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Pennsylvania Fish & Boat Commission

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February 15, 2018

Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

Re: Comments on Proposed Rulemaking Associated with the Triennial Review of Water Quality Standards

Dear Board Members:

The Pennsylvania Fish and Boat Commission (PFBC) appreciates the opportunity to provide comments on the water quality standard changes proposed as part of the Triennial Review of Water Quality Standards. The evaluation of these standards is critical to the mission of the PFBC to not only protect water quality for state jurisdictional species but to also protect the recreational value of the Commonwealth's resources for generations of anglers and boaters. Our staff has reviewed the proposed rulemaking and offer these specific comments:

Ammonia Criteria

The PFBC supports the new federally-recommended criteria for ammonia and the statewide application of these federally-recommended criteria that are protective of aquatic life.

§ 93.8c. Human Health and Aquatic Life Criteria for Toxic Substances

Trichloroethane
1,2 Dichloropropane
1,2,4,5-Tetrachlorobenzene
2,4,5-Trichlorophenol
3-Methyl-4-Chlorophenol
Methoxychlor
Chlorophenoxy herbicide (2,4-D)
Chlorophenoxy herbicide (2,4,5-TP)
Dinitrophenols
Hexachlorocyclohexane (HCH)
Pentachlorobenzene

The PFBC recognizes that human health criteria are important aspects of water quality criteria that help protect anglers and boaters as well as the general public. The Board is proposing additions and amendments to the human health and aquatic life criteria in Table 5 which is proposed to be updated to reflect the latest scientific information and implementation of exiting

EPA policies in the methods for deriving ambient water quality criteria for the protection of human health. We defer to DEP staff and the coordination with the U.S. EPA to evaluate human health risks and establish human health criteria for these constituents.

Chloride Criteria

The PFBC has supported the Department during previous discussions to establish chloride criteria for water quality standards in the Commonwealth. After a lengthy discussion and literature review, the PFBC suggested that the Department consider the implementation of the *Iowa Equation-Based Aquatic Life Chloride Criteria.* During that analysis, the PFBC had some concerns with the chronic (CCC) criterion. At that time, we had concerns that this criterion would be less protective to aquatic life than the EPA 1988 National Aquatic Life Criteria for chloride. The Department subsequently followed that effort up with toxicology testing on a variety of mayfly species and it was determined that a suitable suite of tests did not adequately define mayfly response.

The Department is now reviewing the *EPA Draft Field-Based Methods for Developing Aquatic Life Criteria for Specific Conductivity* to determine how it may apply to Pennsylvania. This approach would use field-based specific conductivity as a surrogate for a broad range of ion concentrations. It also removes the need for the adjustments for hardness and sulfate concentrations in a formulaic determination. The EPA is currently evaluating this method and is reviewing public comments.

The U.S. Fish and Wildlife Service (USFWS) has recently published a study assessing the effects of high salinity wastewater discharges on Unionid mussels in Pennsylvania. The USFWS suggests that a chronic criterion of 78 µg/l chloride or 247 µS/cm will prevent the take of federally endangered and threatened mussels. This information should be considered during the evaluation of the *EPA Draft Field-Based Methods for Developing Aquatic Life Criteria for Specific Conductivity.*

The Department has been evaluating chloride standards for several triennial review cycles. The PFBC has supported the Department's effort to implement water quality standards for chloride criteria to minimize impacts to aquatic life. The PFBC strongly supports and suggests that the Department implement water quality standards for chloride during the evaluation of the current methodology.

§ 93.9b. Drainage List B

According to the GNIS_PA Features updated in July 2017, the stream source for Lackawaxen River is the confluence of West Branch Lackawaxen River and Dyberry Creek at 41.57751/-75.253680. The NHD flowline incorrectly identifies the origin of Lackawaxen River at the confluence of West Branch Lackawaxen River and Van Auken Creek. Van Auken Creek is a tributary to West Branch Lackawaxen River and should have a 4 for hydrological order rather than a 3.

Delaware River Aquatic Life Uses in the Delaware Estuary

In April 2017, the PFBC testified at a Delaware River Basin Commission Special Public Hearing on the Draft Resolution for the Review of Aquatic Life Uses in the Delaware River Estuary in Trenton NJ. The purpose of this testimony was to provide the DRBC with the most current PFBC physical and biological data available for consideration in support of future rulemaking for designated water quality protected uses in Zone 3, Zone 4, and the upper portion of Zone 5 of the estuary. We have previously presented this testimony at the DRBC Hearing Board and are including that testimony as part of our comments in this letter.

Pennsylvania Fish and Boat Commission Testimony for DRBC Special Public Hearing on the Draft Resolution for the Review of Aquatic Life Uses in the Delaware River Estuary
West Trenton Volunteer Fire Company
West Trenton, NJ
April 6, 2017

The Delaware River is 330 miles long and forms the eastern border of Pennsylvania. It is shared with the states of New York, New Jersey, and Delaware and is managed by all four states as an exceptional aquatic resource. The Upper Delaware was designated as a Scenic and Recreational River with management by the National Park Service. It is Pennsylvania's longest free-flowing river, with a foot note, which I will address in a minute. The Pennsylvania Fish and Boat Commission has documented 62 freshwater fish species as well as 33 euryhaline and marine fish species in the watershed. This abundant and diverse fish assemblage is unique and does not occur anywhere else in the Commonwealth. On any given day, an angler can fish for wild Brown Trout and wild Rainbow Trout in the headwaters, fish for naturally reproducing Smallmouth Bass, Walleye, migratory anadromous Striped Bass and American Shad or catadromous American Eel in the middle and lower reaches and work all the way down into the salt wedge and catch enough Blue Crabs for dinner. That same recreationist can don scuba gear and observe ten different species of mussels and a multitude of non-game fishes or perhaps an endangered Atlantic Sturgeon. It is a biologically rich and ecologically diverse river system.

However, not all of these activities and observations were possible 40 years ago. Let me return to the aforementioned footnote. I indicated that the river is free-flowing and while that may technically be the case the river has been impounded chemically, if you will. Poor water quality, most notably dissolved oxygen and the associated anoxic zones, has 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 1960s through the early 1980s defined significant blockages to migratory fish species as well as intra-river movement of indigenous riverine species. We are all keenly aware of historic exceedances to the minimum daily averages through DRBC River Zones 3, 4, and 5 with monthly average measurements less than 1.0 ppm for extended periods.

The Delaware River Basin Commission (DRBC) and the basin states noted recovery occurring in the late 1980s and early 1990s. Since that time 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. As required by the Atlantic States Marine Fisheries

Commission, the Pennsylvania Fish and Boat Commission began annual sampling of the Delaware River Striped Bass spawning stock in DRBC River Zones 2, 3, and 4. This was done in conjunction with sampling efforts by the states of Delaware and New Jersey which assessed the spawning stock in Zones 4 and 5, which quantified annual young of year production throughout as part of the overall monitoring of the Striped Bass population recovery along the East Coast. Twenty-one assessment sites were established by the Pennsylvania Fish and Boat Commission in 1995. Groups of spawning Striped Bass have been detected in at least half of those sites and tagging has revealed that some of the fish exhibit inter-annual site fidelity. The data collected during that period on the Striped Bass population in the lower river was instrumental for decision making purposes.

In 1997, the Delaware River Basin Fish and Wildlife Cooperative Technical Committee and Atlantic States Marine Fisheries Commission declared the unique Delaware River Striped Bass stock restored to historical population levels based on high juvenile recruitment, high spawning stock biomass, and low fishing mortality rates. Striped Bass population monitoring has continued from that time to the present.

While there is a wealth of historical and time series data, I am going to focus on the Pennsylvania Fish and Boat Commission Division of Fisheries Management survey results from 2016. A total of 521 Striped Bass were collected from the index sites which are in Zones 2 - 4. Male Striped Bass have consistently accounted for the majority of the catch on the spawning grounds. Males ranged from 4.9 to 38.4 inches (125 - 976 mm TL) and 1 to 11 years of age. Female Striped Bass ranged from 17.8 to 49 inches (453 - 1,245 mm TL) and 5 to 16 years of age. These data continue to support the fact that, while annual variations occur, the Striped Bass population in the DRBC River Zones 3 and 4 support spawning and recruitment into the population.

These river zones also provide nursery habitat for juvenile Striped Bass until out migration occurs. During the 2016 survey period, the Pennsylvania Fish and Boat Commission documented 52 yearling Striped Bass in Zone 3 and 133 yearling Striped Bass in Zone 4. We also documented two-year-old Striped Bass from the large 2014-year class in these Zones.

In 2014, the Pennsylvania Fish and Boat Commission as part of the Delaware River Basin Fish and Wildlife Management Cooperative also provided comments to the DRBC with regard to dissolved oxygen levels in Zone 4 and spawning/nursery requirements for Atlantic Sturgeon. The Pennsylvania Fish and Boat Commission discussed how dissolved oxygen levels affect the endangered Atlantic Sturgeon. Stated in that letter, the current summertime DRBC dissolved oxygen criterion for Zones 3, 4 and part of Zone 5, is a 24-hour average of 3.5 ppm. The scientific literature indicates that dissolved oxygen levels 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.

Multiple research projects have indicated that Atlantic Sturgeon and Shortnose Sturgeon mature slowly and spend most of their first five years of life in rivers or estuaries. We also noted that the pattern of variation among years in YOY sturgeon collection has paralleled the highs and lows among years in oxygen levels, suggesting that oxygen levels could be controlling or influencing reproductive success in this stock. 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. As part of the Cooperative, the Pennsylvania Fish and Boat Commission supported this recommendation. It is

obvious that a that a great deal of data has already been collected and can be applied to this proposed effort. Fish communities currently present indicate a significant biological response to water quality improvements. This is certainly a testament to the longstanding effort of the DRBC. In fact, on April 6, 2017, Dr. Thomas Fikslin presented dissolved oxygen values from a time series data set at the Ben Franklin Bridge (R.M 100) measured in July for the period 1964 through 2013. The data trend for dissolved oxygen values at this location increased from levels less than 1.0 ppm during the 1960s through early 1970s to measurements near or at 7.0 ppm in 2008 and 2013. From the graphical representation, for the period 1994 through 2013, dissolved oxygen levels exceeded 4.0 ppm 95% of the time (18/19 yrs.) and 5.0 ppm 63.15% of the time (12/19 yrs.*). For the period 2008 through 2013, dissolved oxygen levels exceeded 6.0 ppm 60% of the time (3/5 yrs.*) (*2010 data point missing).*

As noted in the DRBC Resolution No. 2017, there has been significant historical improvement and the shared goal that water quality criteria should be updated consistent with the Clean Water Act goals as quickly as possible and practicable. Increased water quality protection is a readily attainable and achievable goal. 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. Furthermore, the Pennsylvania Fish and Boat Commission believes that the fisheries survey and assessment data collected since the 1990s 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.

Thank you for the opportunity to present this testimony.
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Pennsylvania Fish and Boat Commission
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Thank you for considering our comments. If you have any questions or wish to further discuss, please contact Heather Smiles, Chief, Division of Environmental Services at (814) 359-5194 or by email at hsmiles@pa.gov.

Sincerely,

John A. Arway
Executive Director

Submitted via email: RegComments@pa.gov

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