

*Delaware Riverkeeper Network ~ Clean Air Council
PennFuture ~ Environment New Jersey
New Jersey Tree Foundation ~ UrbanPromise Ministries
Delaware River Shad Fishermen's Association
New Jersey Sustainable Business Council
Delaware River Yachtsmen's League ~ Tree Tenders of Upper Darby
Riverfront North Partnership ~ Aqua Vida
Lehigh River Stocking Association ~ Lehigh Valley Group Sierra Club
Sierra Club Pennsylvania Chapter ~ Friends of Heinz Refuge
Darby Creek Valley Association*

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Petition Seeks Immediate DRBC Action to Upgrade River Designation, to Protect Fish & Aquatic Life, and to Prevent Atlantic Sturgeon Extinction

Philadelphia/Camden/Wilmington: A coalition of organizations submitted a petition today to the Delaware River Basin Commission (DRBC) to upgrade the regulatory status and protections for the Philadelphia-Camden-Wilmington reach of the Delaware River. The initiative seeks to ensure that water quality standards governing the river provide full Clean Water Act protections and adequate dissolved oxygen for the survival of fish and other aquatic life.

According to the petition, both independent studies and DRBC's own reviews confirm that fish already use the identified river reach every year for spawning and nursery habitats, and that upgraded protections are therefore warranted. The inaction by the DRBC over the last decade, and the continued postponement of their own internal deadlines, pushes the critically-endangered Delaware River population of Atlantic sturgeon closer to extinction. Emerging economic research highlighted in the petition also describes the enormous social and economic benefits derived from investing in clean water and our riverside communities. This action is needed to ensure that endangered Atlantic sturgeon, striped bass, American shad, and all other aquatic life dependent on clean water receive the proper level of protection from pollution now and into the future.

"The Delaware River and the endangered Atlantic sturgeon continue to suffer every year because of DRBC's failure to act," said **Maya van Rossum, the Delaware Riverkeeper and leader of the Delaware Riverkeeper Network**. "We have known for over a decade that immediate action is needed, and that the protections we seek are easily within our reach. As spring emerges and as striped bass, American shad, and Atlantic sturgeon begin returning to this great river for their annual spawning runs, these and other fish tragically face another uncertain year with no protections in place for these great migrations that continued for millennia, and which are threatened by bureaucratic cowardice."

"Adopting these improved water quality standards is crucial for protecting both aquatic life and the health of the many people who rely on this stretch of the river for recreation. These protections are long overdue and it is

time for the Delaware River Basin Commission to act," said **Joseph Minott, Executive Director and Chief Counsel for Clean Air Council.**

"Protecting the health of the Delaware River, from establishing stringent standards for dissolved oxygen levels to recognizing the primary contact recreational use of the river, is critical to improving the health and well-being of the surrounding communities," said **PennFuture President and CEO Jacquelyn Bonomo.** "The DRBC cannot kick this can down the road any longer. The Commission must step up and protect the Delaware as it is legally required to do."

"The Clean Water Act is an incredibly powerful regulatory tool and the levels of dissolved oxygen in the lower Delaware River are a clear blinking red light that the DRBC is not using all of its regulatory power to protect the Delaware and the endangered Atlantic Sturgeon. The petition clearly outlines the regulatory delay by DRBC and the precarious state of the Delaware's fish ecosystem demands immediate action. In an uncertain climate-influenced future, we need to take more actions to promote the basic health of the Delaware River, protect its ecosystem -- and ourselves," said **Doug O'Malley, Director of Environment New Jersey.**

"In Camden after decades of having turned our backs to our City's greatest natural resource we have awakened to their life giving values. Not surprising nature in all its forms first began to notice changes, Bald Eagles returned, with Ospreys and Herons. The Eastern Pondmussel was found to have returned, along with Sturgeon and Shad and others. As we paddle the tidal Cooper River snapping turtles, wild turkeys and deer are regular shore line sightings. We've torn down a waterfront State Prison and reclaimed the land from an old chemical company to build waterfront parks that bring you to the water's edge. Then we went even further investing millions to reclaim an old abandoned landfill and not only built a park on the water's edge, we built the infrastructure to bring you onto and into the water. With more plans to invest in kayak ramps and docks in Gateway Park and the Back Channel of the Delaware behind Petty's Island for our urban communities to have the opportunities our upstream friends may take for granted. I have to ask the question, how do we not take the necessary action to commit to ensuring safe and healthy rivers for our urban communities?" said **Jim Cummings, Director of Experiential Learning at Urban Promise and Founder of UrbanTrekks and Urban BoatWorks.**

"The health of the Delaware River is intertwined with that of its local economies" said **Richard Lawton, Executive Director of the NJ Sustainable Business Council.** "Recreation and tourism combined contribute \$1.2 billion annually, with recreational fishing alone accounting for about half (\$575 million) annually. The DRBC's continued inaction represents an opportunity cost to the economies of Philadelphia, Camden and Wilmington that they can remedy by upgrading the regulatory status and protections for this important reach of the Delaware River. Taking action now will benefit the many lives and livelihoods that are nourished and supported by the river."

"The Delaware River Yachtsmen's League (DRYL) has been on the Delaware River since 1914. We are a large group of recreational boaters and anglers from 25 independent boating clubs spanning the Delaware River from just below Trenton down to below the Philadelphia Airport. All of our clubs and organizations are within the area being discussed. We (The DRYL) call upon the DRBC to utilize the Clean Water Act for the entire river and not just certain parts / areas of the river. By doing so we believe the entire river's ecosystem will greatly improve. It also means our grandchildren's grandchildren will reap the benefits of your actions that you take today - and more importantly they will be able to enjoy all this waterway has to offer," said **Paul Jusino, President, Delaware River Yachtman's League.**

"As community groups and volunteer tree tenders work at the grass roots, using community investments to plant more trees and shady riparian buffers especially in flood-prone highly urbanized regions like the Darby Creek watershed that flows into the Delaware River where oxygen levels have improved, it is essential that the water quality standards of the Delaware River be updated now to match the on the ground needed restoration work that has been underway for decades. This important dissolved oxygen upgrade will also help push for

other increased restoration needed regionally that will benefit beautiful fish and community health as a whole,” said **Bonnie Hallam and Dolores Lombardi, Co-Chairs, Tree Tenders of Upper Darby.**

“The Sierra Club’s Pennsylvania Chapter is strongly in favor of any measures that will help to improve and enhance the fisheries in the Delaware River and its tributaries,” said **Matt MacConnell, Chair of the Lehigh Valley Group Sierra Club.** “Raising dissolved oxygen levels as proposed in this petition will go a long way in helping with this goal.”

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March 3, 2021

Commissioners
Delaware River Basin Commission
P.O. Box 7360, 25 Cosey Road
West Trenton, NJ 08628

Re: Supplemental Petition Requesting DRBC Immediately Upgrade Aquatic Life Uses and Dissolved Oxygen Stream Quality Objectives

Dear Commissioners,

In Resolution 2017-4 on September 13, 2017, the Commission:

- stated that, "DRBC recognizes the vital importance of determining the appropriate designated aquatic life uses of the Delaware River Estuary and the water quality criteria necessary to protect these uses."
- identified as an important goal that "Water quality standards, including designated uses and water quality criteria, should be updated consistent with Clean Water Act goals as quickly as possible and practicable."
- recognized that "Evidence supports further study on the inclusion of propagation as a designated use in Zones 3 and 4 and the upper portion of Zone 5."

However, the Commission then went on to identify a wealth of additional research and analysis that was needed, and a six year timeframe for concrete action. At the same time, the Commission rejected a proposal to recognize fish propagation as the designated use, despite the use being scientifically demonstrated. The Commission even refused to consider a proposal that secured a majority vote of Water Quality Advisory Committee members to recognize the existing uses of the Estuary for fish propagation and to put in place interim protective measures to prevent water quality backsliding during the period of study.

The Commission is now planning to extend that timeframe for study an additional 1½ years. Proposing yet additional time for more study and no action -- including no interim protections -- means we would now be accepting a drawn-out regulatory timetable that will span **nearly 20 years** since its initiation in 2009 for a straightforward process that would simply implement conventional wastewater technologies in the Delaware Estuary.

The Delaware Riverkeeper Network (“DRN”), Clean Air Council (“CAC”), PennFuture, Environment New Jersey, New Jersey Tree Foundation, UrbanPromise Ministries, Delaware River Shad Fishermen’s Association, New Jersey Sustainable Business Council, Delaware River Yachtsmen’s League, Tree Tenders of Upper Darby, Riverfront North Partnership, Aqua Vida, Lehigh River Stocking Association, Lehigh Valley Group Sierra Club, Sierra Club Pennsylvania Chapter, Friends of Heinz Refuge, and Darby Creek Valley Association (collectively, “Petitioners”) submit this **Delaware River Fish Protection petition** requesting the Commission upgrade the designated use of Zones 3 and 4 and the upper portion of Zone 5 of the Delaware River to include and protect existing uses already taking place, most notably:

- maintenance and propagation of resident fish and other aquatic life, and
- spawning and nursery habitat for migratory fish.

We further petition the Commission to immediately put in place the necessary dissolved oxygen (“D.O.”) stream quality objectives that will protect these uses which, according to DRBC’s recently-commissioned research, should be set at 6.3 mg/L.

Petitioners are organizations that serve communities who live, work, and recreate in the Delaware River Watershed and have a strong interest in seeing the public’s uses of the River protected. Petitioners share a common interest in promoting the health and enjoyment of the Delaware River for the benefit of the public. Upgrading the designated use of Zone 3, Zone 4, and Upper Zone 5 of the Delaware Estuary to reflect the full aquatic life use protections is necessary to protect the communities we serve and the health of the waterways our members rely on.

This 2020 petition embraces, advances and updates the previous petition submitted by the Delaware Riverkeeper Network [DRN], Delaware River Shad Fisherman’s Association [DRSFA], and the Lehigh River Stocking Association [LRSA] to the Commission in 2013 urging the Commission to recognize the emerging data that fish are now spawning in all zones of the Delaware Estuary, and that the Commission needs to protect this use with revised water quality standards.¹ This 2013 petition resulted from a protracted 4 year delay by the Commission to initiate substantive work following the Commission’s repeated commitments made in 2009. Now in 2020, the Commission again finds it appropriate to extend deadlines and delay actions even with endangered species dying in the estuary, and even when the summer of 2020 reminds us of how bad conditions in the estuary can become because of the continued inaction by the Commission. The science, including that secured and led by the Commission, clearly justifies much needed and warranted immediate regulatory action. We submit this updated petition urging the DRBC Commissioners to take immediate action to upgrade its standards in order to protect the aquatic life of the estuary, including endangered species threatened with catastrophic losses and future extinction.

In this petition we provide the legal and moral imperatives for immediate Commission action rather than continued and excessive delays. In summary:

- The Clean Water Act requires Designated Uses at least as high as the Existing Uses, and both internal DRBC reports and external data consistently confirm that propagation occurs every year in all Zones of the river;

¹ full petition attached herein, and main text available on DRBC’s website at:

https://www.nj.gov/drbc/library/documents/WQAC/053113/handout3_DRN-DRSFA-LRSA_petition.pdf

- The Delaware River’s genetically unique population of Atlantic Sturgeon is on the brink of extinction, and new data show that every summer with depressed dissolved oxygen (such as in 2019 and 2020) leads to reproductive failure and a step closer to extinction for this majestic endangered fish;
- In 2020, concentrations of dissolved oxygen fell to 2.8 mg/L at the Chester sensor and to 3.3 mg/L at the Ben Franklin sensor, reminding all stakeholders that there are no updated protections in place to prevent backsliding and to prevent lethal conditions from occurring in the Delaware River in any given year;
- Investments in clean water and improvement in wastewater treatment will yield immense benefits to our communities, with emerging economic studies showing benefits potentially exceeding \$1 billion;
- Assurances since 2009 for expedient action followed by incessant delays undermines public confidence in the Commission’s central role in interstate water policy and its dedication to science-based decision making.

1. Legal Background

a. *The role of DBRC in protecting water quality in the Basin.*

Following the entry of a consent decree in *New Jersey v. New York*, 347 U.S. 995 (1954), the States of New York, New Jersey, Pennsylvania, and Delaware and the federal government negotiated the Delaware River Basin Compact, which entered into force in 1961. The Compact created the DRBC to conserve and manage the resources of the Delaware River.

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.*²

The Compact directs the Commission to adopt a water resources program, based upon the comprehensive plan that “shall include a systematic presentation of the quantity and quality of water resource needs. . . .”³ The Compact further provides that the Commission “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, such as size of the stream, flow, movement, location, character, self-purification, and usage of the waters affected.”⁴

In order to fulfill its obligation, DRBC set forth water quality regulations articulating water quality standards for the Delaware River Basin in its Comprehensive Plan.⁵ In maintaining such water quality standards, the Commission may need to amend the water classifications from time to time

² Delaware River Basin Compact § 1.3(e); *Ibid*, § 3.1 (“[The Commission] shall adopt and promote uniform and coordinated policies for water conservation, control, use and management in the basin.”); *Ibid*, Fifth Whereas Clause.

³ *Ibid*, § 13.2.

⁴ *Ibid*, § 5.2.

⁵ Delaware River Basin Commission, *Comprehensive Plan*, Section I.C. Article 3.

to protect the public health or to preserve the waters of the basin for the uses in accordance with the Comprehensive Plan.⁶

In order to fulfill their obligation under the Clean Water Act to designate uses for surface waters, the States of Delaware, New Jersey and Pennsylvania either defer to DRBC water quality standards or provide for application of the more stringent of state and DRBC standards within the basin.

b. Water Quality Standards define the goals and pollution limits for waters.

Composed of designated uses, water quality criteria, and an antidegradation policy, water quality standards determine which healthy waters need protection, which waters must be restored, and how much they must be restored.⁷ Consequently, water quality standards set a course for restoring and protecting a watershed over the long term. As described in DRBC's water quality regulations, "Water uses shall be paramount in determining stream quality objectives which, in turn, shall be the basis for determining effluent quality requirements."⁸

Accordingly, in developing water quality standards, DRBC begins by setting designated uses for each zone. Stream quality objectives and effluent limitations are then developed using the designated uses as a baseline. "It is the policy of the Commission 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 Because pursuant to the DRBC Water Code, stream quality objectives and effluent limitations are calibrated to protect the designated, rather than actual, uses of each zone, existing uses will not receive protection unless those uses are formally adopted as designated uses. States (and thus DRBC) must revise a designated use whenever a designated use does not include any use that is currently taking place.¹⁰ Among the designated uses that must be protected are protection and propagation of fish, shellfish and wildlife.¹¹

2. Upgrading the designated uses is appropriate because "propagation" and "spawning and nursery" functions are existing uses throughout the identified portion of the Delaware River

As documented in the 2013 petition by DRN, DRSFA, and LRSA, and as confirmed in DRBC's 2015 analysis of relevant data:

The 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 5.¹²

This confirmation 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

⁶ Ibid.

⁷ 40 C.F.R. § 131.3(i).

⁸ 18 C.F.R. 410 § 3.10.2.A.

⁹ 18 C.F.R. 410 § 3.10.3.C.

¹⁰ 40 C.F.R. § 131.10(i).

¹¹ 40 C.F.R. § 131.10(a).

¹² DRBC 2015. Existing Use Evaluation for Zones 3, 4, & 5 of the Delaware Estuary Based on Spawning and Rearing of Resident and Anadromous Fishes. Delaware River Basin Commission report; revision date 30-September-2015; p. 32. Retrieved from https://www.nj.gov/drbc/library/documents/ExistingUseRpt_zones3-5_sept2015.pdf

examined to date has demonstrated successful propagation in Zones 3, 4, and 5 of the Delaware Estuary.

Clearly, there is no outstanding question or controversy about whether “propagation” is occurring throughout Zones 3, 4, and 5 of the Delaware Estuary; 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 Zones 3, 4, and 5. The requisite next steps are to acknowledge these facts, to fully protect these zones of the estuary, and to revise DRBC’s water quality regulations.

Movement to upgrade the designated uses for these Zones would effectuate DRBC’s antidegradation policy for interstate waters:

It is the policy of the Commission to maintain the quality of interstate waters, where existing quality is better than the established stream quality objectives, unless it can be affirmatively demonstrated to the Commission that such change is justifiable as a result of necessary economic or social development or to improve significantly another body of water. In implementing this policy, the Commission will require the highest degree of waste treatment determined to be practicable. No change will be considered which would be injurious to any designated present or future use.¹³

As demonstrated by the actual occurrence of fish propagation, the waters of Estuary Zones 3 through 5 are necessarily of a quality sufficient to allow for resident and anadromous fish propagation, outside of stressful events or periods. Yet as stated above, because stream quality objectives and effluent limitations are calibrated to protect the designated, rather than existing or actual, uses of each zone, the existing quality of these Zones may only be protected by upgrading their designated use to include fish propagation. Significantly, neither need for “economic or social development” nor need to “improve significantly another body of water” exists to justify a degradation of water quality—as may occur under current water quality standards—in this instance. Certainly, neither the DRBC nor any other party has made an affirmative demonstration to that effect.

As the Commission 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”

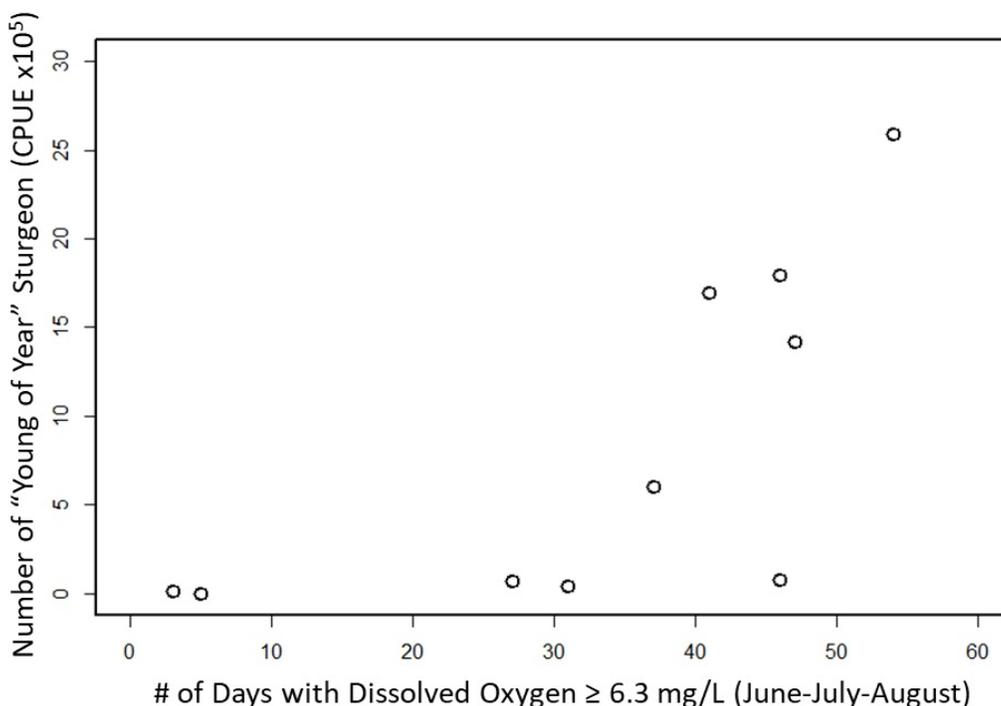
As a result, the Commission’s failure to recognize and protect the existing aquatic life uses noted above puts these three states in violation of their Clean Water Act obligations and opens them to legal challenge.

3. Emerging data show that every year it delays action, the Commission increases the risk of extinction for the Delaware River’s unique population of Atlantic sturgeon

¹³ DRBC, *Comprehensive Plan*, Section I.C. Article 3, § 3.10.3.A.1

By combining USGS data¹⁴ for dissolved oxygen conditions and DNREC data¹⁵ 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)



The 2018 report commissioned by DRBC¹⁶ on the dissolved oxygen needs for Delaware Estuary species further corroborates these results, and highlights the need for immediate action. While DRBC's current standard for dissolved oxygen 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 dissolved oxygen. For the critically endangered population of Delaware River Atlantic Sturgeon, this 2018 report identifies a dissolved oxygen 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 Zones 3, 4, and 5.

¹⁴ USGS-NWIS. National Water Information System Data. <https://waterdata.usgs.gov/nwis/>, Station # 01467200

¹⁵ DNREC, Division of Fish & Wildlife, presentations to DRBC-RFAC (5/26/2018) and Delaware River Basin Fish & Wildlife Management Cooperative (3/3/2020)

¹⁶ Stoklosa, A.M., D.H. Keller, R. Marano, and R.J. Horwitz. 2018. A Review of Dissolved Oxygen Requirements for Key Sensitive Species in the Delaware Estuary. Final report by the Patrick Center for Environmental Research, Academy of Natural Sciences of Drexel University submitted to Delaware River Basin Commission; November 2018; 51 pp. Retrieved from https://www.nj.gov/drbc/library/documents/Review_DOreq_KeySensSpecies_DelEstuary_ANStoDRBCnov2018.pdf

Although the Delaware River historically served as the dominant spawning grounds in the United States for Atlantic sturgeon,¹⁷ the Delaware River population continues to teeter on the brink of extinction and remains one of the weakest populations among this species' major spawning rivers.¹⁸ Indeed, recent estimates of Effective Population Size ($N_e=56.7$) place the Delaware's Atlantic sturgeon population far below the critical thresholds of 1000 or 100 needed to prevent the collapse of this unique population:¹⁹

“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 N_e estimates lie below the suggested recommended minimum $N_e > 1000$ required to maintain evolutionary potential (Frankham et al. 2014).”

With recognized threats to the species' survival particularly severe in the Delaware River, including, for example., ship strikes, dredging, habitat loss, and hypoxia, recovery depends on effectively reducing or eliminating every threat when and where possible. The existence of other threats²⁰ does nothing to absolve the Commission of its responsibility to protect the critical spawning and rearing function of the Delaware Estuary. Successful spawning runs and recruitment of young fish into the population every single year is all the more 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,²¹ would provide critical support for this struggling population.

Reference to D.O. levels in the estuary during the summer of 2014 does not undermine the need for immediate action by DRBC. The summer of 2014 was the single-best summer for dissolved oxygen in over 100 years; it was the exception and not the rule.²² As we've seen with the 2019 and 2020 summers, absent regulatory action and strict requirements for biochemical oxygen demand (BOD) load reductions, dissolved oxygen conditions in the river can quickly collapse and reach critical and lethal levels for existing aquatic life. There is no floor of protection other than the antiquated DRBC 3.5 mg/L water quality standard established in 1961 for dissolved oxygen that is lethal to young sturgeon. And in 2020, the minimum dissolved oxygen recorded at the Chester gauge fell to as low as 2.8 and 3.0 mg/L.

As demonstrated in Figure 1, the failure to act by the Commission literally threatens the survival of each year's spawning output, stifling the contribution to the Atlantic sturgeon's recovery that is expected each year. Combined with additional significant and persistent threats to this river's

¹⁷ Secor, D.H., and J.R. Waldman. 1999. Am. Fish. Soc. Symp. 23:203–216.

¹⁸ Atlantic States Marine Fisheries Commission. 2017 Atlantic Sturgeon Benchmark Stock Assessment and Peer Review Report; 456 pp. Retrieved from: https://www.asmf.org/uploads/file//59f8d5ebAtSturgeonBenchmarkStockAssmt_PeerReviewReport_2017.pdf

¹⁹ Ibid, Table 11 & pg. 2

²⁰ e.g. Ship-strike mortality is known to be high here in the tidal Delaware River, Brown, J.J. and G.W. Murphy. 2010. Fisheries 35(2): 72-83. see also DiJohnson, A.M. 2019. “Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) Behavioral Responses to Vessel Traffic and Habitat Use in the Delaware River, USA.” Master's Thesis, Delaware State University, May 2019; 100 pp.

²¹ Hale, E.A., I.A. Park, M.T. Fisher, R.A. Wong, M.J. Stangl, and J.H. Clark. 2016. Trans Am Fish Soc 145: 1193-1201.

²² USGS-NWIS. National Water Information System Data. <https://waterdata.usgs.gov/nwis/>, Station # 01467200; Alkire, C., E.L.Silldorff, & S.Wang. 2020. “Economic Value of Dissolved Oxygen Restoration in the Delaware Estuary.” Report submitted to the Academy of Natural Sciences of Drexel University; December 2020; 91 pp.

Atlantic Sturgeon population, the inaction by the Commission thus increases the risk of extinction for the Delaware River's unique population of this ancient and iconic species of fish.

4. Investments in clean water and improvement in wastewater treatment will yield immense benefits to our communities, with emerging economic studies showing benefits potentially exceeding \$1 billion

While aquatic life protection is the primary driver and beneficiary for revising the designated uses, for establishing fully protective dissolved oxygen criteria, and for completing the restoration of dissolved oxygen in the tidal river, the benefits of these actions and the investments in water quality they require will provide community, quality of life, recreation and economic benefits as well.

In a recently-released study, the restoration of dissolved oxygen in the Delaware River has been modeled in order to predict both water quality and ecological improvements that directly and indirectly benefit the region's economy.²³ While a number of recognized benefits could not be translated to economic valuations, thus resulting in conservative estimates of total economic uplift, this study forecast benefits ranging from \$40 million to \$60 million annually, and total benefits approaching \$1 billion for our local economies. As important as the magnitude of the benefits are the distribution of those benefits, with this new research explicitly modeling the improvements for environmental justice communities including Camden and Chester. For too long, residents in some of our region's poorest communities have endured the degraded water quality and the failure to even establish basic Clean Water Act protections on the tidal river, with never-ending delays in implementing conventional wastewater treatment technologies and water quality improvements.

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.²⁴

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, Clean Water Act improvements to water quality and ecosystem health are estimated to have led to a cumulative benefit approaching \$1 trillion since the 1960s.²⁵

While establishing designated uses and appropriate stream quality objectives never relies 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 human communities. Action by the Commission will lead to a virtuous cycle of improvements that will enrich our region and watershed communities for decades to come.

5. Assurances since 2009 for expedient action followed by incessant delays undermine public confidence in the Commission's central role in interstate water policy

²³ Alkire, C., E.L.Silldorff, & S.Wang. 2020. "Economic Value of Dissolved Oxygen Restoration in the Delaware Estuary." Report submitted to the Academy of Natural Sciences of Drexel University; December 2020; 91 pp.

²⁴ Kauffman, G.J. 2019. *River Res. Appl.* 35(10): 1652-1665.

²⁵ Keiser, D.A., C.L. King, & J.S. Shapiro. 2019. *Proc. Nat'l Acad Sci* 116(12): 5262-5269.

The Commission began to assure stakeholders of rapid action to revise designated uses and update dissolved oxygen stream quality objectives in 2009 as part of the nutrient criteria development process.²⁶ At that time, the Commission represented that dissolved oxygen improvements were a requisite early-action step prior to any regulatory action to control nutrient loads.

Four years later, in 2013, with the Commission failing to initiate substantive work to either revise its standards or develop the models the Commission suggested were necessary, three organizations (DRN, DRSFA, & LRSA) petitioned the Commission for immediate action. Yet it would be another 4 years later before the Commission would pass its 2017 resolution committing to a 6-year process of studies and deliberations.²⁷ While appropriate scientific studies underpin good public policy, the never-ending call for “further study” rings hollow for species needing more oxygen now and for communities plagued by decades of environmental contamination.

It is vital to understand historical precedent for inaction by the Commission to recognize the risk of failure in this setting. In the 1980s, the Commission completed the Use Attainability Project to evaluate upgrades that would bring the Commission’s standards for the tidal Delaware River into compliance with the Clean Water Act.²⁸ Although partial upgrades for primary contact recreation standards were then adopted in 1991 as a direct result of this project,²⁹ the Commission delayed action on aquatic life uses and dissolved oxygen criteria as it continued to pursue additional studies through the 1990s.³⁰

After expending hundreds of thousands of dollars on studies, staff time, and hearings in the 1990s, ultimately the Commission took no action. Neither the designated uses for aquatic life nor the dissolved oxygen criteria for Zone 3, Zone 4, and upper Zone 5 were revised as a result of nearly two decades of study, modeling, and policy deliberations. Indeed, the uses and D.O. criteria in DRBC’s Water Quality Standards remain today at those adopted in 1967 before the Use Attainability Project and, indeed, before the Clean Water Act.

With the little deliberated or noticed September 2020 extension approved by the Commissioners that provide an additional 1½ years for all estuary timelines,³¹ the Commission has now placed the earliest possible action to revise water quality standards, including D.O., in the year 2025, nearly 20 years after the Commission’s 2009 assurances of swift action and a full 40 years after the initiation of the Commission’s Use Attainability Project.

Further study and delay will not protect the endangered Atlantic sturgeon and the many other aquatic life species that use the River. Further delay only perpetuates the harm to our communities, wildlife, and economy from degraded water quality. And it is very possible that

²⁶ DRBC Nutrient Management Subcommittee, 2/19/2009 minutes; DRBC Water Quality Advisory Committee, 3/30/2009, 6/23/2009, 7/21/2009, 9/15/2009, & 11/17/2009 minutes. WQAC minutes available at: https://www.nj.gov/drbc/about/advisory/WQAC_index.html

²⁷ DRBC Resolution 2017-4

²⁸ DRBC 1988. “Report on the Attainability of Swimmable Water Quality.” DEL USA Project Element #19 report. Delaware River Basin Commission; West Trenton, NJ. 13 pp. / DRBC 1989. “Attaining Fishable and Swimmable Water Quality in the Delaware Estuary.” DEL USA Project Final Report. Delaware River Basin Commission; West Trenton, NJ. 19 pp. / DRBC 1990. “Report on the Attainability of Fishable Water Quality.” DEL USA Project Element #19 report. Delaware River Basin Commission; West Trenton, NJ. 75 pp.

²⁹ DRBC Resolution 1991-06

³⁰ see DRBC Resolutions 1993-14, 1995-07, 1998-06, 1998-07, 1999-08

³¹ DRBC Resolution for the Minutes, September 10, 2020

further delay will make this Commission, its Commissioners, and its staff leadership responsible for the loss of the Delaware River's genetically unique population of Atlantic Sturgeon.

Affirmative action to revise the designated uses for Zones 3, 4, and 5 and to upgrade D.O. criteria to 6.3 mg/L is justified and needed now.

6. Conclusion

In the seven years since the initial 2013 DRN, DRLSA, LRSA community petition for aquatic life and D.O. upgrades, additional evidence from the Commission's own work has further validated that petition's conclusions: (1) the existing uses include "propagation" for every zone of the tidal Delaware River; and (2) higher dissolved oxygen stream quality objectives equaling or exceeding 6.3 mg/L are needed to protect all sensitive aquatic species now living and reproducing in the Delaware Estuary.

New evidence for Atlantic sturgeon year class failures during summers of insufficient dissolved oxygen now demand urgent action for protection rather than further study and delay.

Emerging economic studies help document the enormous benefits of action, and the enormous costs of inaction to our communities.

At this critical juncture in history, with so much on the line, the Commission can once again demonstrate its leadership role in rebuilding our communities and restoring our ecosystems.

Delay no further. Act now for our endangered and special species of the estuary, for our economic recovery, and for the generations to come who will learn this history of how an ecosystem can be reborn.

Respectfully,

Maya K. van Rossum, the Delaware Riverkeeper, Delaware Riverkeeper Network
Joseph Otis Minott, Executive Director & Chief Counsel, Clean Air Council
Jacquelyn Bonomo, President & CEO, PennFuture
Doug O'Malley, Executive Director, Environment NJ
Lisa Simms, Executive Director, New Jersey Tree Foundation
Jim Cummings, Director of Experiential Learning, UrbanPromise Ministries
R.M. Topping, President, Delaware River Shad Fishermen's Association
Richard Lawton, Executive Director, New Jersey Sustainable Business Council
Paul Jusino, President, Delaware River Yachtsmen's League
Bonnie Hallam & Dolores Lombardi, Co-Chairs, Tree Tenders of Upper Darby
Stephanie Phillips, Executive Director, Riverfront North Partnership
Jana Mars, Founder/Creator, Aqua Vida
Matt MacConnell, Board Member & Acting Director, Lehigh River Stocking Association
Matt MacConnell, Chair, Lehigh Valley Group Sierra Club
Jim Wylie, Chair, Sierra Club's Pennsylvania Chapter
Jaclyn Rhoads, President, Friends of Heinz Refuge
Susan Miller, Director, Darby Creek Valley Association

Encl.