

**U.S. EPA’s Proposed Rule: Water Quality Standards to Protect
Aquatic Life in the Delaware River
Transcript for Public Hearing #1 for the Proposed Rule
February 6, 2024 – 9:00 a.m. to 11:00 a.m. Eastern Standard Time**

(Slide 1) Kary Phillips: Hello and welcome to today’s online public hearing for U.S. EPA’s Proposed Rule: Water Quality Standards to Protect Aquatic Life in the Delaware River. This session is sponsored by the United States Environmental Protection Agency’s Office of Science and Technology. The purpose of today’s public hearing is to provide background on the proposed rulemaking and then for interested parties to provide oral comments on the proposed rule. I am Kary Phillips of Tetra Tech, a contractor to EPA, and I will be moderating today’s hearing with support from my colleagues. Thank you for joining us.

Kary Phillips: Before we introduce our EPA representatives today, let’s start by going over a few housekeeping items. You should be connected to this session through your computer or mobile device. At this time, you should see a slide titled “Logistics: Options for Audio.”

You can listen to the presentation through your computer (or mobile device) speakers but will need a microphone if you would like to make oral testimony. If you do not have speakers or a microphone on your device, you may use a phone to call in. We will provide detailed instructions on how to provide oral testimony after the presentation.

Kary Phillips: Instructions for calling in are available in the menu on your screen to the right of the Unmute button. Select the arrow to the right, then “Switch to Phone Audio” and follow screen prompts. Following the on-screen instructions for calling in will link your phone line to your computer and allow you to use controls on your screen (for example to mute or unmute yourself, or raise your hand to speak).

Kary Phillips: Alternatively, you may also call in directly to (301) 715-8592. The Meeting ID is 856 5713 8734. Once you are connected to the audio, if you hear an echo, please turn off your computer speakers. If you have any technical difficulties, please chat with Tech Support.

If you would like to download a copy of the slides for today’s presentation, a PDF of the slides has been posted to the chat window for all participants. If you do not see the PDF, please chat with Tech Support. A copy of the slides will also be posted to EPA’s website in the coming weeks after today’s presentation.

Kary Phillips: Please note that all lines have been muted upon entry to avoid any echo and sound issues. If you have un-muted your device or phone to test your audio, please mute yourself on the screen, or by pressing *6.

Today’s public hearing will be transcribed, and all oral comments will be considered part of the official record for this rule. As such, when developing the official response to public comments and finalizing the rule, the oral comments provided today will become part of the official record along with the written public comments submitted via the docket for this rulemaking. If you provide an oral comment during today’s online hearing, you do not have to submit the same comment in writing in order for it to be included in the official record. If you are interested in making a written comment, directions will be provided during this hearing. Please note that EPA will not respond to comments today; however, EPA will respond to the oral comments received at this hearing—along with all comments it receives during

the comment period—in EPA’s response-to-comments document that will accompany the final rulemaking. Also, EPA will not be answering questions today.

Today’s presentation for the online public hearing has been reviewed by EPA staff for technical accuracy. However, the views of those making an oral comment and their organizations are their own and do not necessarily reflect the views of EPA. Mention of commercial enterprises, products, or publications does not mean that EPA endorses them.

(Slide 2) Kary Phillips: Now that we have completed the discussion of housekeeping items, let’s start today’s online public hearing. EPA staff who are present for today’s hearing include Hannah Lesch, Erica Fleisig, Gregory Voigt, and Wayne Jackson. And with that, we will begin the presentation by EPA. I will now turn it over to Hannah Lesch to provide a brief overview of the proposed rule.

(Slide 3) Hannah Lesch: Thanks, Kary. I am hoping you can hear me, if not, please add something in the chat. We will go ahead and dive right in. We will start with a few slides on background. We will talk briefly about designated uses, and describe EPA’s proposed criteria, how we derive the criteria, some criteria alternatives, and then we will finish with a few next steps.

We will start with statutory and regulatory background, which are good things to be aware of. The Clean Water Act section 101(a)(2) establishes a national goal of “wherever attainable, water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water.” In this presentation and in the rule, you might hear us call these 101(a)(2) goals or 101(a)(2) uses.

Additionally, under Clean Water Act section 303, states have the primary responsibility for establishing and revising water quality standards for their waters. Water quality standards define the desired conditions of waters. Two key aspects of water quality standards are designated uses and water quality criteria. The uses define the goals, while the criteria define the water quality levels that will be needed to meet those goals.

And then finally Clean Water Act section 303(c)(4)(B) authorizes the EPA Administrator to determine that new or revised water quality standards are necessary to meet Clean Water Act requirements.

(Slide 4) Hannah Lesch: So let's talk about the Administration’s Determination very quickly. On December 1, 2022, EPA determined, under Clean Water Act section 303(c)(4)(B), that revised water quality standards are necessary to protect the Clean Water Act section 101(a)(2) use of fish propagation in certain zones of the Delaware River.

Currently, the water quality standards provide for the passage and maintenance, but not fish propagation, in these zones. Specifically, EPA determined that a revised designated use to protect fish propagation and corresponding dissolved oxygen criteria to protect that use are necessary in Zone 3, Zone 4, and the upper portion of Zone 5, which in total is river miles 108.4 to 70.0 of the Delaware River, which is approximately from Philadelphia, Pennsylvania, to Wilmington, Delaware. Throughout the presentation and the rule, you might hear us refer to this as the relevant zones or specified zones. When we say that, we are referring to this section of Zone 3, Zone 4, and the upper portion of Zone 5. In these sections of the river, there are two federally listed endangered fish species: the Atlantic Sturgeon, who is shown on the left side of the screen, and the Shortnose Sturgeon, who is shown on the right side of the

screen. Available evidence suggests that these two fish species are the most oxygen-sensitive species in these zones of the river.

(Slide 5) Hannah Lesch: Here is a map just to orient yourself as to what we're looking at. The Delaware River is shown in blue. The dark blue section is Zone 3 up at the top, Zone 4 in the middle, and the upper portion of Zone 5, where you can see my mouse circling. When we are talking about the zones that are part of today's rule, it is this dark blue area that we are talking about.

(Slide 6) Hannah Lesch: Here is a brief summary of EPA's proposed rule. In accordance with the Clean Water Act and EPA's December 2022 Administrator's Determination, on December 13, 2023, EPA issued a proposed water quality standards rule for the relevant zones of the Delaware River.

The proposed rule includes: first, a designated use for aquatic life that includes propagation, and second, criteria for dissolved oxygen to protect the current and proposed designated uses. EPA's proposed dissolved oxygen criteria are based largely on the oxygen requirements of Atlantic Sturgeon because that is one of the most sensitive species. However, EPA's proposed criteria are intended to protect all aquatic life in the relevant zones of the Delaware River.

(Slide 7) Hannah Lesch: We will get to the proposed designated use, which is, drum roll, please—protection and propagation of resident and migratory aquatic life. This is the use that we are proposing in this rule.

(Slide 8) Hannah Lesch: We will spend a little bit more time talking about the criteria. EPA's proposed dissolved oxygen criteria are divided into three seasons. Each season has one or more criteria that consist of three components: magnitude, duration, and frequency.

Here is a table of what the criteria looks like. I am going to let this sink in for a second and then we're going to go through column by column and explain what everything means.

(Slide 9) Hannah Lesch: We will start on the left-hand side of the table in the *Seasons* column. There are three seasons. The seasons are periods that approximate different life phases for Atlantic Sturgeon. EPA has defined the *Spawning and Larval Development* season as March 1st to June 30th, the *Juvenile Development* season is July 1st through October 31st, and the *Overwintering* season is November 1st through the end of February.

(Slide 10) Hannah Lesch: The magnitude indicates the required level of dissolved oxygen in the water. In this proposal, the magnitude is expressed in terms of percent oxygen saturation, and we will talk more about that in the following slides.

(Slide 11) Hannah Lesch: The duration specifies the time period over which water quality is averaged before comparison with the criteria magnitudes. In this proposal, the criteria duration is the daily average for all seasons.

(Slide 12) Hannah Lesch: Finally, the exceedance frequency specifies how often, that is, the percentage of the time, that each criterion can be exceeded in each season while still ensuring that the use is protected. For dissolved oxygen, an exceedance would occur when the oxygen level in the water is below the criterion value.

(Slide 13) Hannah Lesch: Let's talk about percent saturation. Here are some definitions to make sure we are on the same page. Saturation refers to the ratio of oxygen concentration in the water to the expected oxygen concentration when that water is in equilibrium with the atmosphere. Another common way to measure dissolved oxygen is in terms of concentration, which would be milligrams of oxygen per liter of water. EPA decided to use percent oxygen saturation in this proposal for two main reasons. First, percent oxygen saturation, when compared with concentration, is the most biologically relevant to aquatic life. The physiological effects of oxygen on aquatic organisms are directly related to percent oxygen saturation and indirectly related to dissolved oxygen concentration. Second, in the Delaware River, the percent oxygen saturation varies with water temperature less than dissolved oxygen concentration. For those two reasons, EPA chose to use percent oxygen saturation when expressing the criterion magnitudes.

(Slide 14) Hannah Lesch: For each season, we derive criteria in a slightly different way. For the *Juvenile Development* season, which is the July 1st through October 31st time period, EPA followed a peer-reviewed modeling approach to evaluate the effects of temperature, salinity, and dissolved oxygen on the potential of growth and mortality of a hypothetical cohort, or year class, of Atlantic Sturgeon.

EPA used the model to estimate the rate of change in the aggregate weight of the cohort during the *Juvenile Development* season, given various corresponding water quality conditions. EPA defined this rate of change as the "Habitat Suitability Index," or HSI. A positive habitat suitability index indicates that the cohort may increase in weight, whereas a negative habitat suitability index indicates the cohort will decrease in weight. EPA then selected two different values as the proposed criteria, a 10th percentile, and a median, which is also the 50th percentile, that are expected to result in a positive habitat suitability index if they are met 90% and 50% of the time, respectively.

(Slide 15) Hannah Lesch: For the *Spawning and Larval Development* and *Overwintering* seasons, things differ slightly. Because EPA's cohort modeling approach for the *Juvenile Development* season relies on experimental studies conducted on juvenile Atlantic Sturgeon at warmer temperatures, it does not apply to the *Spawning and Larval Development* life stages and has minimal relevance to the cold overwintering period. EPA concluded that the percent oxygen saturations that would be protective of juveniles experiencing stressful, or high, water temperatures during the *Juvenile Development* season would also be protective of larvae and overwintering juveniles that are not experiencing high water temperatures. Therefore, EPA proposed to apply the same 10th percentile criterion from the *Juvenile Development* season to both the *Spawning and Larval Development* and *Overwintering* seasons.

(Slide 16) Hannah Lesch: All right, that was the proposed criteria. We will take a brief minute to talk about some of the dissolved oxygen criteria alternatives. EPA is seeking comment on the three alternatives that we proposed. We are requesting comment and additional information on whether and how one or more of these alternatives could protect the current and proposed aquatic life designated uses in the relevant zones of the Delaware River, and, if so, what the anticipated benefits would be associated with the alternatives compared to EPA's proposed criteria.

(Slide 17) Hannah Lesch: Starting with the first alternative, which is dissolved oxygen criteria expressed as a concentration rather than the percent oxygen saturation. This table shows what that could look like. The season column is exactly the same as before. The duration and exceedance frequency columns remain the same as before. What has changed is that the magnitude is now expressed as a concentration in milligrams per liter, shown in red on the screen in this third column. There are two

estimates for the *Spawning and Larval Development* and *Overwintering* seasons. The first number is based on a 90th percentile water temperature, which is shown in the left column, whereas the second number is corresponding to an average water temperature. This provides an example of how the criteria could be derived in concentration. For the *Juvenile Development* season, EPA used the same cohort model as described before to derive these numbers.

(Slide 18) Hannah Lesch: The second alternative is dissolved oxygen criteria with a 10% exceedance frequency. What that would look like is removing that 50% exceedance frequency criterion and just having the 10% value remaining. If this were done in concentration, it would be that 5.4 value shown on the previous slide. These alternatives are not mutually exclusive.

(Slide 19) Hannah Lesch: Finally, the third alternative is the inclusion of a one-in-three-year interannual exceedance frequency. What that looks like is shown using the same criteria table as before, but now there is a line at the bottom that says, “criteria cannot be exceeded more than once in every three-year period.”

(Slide 20) Hannah Lesch: That is all of the criteria that we are going to talk about today. A few next steps: for more information, you can visit our website at <https://www.epa.gov/wqs-tech/water-quality-standards-delaware-river>. We will hold a second public hearing tomorrow, Wednesday, February 7th, from 4 to 6 pm Eastern Time. If you would like to attend, you do have to register, as it is separate from this public hearing. The registration links are on the website that is linked above. The public comment period closes on Tuesday, February 20th, 2024; please make note of that. Finally, EPA will provide written responses to comments upon promulgation of the final rule. With that, I will turn it back over to Kary.

(Slide 21) Kary Phillips: In a moment, we will provide instructions for making an oral comment today, but first we will provide instructions for submitting written comments in one of the following ways. Again, if you provide oral comments during today’s online hearing, you do not have to submit the same comment in writing. However, if you plan to submit a written comment, you may do so through the website at [regulations.gov](https://www.regulations.gov), our preferred method; mail your comment; or submit a written comment via hand delivery. The instructions for submitting a written comment through these mechanisms are explained in more detail on this slide. Remember, when submitting a written comment, please make sure to reference the Docket ID No. EPA-HQ-OW-2023-0222. I will pause here for a few moments to allow time to record this information.

[Paused for 15 seconds]

Kary Phillips: We will now open the hearing for interested parties to make an oral comment. If you would like to make a comment, please raise your hand. Depending on the device you are using, there are different ways to raise your hand. If you are on a computer or internet-based mobile device, click on the Reactions button in the menu on the bottom of your Zoom window. If you do not see a Reactions button on your computer, hover towards the bottom of your Zoom window, and a menu bar should appear. Over the Reactions button, select Raise Hand.

If you called in using your phone, please press *9 on your phone to raise your hand. When it is your turn to speak, the host will call on you by name or by the phone number you dialed with. At that time, you can unmute yourself by pressing the unmute button on your screen, or dialing *6 on your phone. Please

feel free to turn on your video while you are speaking. If you have technical issues, please start a chat with Technical Support. Remember, EPA will not respond to comments today; however, EPA will respond to oral comments received at this hearing—along with all comments received during the comment period—in EPA’s response-to-comments document accompanying EPA’s final rule. Also, EPA will not be answering any questions during the hearing today.

Each commenter will be announced before providing an oral comment. Each commenter will have a maximum of five minutes to make an oral comment. A timer will appear on the screen indicating approximately how much time each caller has left. Commenters are responsible for watching their own time. Each commenter will be given a 10-second warning using the timer appearing on the screen. At the five-minute mark, the slide will read “Time is up” and commenters will be muted.

If you provided your oral comment and were stopped after five minutes, you can resume making your comment after all commenters have had the opportunity to provide their comments. Please raise your hand at that time and wait for your name to be called. When it is your time to make an oral comment, your name will be announced, and you will be able to unmute yourself. If you called in using your phone, your phone number will be announced, and you will be able to unmute yourself. Please state and slowly spell your name for the official record and, if applicable, provide the name of your organization. After the self-introduction, your five-minute time will start. We will now begin the public comment process. There may be a short pause before the first commenter is introduced.

Rachel, do we have any commenters in the queue?

Rachel Buzzeo: It looks like we have a few people with their hands raised, we will start with Sharon Furlong. It is now your time to speak. Please unmute yourself and you can begin making your comment.

Comment #1 Sharon Furlong (Oral Comment): Sharon Furlong, spokesperson, Bucks Environmental Action, Bucks County. It has taken over 15 years to get to the point where we are finally considering the needs of fish and indeed the entire ecosystem of the Delaware River. It is wonderful that these proposed regulations would finally include the propagation of species as a proper use, which, for the fish themselves, propagation is beyond use—it is survival. However, this human-oriented designation is useful as it would allow residents of the river to finally have a chance to live full lives and reproduce. All the arguments one can make about usefulness pales beside the fact that they are living beings who predate us as a species. Who are we to decide whether they have their lives individually or as a species taken from them? We do not have this right, but we sure have the power. It is up to us to use the power wisely. Pitted against any of the arguments around cleaning up this part of the Delaware River and making it sufficiently habitable is the argument about costs. The cost of cleanup, cost of new facilities, fueling and maintenance of those facilities, the need to revamp a discharge, a piping system that is old in this old and very poor set of environmental justice towns. The difficulties in how a population can absorb these costs. These are all important arguments, and they are all important considerations. It is sad that the 15-year delay has exponentially raised these costs, but there you go. We cannot undo the additional financial burden of the passage of those years. However, the cost and who pays is vital for decisions and must be addressed. But again, we are talking about life and death for numerous living things, along with the fact that cleaning up the river that is the primary drinking source for over fifteen million also directly benefits humans: a cleaner river, a better water treatment system, less pee and poo flowing into free-flowing water, and healthier people. The costs for one of the opponents, the Philadelphia Water Department, just got a little bit smaller since federal money to improve operations

was just granted as per an article in the Philly Enquirer in mid-January. However, when we look beyond these considerations and examine the science they are to be based on, several problems emerge.

The three levels of oxygen saturation during the three different time periods do not include a minimum level that would never be allowed. Without a baseline figure, chances are high there would be times where levels would fall to below what is needed to survive for any length of time. That minimum level must be provided. It must mandate that oxygen levels never go below it, and it must have the force of law. Assessments will not translate into a guaranteed way to ensure survival and propagation if the length of time between them is too long. Again, we are dealing with living beings. What is two weeks of awful conditions for us is different from two weeks of awful conditions for a species who has nowhere to go and no power to prevent death from those conditions. We can leave an area that might kill us; they cannot leave the river. Does 5 milligrams per liter dissolved oxygen end up translating to conditions that could be lived with all the time? Maybe not. The science, including the work done by the DRBC water quality people, indicated that 6.5 was optimal and 5 being only suitable. Again, considering how this process would be monitored, theoretically suitable conditions in the heat of summer when more oxygen is needed and less available just might not remain suitable for too long, and again with the assessment periods dangerously far apart, who would know and what would happen then? In a Philadelphia Water Department position statement released on January 11th, it is written that the fish are thriving and already spawning under current conditions, yet there are less than 250 spawning sturgeon, for example, and they are not thriving at all. The PWD goes on to state that these proposed standards are unique in the country and are being applied uniquely, that they are different to standards applied to other rivers and therefore this proposal is unfair and unsound. Not true. It also states that there is little science involved with this proposal, yet for over 15 years there were several studies all designed scientifically and performed that indicated water oxygenation levels currently in the river throughout all those years was woefully insufficient and needed to be changed or extinction of several species was imminent. We therefore ask that the position statement of PWD be examined considering these erroneous claims. We believe that EPA is to be applauded for putting together regulations, indeed an entire system of management, in such a brief period. We thank you. Now, if the above-stated difficulties in that management scheme can be addressed and corrected, we will give you a standing ovation, but the residents of the river itself might breathe easier and that makes all the difference to them. We will be happy, but they will be alive. Thank you.

Kary Phillips: Thank you for providing your comment. Let us hear from our next commenter. Rachel, do we have another commenter in the queue?

Rachel Buzzeo: Yes, our next commenter is Erik Silldorff. Erik it is now your time to speak. Please unmute yourself and you can begin making your comment.

Comment #2 Erik Silldorff (Oral Comment): Good morning, I am Dr. Erik Silldorff, the restoration director and senior scientist with the Delaware Riverkeeper Network, spelling out the name, Erik is E-R-I-K, Silldorff is S as in Sam, I-L-L-D-O-R-F-F, F as in Frank. On behalf of the Delaware Riverkeeper and the Delaware Riverkeeper Network, I am here today to applaud EPA for taking a major step forward to protect the Delaware River. For over 50 years, the urban corridor of the Delaware River has not been protected by the basic Clean Water Act protections afforded to rivers and streams throughout the United States. With this proposal, EPA plans to correct that problem for one of the two failed standards for the Delaware River, its aquatic life use. It is worth remembering why we are here. Every summer the

dissolved oxygen in the tidal Delaware River plunges into hypoxic conditions, where the oxygen in the water falls far below the levels needed to protect the fish and other aquatic life of the river. While this impacts myriad species, the genetically unique and critically endangered Atlantic Sturgeon of the Delaware River cannot survive this annual onslaught and will surely go extinct, unless EPA takes all action and restores the dissolved oxygen conditions for the river. Indeed, the published literature on Atlantic Sturgeon and EPA's own research have together shown that Atlantic Sturgeon are the most sensitive species in the river to the hypoxia impacts and that the Atlantic Sturgeon can expect to increase their annual reproduction by as much as 500-fold with the higher oxygen standards. This is a life-or-death moment for the Atlantic Sturgeon of the Delaware River. EPA must adopt the higher designated use as well as fully protective dissolved oxygen criteria to ensure our genetically unique population of Atlantic Sturgeon does not disappear forever. The Delaware Riverkeeper Network commends EPA for recognizing the merits of our 2022 petition and for taking swift action to propose full aquatic life use designations and higher dissolved oxygen criteria for the Delaware River. The Delaware Riverkeeper Network recognizes and supports the rigorous scientific underpinnings of this upgrade to the Delaware River's water quality standards. The proposed criteria are indeed site-specific, recognizing the unique oxygen sensitivity of our critically endangered Atlantic Sturgeon population and the need to protect sensitive life stages of sturgeon and other species throughout the warm summer months. EPA has appropriately utilized the full body of published research over the last 25 years on Atlantic Sturgeon to create the analytical framework for evaluating the specific benefits for increasingly protective dissolved oxygen criteria. It is nevertheless important that EPA recognize that the specific dissolved oxygen criteria included in this proposal are not fully protective of our critically endangered Atlantic Sturgeon and that these criteria, according to EPA's own technical evaluation, do not achieve the full restoration of aquatic life use for the tidal Delaware River. Three specific provisions to the proposed criteria are needed before this upgrade is finalized. First, like all state and federal criteria for dissolved oxygen, final criteria for the tidal Delaware River must contain an instantaneous minimum dissolved oxygen threshold. Second, its dissolved oxygen saturation thresholds in the final criteria must be raised to those levels that fully protect Atlantic Sturgeon and the full aquatic life in the Delaware River. And third, the final dissolved oxygen criteria must be assessed over shorter time periods. The broad four-month windows in the current proposal allow for extended periods of lethal conditions that could severely impact sturgeon and other aquatic life. We also can iterate that EPA's 60-day public comment period is fully adequate. Given the decades-long process to get to this proposal, EPA should not extend the comment period. It is unfounded, unjustified, and merely seeks to prolong the suffering of the aquatic life of the Delaware River and particularly the Atlantic Sturgeon of the Delaware River, which are already perilously close to extinction. In summary, the Delaware Riverkeeper Network supports EPA's proposal to designate full aquatic life use protections for the entire Delaware River. We support EPA's scientific evaluation of the dissolved oxygen needs in the estuary, but we argue that this body of scientific information requires an instantaneous minimum, higher oxygen thresholds, and shorter assessment windows. Thank you for this opportunity to comment on these proposed standards.

Kary Phillips: Thank you for providing your comment. Let us hear from our next commenter. Rachel, do we have another commenter in the queue?

Rachel Buzzo: Yes, Susan Volz, it is now your time to speak. Please unmute yourself and you can begin making your comment.

Comment #3 Susan Volz (Oral Comment): Thank you, good morning. My name is Susan Volz, and I am an advocacy coordinator with Clean Air Council. We are a statewide member organization fighting for everyone's right to a clean and healthy environment. Many of our members live, work, and recreate along the Delaware River. We applaud EPA's bold step in issuing this proposed rule. This is something we have advocated for years, for improved water quality standards for Zones 3, 4, and 5 of the Delaware River. We are grateful that EPA has taken this action. We also believe it can go further. We ask EPA to be bolder in providing the full protection for human health and oxygen-sensitive wildlife. Dissolved oxygen is an excellent indicator of overall water quality, and improving dissolved oxygen standards is of the utmost importance to protect the Atlantic Sturgeon and other aquatic wildlife in the Delaware River. It also helps protect the people who use the river for recreation. We make the following recommendations to strengthen the rule to be fully protective. The rule should establish a minimum threshold for dissolved oxygen, as the current proposal uses median oxygen levels that can allow for periods where the actual level is below the standards required by aquatic life. The rule should implement more frequent assessment periods, as the current proposal has created three seasons which can allow for extended periods of time where water quality levels are below the standard. The rule should also establish an 80% saturation value of dissolved oxygen to support all life stages of the Atlantic Sturgeon, whereas the proposed rule sets the value between 66% and 74%, which falls below recommendations from current research. These recommendations are necessary to ensure the strongest and fullest protection of the critically endangered Atlantic Sturgeon and other valuable aquatic life. High dissolved oxygen levels are a good indicator of water quality. Poor water quality poses many risks, especially health risks to people who use and depend on the river for drinking water. This portion of the Delaware River includes environmental justice communities that have been impacted by years of poor water quality. These higher water quality standards will improve conditions for everyone who relies on this vital resource. Thank you.

Kary Phillips: Thank you for providing your comment. Rachel, do we have other commenters in the queue?

Rachel Buzzeo: Yes, Steve Tambini, it is now your time to speak. Please unmute yourself and you can begin making your comment.

Comment #4 Steve Tambini (Oral Comment): Good morning. My name is Steve Tambini, T-A-M-B-I-N-I, and I am the executive director of the Delaware River Basin Commission. The DRBC is an interstate federal compact resource management agency whose members are from Pennsylvania, New Jersey, New York, Delaware, and the United States. In addition to my comments today, DRBC will submit written technical comments as well. The DRBC supports the adoption of revised water quality standards for the Delaware River Estuary. The EPA proposal reflects the shared goals of the federal Clean Water Act and the Delaware River Basin Compact. We encourage stakeholders to support the proposed designated use and the application of science-based water quality criteria to protect all stages of aquatic life. The estuary became severely polluted when, early in our country's history, industry and population expanded in the absence of environmental understanding and management. Since DRBC had established its first water quality standards and a plan to improve dissolved oxygen, or DO, in the 1960s, the urbanized estuary has seen focused restoration efforts resulting in an extraordinary water quality improvement. The number and variety of fish in the estuary have grown and people once again see the waterfronts of Philadelphia, Camden, Wilmington, and Chester as places to live, work, and play. Restoring a water body shared by millions of people in three states is by necessity a collaborative effort.

Our engaged basin communities have brought the Delaware River Estuary back from a condition of chronic dead zones and low dissolved oxygen to one of vastly improved ecosystem health. Still, more work is needed. Human activity in our population centers continues to create domestic waste in the form of ammonia nitrogen that some conventional wastewater treatment plants cannot effectively remove. Ammonia discharge to the river consumes oxygen during the summer months, which can negatively impact sensitive species, including the endangered Atlantic Sturgeon. In 2017, the five DRBC commissioners unanimously directed the DRBC staff to first evaluate the attainability of improved aquatic life designated use, and second, to begin rulemaking to adopt the new use together with supporting criteria. The commissioners' directive emphasized the importance of a collaborative process informed by technical studies and specialized scientific and engineering expertise. Staff also drew from the expertise of the commission's federal and state member agencies and the basin community through its water quality advisory committee, comprised of representatives from state and federal agencies, including EPA, industrial and municipal dischargers, environmental groups, local watershed organizations, and academia. DRBC staff conducted 5 years of intensive study across science and engineering disciplines to reach important conclusions laid out in a series of 2022 technical reports. These reports collectively illuminate the path forward to an estuary that supports all life stages and species of resident and migratory fish native to this river. DRBC was poised to begin rulemaking to establish new water quality standards, when, in December 2022, in response to a petition from a group of NGOs, EPA formally determined that revised standards were necessary to satisfy the requirements of the Clean Water Act. With this decision by law, EPA must itself prepare and publish proposed regulations setting forth new or revised water quality standards. We commend EPA for delivering proposed rules within the scheduled timeline. We also appreciate that EPA's detailed rulemaking notice, and its supporting technical and environmental justice reports, extensively cite the DRBC's technical studies. This EPA action will directly impact over five million people, including multiple diverse and distinct overburdened communities in three states. As stated in EPA's proposed update of its own meaningful involvement policy, "All people should have an opportunity to participate in decisions about activities that may affect their environment and/or health." To support meaningful involvement and in response to expressions of interest and concern by stakeholders about this rulemaking, DRBC has provided supplemental outreach through its website, listservs for advisory committees, and social media channels, and has conducted direct outreach to community organizations and elected officials in communities that may be affected by these proposed rules. The Delaware River provides life-sustaining resources to our environment and our economy. EPA's proposal to revise the water quality standards in the Delaware River Estuary presents a significant opportunity for achieving shared water quality goals under the Clean Water Act. We encourage the full and meaningful involvement of the basin community and request the support of all basin stakeholders for this milestone proposal to revise and protect aquatic life uses. Thank you.

Kary Phillips: Thank you for providing your comment. Rachel, do we have other commenters in the queue?

Rachel Buzzeo: Yes, Jay Cruz, it is now your time to speak. Please unmute yourself and you can begin making your comment.

Comment #5 Jay Cruz (Oral Comment): Thank you, good morning. Yogi Berra once said that you have to be careful, if you don't know where you are going, you might not get there. I would like to paraphrase Yogi Berra this morning by saying, if you do not look for something, you might not find it, such as the

case with the Atlantic Sturgeon in the Delaware River. In the 1970s and 1980s, fisheries scientists would occasionally find them in the Delaware River. In the 1990s, scientists from the state of Delaware Division of Fish and Wildlife, or DNREC, began collecting large numbers of sturgeon in a saltwater area of the river around Artificial Island. These fish were around 3 feet long, so not babies. They were 2 or 3 years old and getting ready to swim out into the ocean. Starting in 2008 to 2009, the DNREC scientists started sampling around Marcus Hook. They also changed the size of the mesh that they used in their nets to be able to catch smaller fish. This is a freshwater area of the river that also has the right kind of habitat for sturgeon spawning. DNREC scientists caught baby young-of-year sturgeon in 2009. While it had been suspected that sturgeon were spawning in the Delaware River, there was definitive proof that the Atlantic Sturgeon were spawning in the Delaware River in 2009. Unfortunately, due to funding and other factors, sampling was not consistent between 2010 and 2013. The right size nets were being used, but they only managed to sample a few days in some years or did not sample at all in 2013. Unfortunately, we cannot compare the results from between 2010 and 2013 to today. Certainly, it is false to claim that all the fish died in 2013 due to low DO when DNREC didn't sample that year. What we can say for sure is every year since 2009 when DNREC has put out enough nets, juvenile sturgeon have been found, usually dozens, but sometimes hundreds of them, from samples in November and December. So, the young-of-year fish have grown from tiny eggs the size of a BB to 12 inches long, with the average of these young-of-year fish being 13 and a half inches long. Sturgeon are big fish, and they grow quickly. When the Army Corps of Engineers hired a commercial fishing boat to catch and relocate sturgeon when blasting rock in the area around Marcus Hook, their contractor, ERC, did not just scoop up the fish and relocate them. ERC also measured and tagged them. When you add up the DNREC and ERC data, there are more than 5,000 records of juvenile sturgeon in the Delaware River. In their proposed water quality standards rule, EPA has only used 72 fish that were tagged and recaptured. This is only 144 measurements, or 3% of the 5,000 observations available. Since the fish caught by DNREC and ERC were measured and weighed, we can look at not just how many fish were caught, but also how long they are, how much they weigh, are they healthy-looking and plump or are they really skinny? After one summer of rapid growth, how big are the young-of-year in the Delaware River compared to other rivers like the Hudson River, New York, or in the warmer southern states in which sturgeon also spawned? From PWD's point of view, we ought to be looking at the health of the fish themselves, not just how many were found. Since the Delaware River also has a water quality monitor at Chester right near the Marcus Hook habitat, we can also compare the size of the fish collected with the DO data that are collected while the juvenile fish are in this area and are using that as a nursery habitat. PWD was concerned that no one seems to be looking at the sturgeon data in this way. While we had some ideas, we did not know exactly what to look at—is it more about the average dissolved oxygen or is it not how low the DO gets? Would we see differences in how long the fish get, how much they weigh, both comparing the length and weight like the way a human doctor measures body mass index or BMI? PWD used exploratory data analysis and set up hundreds of correlation tests comparing all the different ways of looking at the fish measurements, growth rates, how fat or skinny they are with different statistics for the DO. We tried 560 different statistical correlation hypothesis tests to look for how much would the fish correlate with the DO. What we found was no statistically significant correlation. This does not mean that the sturgeon aren't affected by DO. Obviously, fish and other life aquatic life are affected by DO. It just means that there wasn't any effect from the DO that was observed over the years that were observed. The DO statistics varied, and the sturgeon seemed to vary as well, but there was no correlation. We did not just look for linear correlations between the two variables, only that variable x correlated with variable y. We also

found no statistically significant difference between the length or the growth characteristics of the sturgeon in Delaware River and the sturgeon in the Hudson River where the DO levels are a lot higher. Getting back to Yogi Berra's quote, "Where are we going? How will we know when we get there?" Are we ready to spend billions of dollars, raising water bills by hundreds of dollars a year in one of the poorest, largest cities in America without knowing whether it would even benefit the fish? Thank you for the opportunity to comment at this public hearing. PWD will provide more details of our concerns with EPA's proposed rule in our official comments.

Kary Phillips: Thanks for providing your comment. Rachel, do we have any other commenters in the queue?

Rachel Buzzeo: At this moment we do not have any other public commenters in the queue.

[Paused to wait for more commenters]

Kary Phillips: Okay, thank you. We will pause here to wait for more commenters in the queue at this time. If there are no additional commenters and 15 minutes have passed with no comments, the hearing will end early. You are welcome to stay with us or leave the meeting. If you have a comment at this time, please use the Raise Hand function.

[Five minutes pass by]

Kary Phillips: We have gone 5 minutes with no additional comments. We will stay on the line in case there are additional commenters. If there are no additional commenters and another 10 minutes pass with no comments, the hearing will end early. You are welcome to stay with us or to leave the meeting. If you have a comment at this time, please use the Raise Hand function.

[Ten minutes pass by]

Kary Phillips: At this time, I would like to conclude today's public hearing. Thank you to everyone who joined us and provided an oral comment.