April 29, 2022

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RE: Rulemaking Petition to Revise the Designated Uses and Dissolved Oxygen Criteria for Three Zones of the Delaware Estuary

Dear Mr. Reagan and Ms. McCabe:

Pursuant to the Administrative Procedure Act, 5 U.S.C. § 553(e) and Clean Water Act, 33 U.S.C. § 1313(c)(4)(B), the Delaware Riverkeeper, Maya van Rossum, Delaware Riverkeeper Network ("DRN"), Citizens for Pennsylvania's Future ("PennFuture"), Clean Air Council, Environment New Jersey, and PennEnvironment (collectively "Petitioners") petition the U.S. Environmental Protection Agency ("EPA") to engage in rulemaking to revise the water quality standards for Zones 3, 4, and River Miles 78.8 to 70.0 of Zone 5 ("subject zones") of the Delaware River Estuary. Petitioners request EPA to issue a rule that revises the designated uses for the subject zones to include: 1) maintenance and propagation of resident fish and other aquatic life; and 2) spawning and nursery habitat for anadromous fish (collectively "propagation"). To protect the "propagation" use, the EPA must also upgrade the dissolved oxygen ("D.O.") criteria for the subject zones to at least 6.3 mg/L.

The Delaware Riverkeeper, Maya van Rossum, is a full-time, privately-funded ombudsman responsible for the protection of the waterways in the Delaware River Watershed. The Delaware Riverkeeper advocates for the protection and restoration of the ecological, recreational, commercial, and aesthetic qualities of the Delaware River, its tributaries, and habitats. Ms. Van Rossum serves on several of the region's water quality committees, including the Delaware River Basin Commission's PCB's Implementation Advisory Committee and Water Quality Advisory Committee, and on New Jersey's Stormwater Focus Group. Ms. van Rossum also serves as a member of the Area Plan Committee and the Area Maritime Security Committee, both of which are committees of the United States Coast Guard, the Sector Delaware Bay.

DRN is a non-profit organization established in 1988 to protect and restore the Delaware River, its associated watershed, tributaries, and habitats. To achieve these goals, DRN organizes and implements

streambank restorations, a volunteer water quality monitoring program, educational programs, environmental advocacy initiatives, and litigation throughout the entire Delaware River watershed. DRN is a membership organization with over 20,000 members and over 18,000 households throughout the watershed and beyond. DRN's staff and volunteers have a breadth of knowledge about the environment as well as expertise specific to rivers and watersheds. DRN also works in communities outside the Delaware River watershed to support organization members with shared interests in protecting water quality, quality of life, public trust resources, and the constitutionally-protected environmental rights in members' communities.

PennFuture is a membership-based, non-profit, environmental organization dedicated to leading the transition to a clean energy economy in Pennsylvania and beyond. PennFuture strives to protect our air, water and land, and to empower citizens to build sustainable communities for future generations. A main focus of PennFuture's work is to improve and protect water resources and water quality across Pennsylvania, with particular emphasis on the Delaware River Basin, through public outreach and education, advocacy, and litigation.

Clean Air Council is a member-supported, non-profit organization that has been working to protect everyone's right to a healthy environment for over 50 years. The Council works throughout the Mid-Atlantic region and achieves its mission through public education, community advocacy, and government oversight to ensure enforcement of environmental laws.

Environment New Jersey is a citizen-based environmental advocacy organization with a long legacy of working on water quality issues across the Garden State and the Delaware River watershed, dating to the advocacy to stop the construction of the Tocks Island Dam in the 1970s. We represent more than 80,000 citizen members and activists across the state to protect the places that we love and advocate for core environmental values like clean air, clean water, and clean energy to power our lives. We work with decision-makers at all levels of government from local, county, state, regional, and federal through time-tested research, advocacy, public education and engagement, grassroot organizing and constituency building. We work closely with our state partners as part of the Environment America network of states.

PennEnvironment is one of the largest citizen-based environmental advocacy organizations in Pennsylvania, working to bring the voice of the public to inform the decisions by decision-makers at all levels of government across the state. The organization has well more than 150,000 citizen members and activists across the Commonwealth and represents citizens across the watershed, but especially in the greater Philadelphia region, and has a long legacy of advocating for stronger protections for the Delaware River and the broader watershed and expanding the protection of open space, clean water, and clean energy. The organization works closely with our regional state environmental group partners and our national organization, Environment America.

Petitioners and their members have a substantial interest in the health of the Delaware River watershed and, specifically, the Delaware River Estuary. The Delaware River Estuary is where members of our organization regularly recreate and enjoy the aesthetic values of the Delaware River Basin. Given that Petitioners and their members have a demonstrated interest in preserving the health of the Delaware River Estuary, we are troubled by the Delaware River Basin Commission's ("DRBC")—the "regional body with the force of law to oversee a unified approach to managing [] [the Delaware] [R]iver system without regard to political boundaries"[1]—patterned refusal to upgrade the designated uses of and D.O. criteria for the subject zones of the Delaware River Estuary despite the evidence, scientific data, and vulnerable species documented.

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[1] DELAWARE RIVER BASIN COMMISSION, *About DRBC*, https://www.state.nj.us/drbc/about/ (last visited Apr. 29, 2022).

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The states of Delaware, New Jersey, and the Commonwealth of Pennsylvania fulfill their Clean Water Act obligations to designate uses for surface waters by deferring generally to the water quality standards ("WQS") set forth by DRBC or "provid[ing] for application of the more stringent of state and DRBC standards within the basin."[2] As such, DRBC is uniquely situated as the unified authority responsible for developing, managing, and implementing WQS for the Delaware River Estuary. The context this Petition arises out of is DRBC's failure to discharge its duty under the DRBC Water Code to properly upgrade the designated uses for the Delaware River Estuary.[3]

DRN and others have petitioned DRBC—and New Jersey, Delaware, and the Commonwealth of Pennsylvania by extension—to upgrade aquatic life uses and D.O. stream quality criteria based on data dating back nearly 20 years that demonstrates the subject zones of the Delaware Estuary have been used by resident and migratory fish for spawning and rearing habitat for decades. DRBC has not acted on the requests made in these petitions but instead has indicated that it needs more time to study this problem.

Because the DRBC is failing to discharge its duty to protect the health of the Delaware River Estuary at the expense of valuable aquatic life—including the federally endangered Atlantic sturgeon—Petitioners now request of the EPA to promptly exercise its Clean Water Act Section 303(c)(4)(B) authority to prepare and publish proposed regulations setting forth a revised WQS that includes a designated use for fish "propagation" and upgraded D.O. criteria to support that revised designated use.

As will be further articulated throughout this petition, it is necessary for EPA to set a revised WQS for the subject zones of the Delaware River Estuary because DRBC has consistently refused to revise the WQS to which the Estuary-encompassing states—New Jersey, Delaware, and the Commonwealth of Pennsylvania—defer. Without a "propagation" designated use for the subject zones of the Delaware River Estuary, and attendant upgrade to D.O. criteria, the health of valuable aquatic life continues to be unnecessarily threatened. DRBC initiated the regulatory process for upgrading the designated uses to include "propagation" for the subject zones in 2009 and has unjustifiably prolonged the regulatory time frame by which it will make a decision. Given DRBC's protracted decision-making process and patterned refusal to take meaningful action to protect the health of the Delaware River Estuary, the most effective and practical means of addressing these issues is for EPA to exercise its Clean Water Act Section 303(c)(4)(B) authority. Put simply, the existing designated use of the subject zones of the Delaware River Estuary are insufficient to meet the requirements of the Clean Water Act ("Act").

Federal rulemaking authority is of the utmost necessity under the extant circumstances. The EPA must issue and publish proposed regulations upgrading the WQS for the subject zones of the Delaware River Estuary for said WQS to meet the requirements of the Act. DRBC has consistently demonstrated that it will continue to delay action at a point when swift revision is sorely needed to protect the health of the Estuary and the aquatic life that depends on it.

Petitioners urge EPA to promptly initiate federal rulemaking to revise the WQS of the subject zones of the Delaware River Estuary pursuant to its Section 303(c)(4)(B) authority. First, this Petition discusses: 1) the organization and charge of the DRBC; 2) the timeline of DRBC's failure to revise the designated use of the subject zones to include the existing use of "propagation;" and 3) EPA's authority to hear and grant this Petition for rulemaking under the Administrative Procedure Act and Section 303(c)(4)(B) of the Act. Second, in this Petition, Petitioners assert that: 1) establishing a designated use of "propagation" aligns with the requirements of the Act; and 2) existing criteria for dissolved oxygen is not in accordance with the Act's

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[2] Delaware River Basin Comm'n [DRBC], Resolution 2017-4 (third *whereas* paragraph).
[3] 40 C.F.R. § 131.10(i).

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requirements. Last, Petitioners proffer additional policy considerations to inform EPA's decision on this Petition for rulemaking.

I. FACTUAL BACKGROUND

a. Organization and Charge of the DRBC

Following the entry of a consent decree in *New Jersey v. New York*, the federal government and the States of New York, New Jersey, Delaware, and the Commonwealth of Pennsylvania negotiated the Delaware River Basin Compact ("Compact"), which entered into force in 1961.[4] The purposes of the Compact are:

> to promote interstate comity . . . to provide for cooperative planning and action by the signatory parties with respect to such water resources; and to apply the principle of equal and uniform treatment to all water users who are similarly situated and to all users of related facilities, without regard to established political boundaries.
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> Delaware River Basin Compact §§ 1.3(e), 3.1, Nov. 2, 1961, 75 Stat. 688 ("[The Commission] shall adopt and promote uniform and coordinated policies for water conservation, control, use and management in the basin."); *Id.* (Fifth *Whereas* Clause).

The Compact created DRBC, a "regional body with the force of law to oversee a unified approach to managing [the Delaware] river system without regard to political boundaries," to conserve and manage the resources of the Delaware River.[5] The Compact directs DRBC to adopt a water resources program that "shall include a systematic presentation of the quantity and quality of water resource needs . . ."[6] The Compact also provides that DRBC "may classify the waters of the basin and establish standards of treatment of sewage, industrial or other waste, according to such classes including allowance for the variable factors of surface and ground waters…."[7]

To fulfill these Compact obligations, DRBC identifies "uses to be protected"—what are "designated uses" under the Act—for the Delaware River Estuary waters.[8] Stream quality objectives and effluent limitations are then developed in correspondence with the designated uses. As such, "[i]t is the policy of the [DRBC] to designate numerical stream quality objectives for the protection of aquatic life for the Delaware River Estuary and Bay (Zones 2 through 6) which correspond to the designated uses of each zone."[9] DRBC then establishes water quality regulations and standards in its periodically-updated Comprehensive Plan to protect these uses.[10] These standards and uses, however, are not immutable: DRBC may need to amend them to protect public health and preserve the waters of the basin in accordance with the Comprehensive Plan.[11]

Under the Delaware River Basin Water Code—a codification of DRBC's regulations—existing uses will not receive protection unless those uses are formally adopted as designated uses because stream quality

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[4] New Jersey v. New York, 347 U.S. 995 (1954).
[5] *About DRBC*, NEW JERSEY GOVERNMENT, https://www.nj.gov/drbc/about/ (last visited Apr. 29, 2022).
[6] Delaware River Basin Compact §§ 1.3(e), 13.2, Nov. 2, 1961, 75 Stat. 688.
[7] *Id.* at § 5.2.
[8] 18 C.F.R. § 410; DEL. RIVER BASIN WATER CODE, *Comprehensive Plan*, Section I.C. Article 3 (July 2001).
[9] *Id.* at § 3.10.3.C.
[10] Delaware River Basin Compact § 13.1(e), Nov. 2, 1961, 75 Stat. 688.
[11] *Id.*

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objectives and effluent limitations are calibrated only to protect the designated, rather than actual, uses of each zone. States must revise a designated use whenever a designated use does not include any use that is currently taking place.[12] Among the designated uses that must be protected is the "protection and propagation of fish, shellfish, and wildlife."[13] As will be discussed throughout this petition, "propagation" is an existing use throughout the subject zones and, because DRBC has not discharged its duty to revise the designated uses to reflect this existing use, Petitioners now request the EPA to exercise its Section 303(c)(4)(B) authority under the Act.

b. Timeline of DRBC's Failure to Revise the Designated Use of Zone 3, Zone 4, and Upper Zone 5 of the Delaware River Estuary

To underscore the urgency of this Petition's request, a brief timeline of DRBC's inaction will be discussed in turn. Because the Compact, and thus the DRBC, existed prior to the passage of the Act, DRBC completed a Use Attainability Project in the 1980s to evaluate upgrades that would bring its standards for the tidal Delaware River into compliance with the Act.[14] Although partial upgrades for primary contact recreation standards were adopted in 1991 as a direct result of the Use Attainability Project,[15] DRBC delayed action on designating aquatic life uses and D.O. criteria as it continued to pursue additional studies throughout the 1990s.[16]

After expending hundreds of thousands of dollars on studies, staff time, and hearings in the 1990s, DRBC ultimately took no action. Neither the designated uses for aquatic life nor the D.O. criteria for the subject zones were revised as a result of nearly two decades of study, modeling, and policy deliberations. Consequently, the designated uses and D.O. criteria in DRBC's WQS are the same as those adopted in 1967.

The DRBC began to assure interested stakeholders of rapid action to revise designated uses and update DO stream quality objectives in 2009 as part of the nutrient criteria development process.[17] At that time, DRBC represented that D.O. improvements were a requisite early-action step prior to any regulatory action to control nutrient loads, and that both the designated use and the D.O. stream quality objectives would be quickly updated in order to address the more complex and time-consuming process of developing nutrient criteria.

Four years later, in 2013, three organizations—DRN, the Delaware River Shad Fishing Association, and the Lehigh River Stocking Association—petitioned DRBC for immediate action after it failed to initiate substantive work either to revise its standards or develop the models DRBC suggested were necessary. Yet it would be another 4 years thereafter before DRBC would pass its 2017 Resolution committing to a 6-year

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[12] 40 C.F.R. § 131.10(i).
[13] 40 C.F.R. § 131.10(a).
[14] DELAWARE RIVER BASIN COMM'N, REPORT ON THE ATTAINABILITY OF SWIMMABLE WATER QUALITY, DEL USA PROJECT ELEMENT #19 REPORT (1988); DELAWARE RIVER BASIN COMM'N, ATTAINING FISHABLE AND SWIMMABLE WATER QUALITY IN THE DELAWARE ESTUARY, DEL USA PROJECT FINAL REPORT (1989); DELAWARE RIVER BASIN COMM'N, REPORT ON THE ATTAINABILITY OF FISHABLE WATER QUALITY, DEL USA PROJECT ELEMENT #19 REPORT (1990).
[15] Delaware River Basin Comm'n [DRBC], Resolution 1991-06.
[16] *See* Delaware River Basin Comm'n [DRBC], Resolution 1993-14; Delaware River Basin Comm'n [DRBC], Resolution 1995-07; Delaware River Basin Comm'n [DRBC], Resolution 1998-06; Delaware River Basin Comm'n [DRBC], Resolution 1998-06; Delaware River Basin Comm'n [DRBC], Resolution 1999-08.
[17] Delaware River Basin Comm'n, Nutrient Mgmt. Subcomm., Minutes (Feb. 2, 2009); Delaware River Basin Comm'n Water Quality Advisory Comm., Minutes (Mar. 3, 2009; June 23, 2009; July 21, 2009; Sept. 15, 2009; Nov. 17, 2009) (Water Quality Advisory Comm. Minutes available at https://www.nj.gov/drbc/about/advisory/WQAC_index.html) (last visited Apr. 29, 2022).

process of further studies and deliberations.[18] While appropriate scientific studies underpin good public policy, the never-ending call for "further study" rings hollow for aquatic species in immediate need of stronger D.O. standards and for communities plagued by decades of environmental contamination.

In September 2020, DRBC—with little deliberation or notice—approved an extension that provided an additional 1.5 years

> for completing studies on the inclusion of propagation as a designated use in Zones 3 and 4 and the upper portion of Zone 5 of the Delaware River Estuary and for initiating DRBC rulemaking to revise the designated aquatic life uses consistent with the identified studies and the objectives and goals of the [Act].
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> Delaware River Basin Comm'n, Resolution for the Minutes, September 10, 2020 ("amending the schedules adopted by Resolution No. 2017-04 . . .").

Because of this extension and without intervention from the EPA, the earliest possible date by which the WQS for the subject zones, including upgraded D.O. criteria, will be revised is in the year 2025—nearly 20 years after the DRBC made assurances of swift action in 2009 and a full 40 years after the initiation of the DRBC's Use Attainability Project.

Further study and delay will not protect the federally endangered Atlantic sturgeon and the many other aquatic life species that rely on the Delaware River for habitat and spawning. Further delay only perpetuates the harm to our communities, wildlife, and economy from degraded water quality. Affirmative action to revise the designated uses for the subject zones and to upgrade the D.O. criteria to 6.3 mg/L is justified and needed now. The aquatic life of the Delaware River Estuary cannot afford to wait several more years for upgraded WQS.

Consequently, the EPA must exercise its Section 303(c)(4)(B) authority under the Act to upgrade the designated uses of the subject zones and D.O. water quality criteria of the Delaware River Estuary. Because the DRBC has affirmatively signaled that it will neither upgrade the designated uses of the subject zones to include "propagation" nor upgrade the D.O. criteria to support this use for several more years to come, Petitioners appeal to EPA to step in and rectify the DRBC's inaction and further delay.

II. EPA HAS LEGAL AUTHORITY UNDER THE ADMINISTRATIVE PROCEDURE ACT AND A DISCRETIONARY DUTY UNDER THE CLEAN WATER ACT TO ISSUE A RULE THAT REVISES THE DESIGNATED USE OF THE SUBJECT ZONES

a. The Administrative Procedure Act Authorizes EPA to Consider this Petition for Rulemaking

Section 553(e) of the Administrative Procedure Act ("APA") mandates that "[e]ach agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule."[19] Petitioners and its members are interested persons under the APA: we recreate, live near, and work on the Delaware River, and we advocate for the health of the Delaware River and the region's environment.[20] Furthermore, it is

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[18] Delaware River Basin Comm'n [DRBC], Resolution 2017-4.
[19] 5 U.S.C. § 553(e).
[20] *See* JASON A. SCHWARTZ & RICHARD L. REVESZ, PETITIONS FOR RULEMAKING 11 (November 5, 2014) https://www.acus.gov/sites/default/files/documents/Final%2520Petitions%2520for%2520Rulemaking%2520Report

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well-established that membership organizations may petition federal agencies to engage in rulemaking on behalf of their interested members.[21] Petitioners, therefore, have the right to petition EPA to initiate rulemaking to revise the designated uses and D.O. criteria for the subject zones of the Delaware River Estuary.

After receiving a petition for rulemaking, an agency must consider the petition "within a reasonable time."[22] Although a "reasonable time" is circumstance-dependent, the D.C. Circuit has held that it is "typically counted in weeks or months, not years."[23] If an agency decides to deny a petition in whole or part after consideration, they must give the petitioner "prompt notice" of its decision.[24] APA Section 555(e) also requires that this notice includes a "brief statement of the grounds of denial," if the denial is not self-explanatory or "affirming a prior denial." Denials based on facts with a basis in the record can suffice; conclusory explanations and mere rubberstamping do not.[25]

If a petition is denied, the petitioners can challenge the agency's refusal to promulgate rules in court.[26] Under APA Section 706(2)(A), courts can set aside final agency actions that are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." For example, in *Massachusetts v. EPA*, a group of 19 organizations petitioned the EPA to use its Clean Air Act authority to regulate car emissions.[27] After requesting comments, EPA denied the petition. The Supreme Court found that the EPA's denial was inadequate, holding that "once EPA has responded to a petition for rulemaking, its reasons for action or inaction must conform to the authorizing statute."[28] EPA's rationale for denying the petition, namely scientific uncertainty, a preference to tackle climate change through voluntary standards, and concerns about international cooperation, were insufficient under the Clean Air Act.[29] Therefore, EPA's decision on this Petition must minimally conform with the Clean Water Act requirement to facilitate the achievement of water quality sufficient to support the "protection and propagation of fish . . ."[30]

b. The Act Authorizes EPA to Promulgate New or Revised Water Quality Standards under Section 303(c)(4)(B)

i. Purpose and Goals of the Clean Water Act

The primary goals of the Clean Water Act are to: 1) "eliminate the discharge of pollutants into the navigable [or jurisdictional] waters" of the United States; and 2) "wherever attainable, [to achieve] an interim goal of water quality which provides for the protection and *propagation of fish*, shellfish, [] wildlife

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[21] *See e.g.*, Defs. of Wildlife v. Gutierrez, 532 F.3d 913 (D.C. Cir. 2008).

[22] 5 U.S.C. § 555(b) (2012) (requiring that "within a reasonable time, each agency shall proceed to conclude a matter presented to it").

[23] In re Am. Rivers & Idaho Rivers United, 372 F.3d 413, 419 (D.C. Cir. 2004) (quoting Midwest Gas Users Ass'n v. FERC, 833 F.2d 341, 359 (D.C. Cir.1987) ("[T]his court has stated generally that a reasonable time for an agency decision could encompass 'months, occasionally a year or two, but not several years or a decade.'").

[24] 5 U.S.C. § 555(e).

[25] SCHWARTZ & REVESZ, PETITIONS FOR RULEMAKING 17 (reviewing how courts have assessed the requirement of a rational explanation when denying rulemaking petitions).

[26] *See generally* Massachusetts v. EPA, 549 U.S. 497 (2007) (where the agency, EPA, denied plaintiffs' "petition for rulemaking to regulate greenhouse gas emissions from motor vehicles under the Clean Air Act").

[27] *Id.*

[28] *Id.* at 533.

[29] *Id.* at 510–513, 533.

[30] 33 U.S.C. § 1251(a)(2).

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. . . and recreation in and on the water[s]."[31] To effectuate the goals of the Act, states, authorized tribes, and in limited instances, the EPA Administrator, are required to establish WQS for jurisdictional waters that contemplate the given water's "use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, navigation, and other purposes."[32] Put simply, while Section 101(a)(1)–(2) establishes the primary goals of the Act, Section 303(c)(2) directs states and authorized tribes to actually consider these goals in establishing WQS for jurisdictional waters.

Pursuant to these goals, Section 303(c) requires each state or authorized tribe to designate uses for all jurisdictional waters. The EPA has interpreted the Act to differentiate between "designated uses" and "existing uses." Whereas "designated uses" are generally specified in WQS whether or not the uses are actually being attained, "existing uses" are those uses that were definitively attained on or after November 28, 1975.[33] Further, states and authorized tribes must "develop and adopt" an "antidegradation policy that, in part, "is consistent with . . . [e]xisting instream water uses . . ."[34] Further, ". . . the level of water quality necessary to protect the existing uses shall be maintained and protected."[35]

EPA has explained that under its antidegradation regulation, "no activity is allowable . . . which could partially or completely eliminate any existing use."[36] This mandate has been upheld in court. As such, "[w]here existing water quality standards specify designated uses less than those which are presently being attained, the State shall revise its standards to reflect the uses actually being attained."[37] This concept is codified in the Act under Section 303(c), under which states and authorized tribes must review their WQS periodically, but at least once every three years. States and authorized tribes must then submit the results of the review to the EPA for its approval.[38] States and authorized tribes must hold public hearings to review applicable WQS and, as appropriate, modify and adopt WQS under Section 303(c)(1) and the EPA's implementing regulations at 40 C.F.R. § 131.20.

If, as a result of the state or authorized tribe's submittal of the required review to EPA, the EPA determines that the modified WQS is inconsistent with the Act, the EPA Administrator must notify the state or authorized tribe of the inconsistency within 90 days of receipt of the submittal "and specify the changes to meet such requirements [of the Act]."[39] If the state or authorized tribe does not adopt the EPA's proposed changes, then the EPA must promulgate a new or revised WQS on its own under Section 303(c)(4)(A).[40]

Notably, however, Section 303(c)(4)(B) authorizes the EPA Administrator to "publish proposed regulations setting forth a new WQS for the navigable waters involved—*in any case* where the Administrator determines that a revised or new standard is necessary to meet the requirements of this chapter."[41] It is this authority that Petitioners urge the EPA to exercise in this Petition.

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[31] 33 U.S.C. § 1251(a)(1)–(2) (emphasis added).
[32] 40 C.F.R. § 131.2.
[33] 40 C.F.R. § 131.3(a).
[34] 40 C.F.R. § 131.12(a)(1).
[35] *Id.*
[36] P.U.D. No. 1 Jefferson Cnty. v. Wash. Dep't Ecology, 511 U.S. 700, 718 (1994).
[37] 40 C.F.R. § 131.10(i); Table Rock Chapter of Trout Unlimited v. Env't Mgmt. Comm'n, 663 S.E.2d 333, 336 (2008).
[38] 33 U.S.C. § 1313(c)(1).
[39] 33 U.S.C. § 1313(c)(3).
[40] 33 U.S.C. § 1313(c)(4)(A).
[41] 33 U.S.C. § 1313(c)(4)(B).

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ii. EPA's Authority under Section 303(c)(4)(B)

Under the Act, the EPA may use its discretion to promulgate new or revised WQS when new standards are required to satisfy the terms of the Act.[42] When determining that a new or revised standard must be promulgated, the EPA Administrator or her delegate must sign a determination document and include a statement explaining that the document is a Section 303(c)(4)(B) determination.[43] The same policies, procedures, and requirements that apply to the states under federal water quality regulations, apply to the Administrator once she promulgates new standards under section 303(c)(4)(B).[44]

Courts have repeatedly affirmed the EPA's authority to promulgate new or revised WQS when a state fails to do so.[45] In *Raymond Proffitt Foundation v. EPA*, the plaintiff sued the EPA and the EPA Administrator for violating the CWA when it failed to "promptly prepare and publish" WQS for Pennsylvania after deeming the standards submitted by the state deficient.[46] The District Court for the Eastern District of Pennsylvania found that Section 303(c)(4)(B) of the CWA imposed a mandatory duty on the EPA to promptly issue water quality standards for Pennsylvania.[47] Articulating its ruling, the court noted that Section 303(c)(4)(B) requires the EPA to publish new or revised water quality standards when the EPA determines that a new or revised standard is necessary to comply with the other sections of the Act.[48]

In *Mississippi Commission on Natural Resources v. Costle*, the plaintiff sued the EPA when it promulgated a D.O. WQS for Mississippi.[49] In affirming the lower court's dissolution of an injunction against EPA, the court explained that the EPA has authority under Section 303(c)(4)(B) to promulgate new or revised standards if such standards are necessary to satisfy the requirements of the Act.[50] Similarly, in *American Paper Institute v. EPA*, the court explained that the EPA's authority to promulgate water quality standards in a state's place is limited to the two circumstances described in section 303(c)(4).[51] According to the court in *American Paper Institute*, this limitation is in accordance with Congress' intent to give states the primary duty to promulgate their own standards while authorizing the EPA to step in only when the states have neglected that duty.[52]

The DRBC—while not a state under the Act—is nonetheless the organizational body created to "develop and effectuate the plans, policies, and projects relating to the water resources of the [Delaware

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[42] 40 C.F.R. § 131.22(b); *see e.g.,* Nat'l Wildlife Fed'n v. Browner, 127 F.3d 1126, 1130 (D.C. Cir 1997) ("[The EPA] is granted discretionary authority under § 303(c)(4)(B) of the Act to force a state to accept 'a revised or new standard … [if] necessary to meet the requirements of' the Act … This discretionary power is reflected as well in the agency's regulations.") (quoting 40 C.F.R. § 131.22(b)).
[43] § 131.22(b)(1)–(2).
[44] § 131.22(c).
[45] *See e.g.,* Raymond Proffitt Found. v. EPA, 930 F. Supp. 1088, 1091 (E.D. Pa. 1996) ("[T]he EPA may publish a revised water quality standard for a state when 'the Administrator determines that a revised or new standard is necessary to meet the requirements' of the Act.") (quoting § 1313(c)(4)(B)); Am. Paper Inst. v. EPA, 996 F.2d 346, 349 (D.C. Cir. 1993) (explaining that EPA's authority to promulgate new water quality standards is limited to two circumstances, and one of those circumstances arises when a state has not promulgated a new or revised standards, but a new or updated standard is necessary to satisfy the CWA).
[46] *Raymond Proffitt Found.*, 930 F.Supp. at 1090, 1092.
[47] *Id.* at 1097 ("The language and design of the Clean Water Act as a whole supports the court's conclusion that the duty imposed on the [EPA] Administrator under § 1313(c)(4) is nondiscretionary.").
[48] *Id.* at 1091.
[49] Mississippi Comm'n on Nat. Res. v. Costle, 625 F.2d 1269, 1271 (5th Cir. 1980).
[50] *Id.* at 1277.
[51] Am. Paper Inst. v. EPA, 996 F.2d 346, 349 (5th Cir. 1993).
[52] *Id.*

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River] Basin."[53] As this petition argues, DRBC has consistently neglected its duties to promulgate WQS that align with the purposes of the Act. Consequently, EPA must act without delay to promulgate a revised WQS under its Section 303(c)(4)(B) authority.

Since 1987, the EPA has exercised its Section 303(c)(4)(B) authority at least five times. In reverse chronological order, the EPA promulgated numeric water quality criteria for chloride in Kentucky in 1987.[54] In 1989, the EPA promulgated WQS, found at 40 C.F.R. § 131.35, including designated uses and criteria for all jurisdictional waters within the Coleville Confederated Tribes Reservation within the State of Washington.[55] In 2000, the EPA promulgated, in part, "numeric aquatic life criteria for 23 priority toxic pollutants, numeric human health criteria for 57 priority toxic pollutants . . . " for the State of California at 40 C.F.R. § 131.38.[56] In 2009, the EPA promulgated new WQS for a 28.6-mile segment of the Mississippi River around St. Louis because the then-available information did not "demonstrate that water quality necessary to support a whole body contact recreation use [was] not attainable in [that] segment."[57] Also in 2009, the EPA promulgated new WQS for numeric nutrient criteria for Florida's jurisdictional waters after

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[53] DEL. RIVER BASIN COMM'N, *Vision, Mission, and Values Statement*, https://www.state.nj.us/drbc/library/documents/DRBCvision-mission-values.pdf (last visited Apr. 29, 2022).

[54] EPA, Final Rule, Water Quality Standards for the Surface Waters of the Commonwealth of Kentucky, 52 Fed. Reg. 9102, 9102–03 (Mar. 20, 1987) (There, the Kentucky Natural Resources and Environmental Protection Cabinet (Cabinet) "adopted a water quality criteria for chloride," which was approved by the EPA. Shortly thereafter, the Johnson Circuit Court enjoined enforcement of the criteria, so EPA "proposed a rule establishing chloride criteria to replace the enjoined criteria." After the notice and comment period, the Cabinet and the oil and gas interests—the parties in the initial action brought before the Johnson Circuit Court—entered into a Consent Decree, which the court approved. Consequently, the court set aside the chloride criteria enforcement injunction. The Consent Decree made effective the chloride criteria initially enjoined; however, it also provided that "exceptions to the [chloride] criteria may [have been] granted where application of such criteria would [have] result[ed] in substantial and widespread economic and social impacts." EPA determined that this exception was "inappropriate and render[ed] [] Kentucky's chloride criteria ineffective. EPA promulgated a new chloride criteria through its Section 303(c)(4)(B) authority because the "Consent Decree [] undercut the ability of the Kentucky's chloride criterion to control this significant toxic pollutant.").

[55] EPA, Final Rule, Water Quality Standards for the Coleville Indian Reservation in the State of Washington, 54 Fed. Reg. 28,622 (July 6, 1989) (promulgating WQS for the Coleville Indian Reservation's jurisdictional waters after receiving a request from the Tribes so that their then-recently adopted WQS would be federally-recognized under the Clean Water Act).

[56] EPA, Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California, 65 Fed. Reg. 31,682, 31,687 (May 18, 2000) (promulgating WQS when the State of California did not have water quality plans that "contain[ed] criteria for all listed pollutants for which EPA had published national criteria guidance.)

[57] EPA Decision Letter on New Water Quality Standards for St. Louis Segment of the Mississippi River from Peter S. Silva, U.S. Envtl. Prot. Agency, Assistant Adm'r for Water, to Mark N. Templeton, Dir. MO Dep't of Nat. Res. (Oct. 9, 2009) (available https://www.epa.gov/sites/default/files/2015-09/documents/mo_wqs_decision_letter102909.pdf) (explaining that in 2000, EPA approved the majority of Missouri's revised or new WQS and disapproved certain WQS, "noting Missouri's failure to address the 'recreation in and on the water' aspect of the Act's goals.' " EPA informed MO that if it did not upgrade its WQS, it would initiate a request for the EPA Administrator to set new or revised WQS under the Administrator's Section 303(c)(4)(B) authority. MO did not thereafter revise its WQS and EPA did not request that the Administrator set new WQS. A plaintiff environmental organization then filed suit against the EPA for an alleged dereliction of its "nondiscretionary duty . . . to promptly prepare and publish proposed regulations for [MO]." The plaintiff organization and EPA then entered into a Consent Decree and settlement agreement. The EPA promulgated the new WQS for MO in 2009 in service of the "last remaining item in the settlement agreement," wherein EPA was required to set new WQS if the Missouri Department of Natural Resources (MDRN) did not submit satisfactory new or revised WQS by a certain date. The MDRN did not submit new WQS that addressed "whole body contact recreation" use, so EPA made a determination that new WQS incorporating this use was necessary.)

determining, in part, that "narrative nutrient criteria alone was insufficient to protect applicable designated uses."[58]

Alternatively, while Petitioners do not concede that the current designated uses of the subject zones of the Delaware River Estuary are currently adequate, EPA nevertheless does not need to make a finding of inadequacy to revise the designated uses for the subject zones under its Section 303(c)(4)(B) authority. As such, Section 303(c)(4)(A) and Section 303(c)(4)(B) are set off by the disjunctive "or," which means that EPA does not need to first make a finding of inadequacy before promulgating new WQS. Put simply, under a plain reading of Section 303(c)(4)(B), "a state need not do anything wrong for the EPA to take action."[59] So long as the EPA determines that the current WQS for the subject zones do not meet the federal requirements, the EPA can exercise its Section 303(c)(4)(B) authority.

While the Act is built upon a well-established principle of cooperative federalism, the requests within this Petition do not upset the carefully-struck balance between state and federal authority. First, DRBC has consistently demonstrated that it will only revise the relevant WQS after several more years of deliberation. As this Petition will demonstrate, the existing designated uses of the subject zones, and attendant D.O. criteria, currently do not satisfy the requirements of the Act to achieve water quality that supports fish "propagation." Second, the EPA is authorized under Section 303(c)(4)(B) to promulgate a revised WQS to ensure that the designated uses of the subject zones and the supporting D.O. criteria for the new uses, satisfy the requirements of the Act.

III. ESTABLISHING A DESIGNATED USE OF "PROPAGATION" ALIGNS WITH THE REQUIREMENTS OF THE ACT

Upgrading the designated uses for the three identified zones of the Delaware River Estuary is appropriate because "propagation" and "spawning and nursey" functions are existing uses throughout the subject zones of the Delaware River Estuary. In 2013, the DRN, the Delaware River Shad Fishermen's Association, and Lehigh River Stocking Association petitioned the DRBC to upgrade the designated uses for the three identified zones of the Delaware River Estuary to include "propagation" and to "upgrade the designated uses [the subject zones] to include spawning and nursery habitat for anadromous fish."[60] In its 2015 analysis of relevant data, DRBC confirmed that

> [t]he combined data sets evaluated for this report nevertheless indicate that the "Existing Use" attained within the Delaware Estuary in the period between 2000 and 2014 includes 'propagation' for Zones 3, 4, and the upper 8.8 miles of Zone 5.
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> DELAWARE RIVER BASIN COMM'N, EXISTING USE EVALUATION FOR ZONES 3, 4, & 5 OF THE DELAWARE ESTUARY BASED ON SPAWNING AND

[58] EPA, Final Rule, Water Quality Standards for the State of Florida's Lakes and Flowing Waters, 75 Fed. Reg. 75, 762, 75, 762–771 (Dec. 6, 2010); 40 C.F.R. § 131.43; *see also* EPA Determination Letter on New or Revised Nutrient Water Quality Standards for the State of Florida from Benjamin H. Grumbles, Assistant Adm'r for Water, to Michael Sole, Sec'y FL Dep't of Envtl. Prot. (Jan. 14, 2009) (the WQS were amended at least twice after the initial determination).

[59] Gulf Restoration Network v. McCarthy, 783 F.3d 227, 237 (5th Cir. 2015).

[60] Delaware Riverkeeper Network et al., *Petition by the Delaware Riverkeeper Network, the Delaware Riverkeeper, the Delaware River Shad Fishermen's Association and the Lehigh River Stocking Association to DRBC* (Mar. 14, 2013), https://www.nj.gov/drbc/library/documents/WQAC/053113/handout3_DRN-DRSFA-LRSA_petition.pdf (last visited Apr. 29, 2022).

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REARING OF RESIDENT AND ANADROMOUS FISHES 32 (Sept. 30, 2015), https://www.state.nj.us/drbc/library/documents/ExistingUseRpt_zones3-5_sept2015.pdf.

DRBC's confirmation of the existing use of "propagation" includes data on spawning and rearing for such iconic species as striped bass, American shad, and the federally-endangered Atlantic sturgeon. Indeed, every species of fish examined to date has demonstrated successful propagation in the subject zones of the Delaware River Estuary.

No outstanding question or controversy about whether "propagation" is occurring throughout the subject zones of the Delaware River Estuary exists; both external reports and DRBC's own analysis demonstrate "propagation" as an existing use. Likewise, DRBC's 2015 report clearly demonstrates that "spawning and nursery" functions for migratory fish occur every year throughout the subject zones.

Because the DRBC has failed for nearly 20 years to upgrade the water quality standards to accurately reflect this demonstrated existing use, EPA must now step in and exercise its Section 303(c)(4)(B) authority and revise the WQS for the subject zones of the Delaware River Estuary to: 1) ensure the WQS's consistency with the Act; 2) prevent three Delaware River Watershed states—New Jersey, Pennsylvania, and Delaware—from continuous violations of their Act obligations; and 3) help prevent further threat to the resident and migratory fish populations within the subject zones.

As the DRBC recognized in Resolution 2017-4:

> Whereas, in order to fulfill their obligation under the CWA to designate uses for surface waters, the States of Delaware and New Jersey and the Commonwealth of Pennsylvania either defer to DRBC water quality standards that they have jointly established or provide for application of the more stringent of state and DRBC standards within the basin.
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> Del. River Basin Comm'n [DRBC], Resolution 2017-4 (Third *Whereas* Clause).

As a result, the DRBC's failure to recognize and protect the existing aquatic life uses noted above puts these three states in violation of their Clean Water Act obligations and exposes them to legal challenge.

As this Petition argues, the designated use of the subject zones of the Delaware River Estuary must be upgraded to account for the well-documented existing uses of "fish propagation" and "spawning and nursery" throughout the subject zones. Generally, states are required to "revise [WQS] to reflect the uses actually being attained" when existing water quality standards specify designated uses less than those which are presently being attained."[61] However, because: 1) the three states that share jurisdiction over the three subject zones generally defer to DRBC's WQS; 2) DRBC has consistently stalled in upgrading the WQS to account for the existing use of fish "propagation" for the three subject zones; and 3) DRBC—as a commission created by interstate compact—does not have legal obligations under the Act, Petitioners urge EPA to promptly exercise its authority to revise the designated uses to reflect the uses actually being attained—"fish propagation" and "spawning and nursery"—as would a state under 40 C.F.R. § 131.10(i).

[61] 40 C.F.R. § 131.10(i).

IV. EXISTING CRITERIA FOR DISSOLVED OXYGEN ARE NOT IN ACCORDANCE WITH THE ACT'S REQUIREMENTS

To protect the "propagation" use of the subject zones of the Delaware River Estuary, the downgraded D.O. criteria on the books since 1967 must finally be revised upwards. Section 303(c) of the Act and EPA's implementing regulations direct states and tribes to adopt water quality criteria—one component of WQS—that protects the designated uses of jurisdictional waters. Under EPA's implementing regulations, states and authorized tribes' water quality criteria *must*: 1) "be based on sound scientific rationale;" 2) "contain sufficient parameters or constituents to protect the designated use;" and 3) "support the most sensitive designated use of the water body."[62]

At a minimum, the current D.O. criteria for the subject zones of the Delaware River Estuary is not "based on sound scientific rationale."[63] While the 1967 D.O. goals and expectations have been exceeded, the DRBC has failed to acknowledge that the 1967 D.O. criteria were set at a much lower concentration than comparable estuarine criteria. As such, despite the improvement since 1967, the current D.O. criteria for the subject zones of the Delaware River Estuary is currently at or near the lethal limit for species such as Atlantic sturgeon.[64] To demonstrate why upgraded D.O. criteria are necessary to support a designated use of "propagation" in the subject zones, this Petition will discuss the impact of poor D.O. conditions on the Delaware River's population of Atlantic sturgeon.

a. Emerging Data Show That Every Year It Delays Action, the DRBC Has Increased the Risk of Extinction for the Delaware River's Unique Population of Atlantic sturgeon

By combining USGS data[65] for dissolved oxygen conditions and DNREC data[66] for young-of-year Atlantic sturgeon, the following relationship (Figure 1) emerges between the success of Atlantic sturgeon spawning efforts and the oxygen concentrations in the river. The results are nothing short of alarming: during summers when dissolved oxygen is not maintained at the DRBC-sponsored recommendation of 6.3 mg/L for 35 days or more, there is failure or near failure of Atlantic sturgeon to recruit new juveniles to the population that year.

Figure 1. Atlantic Sturgeon Young-of-Year Abundance vs. Summertime Dissolved Oxygen Conditions in the Delaware Estuary, 2009-2019. (for consistent data collection techniques in all years, sturgeon data are for the Marcus Hook stations, and dissolved oxygen are from the Ben Franklin Bridge sensor)

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[62] 40 C.F.R. § 131.11(a)(1).

[63] *Id.*

[64] *See generally* David H. Secor & Troy E. Gunderson, *Effects of hypoxia and temperature on survival, growth, and respiration of juvenile Atlantic sturgeon, Acipenser oxyrinchus*, 96 FISHERY BULLETIN 603 (1998) (explaining that "a hypoxic oxygen level of only 3.0 mg/L at 26 degrees Celsius (79 degrees Fahrenheit) in a sealed tank caused 100% mortality when the sturgeon were held for 30 hours at this level.")

[65] U.S. Coast Guard, Nat. Water Info. Station Data, Station #01467200, https://waterdata.usgs.gov/nwis.

[66] Del. Dep't of Nat. Res. & Envtl. Control,, Div. of Fish & Wildlife, Presentation to DRBC-RFAC (May 26, 2018); Del. Dep't of Nat. Res. & Envtl. Control,, Div. of Fish & Wildlife, Presentation to DRBC-RFAC (Feb. 3, 2020).

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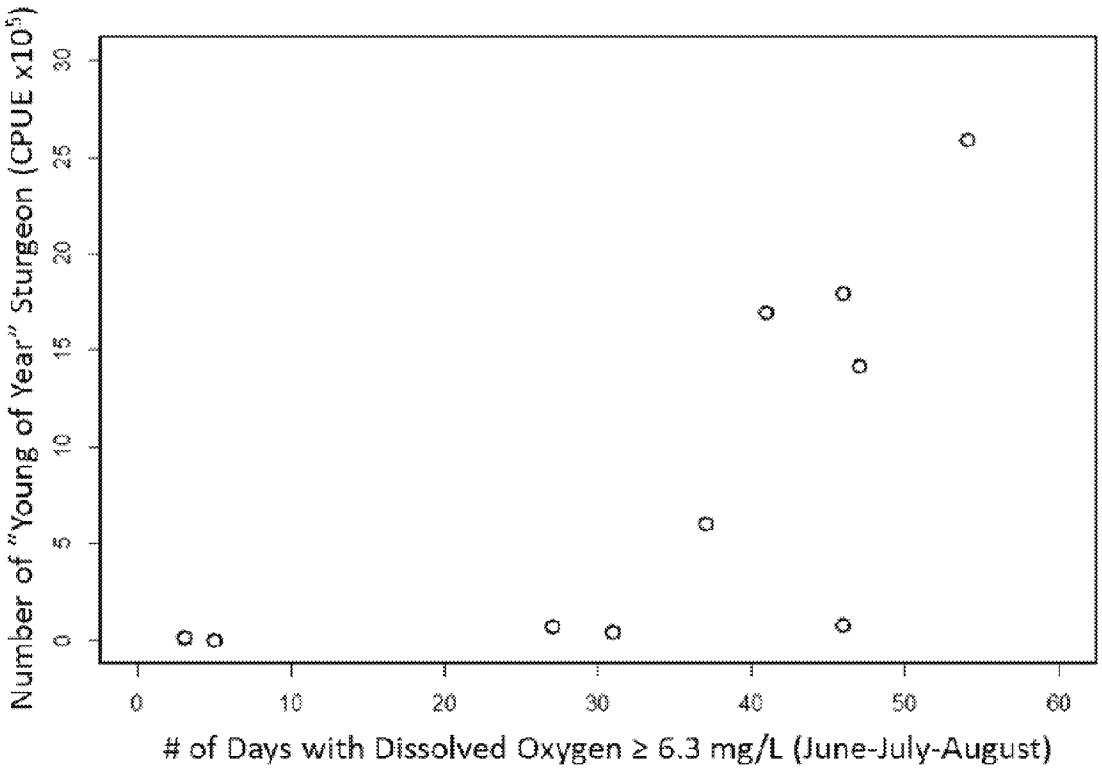

In 2018, the DRBC commissioned a report "to narrow a candidate species list for D.O. sensitivity to key species, both spatially and temporally, within the Delaware River Estuary and provide information on oxygen requirements at different life stages to serve as a scientific basis for potential future [water quality] standards, apart from any achievability concerns," which further corroborates these results.[67] The report likewise highlights the need for immediate action.[68] While DRBC's current standard for D.O. remains at 3.5 mg/L (established in 1967), the 2018 report highlights that most key species exhibit lethal and sub-lethal effects below 5 mg/L concentration of D.O. For the critically endangered population of Delaware River Atlantic Sturgeon, this 2018 report identifies a D.O. concentration of 6.3 mg/L or higher as necessary to support the spawning and rearing that occurs only in the tidal Delaware River itself, especially in the subject zones.

Although the Delaware River historically served as the dominant spawning grounds in the United States for Atlantic sturgeon,[69] the Delaware River's population continues to teeter on the brink of extinction and

[67] ALLISON M. STOKLOS ET AL., THE PATRICK CENTER FOR ENVIRONMENTAL RESEARCH ACADEMY OF NATURAL SCIENCES OF DREXEL UNIVERSITY, A REVIEW OF DISSOLVED OXYGEN REQUIREMENTS FOR KEY SENSITIVE SPECIES IN THE DELAWARE ESTUARY 2 (Nov. 2018) (available at https://www.nj.gov/drbc/library/documents/Review_DOreq_KeySensSpecies_DelEstuary_ANStoDRBCnov2018.pdf (last visited Apr. 29, 2022).
[68] *Id.* at 51.
[69] DH Secor & JR Waldman, *Historical Abundance of Delaware Bay Atlantic Sturgeon and Potential Rate of Recovery: Life in the Slow Lane: Ecology and Conservation of Long-Lived Marine Animals,* 23 AM. FISHERIES SOC'Y SYMPOSIUM 203 (1999).

remains one of the weakest populations among this species' major spawning rivers.[70] Indeed, recent estimates of Effective Population Size (N_e=56.7) place the Delaware River's Atlantic sturgeon population far below the critical thresholds of 1000 or 100 needed to prevent the collapse of this unique population:

> Effective population size (N_e) estimates for 7 of 10 spawning populations distributed among the DPSs are less than the suggested minimum of N_e = 100 that is required to limit the loss in total fitness from in-breeding depression to <10% (Frankham et al. 2014). All Ne estimates lie below the suggested recommended minimum Ne > 1000 required to maintain evolutionary potential (Frankham et al. 2014).

ATLANTIC STATES MARINE FISHERIES COMM'N, 2017 ATLANTIC STURGEON BENCHMARK STOCK ASSESSMENT AND PEER REVIEW REPORT 120 (2017) (citing Table 11, which describes the summary of Atlantic sturgeon included in the genetic baseline for calculations of effective population size for 11 rivers and one sound) (available https://www.asmfc.org/uploads/file//59f8d5ebAtlSturgeonBenchmarkStockAssmt_PeerReviewReport_2017.pdf) (last visited Aug. 27, 2021); *id.* at 2.

With recognized threats such as ship strikes, river dredging, habitat loss, and hypoxia in the Delaware River, the Atlantic sturgeon's recovery depends on the successful execution of a multi-targeted approach towards reducing or eliminating known threats. The existence of other threats,[71] however, does not absolve the DRBC of its responsibility to protect the critical spawning and rearing function of the Delaware River Estuary. Because the DRBC has failed to upgrade the designated use and D.O. criteria of the subject zones, the EPA must take on the mantle of protecting the critical spawning and rearing functions of the Delaware River Estuary.

Successful spawning runs and recruitment of young sturgeon into the population every single year is especially important because of the limited ability to reduce other sources of mortality on adult fish within and outside the Estuary. Consistent year-on-year recruitment of young fish, similar to the 2014 year when over 3,600 juvenile sturgeon (age 0-1) were estimated in the Estuary,[72] would provide critical support for the struggling sturgeon population.

In 2015, DRBC justified its decision not to upgrade the criteria for D.O. through reference to the D.O. level in the Delaware River Estuary during the summer of 2014. To note, the summer of 2014 was the single best summer for D.O. levels in over 100 years; it was the exception and not the rule.[73] As has been witnessed throughout the 2019 and 2020 summers, D.O. conditions in the Delaware River can quickly

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[70] ATLANTIC STATES MARINE FISHERIES COMM'N, 2017 ATLANTIC STURGEON BENCHMARK STOCK ASSESSMENT AND PEER REVIEW REPORT 120 (2017) (citing Table 11, which describes the summary of Atlantic sturgeon included in the genetic baseline for calculations of effective population size for 11 rivers and one sound) (available https://www.asmfc.org/uploads/file//59f8d5ebAtlSturgeonBenchmarkStockAssmt_PeerReviewReport_2017.pdf) (last visited Apr. 29, 2022).

[71] *See* J.J. Brown & G.W. Murphy, *Atlantic Sturgeon Vessel-Strike Mortalities in the Delaware Estuary*, 35(2) FISHERIES MAGAZINE 72, 72-83 (2010) (discussing that ship-strike mortality is known to be high in the tidal Delaware River); Alexander Michael DiJohnson, Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) Behavioral Responses to Vessel Traffic and Habitat Use in the Delaware River, USA (May 2019) (unpublished Masters of Science Thesis, Delaware State University) (available at https://desu.dspacedirect.org/bitstream/handle/20.500.12090/442/DiJohnson_desu_1824M_10122.pdf?sequence=1&isAllowed=y) (last visited Apr. 29, 2022).

[72] Edward A. Hale et al., *Abundance Estimate for and Habitat Use by Early Juvenile Atlantic Sturgeon within the Delaware River Estuary*, 146:6 TRANSACTIONS OF THE AM. FISHERIES SOC'Y 1193 (Sept. 26, 2016).

[73] CAROLYN ALKIRE ET AL., ECONOMIC VALUE OF DISSOLVED OXYGEN RESTORATION IN THE DELAWARE ESTUARY 16 (2020); *See also* U.S. Coast Guard - Nat. Water Info. Station Data, Station #01467200, https://waterdata.usgs.gov/nwis.

collapse and reach critical and lethal levels for existing aquatic life, absent regulatory action and strict requirements for biochemical oxygen demand (BOD) load reductions. There is no floor of protection other than the antiquated DRBC 3.5 mg/L water quality standard established in 1961 for D.O. in the subject zones, which is lethal to young sturgeon.

As demonstrated in Figure 1, DRBC's failure to upgrade the D.O. criteria demonstrably threatens the survival of each year's spawning output, stifling the Atlantic sturgeon's recovery that is expected each year. Combined with additional significant and persistent threats to the Delaware River's Atlantic sturgeon population, the inaction by the DRBC either to revise designated uses or the D.O. criteria thus increases the risk of extinction for the Delaware River's unique population of this ancient and iconic species of fish. Despite the demonstrated and continuous threat to the Delaware River's Atlantic sturgeon population because of low D.O. concentrations, DRBC continues to drag its feet at a moment when swift action is needed most.

Through failing to upgrade D.O. criteria for the subject zones of the Delaware River Estuary, DRBC has unjustifiably contributed to the suite of factors that threaten the continued existence of the Atlantic sturgeon and other aquatic life species. Because of DRBC's failure to act, EPA must exercise its authority under Section 303(c)(4)(B) to upgrade the existing D.O. criteria in the subject zones concomitantly, and to support, the revised designated use of fish "propagation."

V. ADDITIONAL POLICY CONSIDERATIONS

a. Investments in Clean Water Will Yield Measurable Economic Benefits to Delaware River Watershed Communities

By granting this petition for rulemaking, the EPA can benefit more than just the aquatic life dependent on a healthy Delaware River Estuary. In addition to ensuring that the WQS for the subject zones of the Delaware River Estuary conform to the requirements and goals of the Act, the EPA can also facilitate a host of recreational and economic benefits for the Delaware River Watershed as well.

In a recent study published for the Academy of Natural Sciences of Drexel University, the restoration of dissolved oxygen in the Delaware River has been modeled to predict both water quality and ecological improvements that directly and indirectly benefit the region's economy.[74]

While several recognized benefits could not be directly translated to economic valuations—thus resulting in conservative estimates of total economic uplift—this study forecasts benefits ranging from $40 million to $60 million annually, and total benefits approaching $1 billion for our local economies.[75] Of equal importance as the magnitude of the benefits are the *distribution* of those benefits: this new research explicitly models improvements for environmental justice communities, including Camden and Chester. For too long, residents in some of our region's poorest communities and densely populated areas have endured degraded water quality because DRBC has failed to establish basic Act protections on the tidal river, with never-ending delays in implementing conventional wastewater treatment technologies and water quality improvements.

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[74] Carolyn Alkire et al., *Economic Value of Dissolved Oxygen Restoration in the Delaware Estuary* (2020) (available https://www.delawareriverkeeper.org/sites/default/files/DRN%20Keylog%20-%20Economic%20Value%20of%20DO%20Restoration%20in%20the%20DE%20%282020-12%29.pdf) (last visited . 29, 2022).
[75] *Id.* at 8, 47.

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In a similar but less focused study published in 2019, the economic uplift from further D.O. improvements broadly mirrors the results of the 2020 study. In the 2019 research, cumulative economic benefits were again estimated to range from $370 million to $1.1 billion for the Delaware River.[76]

These extraordinary benefits to our local communities come as no surprise. The benefits from water quality improvements can be observed in the surge of economic development along the river, the return of recreational watersports, and the restoration of the striped bass and American shad fisheries in the river. Indeed, improvements to water quality and ecosystem health are estimated to have led to a cumulative benefit approaching $1 trillion since the 1960s.[77]

While designated uses and appropriate stream quality objectives do not depend on benefit-cost ratios for motivation or justification, the consistent results of benefits approaching or exceeding $1 billion help demonstrate that the benefits of investing in clean water extend into both the aquatic ecosystems and to our communities. EPA's promulgation of new WQS for the subject zones of the Delaware Estuary at this critical and long overdue time may precipitate a virtuous cycle of improvements that will enrich our region and watershed communities for decades to come.

b. Granting this Petition Will Restore Public Confidence that the Delaware River Estuary is Adequately Protected

Given DRBC's protracted history of calling for further studies before it takes measures to revise the designated uses and D.O. criteria for the subject zones of the Delaware River Estuary, EPA is uniquely situated to restore public confidence in the principle of cooperative federalism that underpins the Act. By granting this petition, EPA would not only assure interested stakeholders in the Delaware River Estuary watershed that the water quality of the subject zones conforms to the requirements of the Act but would also signal to other states that are similarly neglectful of their obligations under the Act of the consequences of their inaction.

Further delay only perpetuates harm to our communities, wildlife, and economy from degraded water quality. Affirmative action to revise the designated uses for the subject zones of the Delaware River Estuary and to upgrade D.O. criteria to 6.3 mg/L is justified and needed now.

VI. RELIEF REQUESTED

By granting this Petition, the EPA can fulfill its responsibility under the Act to protect the jurisdictional waters, endangered species that depend upon a healthy Delaware River Estuary, and communities within the Delaware River watershed from unjustifiably-degraded water quality. DRBC has consistently demonstrated that it will not act in a reasonably expeditious manner. Federal rulemaking is needed without delay.

For the aforementioned reasons, Petitioners hereby request that EPA promptly initiate rulemaking to promulgate new WQS for the subject zones of the Delaware River Estuary to: 1) revise the designated uses to include fish "propagation;" and 2) upgrade the D.O. criteria to the 6.3 mg/L concentration necessary to support the revised designated use of "propagation." For further communications, please contact me at either keepermaya@delawareriverkeeper.org or at (215) 369-1188 ext. 102.

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[76] Gerald J. Kauffman, *Economic Benefits of Improved Water Quality in the Delaware River (USA)*, 35 RIVER RESEARCH & APPLICATIONS 1652 (2019).

[77] David A. Keiser et al., *The Low but Uncertain Measured Benefits of U.S. Water Quality Policy*, 116 Proceedings of the Nat. Acad. of Scis. 5262 (2019).

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