined in 38 M.R.S. § 361-A(5), since that definition was previously used to define "tidal waters." See L.D.1503, "An Act to Amend the Classification System for Maine Waters and Change the Classifications of Certain Waters," 112th Maine legislature, 1986.

⁶² December 17, 1973, letter from John A.S. McGlennon, EPA to Kenneth M. Curtis, Governor of Maine.

⁶³ U.S. Department of the Interior, *Report of the Committee on Water Quality Criteria* ("Green Book"), April 1, 1968, page 69.

⁶⁴ EPA, *Quality Criteria for Water* ("Red Book"), July 1976, page 218.

⁶⁵ EPA, [Quality Criteria for Water 1986](#), EPA 440/5-86-001, May 1, 1986, pages 2-3 of Temperature section.

⁶⁶ EPA, [Quality Criteria for Water 1986](#), EPA 440/5-86-001, Temperature, May 1, 1986.

Maine's provision that allows a 4° F monthly average temperature rise above maximum ambient temperatures is inconsistent with EPA's recommendation.

Based on NOAA data, the average temperatures in Maine coastal waters in the vicinity of Eastport, which is the closest monitoring location to the Passamaquoddy Reservation at Pleasant Point, range from 37° F in February to 52° F in September.⁶⁷

Maine's designated uses and narrative criteria for estuarine and marine waters in 38 M.R.S. § 465-B require, for SA waters, that habitat be "natural," and that estuarine and marine life be as naturally occurs; for SB waters, that habitat be characterized as unimpaired, and that the water quality be of sufficient quality to support all indigenous species without detrimental changes to the biological community; and for SC waters, that the water quality be of sufficient quality to support all indigenous species of fish and maintain the structure and function of the resident biological community. Maine's maximum temperature criterion of 85° F in estuarine and marine waters could not, by any measure, be considered protective of species which have been associated with waters in the 37° F to 52° F range, including indigenous species such as the anadromous Atlantic salmon, blueback herring, alewife, and American shad present in the vicinity of the St. Croix River. Ambient summertime water temperatures of 85° F are more typical of Atlantic coastal waters of the southern United States.⁶⁸

EPA is disapproving the tidal water temperature criteria for waters in Indian lands because they do not protect the designated uses as required by the CWA and by 40 C.F.R. § 131.11(a). Maine may remedy EPA's disapproval by adopting temperature criteria that are consistent with EPA's current recommendations or by providing alternative site specific criteria that are based on sound scientific rationale and are sufficient to protect the designated uses. Although the disapproval does not apply to tidal waters temperature criteria for Maine waters outside waters in Indian lands, EPA recommends that Maine adopt new tidal waters temperature criteria statewide, in accordance with the requirements of 40 C.F.R. § 131.6(c) and 40 C.F.R § 131.20(a).

New or Revised Provisions That are Not WQS and do Not Require an EPA Decision

As noted above, EPA reviewed Maine's statutes and rules in the State's docket and EPA's repository and identified provisions that, while important elements of state law, are not WQS requiring EPA review and approval or disapproval pursuant to Section 303(c)(2) of the Clean Water Act and 40 C.F.R. part 131. As discussed in more detail in EPA's February 2, 2015 decision, EPA recently clarified how it determines what is or is not a new or revised WQS, as summarized in EPA's 2012 Frequently Asked Questions ("FAQ") publication on the subject. After careful review of Maine's statutes and rules in light of this clarification, EPA finds that the provisions listed below are not WQS requiring EPA review and approval or disapproval, because they do not establish, alter, or in any other way include or address designated uses, criteria, or antidegradation requirements.

⁶⁷NOAA, Water Temperature Table of All Coastal Regions, https://www.nodc.noaa.gov/dsdt/cwtg/all_meanT.html

⁶⁸ Id.

- 38 M.R.S. §§ 361-A and 466 – Definitions contained in these sections that are not specifically listed and approved above;
- 38 M.R.S. § 410-H – Nonpoint Source Pollution Program Definitions;
- 38 M.R.S. § 410-I – Nonpoint Source Pollution Program Implementation;
- 38 M.R.S. § 413(1)-(10) and (11.A, 11.B, 11.C, 11.F, and 11.G) – Waste discharge licenses;
- 38 M.R.S. § 414-A(1.D), (1.E), (1-A), (1-B), (1-C), and (3)-(6) – Conditions of licenses;
- 38 M.R.S. § 414-B – Publically Owned Treatment Works;
- 38 M.R.S. § 414-C(1), (2), and (4)-(6) – Color Pollution Control;
- 38 M.R.S. § 417 – Certain Deposits and Discharges Prohibited;
- 38 M.R.S. § 418 -- Log Driving Storage;
- 38 M.R.S. § 418-A -- Protection of Lower Penobscot River;
- 38 M.R.S. § 419-A – Prohibition on the Use of Tributyltin as an Anti-fouling Agent;
- 38 M.R.S. § 420(1), (1-A), (2.I), and (3) – Certain Deposits and Discharges Prohibited;
- 38 M.R.S. § 423 – Discharge of Waste from Watercraft;
- 38 M.R.S. § 423-A – Discharge of Waste from Motor Vehicles;
- 38 M.R.S. § 451-A – Time Schedule Variances;
- 38 M.R.S. § 464(3.A), (3.C), and (3.D) (reports to the Legislature); (4.A.(1), (1.(a), 1.(b),⁶⁹ (2), and (6) – (11)) (general discharge provisions); (4.J) (use of assimilative capacity); (4.K) (effluent limits for metals); (5) (rulemaking); (6) (implementation of biological water quality criteria); (7) (interdepartmental coordination); (8) (development of group systems); and (12) (discharges from fish hatcheries);
- 38 M.R.S. § 465(2.C.(1) – (5))(exceptions to general requirements on discharges to Class A waters); (2.D) (stormwater discharges to Class A waters); (2.E) (deposit of material on banks of Class A waters); (3.C.(2)) (discharges of pesticides for mosquito borne diseases to Class B waters); and in (4.B.(2)), the second to last paragraph (regarding agreements with licensees and water quality certificate holders.)

⁶⁹ EPA previously concluded in its February 2, 2015 decision that § 464(4)(A.(1)(c)-(f)) are not WQS.

- 38 M.R.S. § 465-A(1.C) -- Exceptions to prohibitions on discharges to Class GPA waters);
- 38 M.R.S. § 465-B(2.C, second sentence) – Prohibition on certain new discharges to Class SB waters;
- DEP Rule Chapter 450/Chapter 11 -- Administrative Regulations for Hydropower Projects;
- DEP Rule Chapter 514 -- Regulations Concerning the Use of Aquatic Pesticides;
- DEP Rule Chapter 519 -- Interim Effluent Limitations and Controls for the Discharge of Mercury;
- DEP Rule Chapter 530 – Surface Waters Toxics Control Program, except section 4.B (stream design flows), which EPA approved for tribal waters on February 2, 2015;
- DEP Rule Chapter 550 -- Discontinuance of Wastewater Treatment Lagoons;
- DEP Rule Chapter 570 -- Stormwater and Combined Sewer Overflows; and
- DEP Rule Chapter 586 – Rules Pertaining to Discharges to Class A Waters.

EPA has previously approved some of the above-listed provisions for state waters, assuming that they were WQS, or without calling out embedded non-WQS language in a longer narrative. However, under CWA §303(c), EPA only has the authority and duty to approve or disapprove new or revised state WQS. Therefore, EPA’s prior “approvals” related to these provisions have no legal effect. EPA is hereby clarifying that in spite of letters that might indicate otherwise, the Agency has not taken action pursuant to CWA §303(c) on any of these provisions because it had no authority to do so.⁷⁰

EPA looks forward to continued cooperation with Maine in the development, review, and approval of water quality standards pursuant to our responsibilities under the Clean Water Act. As stated in the February 2, 2015 letter, EPA would like to begin discussions with DEP as soon

⁷⁰ There are several statutes and regulations listed in EPA’s repository that Maine DEP did not include with its formal submission to EPA in 2000 of all of its WQS. On the repository, they are accompanied by an asterisk (*) indicating that they are not part of the official Maine CWA-WQS docket and not subject to review under the Clean Water Act. They include 38 M.R.S. § 419-B (Goals for dates of removal of transformers containing polychlorinated biphenyls); 38 M.R.S. § 465-C (Standards of Classification of Groundwater); 38 M.R.S. § 470 (Classification of Groundwater); 38 M.R.S. § 470-H (In-stream Flow and Water Level Requirements); and DEP Rule Chapter 587 (In-stream Flow and Water Level Requirements). EPA agrees that 38 M.R.S. §§ 419-B, 465-C, 470, and 470-H are not WQS subject to CWA review. EPA would like to better understand Maine’s rationale for asserting that Rule Chapter 587 does not contain WQS before concluding that no part of the Rule is subject to CWA review.

as possible about the criteria that EPA has disapproved. EPA will again attempt to work with DEP to schedule such discussions. In the meantime, please contact Ellen Weitzler (at weitzler.ellen@epa.gov or 617-918-1582) if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Curtis Spalding". The signature is written in a cursive, slightly slanted style.

H. Curtis Spalding
Regional Administrator