



March 5, 2013

Commissioners  
Delaware River Basin Commission  
25 State Police Drive  
P.O. Box 7360  
West Trenton, NJ 08628-0360

Re: Petition by the Delaware Riverkeeper, the Delaware Riverkeeper Network, the Delaware River Shad Fishermen's Association and the Lehigh River Stocking Association to

- 1) immediately upgrade the designated uses of Zones 3, 4, and River Miles 78.8 to 70.0 of Zone 5 to include propagation of resident fish and other aquatic life;
- 2) immediately upgrade the designated uses of Zones 2 through 5 to include spawning and nursery habitat for anadromous fish; and
- 3) upgrade all applicable stream quality objectives necessary to preserve these uses; including setting immediate interim standards for dissolved oxygen and setting a 3 year time limit for the establishment of permanent dissolved oxygen and nutrient objectives.

Dear Commissioners:

The Delaware Riverkeeper, the Delaware Riverkeeper Network and the Delaware River Shad Fishermen's Association hereby petition the Delaware River Basin Commission (DRBC) to upgrade the designated use of Delaware River Estuary Zones 3, 4, and River Miles 78.8 to 70.0 of Zone 5 to include propagation of fish and other aquatic life. Data collected by the Public Service Electric and Gas Company (PSEG) clearly demonstrate the occurrence of fish propagation within these Zones of the Estuary. Additionally, the designated use of Zones 2 through 5 should be amended to include spawning and nursery habitat for anadromous fish. The propagation of anadromous fish in these Zones is demonstrated by the PSEG data as well as by recent research on the Atlantic sturgeon. As explained below, these upgrades in recognition of existing usage are necessary in order to effectuate the purposes of the Delaware River Basin Compact ("Compact") as well as DRBC's antidegradation policy for interstate waters. These upgrades will also bring DRBC into conformance with the antidegradation mandates of the Clean Water Act, thereby avoiding state, federal and/or interstate conflicts over the designated and existing uses of these Delaware River waters. Existing stream quality objectives (most

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importantly for dissolved oxygen) should be modified to accommodate and preserve the newly incorporated designated uses (collectively, “fish propagation uses”). In addition, DRBC should set immediate interim standards for dissolved oxygen and setting a 3 year time limit for the establishment of permanent dissolved oxygen and nutrient objectives.

While DRBC has undertaken a process to consider needed upgrades to the designated uses of Delaware Estuary waters and associated stream quality objectives, the 3 to 5 year trajectory for this consideration is unjustified and unnecessary in light of existing data documenting the current uses of Zones 2 thru 5. While additional knowledge may be justified for assessing some resulting stream quality objectives, an immediate upgrade in use designations and dissolved oxygen stream quality objectives are already supported and mandated by existing data, information, uses and water quality needs regarding aquatic life of the Delaware Estuary.

#### **I. The Unification of Existing and Designated Uses Is Necessary to Effectuate the Purposes of the Compact as well as DRBC’s Antidegradation Policy for Interstate Waters**

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 Compact, which entered into force in 1961. The Compact created the DRBC to conserve and manage the resources of the Delaware River. In forming the Compact, the parties agreed that “the conservation, utilization, development, management, and control of the water and related resources of the Delaware River Basin under a comprehensive multipurpose plan [would] bring the greatest benefits and produce the most efficient service in the public welfare.” Compact, Second Whereas Clause (introducing a Comprehensive Plan). One such envisioned benefit was the propagation of fish and game. See Compact, Third Whereas Clause. Indeed, DRBC considers fish propagation benefits so significant that, rather than merely allowing such benefits to slowly accrue, DRBC actively seeks to safeguard fish resources in the Basin. Water Code § 2.200.1 (“The quality of Basin waters shall be maintained in a safe and satisfactory condition for...wildlife, fish and other aquatic life.”); see also id. § 3.10.2.B.2.

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. Id. § 3.10.2.A (“Water uses shall be paramount in determining stream quality objectives which, in turn, shall be the basis for determining effluent quality requirements.”); id. § 3.10.3.C (“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.” (emphasis added)).

Because 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. It is therefore necessary that DRBC 1) upgrade the designated uses of Zones 3, 4, and River Miles 78.8 to 70.0 of Zone 5 to include propagation of resident fish and other aquatic life, and 2) upgrade the designated uses of Zones 2 through 5 to include spawning and nursery habitat for anadromous fish.



Further, 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.

Id. § 3.10.3.A.1. As demonstrated by the actual occurrence of fish propagation, the waters of Estuary Zones 2 through 5 are necessarily of a quality sufficient to allow for resident and anadromous fish propagation. See Appendix A.<sup>1</sup> Yet as stated above, because stream quality objectives and effluent limitations are calibrated to protect the designated, rather than 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.

An upgrade in the designated uses of Zones 2 through 5 will also effectuate the purposes of the Compact:

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.

Compact § 1.3(e); see also id. § 3.1 ("[The Commission] shall adopt and promote uniform and coordinated policies for water conservation, control, use and management in the basin."); id. Fifth Whereas Clause.

Under the Clean Water Act and its implementing regulations, "[s]tates . . . are responsible for reviewing, establishing, and revising water quality standards." 40 C.F.R. § 131.4. At minimum, each state's water quality standards must include "[u]se designations consistent with the provisions of sections 101(a)(2) and 303(c)(2) of the [Clean Water] Act"<sup>2</sup> as well as "[a]n

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<sup>1</sup> Appendix A includes a series of tables documenting the presence of ichthyoplankton within the Delaware River Estuary. These tables are excerpted from the 2002-2004 PSEG Annual Reports. Public Service Enterprise Group, Biological Monitoring Program, 2002 Annual Report 4-74, 4-89 to 4-104; Public Service Enterprise Group, Biological Monitoring Program, 2003 Annual Report 4-73, 4-88 to 4-103; Public Service Enterprise Group, Biological Monitoring Program, 2004 Annual Report 4-74, 4-89 to 4-104.

<sup>2</sup> Section 101(a)(2) provides: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the



antidegradation policy consistent with [40 C.F.R.] § 131.12.”<sup>3</sup> 40 C.F.R. § 131.6(a), (d). “Where 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.” 40 C.F.R. § 131.10(i) (emphasis added).<sup>4</sup>

Insofar as the DRBC was created to help the Basin states work cooperatively to achieve their common goal of protecting the water resources of the Delaware River and tributary streams, and has increasingly helped the Basin states work cooperatively to achieve the mandates of federal law, upgrading the designated uses of these Delaware River waters so as to protect existing uses also ensures the Basin states are able to most effectively achieve the anti-degradation mandates of the federal Clean Water Act.

Although the Basin states presently defer to DRBC in setting water quality standards for the mainstem Delaware River and Bay,<sup>5</sup> if DRBC fails to upgrade the designated uses (and, as appropriate, associated stream quality objectives) for Zones 2 through 5, the Basin states must do so themselves for those portions of the Estuary and River within their state boundaries.<sup>6</sup> In so doing, the states may set divergent standards, thereby frustrating the purposes of the Compact as stated in Section 1.3(e). See WQR § 1.10.3.B (“Where applicable state standards require higher quality water than these Standards and Regulations, state standards will be controlling.”). It is therefore imperative that DRBC upgrade the designated uses of Zones 2 through 5 to reflect their existing uses.

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water be achieved by July 1, 1983.” Section 303(c)(2)(A) provides: “Whenever the State revises or adopts a new standard, such revised or new standard shall be submitted to the Administrator. Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this Act [33 USCS §§ 1251 et seq.]. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.”

<sup>3</sup> 40 C.F.R. § 131.12(a) provides, in relevant part: “The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following: (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.”

<sup>4</sup> States must further “adopt those water quality criteria that protect the designated use.” 40 C.F.R. § 131.11(a).

<sup>5</sup> See 7-7000-7401 Del. Admin. Code § 4.4; N.J. Admin. Code § 7:9B-1.13(a); id. § 7:9B-1.14(h); id. § 7:9B-1.15(a); 25 Pa. Code § 93.2(b); id. § 93.9(b).

<sup>6</sup> 40 C.F.R. § 131.10(i); see also 7-7000-7401 Del. Admin. Code § 5.1; N.J. Admin. Code § 7:9B-1.5(d)(1); id. § 7:9B-1.11(e); 25 Pa. Code § 93.4a(b); 25 Pa. Code § 93.4c(a)(1)(i).



## II. Designated and Existing Uses of DRBC Zones 2 Through 5

### A. Designated Uses Exclude Propagation of Resident and / or Anadromous Fish

The DRBC has designated the following uses in Zones 2 through 5:

Table 1: Designated Uses by Zone

DRBC Zone	Corresponding River Miles	Water Uses to be Protected (Designated Use)
2	133.4 – 108.4	Maintenance and propagation of resident fish and other aquatic life; passage of anadromous fish; wildlife
3	108.4 – 95.0	Maintenance of resident fish and other aquatic life; passage of anadromous fish; wildlife
4	95.0 – 78.8	Maintenance of resident fish and other aquatic life; passage of anadromous fish; wildlife
5	78.8 – 48.2	Maintenance of resident fish and other aquatic life; propagation of resident fish from R.M. 70.0 to R.M. 48.2; passage of anadromous fish; wildlife

WQR §§ 3.30.2 – 3.30.5. Fish propagation is excluded as a designated use in Zones 3, 4, and River Miles 78.8 – 70.0 of Zone 5. Moreover, River Miles 70.0 – 48.2 of Zone 5 are designated for the propagation of resident fish only; propagation of anadromous fish is omitted. Indeed, no portion of Zones 2 through 5 is designated as spawning and nursery habitat for anadromous fish.

### B. Fish Propagation Is an Existing Use Throughout Zones 2 Through 5

Since 1995, PSEG of New Jersey has conducted ongoing ecological monitoring as required under a condition of the New Jersey Pollutant Discharge Elimination System (NJPDES) permit for the discharge of cooling water from the Salem Generating Station. Public Service Electric and Gas, Biological Monitoring Program, 2002 Annual Report 1-1. The 2001 renewal of the Salem Generating Station NJPDES permit provided for continuation and expansion of these studies. *Id.* Between 2002 and 2004, PSEG collected detailed data on ichthyoplankton abundance in the Delaware River Estuary, clearly demonstrating the occurrence of fish propagation within Delaware River Estuary Zones 2 through 5.<sup>7</sup> Because the period from 2002

<sup>7</sup> PSEG has chosen to divide the Delaware River Basin into different zones than the ones used by the DRBC. DRBC Zone 2 includes PSEG Zones 13, 14, and a section of Zone 12. DRBC Zone 3 includes sections of PSEG Zones 11 and 12. DRBC Zone 4 includes PSEG Zone 10 and sections of Zones 9 and 11. DRBC Zone 5 includes PSEG Zone 8 and sections of Zones 7 and 9. DRBC river miles 70.0 – 78.8 correspond to sections of PSEG Zones 8 and 9. Compare Public Service Enterprise Group, Biological Monitoring Program, 2004 Annual Report 4-105 (providing map of PSEG Zones and also displaying major tributaries to the Delaware River), with River Mileage System, DRBC, <http://www.state.nj.us/drbc/basin/river/> (last updated Oct. 28, 2011) (displaying selected river miles on map of Delaware River including major tributaries), and Map Depicting Delaware River Main Stem Interstate Water Quality Zones, DRBC, <http://www.state.nj.us/drbc/library/documents/maps/InterstateZones-MainStem.pdf> (last visited Aug. 16, 2012) (displaying DRBC Zones and associated River Miles); see also River Mileage System Spreadsheet, DRBC, <http://www.state.nj.us/drbc/library/documents/StreamMileageJuly2007.pdf> (last visited Aug.



to 2004 is representative of Estuary water quality throughout the last decade,<sup>8</sup> the ichthyoplankton data collected during those years consequently provides a representative depiction of fish propagation in the Delaware River Basin over the last decade.

The data collected by PSEG show that multiple species, including striped bass, white perch, American shad, and other *Alosa* spp., were consistently propagating within the Delaware River Basin during 2002, 2003, and 2004. Eggs, yolk sac larvae, and post-yolk sac larvae of these species were, with minor exceptions, present in all relevant DRBC Zones during this three-year period. Other species propagating within the Estuary include alewife, Atlantic menhaden, and *Morone* spp. Post-yolk sac larvae were collected for the Atlantic menhaden and *Morone* spp. in all three years. Atlantic menhaden eggs were collected in 2003. Further, yolk sac larvae and post-yolk sac larvae were found for the Atlantic silverside in all three years. Because several of the species surveyed by PSEG are anadromous, the PSEG dataset supports upgrades in designated use to both propagation of resident fish and other aquatic life, and spawning and nursery habitat for anadromous fish. See Appendix A; Table 2.

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16, 2012) (listing major and minor tributaries as well as other features and providing corresponding river mileage for each).

<sup>8</sup> See Appendix B for documentation of mean dissolved oxygen levels by year. These graphs are excerpted from PSEG Annual Reports between 2000 and 2009 (2000, p. 5-17; 2001, p. 5-24; 2002, p. 5-26; 2003, p. 5-25; 2004, p. 5-25; 2005, p. 5-26; 2006, p. 5-22; 2007, p. 5-22; 2008, p. 5-26; 2009, p. 5-29). Dissolved oxygen levels may be used as a proxy for overall water quality. All PSEG Annual Reports are included on the DVD enclosed with this petition.





Additional data demonstrate that the anadromous Atlantic sturgeon is also spawning in the Delaware River. Delaware Department of Natural Resources and Environmental Control (DNREC) personnel captured thirty-four young-of-year Atlantic sturgeon during the fall of 2009. Proposed Listing Determinations for Three Distinct Population Segments of Atlantic sturgeon in the Northeast Region, 75 Fed. Reg. 61,872, 61,875 (proposed Oct. 6, 2010) (to be codified at 50 C.F.R. pts. 223-24).<sup>9</sup> Moreover, researchers have noted the existence of a haplotype unique to Atlantic sturgeon spawned in the Delaware River.<sup>10</sup> This haplotype could not have survived absent the persistence of Atlantic sturgeon reproduction in the Delaware River. Although Atlantic sturgeon eggs have not yet been detected, suitable spawning habitat (requiring freshwater and a hardbottom substrate) exists between Marcus Hook (rm 78) and Tinicum Island (rm 85) as well as between Tinicum Island and the mouth of the Schuylkill River (rm 92); suitable habitat is also believed to exist between the mouth of the Schuylkill and Trenton (rm 131).<sup>11</sup> Available tracking data on juvenile and adult Atlantic sturgeon establishes the Marcus Hook area as critical nursery habitat and a likely spawning site.<sup>12</sup>

In sum, the PSEG dataset and recent Atlantic sturgeon data together demonstrate that resident and anadromous fish are propagating throughout Zones 2 through 5 of the Estuary and therefore support an upgrade to the designated uses for those Zones.

### **III. The Dissolved Oxygen Stream Quality Objectives for Zones 2 Through 5 Are Insufficiently Protective of Fish Propagation Uses and Must Be Revised to Reflect a 24-hour Minimum of 6.5 mg/l**

Because stream quality objectives are calibrated to protect designated rather than actual uses, DRBC must reevaluate all presently enumerated stream quality objectives for Zones 2 through 5 in conjunction with upgrading their designated uses to include 1) propagation of resident fish and other aquatic life, and 2) spawning and nursery habitat for anadromous fish. Although all stream quality objectives should be reviewed, data suggests that the dissolved oxygen stream quality objectives in particular are inadequately protective.

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<sup>9</sup> The final rule listing the New York Bight Distinct Population Segment of Atlantic sturgeon as endangered was published in February 2012. Threatened and Endangered Status for Distinct Population Segments of Atlantic sturgeon in the Northeast Region, 77 Fed. Reg. 5880 (Feb. 6, 2012) (codified at 50 C.F.R. pts. 223-24).

<sup>10</sup> Delaware DNREC, Award No. NAI0NMF4720030, Semi-annual Progress Report 28 (June 2011); Matthew Fisher, Delaware DNREC, Atlantic Sturgeon Final Report: State Wildlife Grant, Project T-4-1 10 (2011); Dewayne A. Fox & Matthew W. Breece, Del. State Univ., NOAA Award NA08NMF4050611, Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus) in the New York Bight DPS: Identification of Critical Habitat and Rates of Interbasin Exchange 13 (2010).

<sup>11</sup> See Philip C. Simpson & Dewayne A. Fox, Del. State Univ., Completion Report: Award NA05NMF4051093, Atlantic sturgeon in the Delaware River: Contemporary Population Status and Identification of Spawning Areas (2006).

<sup>12</sup> See Fisher, supra note 10, at 15-16 (noting usage of Marcus Hook by late stage juveniles); Fox & Breece, supra note 10, at 25, 29-30 (suggesting spawning in the vicinity of Marcus Hook may have been overlooked); Delaware DNREC, Award No. NAI0NMF4720030, Semi-annual Progress Report 3 (Jan. 2012) (noting capture of 48 young-of-year at Marcus Hook).



Table 3: Dissolved Oxygen Stream Quality Objectives by Zone

DRBC Zone	Corresponding River Miles	Dissolved Oxygen Stream Quality Objective
2	133.4 – 108.4	24-hour average concentration shall not be less than 5.0 mg/l; during the periods from April 1 to June 15, and September 16 to December 31, the dissolved oxygen shall not have a seasonal average less than 6.5 mg/l.
3	108.4 – 95.0	24-hour average concentration shall not be less than 3.5 mg/l; during the periods from April 1 to June 15, and September 16 to December 31, the dissolved oxygen shall not have a seasonal average less than 6.5 mg/l.
4	95.0 – 78.8	24-hour average concentration shall not be less than 3.5 mg/l; during the periods from April 1 to June 15, and September 16 to December 31, the dissolved oxygen shall not have a seasonal average less than 6.5 mg/l.
5	78.8 – 48.2	24-hour average concentration shall not be less than 1) 3.5 mg/l at R.M. 78.8, 2) 4.5 mg/l at R.M. 70.0, and 3) 6.0 mg/l at R.M. 59.5; during the periods from April 1 to June 15, and September 16 to December 31, the dissolved oxygen shall not have a seasonal average less than 6.5 mg/l in the entire zone.

WQR §§ 3.30.2 – 3.30.5. The present limits set for Zones 3 through 5 permit 24-hour average concentrations of 3.5 mg/l. However, low dissolved oxygen levels are known to significantly affect fish populations, reducing growth and increasing mortality rates. Ichthyoplankton and juveniles are particularly vulnerable to these effects, necessitating an increase in minimally acceptable dissolved oxygen concentration limits to accommodate fish propagation uses. See, e.g., David H. Secor & Troy E. Gunderson, Effects of Hypoxia and Temperature on Survival, Growth, and Respiration of Juvenile Atlantic Surgeon, *Acipenser oxyrinchus*, 96 Fishery Bulletin 603 (1998) (indicating high mortality in juveniles exposed to low dissolved oxygen levels (~3.0 mg/l), particularly in association with higher temperatures (~26°C)); Atl. States Marine Fisheries Comm’n, Amendment 2 to the Interstate Fishery Management Plan for Shad and River Herring (River Herring Management) 7-24 (2009) (indicating 5.0 mg/l as minimum dissolved oxygen level tolerable by several alewife life-stages). The minimally acceptable 24-hour average concentration throughout Zones 2 through 5 should be revised upward to 6.5 mg/l so as to adequately preserve fish propagation uses.

While the DRBC may want to embark a more detailed scientific analysis for setting permanent dissolved oxygen objectives, an interim standard should be immediately set. The minimum interim standard should be a minimum 5.0 mg/l. This will ensure that all dockets under consideration during the more rigorous analysis for the setting of a permanent objective are achieving a more realistic standard for the protection and propagation of resident and anadromous species and will give present and future dischargers notice that needed upgrades should be anticipated, planned for and installed as soon as possible.



## **Conclusion**

For the foregoing reasons, the Delaware Riverkeeper, the Delaware Riverkeeper Network and the Delaware River Shad Fishermen's Association petition DRBC to 1) immediately upgrade the designated uses of Zones 3, 4, and River Miles 78.8 to 70.0 of Zone 5 to include propagation of resident fish and other aquatic life, 2) immediately upgrade the designated uses of Zones 2 through 5 to include spawning and nursery habitat for anadromous fish, and 3) upgrade all applicable stream quality objectives necessary to preserve these uses; including setting immediate interim standards for dissolved oxygen and setting a 3 year time limit for the establishment of permanent dissolved oxygen and nutrient objectives.

Thank you for your consideration of this petition.

Sincerely,

Maya K. van Rossum, the Delaware Riverkeeper, Delaware Riverkeeper Network  
Charles Furst, President, Delaware River Shad Fishermen's Association  
Matt MacConnell, President, Lehigh River Stocking Association

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