

Philadelphia Water Department (PWD) Concerns with United States Environmental Protection Agency (EPA) Final Rule Water Quality Standards to Protect Aquatic Life in the Delaware River

Having provided extensive comments and scientific information to EPA, PWD was disappointed to find no substantive changes to the final 9/22/2025 rule enacting Water Quality Standards for the Delaware River. This fact sheet summarizes PWD concerns with the final rule and EPA’s Response to Comments document.

EPA did not use “Gold Standard Science” to develop the rule. When EPA took over the dissolved oxygen (DO) criteria development process from the Delaware River Basin Commission (DRBC), EPA did not acknowledge or use available data that showed that sturgeon are spawning successfully and growing normally under existing conditions. EPA instead created a new and complex model of fish growth to justify EPA's preference for higher DO conditions. EPA failed to use a “weight of evidence” approach¹ and did not appropriately question their assumptions in the model. EPA also ignored its own internal policies for the quality of laboratory studies to be used in developing water quality criteria.

EPA continues to make false and misleading statements about the status of sturgeon spawning in the estuary. In the [Response to Comments document for the final rule](#), EPA continues to reference an outdated 2015 DRBC report and debunked Moberg and Delucia 2016 Nature Conservancy report to mischaracterize spawning success. The evidence from Delaware Department of Natural Resources and Environmental Control (DNREC) and Environmental Research and Consulting (ERC) surveys is clear and unambiguous (Fig 1). Sturgeon **spawned consistently every year** when an adequate amount of field effort was made to survey juvenile fish. EPA continues to misrepresent this fact as a pretext to justify the need for higher DO levels.

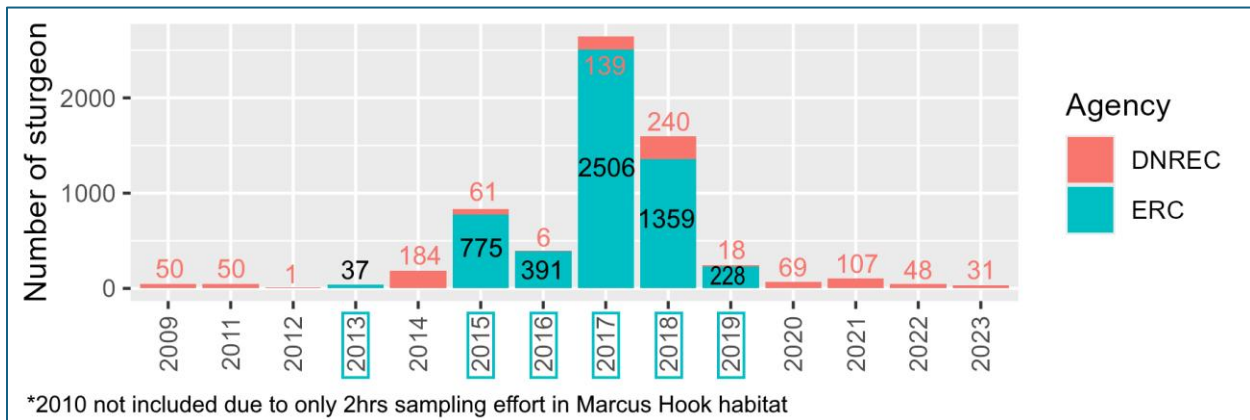


Figure 1.) Number of sturgeon collected by DNREC and ERC in surveys from the Delaware River 2009-2023.

Laboratory tests used by EPA to develop the fish model did not use appropriate methods or enough subjects to be statistically valid. EPA acknowledges this concern in its Response to Comments, but PWD finds EPA's response unacceptable. On the key question of small sample size and unreliability of results, EPA essentially says the studies are “peer reviewed” and the “best available”, and even though the studies don't meet EPA guidelines or basic statistical sample size requirements, it is okay because the results are consistent with EPA’s prior assumptions. The laboratory simulation of 40% and 70% DO in warm summer temperatures in the EPA’s primary reference is unreliable due to very small sample size. With no testing of DO levels between 40% and 70%, EPA’s modeled effects in the range between 40% and 70% are pure guesswork.

1.) an approach to scientific evaluation in which each piece of relevant information is considered based on its quality and relevance, and then transparently integrated with other relevant information to inform the scientific evaluation prior to making a judgment.



Benjamin Jewell, Water Commissioner

EPA did not calibrate the fish model using observed data on fish growth. EPA based the fish model on flawed laboratory studies while ignoring abundant data on actual fish growth observed year after year in the Delaware estuary. The fish model underpredicts fish growth to justify excessively stringent DO levels.

EPA’s reasoning that fish collected in fall and winter can’t be compared to model output and used for model calibration is illogical. Fish collected in fall and winter reflect the cumulative growth achieved during the preceding growing season. PWD’s analysis showed that the fish were *healthy* (plump for their size), and importantly, had *grown to the appropriate length*, on average, for the Delaware’s position between the Hudson River and Chesapeake Bay. In many years, EPA’s fish model simulates low growth when the observed fish are normal, indicating that model parameters relating fish growth to DO and temperature are incorrect.

EPA does not dispute PWD's conclusions from six separate lines of evidence that there was no correlation between sturgeon growth and DO, nor does EPA provide any empirical evidence that DO was correlated with sturgeon spawning. EPA’s primary counterargument for justifying the rule and need for more stringent DO is that the observed data provided by PWD are biased toward fish that survived critical summer conditions. EPA’s theory that low DO is causing mortality is based on extrapolation from flawed laboratory studies and completely unsupported by any real-world evidence. Juvenile sturgeon fish kills are not documented in the Delaware River. PWD considers it unlikely that the DO conditions that result in consistent successful spawning and normal healthy growth of sturgeon would also simultaneously cause mortality.

Additional research is needed to inform whether, and if so, to what extent DO levels are negatively affecting sturgeon. Nearly all juvenile sturgeon collected from the Delaware River have been caught in fall or winter, after the growing season. Juvenile habitat is poorly understood because almost no small juveniles have been caught during summer. Conducting sturgeon surveys in summer could help inform whether juvenile sturgeon are experiencing stress or low growth rates due to low DO. A directed trawling effort in suspected juvenile habitat areas during stressful temperature conditions could possibly collect dead sturgeon, if present.

Other important factors are likely contributing to small numbers of sturgeon in the Delaware River. Sturgeon are large fish that take a long time to reach maturity. Unintentional mortality is known to occur due to vessel strikes and bycatch in other fisheries. These factors may be more impactful than low DO.

There are other ways to help rebuild the population of Delaware River Atlantic Sturgeon. Augmenting the natural spawning that is already occurring with hatchery-raised juveniles may be an effective way to offset losses due to mortality and grow the population of Delaware River sturgeon more quickly.

Table 1. Summary of PWD Comments to EPA and DRBC

Date	Document Name
February 20, 2025	PWD Comments on Proposed Consent Decree in Delaware Riverkeeper Network et al. v. USEPA et al. _022025 Docket ID No. EPA-HQ-OGC-2025-0019
February 20, 2024	PWD Comments to US EPA on Proposed Delaware River Water Quality Standards
February 20, 2024	PWD Comments to US EPA on the Evidence for Hypoxia as a Stressor on Atlantic Sturgeon
February 8, 2024	PWD Comments to DRBC on Nitrogen Reduction Cost Estimation Study²
February 9, 2024	PWD Comments to DRBC on Draft Analysis of Attainability and Dissolved Oxygen Modeling³

2.) compilation of comment letters previously submitted 8/7/2020, 5/30/2023

3.) compilation of comment letters previously submitted 2/14/2022, 3/28/2022, 9/23/2022