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From: Thomas J. Fikslin, Ph.D., Director, Science and Water Quality Management
Pamela M. Bush, Commission Secretary and Assistant General Counsel

Subject: DRBC Response to Comments Received on Draft Resolution to Review the Designated Aquatic Life Uses and Associated Water Quality Criteria for Zones 3, 4 and a Portion of Zone 5 of the Delaware Estuary

I. Background and Introduction

On February 23, 2017, the Delaware River Basin Commission (“DRBC”) published on its website a draft Resolution to recognize 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 of the Delaware River Estuary; to provide for such studies to be undertaken in consultation with co-regulators and dischargers; and to direct the Executive Director to initiate DRBC rulemaking to revise the designated aquatic life uses consistent with the results of the identified studies and the objectives and goals of the federal Clean Water Act. DRBC’s notice indicated that comments would be accepted through 5:00 PM on April 13, 2017.

A special public hearing took place on April 6, 2017 at 2:00 p.m. at the West Trenton Volunteer Fire Company Ballroom in West Trenton, NJ. During the hearing, the Commission heard from six (6) individuals, of whom five also submitted written comments. Including these five, the Commission received a total of eleven (11) oral or written submissions from interested parties with related expertise. An additional 142 written comments were submitted by individuals, 141 of whom participated through a Delaware Riverkeeper Network (DRN) member email campaign. A list of the commenters is provided in Appendix A.

This document presents detailed responses to the comments received. Since many of the comments addressed common themes, this document has been organized into two parts. In the first part, four broad themes are identified and accompanied by responses in the form of short narratives. In this manner, all the public’s major concerns are addressed. In the second part, responses to individual comments are provided by referencing the appropriate themed response, by furnishing additional, targeted information where appropriate, or both.

II. Key Themes

The four broad themes identified in stakeholders’ comments are paraphrased in the next pages. Each is followed by a detailed response.

Theme 1 Comment:

The Delaware River Estuary has experienced a remarkable recovery from water quality conditions that prevented the successful reproduction of resident and anadromous fish species such as the American shad, striped bass and Atlantic sturgeon for many years. This recovery is attributable to the leadership of state and federal signatory parties to the Delaware River Basin Compact, including through the adoption of regulations by the Commission in the late 1960's; followed by passage of the federal Clean Water Act ("CWA") and state statutes that address water pollution; and public and private investment in wastewater treatment plant infrastructure. It is an impressive success story that surpasses the goals established by DRBC regulations adopted in 1967.

Theme 1 Response:

The Commission acknowledges the commenters' appreciation that water quality goals established by the Commission in the late 1960's have been achieved. The Commission views this achievement as the result of significant past and continuing effort by government agencies implementing DRBC, state and Clean Water Act requirements; the construction and effective operation of wastewater treatment works by public and private entities; continuing scientific study by regulators and academic institutions to document the return of fish and other aquatic life; and the public's support for restoration and protection of the Delaware Estuary, a vital shared resource. DRBC's draft Resolution articulates a shared goal that "the path of continuous water quality improvement in these shared waters must continue" and identifies the next steps in this effort.

Theme 2 Comment:

The Commission has been evaluating the designated aquatic life use of Zones 3, 4 and the upper portion of Zone 5 since the 1980's. These assessments were driven by: recommendations by the Delaware River Basin Fish and Wildlife Management Cooperative in 1979 that the dissolved oxygen criteria of this reach of the river be increased to improve and protect important fish populations; a use attainability analysis completed in 1989; and the work of the Commission's Water Quality Advisory Committee and staff since 2007.

Despite the science demonstrating propagation and the value of increased oxygen standards, DRBC has not taken needed protective action. The Commission should immediately recognize the propagation taking place in Zones 3, 4 and 5, and as soon as administratively possible, should put in place for these zones upgraded water quality standards that include as designated and protected uses not only the maintenance but also the propagation of resident and anadromous fish.

Theme 2 Response:

The DRBC has closely monitored the status of aquatic life uses of the Delaware River Estuary since the early 1960's. An early outcome of this effort was the Commission's adoption in the late 1960's of designated uses and supporting water quality criteria (in DRBC parlance, "stream quality objectives") that were protective of resident fish and the passage of migratory fish in Zones 2, 3, 4 and 5. These objectives were established with the understanding that the allocation of wasteloads for carbonaceous biochemical oxygen demand (CBOD) among dischargers of wastewater to the Estuary would ultimately result in achievement of the objectives.

An evaluation of the water quality standards (designated uses and water quality criteria) for the Delaware River Estuary was initiated in the late 1980's through the Delaware Estuary Use Attainability Project. Specifically, this project assessed the attainability of higher recreational (water contact) and aquatic life

uses than those established in 1967. Three of the four goals of the project focused on recreational uses and associated water quality criteria. The project final report issued in January 1990 ("1990 Report"), recommended that the designated use in all zones of the Estuary be upgraded to include propagation, with a minimum dissolved oxygen water quality criterion of 4.0 mg/L in Zone 3 and the adjoining portion of Zone 4 to River Mile 84 (mouth of Ridley Creek), and a minimum dissolved oxygen water quality criterion of 5.0 mg/L in the remainder of Zone 4 and all of Zone 5. The 1990 Report also contained an analysis of the capital and operating costs associated with attaining the recommended standards. It concluded that "[u]pgrading of treatment at the six Zone 2 treatment plants ... is to be delayed pending the completion of studies and a final decision concerning raising dissolved oxygen standards." (1990 Report, p. 7; *see also* p. 28). By Resolution No. 1993-14, the Commission determined that to achieve higher dissolved oxygen levels in the target water quality zones, an upgrade or replacement of the dissolved oxygen model for the Delaware Estuary would be necessary; the upgraded model could be used to develop revised wasteload allocations for dischargers, who would then be obligated to implement their revised allocations.

Pursuant to the 1990 Report and Commission Resolution No. 1993-14, an effort to develop a new water quality model was initiated in the 1990's. Unfortunately, this initiative failed to produce a hydrodynamic and water quality model acceptable for the intended purpose. Beginning in the late 1990's, and certainly by 2000, however, a new water quality concern of even greater urgency had emerged – contamination by toxic substances. The expertise and resources of DRBC and its members were now re-focused to address fish consumption advisories attributable to high concentrations of polychlorinated biphenyls (PCBs), a probable human carcinogen, in the tissues of Estuary fish. The Commission undertook a series of ambient surveys utilizing highly sensitive analytical methods and issued effluent sampling and analysis requests to point source dischargers of PCBs, mandating use of the same or equally sensitive methodologies. After gathering the essential data, and with the guidance of stakeholders and scientific experts, DRBC convened co-regulators and stakeholders to build consensus for policy solutions; developed a complex water quality model for use in establishing and updating Total Maximum Daily Loads (TMDLs) for PCBs and for allocating these loads; developed and adopted pollutant minimization plan regulations; developed TMDLs for Zones 2 through 5 of the Estuary in 2003 and for Zone 6 (Delaware Bay) in 2006; and began implementing the pollutant minimization process for reducing PCB loadings to the Estuary.

More than a decade later, the coordinated actions of the states and federal government jointly through the DRBC, along with coordinated or independent government and private sector actions, have produced remarkable results. The point source discharges collectively representing 90% of total point source loadings of PCBs to the Estuary have been reduced by 76 percent. Tons of PCB-contaminated sediment and significant non-point sources of PCBs also have been removed and/or contained. The most recent analyses show that PCB levels in fish tissues are beginning to decline. DRBC in 2013 established new, more stringent, water quality criteria for PCBs in Zones 2 through 6 of the Estuary, and has developed a corresponding set of updated TMDLs and wasteload and load allocations that will be established by the U.S. EPA in coming months. With a strong toxics control initiative in place, the states and the DRBC are prepared to redouble their focus on dissolved oxygen (also, "DO"). A joint focus on DO comparable to that for addressing toxics is now planned.

In response to an EPA initiative on nutrients, the Commission's Water Quality Advisory Committee in 2007 renewed efforts to evaluate nutrient and dissolved oxygen conditions in the Delaware Estuary. Initially, the Committee focused on the development of 5 interim protective measures as it evaluated the need for nutrient criteria. These were advanced to the Commissioners at its December 2009 meeting by the chair of the WQAC. One of the proposed measures was a requirement for point source dischargers to conduct

monitoring for nutrient parameters over the next two years. In July of 2010 the Commissioners approved Resolution 2010-5 authorizing the Executive Director to require such monitoring, and the monitoring commenced in the Fall of 2011. DRBC staff next developed a Nutrient Criteria Plan (December 2013) that includes components addressing dissolved oxygen criteria in the estuary and nutrient criteria in both the non-tidal and tidal waters of the Delaware River. The initial focus of this plan was to "... address dissolved oxygen directly, particularly the direct effects on oxygen from BOD loading, and [to] include an evaluation of the uses currently falling below Clean Water Act goals." In the Fall of 2013, the Commission's Water Quality Advisory Committee (WQAC) recommended that staff evaluate the existing use of Zones 3, 4 and upper Zone 5 for propagation of resident and anadromous fish species. That evaluation resulted in the report entitled "Existing Use Evaluation for Zones 3, 4 & 5 of the Delaware Estuary Based upon Spawning and Rearing of Resident and Anadromous Fishes" (Sept. 30, 2015) ("2015 Report"). Although evidence of propagation was presented in the 2015 Report, the report also concluded that "[f]ull attainment of a 'maintenance and propagation' use has not been demonstrated now based on the data available and examined for this existing use evaluation." Due to the limitations of the existing data and for the reasons set forth below and in the proposed resolution, the Commission has determined that a deliberative, scientific process is needed before changes are made to the designated aquatic life uses of Zones 3, 4 and the upper portion of Zone 5.

While a number of commenters requested that the Commission adopt propagation as a designated use without delay, few addressed the question of which numeric water quality criteria for dissolved oxygen should be adopted to support the use. The criteria must be specified when a revised designated use is proposed. One commenter recommended that a minimum DO water quality criterion of 6 milligrams per liter be put in place but offered no scientific basis for this numerical value. The 1990 Report, which EPA has in DRBC's view mis-characterized as supporting the existing criteria (*see* EPA's letter to DRBC dated April 12, 2017; *also see infra*, sec. IV. response to Comment 29), recommends a DO criterion of 4.0 mg/L for Zone 3 and the upstream portion of Zone 4 to protect propagation. The Commissioners and DRBC staff believe that a deliberate scientific evaluation is needed to determine not only the appropriate numerical value of the criteria, but also the appropriate unit(s) for the criteria (e.g., minimum, daily mean, 7-day mean), and the temporal and spatial extent of the criteria. Studies are also needed to determine the wasteload allocations to be implemented by numerous point source discharges if the criteria are to be achieved, and to assess the attainability of these individual allocations.

In summary, the Commission has been actively working on the subject matter of the draft resolution for over 50 years. The next phases of work include establishing revised wasteload allocations for CBOD and establishing new wasteload allocations to reduce the load of oxygen-demanding nutrients in wastewater discharges sufficiently to support the protection and propagation of resident and anadromous fish. The Commission's science-based approach is responsible for the remarkable, though partial, recovery of aquatic life observed to date. The Commission intends to achieve continued progress through an equally rigorous scientific process.

Theme 3 Comment:

The Commission needs to evaluate the attainability of any proposed changes to the designated aquatic life uses and associated water quality criteria of Zones 3, 4 and the upper portion of Zone 5 before taking regulatory action. Designated uses should not be established without a rigorous and comprehensive assessment of attainability.

Theme 3 Response:

The Commission agrees that it is essential to conduct scientific and technical studies prior to rulemaking to revise the designated use and the numeric criteria for dissolved oxygen necessary to protect that use in Zones 3, 4 and the upper portion of Zone 5. As the 1990 Report stated, “It is of no use to promulgate higher standards if they are unattainable through the upgrading of point sources or the reduction of nonpoint sources.” (p. 13).

The draft Resolution outlines a deliberative, collaborative process based upon a sound scientific rationale, which includes an evaluation of the capital and operating costs of optimizing the best available technology and/or applying innovative technologies capable of achieving higher dissolved oxygen levels. The DRBC studies will support and inform both Commission rulemaking and the subsequent actions by the estuary states to utilize these revised water quality standards.

Theme 4 Comment:

The schedule included in the draft resolution is ambitious. Several commenters questioned whether the proposed 3.5-year time period is sufficient to complete the modeling, technical and economic studies that comprise the attainability analysis; and whether an additional 2.5 years is sufficient to complete final rulemaking. One commenter suggested that the time frame be compressed.

Theme 4 Response:

The proposed six-year timeline for rulemaking includes a 3.5-year period for the scientific, technical, model development and attainability analyses to be completed. Although DRBC’s schedule shows that these tasks can be performed within this timeframe with concerted effort, staff do not believe that this schedule can be compressed any further. In fact, the 3.5-year timeline is resource-dependent as well, and if financial and other support for the necessary tasks is not made available, 3.5 years may be insufficient. The estimated 2.5 years to conduct rulemaking is based upon the time needed to complete a public process, including public hearing(s), and in consultation with the estuary states and federal agencies, to develop a comment and response document.

As stated in paragraph 3 (“Shared goals”) of the “Be it resolved” section of the draft Resolution, “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.” The schedule proposed in the draft Resolution is dependent upon the allocation of resources necessary to complete the study components outlined in the Resolution.

III. Revisions to the Draft Resolution

After reviewing the comments received and further considering the published draft resolution, the Commission has added to the list of studies enumerated in paragraph 6 of the “Be it resolved” section of the resolution a new item (b), reading, “additional field studies of the occurrence, special and temporal distribution of the life stages of Delaware River Estuary fish species”. The studies previously listed as (b) through (g) are re-designated (c) through (h).

IV. Detailed Response to Comments

COMMENTER – Maya Van Rossum, Delaware Riverkeeper Network

COMMENT:

1. For nearly ten years the DRBC has been looking at the issue of propagation, dissolved oxygen, excessive nutrients and fish populations in our River, particularly zones 3, 4 and 5.

Despite the science demonstrating propagation and the value of increased oxygen standards, DRBC has not taken needed protective action.

RESPONSE:

See response to Theme No. 2.

COMMENT:

2. [For DRBC to] say it's time for more study is irresponsible, unacceptable and not defensible.

RESPONSE:

Upgrading the water quality standards will not provide greater protection for fish unless and until point sources are upgraded and/or nonpoint sources reduced to improve water quality. The draft Resolution explains in detail the need for expeditious but rigorous scientific study to determine the appropriate numeric targets, the existing and new technologies and other solutions capable of achieving these targets, and the feasibility and costs of implementing these solutions. The alternative favored by some commenters – upgrading the use and adopting EPA's nationally recommended criteria whether or not they are scientifically appropriate or attainable – will have the regulatory effect of making the Estuary an "impaired water" for which TMDLs for dissolved oxygen are required under federal regulations. The studies necessary to establish appropriate numeric targets, to allocate to point and non-point sources the loads capable of achieving those targets, and to determine whether and how discharges can be reduced to the allocated levels would still be needed. However, additional administrative cost and effort would be expended to establish standards uninformed by careful science, only to revise them when the necessary scientific analyses are complete. If in the interim, dischargers were to be placed in non-compliance, the administrative burden and cost would be all the greater, yet the desired outcome – improved water quality – would be attained no sooner. For this reason, the Commission prefers the deliberative approach laid out in the draft Resolution, whereby scientists, regulators, dischargers and other stakeholders work collaboratively to conduct the scientific and technical analyses required and to implement the changes needed to achieve our shared objective – water quality that supports healthy fish and shellfish populations.

COMMENT:

3. Our fish, our people and our River need you to honor your duty to immediately recognize the propagation taking place in zones 3, 4 & 5, and to put in place upgraded standards, including a minimum DO standard of 6 mg/l, that will provide the aquatic life of the River oxygen and protection at the levels needed to help them not just survive, but to thrive.

RESPONSE:

See responses to Theme No. 2 and Comment No. 2.

COMMENT:

4. Poor water quality, most notably dissolved oxygen and the associated anoxic zones, have been well documented in the river estuary. The historic zones of hypoxia extended 30 miles from River Mile 105 downriver to River Mile 75. Measured dissolved oxygen levels from the 1960's through the early 1980's defined significant blockages to migratory fish species as well as intra-river movement of indigenous riverine species.

RESPONSE:

No response required.

COMMENTER - Thomas Shervinskis, Pennsylvania Fish and Boat Commission

COMMENT:

5. [Since the late 1980's and early 1990's] The Pennsylvania Fish and Boat Commission has conducted fisheries surveys in the river and estuary that have documented a biological response from one key migratory species, the Atlantic Striped Bass, and strongly suggested a behavioral response regarding longitudinal spawning grounds expansion by another key migratory species, the American Shad.

RESPONSE:

DRBC's 2015 Report supports this comment, but also concludes that strong numbers and high consistency of successful reproduction are not occurring in Zone 3 and are questionable in Zone 4 due to the reduced presence of early life stages of striped bass. For the American shad, the report concludes that a spawning ground extension to Zones 3 and 4 has occurred for this species; however, inconsistent egg densities indicate that successful reproduction is regular but not strong. It should be noted that the ichthyoplankton data used in the DRBC report dates from 2002 to 2004, and that more recent studies proposed in this Resolution may provide additional information on the temporal and spatial distribution and magnitude of early life stages of fish.

COMMENT:

6. The commenter presented a summary of the results of the 2016 survey as evidence that while annual variations occur, the Striped Bass population in Zones 3 and 4 support spawning and recruitment into the population.

RESPONSE:

Please see response to Theme No. 2.

COMMENT:

7. In 2014, the Pennsylvania Fish and Boat Commission (PA F&BC) as part of the Delaware River Basin Fish and Wildlife Management Cooperative also provided comments to the DRBC regarding dissolved oxygen levels in Zone 4 and spawning / nursery requirements for Atlantic Sturgeon. The

PA F&BC's letter noted that the scientific literature indicates that dissolved oxygen levels of less than 4.0 ppm are likely too low to support growth and survival of Atlantic Sturgeon young of year. Field research by the Delaware Division of Fish and Wildlife has confirmed the presence of young-of-year Atlantic Sturgeon in 2009, 2011 and 2012 in Zone 4, meaning this section of the River is critical nursery habitat, and possibly spawning habitat, for Atlantic sturgeon.

The Cooperative requested that the DRBC increase the dissolved oxygen criteria for the Delaware River to ensure that low dissolved oxygen levels do not threaten survival, growth and reproductive success of Atlantic sturgeon.

RESPONSE:

In a letter response dated July 17, 2014, to the April 15, 2014 letter from the Delaware River Basin Fish and Wildlife Management Cooperative, DRBC Acting Executive Director Richard C. Gore noted the ongoing work of the Commission and its Water Quality Advisory Committee on dissolved oxygen levels to protect not only the Atlantic sturgeon but also other fish species that utilize the estuary for spawning and nursery habitat. DRBC acknowledges the irregular presence of Atlantic sturgeon juveniles and that Zone 4 is providing nursery habitat and "possibly spawning habitat" for this species. In the Commission's view, these observations further support the need for additional evaluations of the dissolved oxygen requirements of Atlantic sturgeon life stages.

COMMENT:

8. The Pennsylvania Fish and Boat Commission suggests that the DRBC with support from the basin states, contract the proposed six- year timeline for rulemaking as proposed.

RESPONSE:

See response to Theme No. 4.

COMMENTER - Sharon Furlong, Bucks County Sierra Club and Bucks Environmental Action Group

COMMENT:

9. We find this draft resolution to be a blatant disregard of the primary role of the Commission to protect this river. We ask the Commission to reconsider your resolution and provide instead permission and impetus to rewrite the standards now to reflect what is currently known as necessary, now that it is fifty years later. This can all happen while the science can continue.

RESPONSE:

See response to Themes 2 and 3, and to Comment No. 2.

COMMENTER - Michael Dillon on behalf on the Delaware Estuary TMDL Coalition

COMMENT:

10. The Coalition appreciates the efforts of the Commissioners and DRBC staff to meaningfully address the complex science and policy issues raised about the proposal to reevaluate the designated aquatic life uses in Zones 3, 4 and upper Zone 5 of the estuary. The Coalition supports many of the key elements in the draft resolution. The Coalition agrees that further study is needed before DRBC proposes any changes to the aquatic life uses in the zones.

RESPONSE:

See response to Theme No. 3.

COMMENT:

11. The Coalition also fully supports DRBC's proposal to evaluate the attainability of any proposed changes to the designated use before taking regulatory action. Designated uses should not be established without a rigorous and comprehensive assessment of attainability.

RESPONSE:

See responses to Theme No. 3 and Comment No. 2.

COMMENT:

12. The Coalition also supports DRBC's proposal for stakeholder involvement. The draft resolution proposes to include stakeholders in the attainability assessment process and in any proposed rulemaking or implementation strategies that may follow.

RESPONSE:

The Commission acknowledges the support of the Delaware Estuary TMDL Coalition in the stakeholder process, and their important role in the implementation of any water quality regulations that will result from this effort.

COMMENT:

13. The attainability of any proposed change to the designated use and associated water quality criteria should be evaluated in accordance with the Clean Water Act's established framework and not the Endangered Species Act. The draft resolution proposes to include consultations pursuant to the Endangered Species Act, however the Clean Water Act – not the Endangered Species Act – governs the setting of water quality standards. We recommend that any consultations by DRBC with the agencies named in the Endangered Species Act occur within and be confined to considerations required by the Clean Water Act framework.

RESPONSE:

The proposed assessment of the attainability of recommended water quality criteria for dissolved oxygen will be informed by the regulations and guidance established pursuant to the Clean Water Act, as well as by the Delaware River Basin Compact and DRBC regulations. When federal actions such as EPA's approval of water quality standards established or revised by states could impact endangered species, formal consultation with federal resource agencies under Section 7 of the Endangered Species Act (ESA) may be required. In this case, such consultation would involve the National Marine Fisheries Service (NMFS) for both the Atlantic and shortnose sturgeon fish species, which utilize the estuary. Along with formal consultation, the Commission has and will continue to informally consult with the NMFS on ESA matters related to this process.

COMMENT:

14. The schedule included in the draft resolution is ambitious. We question whether the allotted time – three-and-a-half years to complete the attainability analysis and an additional six years to complete final rulemaking – will be sufficient to complete the necessary tasks.

RESPONSE:

See response to Theme No. 4.

Also, note that at the end of his oral comment, the commenter corrected his reference to "an additional six years" to complete the rulemaking, noting that a *total* of six years is projected by the Resolution.

COMMENT:

15. The draft resolution encourages the adoption of early actions by NPDES permittees to improve dissolved oxygen conditions in the zones. The Philadelphia Water Department's DO partnership is such early action and should fully satisfy DRBC's goal of making meaningful interim progress in approving dissolved oxygen conditions in the zones.

RESPONSE:

The Commission acknowledges and appreciates the proposal by the Philadelphia Water Department to establish a DO Partnership with other point source dischargers to evaluate early action alternatives to improve DO conditions in the estuary, and to evaluate innovative technologies for the treatment and reduction of nutrients in wastewater discharges. The pilot program that PWD is undertaking will provide an important evaluation of innovative technologies. This program alone, however, does not necessarily satisfy the Commission's goal that multiple dischargers undertake early action throughout the Estuary.

COMMENTER - Tony Saldutti, Private Citizen

COMMENT:

16. What I'd like to see come out of this meeting today is more action and less study. I'm not asking for a "cease and desist" on municipalities and businesses in discharging. But we should be focusing on the efforts of making the water that they put back into the Delaware clean enough to propagate fish everywhere. Maybe if we take steps in that direction rather than studying, we can get a little further along in achieving that goal.

RESPONSE:

See response to Comment Nos. 1, 2 and 3.

COMMENTER - Preston Luitweiler, Private Citizen

COMMENT:

17. What I have heard today and what I have observed in attending DRBC meetings for over 30 years is a story of success. I have heard no evidence of backsliding or the risk of collapse or failure even from the speakers who are proposing more action and less study. What we have seen is continuous improvement and what we are faced with is an opportunity to carefully and judiciously move the goal posts from where we have been for fifty years to where we would like to be to go forward.

RESPONSE:

We agree.

COMMENT:

18. We have heard that there are interim actions proposed by PWD's Delaware Estuary DO Improvement Partnership which will continue the trend of improvement. These should be encouraged.

RESPONSE:

We agree.

COMMENT:

19. The resolution you have proposed is ambitious, but it is certainly appropriate, responsible and defensible.

RESPONSE:

No response required.

COMMENTER - David A. Katz, Philadelphia Water Department

COMMENT:

20. DRBC issued a draft resolution that identifies a process and timeline the agency will follow to gather and evaluate the best available science on the relationship between dissolved oxygen and aquatic life. The PWD fully supports the process proposed by the DRBC.

RESPONSE:

The Commission acknowledges the support of the Philadelphia Water Department for the process outlined in the draft Resolution.

COMMENT:

21. We are concerned that the 3.5 yr. schedule identified for the attainability analysis is quite ambitious. Development of an estuary-wide water quality model and evaluations of economic factors are complex, multi-based tasks and science must ultimately take precedence over artificially created deadlines.

RESPONSE:

See response to Theme No. 4.

COMMENT:

22. PWD is committed to leading a Dissolved Oxygen Partnership among other large municipalities to identify, plan for and evaluate the highest performing and most economical wastewater treatment technologies that could further improve dissolved oxygen in the Delaware Estuary.

RESPONSE:

The Commission acknowledges and appreciates the proposal by the Philadelphia Water Department to lead a DO Partnership with other municipal point source dischargers to achieve the objectives outlined in the comment.

COMMENTER - Brent Wagner, Private Citizen

COMMENT:

23. There are no references to the pharmaceutical chemicals being studied within the resolution. There is much concern in regards to all the known hormones/other making it through treatment plants and making it into our waters.

RESPONSE:

This comment is not relevant to the draft Resolution.

COMMENT:

24. Known practices of transportation department [Penn DOT] as it relates to construction of road ways - 422 Bridges in PA causing major water environmental harm to aquatic life. We need better control of construction and spraying of weeds.

RESPONSE:

Practices of the state transportation departments with regard to bridge impacts and the spraying of weed killers are not the subject of the draft Resolution.

COMMENT:

25. Small package wastewater treatment plants make regionalization of wastewater plants a must. These small plants are causing much harm to the smaller streams.

RESPONSE:

This comment is not relevant to the draft Resolution.

COMMENT:

26. Optimize wastewater treatment plants where you can now.

RESPONSE:

To the extent the commenter is calling for regulatory action to establish designated uses and associated water quality criteria now, the commenter is referred to the responses to Themes 1, 2 and 3. To the extent the commenter is encouraging early action by wastewater treatment plant operators, the commenter is referred to Theme 4.

COMMENT:

27. Recent studies provide abundant evidence that fish propagation is occurring in the Delaware Estuary along with significant improvement to the DO levels of the Delaware River. There is ample evidence of a robust and improving fishery, as well as of measured improvements in water quality.

RESPONSE:

See response to Theme 2.

COMMENTER - Dominique Lueckenhoff, U.S. EPA Region III and Javier Laureano, U.S. EPA Region II

COMMENT:

28. Pursuant to 40 CFR § 131.11 (a), water quality criteria to protect designated uses must be adopted and based on sound scientific rationale. The adoption of such uses and associated criteria protective of those uses is independent of the feasibility of implementation.

RESPONSE:

See response to Theme No. 3 as well as the following:

We agree that water quality criteria to protect designated uses must be adopted and based on sound scientific rationale and that the approach offered in the Resolution is firmly based on sound scientific rationale. The results of a use attainability analysis may be used to designate a use that is feasible to implement and to establish criteria protective of that designated use. Such an outcome is consistent, in our view, with the August 2015 revisions to the federal regulations at 40 CFR Part 131, which provide in relevant part that “[i]f a State adopts a new or revised water quality standard based upon a required use attainability analysis, the State shall also adopt the highest attainable use.” See 40 CFR 131.10(g).

COMMENT:

29. The current water quality standards (WQS) applicable to Zones 3, 4 and the upper portions of Zone 5 were adopted in 1967.... These adopted WQS are nearly 50 years old and significantly outdated, as they neither recognize aquatic life propagation as an existing use nor establish sufficiently protective DO water quality criteria to protect that use. At the time of adoption, DRBC supported this limited designated use with a Use Attainability Analysis (UAA), which was last revisited in 1990.

RESPONSE:

The assertion that the Estuary water quality standards and related designated uses adopted by DRBC in 1967 were or are supported by a UAA (see EPA Region III letter of April 12, 2017, p. 1; also see *Id.*, p. 2, par. 2) is misleading. Neither the term “Use Attainability Analysis” nor the requirement that a UAA be performed existed before EPA promulgated its regulations implementing the Federal Water Pollution Control Act Amendments of 1972.

The history of the 1990 use attainability study referred to in your comment is discussed in detail in the Theme 2 response. DRBC respectfully requests that EPA refrain from repeating the claim that the 1990 study updated an earlier UAA study and somehow supports water quality standards set by the DRBC in 1967. These statements are neither accurate nor factual.

COMMENT:

30. The draft Resolution does not acknowledge that propagation is an existing use.

RESPONSE:

The process outlined in the draft Resolution is intended to provide the basis for revising the designated aquatic life uses in Zones 3, 4 and the upper portion of Zone 5. Formal designation of an interim *existing* use is not envisioned.

COMMENT:

31. The draft Resolution outlines a series of complex studies, ranging from criteria development through Total Maximum Daily Load (TMDL) development, cost analyses, and stakeholder agreement before water quality standards are changed. In situations such as this one, in which the current designated use was supported by a UAA, federal regulations at 40 CFR § 131.10(k)(2) are clear that if the upgraded subcategory requires criteria at least as stringent as previously applicable, then a UAA is not required.

RESPONSE:

As we discuss in response to Comment No. 29 above, EPA's assertion that the current designated use is or was supported by a UAA is not accurate. In the view of the Commission the studies described in the Resolution are supported by federal law, including the Clean Water Act and its implementing regulations, and the Delaware River Basin Compact and its implementing regulations. However, whether or not a UAA is required by EPA regulations is not ultimately relevant to adoption of the draft Resolution or the Commission's path forward, in DRBC's view. As the 1990 Report stated plainly, "It is of no use to promulgate higher standards if they are unattainable through the upgrading of point sources or the reduction of nonpoint sources." When investments of the magnitude anticipated here are involved, it is vital that the water quality targets required to support a robust fishery be understood, that the availability of technologies capable of achieving these targets be determined, and that the feasibility of deploying these technologies be evaluated *before* large investments are made.

The assertion that the Resolution calls for "stakeholder agreement" before water quality standards are changed is also inaccurate. The Resolution includes several references to *coordination* with stakeholders and *input* from stakeholders. Specifically, numbered paragraph 6 references collaboration with member states, EPA Regions 2 and 3, and municipal and industrial dischargers in the proposed study. Paragraph 6(h) states that input from the Water Quality Advisory Committee (WQAC) and other stakeholders will be solicited on a draft report containing findings and conclusions. Numbered paragraph 10 recognizes the contributions to date of the WQAC, and underscores that this DRBC advisory group comprised of a broad spectrum of stakeholders will be consulted as the planned studies proceed.

COMMENT:

32. There should be no "condition" that such study must be completed before a proposal to include propagation as a designated use and associated DO criteria protective of that use.

RESPONSE:

The Commission's view is that "before new rules are proposed or finalized, additional study is needed, as described below, to establish the designated uses and determine the criteria required to support these uses in Zones 3, 4 and the upper portion of Zone 5". Numbered paragraph 6 of the draft resolution contains a list of the components of such a study. The Resolution is not a permit and contains no "conditions."

COMMENT:

33. The draft Resolution states, "... maintaining the levels of dissolved oxygen identified by the expert panel as those necessary to support key aquatic life species," implying that DRBC will develop its own DO criteria. EPA notes that [EPA's] recommended DO criteria have been in place since 1986 and are scientifically accepted and protective of the endangered sturgeon.

RESPONSE:

The DO criterion recommended by EPA is for warm water fish species. These species do not include any of those important to the Delaware Estuary, including the striped bass, American shad and Atlantic sturgeon. The studies set forth in the Resolution will provide the basis for a designated use (or uses) and supporting dissolved oxygen criteria for which the level of protection afforded key Delaware Estuary species and their life stages is understood.

COMMENT:

34. The draft Resolution states that if the schedules in the Resolution are not achieved, the Commission, States and EPA will consider alternative approaches. If schedules are not met, lengthy delays will result. EPA will consider its Clean Water Act oversight authorities and actions it may take to ensure continued progress of this effort.

RESPONSE:

The statement is correct that the schedules listed in numbered paragraph 7 of the draft Resolution, including 3.5 years to complete a full draft analysis of attainability and 6 years to issue a final rule, are contingent upon the completion of scientific and technical studies and evaluations using the several and combined resources of the Commission and its signatory parties, and the completion of a public notice and comment rulemaking process. The referenced statement acknowledges that the Commission, the states, and the USEPA may also exercise their respective authorities to consider alternatives to the approach described in the draft Resolution, in particular if the planned timeline is not met.

COMMENT:

35. EPA continues to believe that this process can be streamlined considerably.

RESPONSE:

See response to Theme No. 4 and the following.

Based upon our experience with similar complex issues in the shared waters of the Delaware Estuary and Bay, such as the development of the Stage 1 TMDLs for PCBs in the 2000's, the Commission believes that the schedules listed in numbered paragraphs 7 and 11 of the draft Resolution are ambitious and cannot be further compressed. We also note that EPA and other federal agencies have not offered resources to support an accelerated schedule. With respect to financial support, we note that with the single exception of a payment authorized by the FY-2009 Omnibus Appropriations Act, the federal government has not contributed its "fair share" of the Commission's operating expenses for more than 20 years. DRBC will work to meet its responsibilities, including performing the proposed studies and conducting a rulemaking, with the limited resources available to it in the face of a continued lack of operating funds from the federal government.

COMMENT:

36. EPA will reach out to the National Marine Fisheries Services (NOAA Fisheries) to gather information on DO levels that are protective of the endangered sturgeon. Recent studies and a biological opinion by NOAA Fisheries provide a "no effect" threshold that is consistent with EPA's current recommended DO criteria.

RESPONSE:

As noted in numbered paragraph 6 of the draft Resolution, Commission staff will coordinate with USEPA and NMFS regarding any requirement for an Endangered Species Act consultation in connection with promulgation of revised designated uses and water quality criteria. The recommended criteria, including specific temporal and spatial designations, will consider dissolved oxygen concentrations necessary to protect the various life stages of the endangered Atlantic sturgeon and will also consider the attainability of the criteria.

COMMENT:

37. The draft Resolution, as currently written, lacks necessary assurances that it will lead to the timely proposal and adoption of long overdue protective aquatic life uses and supporting water quality criteria. EPA strongly supports the goal of adopting more protective and fully supportive aquatic life uses, including propagation and associated criteria, based on science that indicates the level of water quality needed to protect uses.

RESPONSE:

The Commission acknowledges the support of the U.S. EPA for the goal of adopting more protective aquatic life uses and supporting water quality criteria for Zones 3, 4 and the upper portion of Zone 5, based upon sound science. The Commission shares this goal. The Commission believes that the process outlined in the draft Resolution will achieve this goal as quickly as possible and practicable, through collaborative action and with the combined resources of diverse stakeholders. The US EPA, Delaware Riverkeeper Network and others who prefer a path forward different from that outlined in the draft Resolution provide no assurances that their approach will lead to faster or greater protection for fish. In the Commission's view, their approach will require the very studies outlined in this Resolution, if only at a later date, and would be accompanied by a greater risk of delay associated with: potential listings of impaired waters; development and adoption of TMDLs, including load and wasteload allocations; and associated compliance issues. Changing standards alone does not produce real water quality improvements. These come only through reductions in point and non-point source loadings, which are

achieved through the improvement of facilities and practices. The draft Resolution outlines a deliberative, collaborative process based upon a sound scientific rationale that can lead to the desired results in a reasonable and practical time frame.

COMMENTER - Brenda H. Gotanda on behalf on the Delaware Estuary TMDL Coalition

COMMENT:

38. The Coalition appreciates the efforts of the Commissioners and DRBC staff to address in a meaningful and thoughtful manner, the complex science and policy issues raised about the proposal to re-evaluate the designated use in the Zones.

RESPONSE:

See response to Comment No. 10.

COMMENT:

39. The Coalition supports many of the key elements in the Draft Resolution, which are critical to the success of the work DRBC proposes to undertake to ensure that any changes to the designated aquatic life uses in the Zones are scientifically sound and can be achieved.

RESPONSE:

See response to Comment No. 11. The Commission also agrees that the process for establishing the appropriate designated aquatic life uses and associated water quality criteria must have a sound scientific basis and be attainable.

COMMENT:

40. The Coalition agrees that further study is needed before DRBC proposes any change to the aquatic life uses in the Zones.

RESPONSE:

See response to Comment No. 10.

COMMENT:

41. The Coalition fully supports DRBC's proposal to evaluate the attainability of any proposed changes to the designated use prior to taking regulatory action.

RESPONSE:

See response to Comment No. 11.

COMMENT:

42. In carrying out the attainability analysis called for in the Draft Resolution, DRBC will need to recognize and analyze the numerous and complex factors influencing fish propagation within the Zones. DRBC should prioritize certain of the factors identified in paragraph 6 of the Draft Resolution, including the development of a model that accounts for both point and non-point

source impacts on aquatic life propagation, and consideration of the economic and social impacts that may result from any proposed change to the designated use.

RESPONSE:

The need for a new eutrophication model was recognized by the Commission in the early 1990's (see Theme 2 Response) and was given the highest priority in the 2013 Nutrient Criteria Plan produced in consultation with the Commission's Water Quality Advisory Committee. Recognizing this high priority, the Commission established an Expert Panel in 2012 to guide the development of the new model, including its hydrodynamic and water quality components; obtained a Delaware Watershed Research Initiative grant in 2016 to support development of the model; and in March 2017 authorized an agreement with LimnoTech to provide consulting services to the Commission staff in the model development effort.

COMMENT:

43. The attainability analysis must evaluate all causal factors related to propagation and only propose dissolved oxygen criteria if the analysis demonstrates both that dissolved oxygen is the cause of any inhibited propagation and that more stringent dissolved oxygen criteria are attainable.

RESPONSE:

The current focus in the proposed process is on the dissolved oxygen criterion of 3.5 mg/l that was established in 1967 along with the designated use of "the maintenance of resident fish and other aquatic life and passage of anadromous fish." Modeling work conducted by HydroQual, Inc. under contract to the Commission in the late 1990's indicated that an oxygen demand of approximately 2.0 mg/L during summer low flow conditions was primarily associated with the discharge of ammonia from wastewater treatment plants. Accordingly, the proposed approach focuses on identifying the dissolved oxygen concentrations that could be achieved by controls on the discharge of nutrients and the level of protection such concentrations would afford Delaware Estuary fish species.

COMMENT:

44. DRBC should not automatically assume that the presence of nutrients is adversely affecting water quality or fish propagation in the Zones.

RESPONSE:

See response to Comment No. 43, particularly the reference to the modeling work conducted by HydroQual, Inc. under contract to the Commission in the late 1990's.

COMMENT:

45. We support DRBC's proposal for stakeholder involvement.

RESPONSE:

See response to Comment No. 12.

COMMENT:

46. The attainability of any proposed change to the designated use must be evaluated in accordance with the Clean Water Act's established framework, not the Endangered Species Act.

RESPONSE:

See response to Comment No. 13.

COMMENT:

47. The schedule included in the draft Resolution is ambitious. We have concerns that the schedule may not provide enough time to ensure that the attainability analysis is performed in a thorough and scientifically-defensible manner.

RESPONSE:

See response to Theme No. 4.

COMMENT:

48. The Draft Resolution directs DRBC's Executive Director to identify and encourage the adoption of early actions by NPDES permittees to improve dissolved oxygen conditions in the Zones. The Philadelphia Water Department's ("PWD's) D.O. Partnership, referenced at Paragraph 9 of the Draft Resolution, is such an early action that has already been identified as an opportunity to improve dissolved oxygen conditions. PWD's D.O. Partnership is designed to have a direct and immediate impact on dissolved oxygen in the Zones, and should fully satisfy DRBC's goal of establishing interim measures that will result in meaningful progress in improving dissolved oxygen conditions in the Zones.

RESPONSE:

See response to Comment No. 15.

COMMENTERS - Matthew Breece and Dewayne Fox, Delaware State University

COMMENT:

49. We applaud the restoration efforts embodied in the draft DRBC Resolution regarding fish propagation and dissolved oxygen levels in zones 3, 4 and the upper portion of zone 5 as they rightfully focus time and resources on efforts to improve dissolved oxygen (DO) for fish and other species dependent on sufficient oxygen for survival, reproduction, and development.

RESPONSE:

The Commission acknowledges the support of Drs. Breece and Fox for the Commission's focus and efforts regarding fish propagation and dissolved oxygen levels for Zones 3, 4 and the upper portion of Zone 5. The Commission believes that the process outlined in the draft Resolution will achieve that goal as quickly as possible with the collaborative action and combined resources of multiple stakeholders.

COMMENT:

50. The draft Resolution does not accurately reflect the current state of knowledge for Atlantic Sturgeon in the Delaware River. Never do you acknowledge that “propagation” (DRBC and Clean Water Act regulatory language) exists right now in the estuary and needs to be protected.

To properly establish the foundation for the DRBC’s initiative, the draft Resolution should be revised to include a clear and accurate “Whereas” statement that acknowledges the scientific fact that spawning and rearing (i.e., “propagation”) currently occur in these zones and have been established for many species for decades. We strongly feel that a failure to include such a “whereas” statement undermines the legitimacy of this important effort.

RESPONSE:

The draft Resolution acknowledges both the dramatic improvements in dissolved oxygen and the status of fish populations as described in DRBC’s September 2015 report entitled "Existing Use Evaluation for Zones 3, 4, & 5 of the Delaware Estuary Based on Spawning and Rearing of Resident and Anadromous Fishes" (2015 Report). The 2015 Report presents specific evaluations of the evidence of reproduction documented for each of nine resident and anadromous fish species in Zones 3, 4 and the upper portion of Zone 5, and in particular, evaluated the degree to which restoration of the propagation use has been observed for that species.

The report states: "Successful reproduction was clearly demonstrated in one or more of the compromised estuary zones. In addition, moderate to strong reproduction was demonstrated for multiple species in each zone indicating substantial recovery in the ‘propagation’ use for Zones 3, 4, and upper Zone 5. Weak and inconsistent spawning by Atlantic Sturgeon, and limited spatial recovery in spawning and rearing by American Shad and Striped Bass, suggested that full restoration of the ‘propagation’ use is not supported by the current available data." (2015 Report, p. 1).

The Commission believes that all stakeholders in the process outlined in the draft Resolution share the objectives of establishing water quality standards that not only protect the status of the fish populations in the Delaware Estuary but also continue water quality improvements to achieve strong and consistent reproduction by these species, including the Atlantic sturgeon. An important question to be resolved by the planned scientific studies is what concentrations of dissolved oxygen, including their temporal and spatial components, will achieve this shared goal and be attainable.

COMMENTER: Jennifer Adkins, Partnership for the Delaware Estuary

COMMENT:

51. We appreciate DRBC’s attention to this matter - the fact that water quality and aquatic life uses in portions of the Estuary have substantially and significantly improved since 1967 is a testament to the success of DRBC and all our partners working to protect and enhance the Delaware Estuary.

RESPONSE:

The Commission appreciates and acknowledges the support of the Partnership for the Delaware Estuary in this process.

COMMENT:

52. We encourage DRBC to take this information [a brief prepared by the Scientific and Technical Committee of the Partnership] into account in determining next steps, and to seek the input and expertise of our STAC if we can be of any assistance in this regard.

RESPONSE:

The findings of the STAC brief were that "Current scientific information indicates that the current Dissolved Oxygen minimum standard of a 24-hour average of 3.5 mg/l in Zones 3-5 is too low for survival and optimal growth of juvenile sturgeon." The brief further states that "In addition, higher levels of dissolved oxygen could potentially benefit freshwater mussels, juvenile river herring, American shad and striped bass." The Commission staff agrees with this statement. The purpose of the proposed Resolution is to present a process and timeline for determining the levels of dissolved oxygen that are protective of fish species and aquatic life in the designated reach of the estuary and that are attainable.

COMMENTER: Desmond Kahn, Fishery Investigations

COMMENT:

53. I would like to support the draft resolution, but would hope to see the process speeded up, if possible. I know much is involved.

RESPONSE:

The Commission acknowledges the support of Dr. Kahn for the draft Resolution. The Commission further believes that with the collaborative action and dedicated resources of all stakeholders, the process outlined in the draft Resolution will achieve our shared goal as quickly as possible.

COMMENTER: Stanley J. Kemp, Angelica Creek Watershed Association

COMMENT:

54. The purpose of this letter is to voice the strong support of the Angelica Creek Watershed Association (ACWA) to reclassify the lower Delaware River near Philadelphia as supporting natural fish reproduction, and to consequently raise the oxygen standard there. For this region, we urge you to consider reclassifying the lower Delaware River as supporting fish reproduction, and in raising the oxygen standard in this area.

RESPONSE:

The Commission acknowledges the strong support of the Angelica Creek Watershed Association for the Commission's proposed action to conduct 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 to establish the designated uses and determine the criteria required to support these uses. The Commission further believes that with the collaborative action and dedicated resources of all stakeholders, the process outlined in the draft Resolution will achieve that goal as quickly as possible.

COMMENTER: J. Preston Luitweiler, Water Resources Association of the Delaware River Basin

COMMENT:

55. The preponderance of evidence presented tells an impressive story of success under the current regulatory framework that far surpasses the goals established by the regulations implemented by

the Commission in 1967. There is ample evidence of continuous improvement in the absence of new regulation and no evidence of backsliding or risk of failure. No demonstration was made of an urgent need for precipitous regulatory action.

RESPONSE:

DRBC and many stakeholders are committed to making further progress in improving water quality. The studies contemplated in the Resolution further these efforts and support regulatory action consistent with CWA and Delaware River Basin Compact requirements.

COMMENT:

56. WRA/DRB commends DRBC for recognizing in the draft resolution the Philadelphia Water Department's leadership in proposing the Delaware Estuary DO Improvement Partnership. We specifically encourage the investigation and implementation of innovative technologies that could cost-effectively reduce loading of ammonia and nitrate to the estuary from wastewater discharges. To encourage the prompt implementation of such technology and strategies, we urge the Commission to commit to recognize improvements implemented over the next three to five years and not penalize regulated entities by raising the bar for early implementers more than for those who choose to defer implementation.

RESPONSE:

The intent of numbered paragraph 8 of the draft Resolution is to identify operations and/or modifications to existing infrastructure that can be implemented by NPDES permittees in the near term to reduce the loading of ammonia and other oxygen depleting pollutants to the Estuary. Any such early actions implemented by permittees during the period prior to final regulatory action should only help identify what combination of operating procedures and new technology will achieve the wasteload allocations developed during the proposed study period.

COMMENT:

57. It is very (possibly overly) ambitious for DRBC to commit to issuing a final rule and implementation strategy within six years. It is appropriate, responsible and defensible for DRBC to encourage early implementation of actions to continue improvements in fish propagation, study and document the impacts of those actions, and propose completing a draft analysis of attainability within 3.5 years as proposed in the resolution.

RESPONSE:

No response required.

COMMENTER: Thomas Shervinskis, Pennsylvania Fish and Boat Commission

COMMENT:

58. Poor water quality, most notably dissolved oxygen and the associated anoxic zones, have been well documented in the river estuary. The historic zones of hypoxia extended 30 miles from River Mile 105 downriver to River Mile 75. Measured dissolved oxygen levels from the 1960's through the early 1980's defined significant blockages to migratory fish species as well as intra-river movement of indigenous riverine species.

RESPONSE:

No response required.

COMMENT:

59. The Pennsylvania Fish and Boat Commission has conducted fisheries surveys [since the late 1980's and early 1990's] in the river and estuary that have documented a biological response from one key migratory species, the Atlantic Striped Bass, and strongly suggested a behavioral response regarding longitudinal spawning grounds expansion by another key migratory species, the American Shad.

RESPONSE:

See response to Comment Nos. 5 and 7.

COMMENT:

60. The Pennsylvania Fish and Boat Commission believes that the fisheries survey and assessment data collected since the 1990's by the basin states with application to various fish communities of concern to the DRBC goes beyond further study and realistically supports the inclusion of Propagation as a designated water quality protected use in Zone 3 and 4 and the upper portion of Zone 5 of the Delaware River Estuary as soon as administratively possible.

RESPONSE:

See response to Theme No. 2.

COMMENTER: Maya K. van Rossum, The Delaware Riverkeeper

COMMENT:

61. The draft DRBC Resolution regarding fish propagation and dissolved oxygen levels in zones 3, 4 and the upper portion of zone 5 fails to fulfill your legal obligations to protect the Delaware River, to prevent backsliding of water quality protections achieved, and fails to fulfill the requirements of the Clean Water Act anti-degradation program which the resolution suggests you are seeking to carry out on behalf of the watershed states.

RESPONSE:

The commenter is referred to the response to Theme No. 2, which documents the Commission's efforts for more than 50 years to address the appropriate and attainable designated aquatic life use and associated water quality criteria for the Delaware River Estuary. During this period, the Commission established monitoring programs and expanded cooperative monitoring programs with the U.S. Geological Survey using continuous water quality monitors to document the trends and recovery of dissolved oxygen levels at several locations in the estuary. In recent years, additional monitoring locations have been established by entities such as the Philadelphia Water Department, supplementing the spatial coverage of the data. Information from these programs has been instrumental in documenting the progress in increasing the DO levels to date, and will continue in the future to ensure that the levels achieved are maintained. In addition, biannual assessments of the DO data are conducted and reported in the Commission's Water Quality Assessment Report.

COMMENT:

62. The proposed Resolution fails to recognize that the “propagation” aquatic life use currently exists in all zones of the Delaware Estuary and that this “propagation” use has been documented for over 20 years.

RESPONSE:

See response to Theme No. 2.

COMMENT:

63. The DRBC staff report referenced in the resolution confirms the existence of propagation but is far from the first demonstration of this use in the estuary zones identified – it, in fact, is the confirming study that the Resolution purports is needed.

RESPONSE:

See response to Theme No. 2, particularly the paragraph that includes the statement, “While evidence of propagation was reported in the report entitled “Existing Use Evaluation for Zones 3, 4 & 5 of the Delaware Estuary Based upon Spawning and Rearing of Resident and Anadromous Fishes,” the report also concluded that “Full attainment of a ‘maintenance and propagation’ use has not been demonstrated now based on the data available and examined for this existing use evaluation.” In the Commission’s view, the report indicates that more data is needed to fully assess the degree and extent of propagation for the fish species examined.

COMMENT:

64. The Resolution must be modified to explicitly recognize “propagation” as an Existing Use, and to instruct DRBC staff to immediately begin rulemaking to upgrade the Designated Uses for Zones 3, 4 and River Miles 78.8 to 70.0 of Zone 5 of the Delaware Estuary. The downgraded dissolved oxygen criteria on the books since 1967 must finally be revised upwards, with a minimum interim criterion of 6.0 mg/L and a higher, more fully protective criterion developed once studies are completed.

RESPONSE:

See response to Theme No. 2.

COMMENT:

65. In March 2013, the Delaware Riverkeeper Network, joined by the Delaware River Shad Fisherman’s Association (DRSFA) and the Lehigh River Stocking Association (LRSA), documented the existence of the “propagation” use in Zones 3, 4, and 5 of the Delaware Estuary via a petition to the DRBC.

RESPONSE:

In a letter dated April 29, 2013, Carol R. Collier, Executive Director responded to the March 5, 2013 2014 letter from the Delaware River Basin Fish and Wildlife Management Cooperative petitioning the 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 stream quality objectives necessary to preserve these uses; including setting immediate interim standards for dissolved oxygen and setting a 3-year limit for establishment of permanent dissolved oxygen and nutrient objectives.

Ms. Collier noted the ongoing work of the Commission and the stakeholders that comprise its Water Quality Advisory Committee on the issues raised in the petition. She further noted that the DRBC staff would shortly publish a draft of the Nutrient Criteria Plan for the Delaware River Estuary and Bay that would offer an approach to addressing use and criteria changes for dissolved oxygen and nutrients in the tidal and non-tidal zones of the Delaware River. The letter also indicated that the Commissioners had advised Ms. Collier that they believe the WQAC is the appropriate forum for discussion and an initial evaluation of your petition. [Note: The Commission posted the final Nutrient Criteria Plan on its web site in December of 2013.]

COMMENT:

66. DRBC needs to begin rulemaking to first revise the Water Uses to be Protected (i.e., the Designated Uses) for these three zones to include: (a) maintenance and propagation of resident fish and other aquatic life, and (b) spawning and nursery habitat for anadromous fish. DRBC likewise needs to begin rulemaking to revise its Stream Quality Objectives.

A failure to initiate rulemaking immediately will ensure that such lethal dissolved oxygen levels not only will occur in the Delaware Estuary in the years that DRBC continues to study the problem, but will allow backsliding to take place as new industries and/or increased discharges are permitted, and will also cause Pennsylvania, New Jersey, and Delaware to remain in violation of their Clean Water Act obligations.

RESPONSE:

See response to Theme No. 2. In addition, the Commission continues to monitor dissolved oxygen and nutrient concentrations in the estuary and bay, and to cooperate with the U.S. Geological Survey and the Philadelphia Water Department to maintain continuous water quality monitors at 5 locations in the estuary and at the head of tide at Trenton, NJ. These monitoring efforts and continued implementation of wasteload allocations for CBOD and effluent limitations for ammonia in NPDES permits ensure that the progress achieved under the current stream quality objectives is maintained.

At the same time, the commenter is suggesting evidence of "lethal dissolved oxygen levels" and evidence of propagation as an existing use. "Lethal" would suggest mortality of early and adult life stages of fish species and unsuccessful conditions for reproduction. Evidence of such lethality would have resulted in fish kills; however, none have been reported in the Delaware Estuary. These comments and comments suggesting backsliding would need to be supported by scientific studies and none have been provided by the commenter. Studies by DRBC suggest continuous improvement and evidence that supports further study 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.

COMMENT:

67. DRBC cannot argue once again that it simply needs more time to study the problem.

RESPONSE:

See response to Theme No. 2, Comment No. 2, and the following:

The key Questions not answered in the 2015 study, and for which additional studies are needed are:

1. What water quality criteria must be achieved to protect target fish species and life stages?
2. What are the estimated oxygen demand and nutrient (pollutant) loadings from point and non-point sources in the Estuary today?
3. What total wasteload and load allocations must be achieved to protect target species? Are they attainable?
4. How and to whom will loads be allocated?
5. What treatment technologies and BMPs are available to meet wasteload allocations?

COMMENT:

68. We note that it was disturbing to see DRBC so blatantly prioritize the regulated community as a stakeholder of concern in this process. You did not single out fishers; recreation, ecotourism or fishing industries; subsistence anglers or any of the others that depend upon or appreciate healthy fish populations in our Delaware River in your statement about stakeholders.

RESPONSE:

The acknowledgement of the regulated community, particularly the Philadelphia Water Department, in the draft Resolution was intended to recognize the offer by PWD to lead a Delaware Estuary DO Improvement Partnership with other members of the regulated community. The DO Partnership will engage co-regulators in identifying early actions based on optimizing the use of existing infrastructure, and evaluate innovative technologies that may be employed to achieve wasteload allocations based upon the adopted designated uses and associated dissolved oxygen water quality criteria. Ultimately, the control technologies and practices required at municipal and industrial facilities are expected to be site-specific, and tailored to meet the wasteload allocation for each facility. The desired improvements cannot be achieved without the cooperation of these facility owners and operators.

Regarding the phrase “stakeholder agreement” please see response to Comment no. 31.

COMMENT:

69. These fish species that are here in the estuary each and every spring and summer, spawning in all zones of the estuary and utilizing the Delaware River as nursery habitat, particularly the endangered Atlantic sturgeon, cannot wait another 6 years to begin identifying ways to improve their survival. That protection needs to occur now, with an immediate initiation of rulemaking to revise the Designated Uses (“Water Uses to be Protected”) and an initial revision of the dissolved oxygen criterion to a 6 mg/L instantaneous minimum.

RESPONSE:

See response to Theme No. 2.

APPENDIX A

**Delaware River Basin Commission
COMMENTS RECEIVED ON DRAFT RESOLUTION TO REVIEW THE DESIGNATED AQUATIC LIFE USES AND ASSOCIATED WATER QUALITY CRITERIA
FOR ZONES 3, 4 AND A PORTION OF ZONE 5 OF THE DELAWARE ESTUARY
April 2017**

**ORAL TESTIMONY PRESENTED ON THE DRAFT RESOLUTION TO REVIEW THE DESIGNATED AQUATIC LIFE USES AND ASSOCIATED WATER QUALITY CRITERIA
FOR ZONES 3, 4 AND A PORTION OF ZONE 5 OF THE DELAWARE ESTUARY
April 6, 2017**

No.	Dated	Last Name	First Name	Affiliation	Street Address	City	State	Zip Code
1	6-Apr-17	Van Rossum	Maya	Delaware Riverkeeper Network	925 Canal Street, Suite 3701	Briston	PA	19007
2	6-Apr-17	Shervinskie	Thomas	Pennsylvania Fish and Boat Commission	450 Robinson Lane	Bellefonte	PA	16823
3	6-Apr-17	Furlong	Sharon	Bucks County Sierra Club and Bucks Environmental Action Group				
4	6-Apr-17	Dillon	Michael	Manko, Gold, Katcher & Fox (MGKF) on behalf of the Delaware Estuary TMDL Coalition (MGKF also submitted written comments on the Coalition's behalf over the signature of Brenda Gotanda, Esquire)	401 City Ave., Suite 500	Bala Cynwyd	PA	19004
5	6-Apr-17	Saldutti	Tony	Private Citizen				
6	6-Apr-17	Lutweiller	Preston	Private Citizen (Mr. Lutweiler also submitted written comments on behalf of the Water Resources Association of the Delaware River Basin)				

**WRITTEN COMMENTS RECEIVED ON DRAFT RESOLUTION TO REVIEW THE DESIGNATED AQUATIC LIFE USES AND ASSOCIATED WATER QUALITY CRITERIA
FOR ZONES 3, 4 AND A PORTION OF ZONE 5 OF THE DELAWARE ESTUARY
April 2017**

No.	Dated	Last Name	First Name	Affiliation	Street Address	City	State	Zip Code
7	10-Apr-17	Katz	David A.	Philadelphia Water Department	1101 Market Street	Philadelphia	PA	19107-2994
8	10-Apr-17	Wagner	Brent	Private Citizen				
9	12-Apr-17	Lueckenhoff	Dominique	U.S. EPA Region III	1650 Arch Street	Philadelphia,	PA	19103-2994
		Laureano	Javier	U.S. EPA Region II				
10	12-Apr-17	Gotanda	Brenda H.	Manko, Gold, Katcher & Fox on behalf of the Delaware Estuary TMDL Coalition	401 City Ave., Suite 901	Bala Cynwyd	PA	19004
11	3-Apr-17	Van Rossum	Maya	Delaware Riverkeeper Network	925 Canal Street, Suite 3701	Briston	PA	19007
12	12-Apr-17	Breece	Matthew W.	Delaware State University	1200 N. Dupont Highway	Dover	DE	19901-2277
		Fox	Dewayne A.					
13	13-Apr-17	Adkins	Jennifer	Partnership for the Delaware Estuary	110 South Poplar Street, Suite 202	Wilmington	DE	19801

APPENDIX A

No.	Dated	Last Name	First Name	Affiliation	Street Address	City	State	Zip Code
14	13-Apr-17	Kahn	Desmond	PDE Science and Technology Advisory Committee				
15	16-Apr-17	Kemp	Stanley J.	Angelica Creek Watershed Association	25 North 11th Street	Reading	PA	19601
16	13-Apr-17	Lutweiller	Preston	Water Resources Association of the Delaware River Basin	1211 Greenway Road	Wilmington	DE	19803
17	6-Apr-17	Shervinske	Thomas	Pennsylvania Fish and Boat Commission	450 Robinson Lane	Bellefonte	PA	16823
18	3-Mar-17 to 12-Apr-17	141 members of Delaware Riverkeeper Network						