BEFORE THE MARYLAND DEPARTMENT OF THE ENVIRONMENT

LOWER SUSQUEHANNA RIVERKEEPER ASSOCIATION, 2098 Long Level Road Wrightsville, PA 17368	)
and	) FERC Project No. P-405) MDE WSA App. No.17
WATERKEEPERS CHESAPEAKE, P.O. Box 11075 Takoma Park, MD 20913	)

RESPONSE OF LOWER SUSQUEHANNA RIVERKEEPER ASSOCIATION AND WATERKEEPERS CHESAPEAKE TO MARYLAND DEPARTMENT OF THE ENVIRONMENT'S REQUEST FOR SUPPLEMENTAL BRIEFING REGARDING THE PETITIONS FOR ADMINISTRATIVE RECONSIDERATION OF THE CLEAN WATER ACT SECTION 401 CERTIFICATION FOR THE CONOWINGO HYDROELECTRIC PROJECT

Lower Susquehanna Riverkeeper Association and Waterkeepers Chesapeake (collectively, "Waterkeepers") submit this response to MDE's request for supplemental briefing regarding the petitions for administrative reconsideration of MDE's 2018 Clean Water Act § 401 water quality certification ("Certification") for the Conowingo Hydroelectric Project ("Conowingo Dam" or "the Dam"). As explained in more detail below, Waterkeepers do not believe that supplemental briefing and the consideration of new materials are either necessary or appropriate to MDE's decision on the petitions for administrative reconsideration. Because MDE has made the decision to request the submission of supplemental briefing and new materials, however, Waterkeepers respectfully submit that the information and materials that have become available since MDE issued the Certification in 2018 confirm that all the requirements MDE found necessary to assure the Dam's compliance with Maryland's water quality standards over the next 50 years are necessary. They further confirm that these requirements are not sufficient. MDE should strengthen the Certification by adding specific requirements to reduce the Dam's discharges of sediments and nutrients, to restore habitat below the Dam,

and to fully restore the passage of fish and eel past the Dam and vitally important mussel populations above the Dam.

INTRODUCTION

As MDE recognized in 2018 and 2019, its Certification for the Conowingo Dam provided a historic, "once-in-a-generation opportunity" to protect the Chesapeake Bay and the lower Susquehanna River from the harms caused by the Dam, and to put these treasured waterways on a path to recovery.[1] The information that has become available since 2018 confirms that, more than ever, it is important that MDE use this opportunity and not squander it.

New information confirms that the reservoir behind the Dam is full and no longer has trapping capacity. Now, even during storm events that are far from exceptional, accumulated nutrients and sediments are scoured from the bottom of the reservoir and discharged into the River and the Bay. At the same time, climate change is making storm events both more frequent and more severe. These facts, which are now beyond dispute, reinforce that MDE was correct when it described the Conowingo Dam as "a loaded cannon pointed at the Bay."[2]

To disarm this cannon, MDE must require Constellation to make the nutrient reductions, or the payments in lieu of those reductions, that MDE found necessary in the Certification. Merely requiring a reduction in nutrient discharges (or a payment in lieu of such discharges), however, is not sufficient. The same lack of maintenance that causes the Dam to discharge nutrients also causes it to discharge sediments, and these sediments also harm the lower Susquehanna and the Bay and cause violations of Maryland's water quality standards.

As pointed out by the Clean Chesapeake Coalition, representing local governments for communities impacted by the Dam's discharges,

> The Conowingo Reservoir, just like any stormwater management pond, has to be dredged and maintained or it will continue to be an environmental hazard. With the loss of trapping capacity, the Conowingo Reservoir is an environmental hazard. The Bay's natural ecosystems are not able to

[1] Certification at 12-13; MDE, Overview of Maryland's Water Quality Certification for the Conowingo Dam (January 3, 2019) ("Certification Overview").

[2] Certification Overview at 4.

> ameliorate the deleterious impact of the massive release of scoured nutrient-laden sediments during significant storm events. In order to save the Bay, or at least give the upper Bay breathing room for restoration, the only reasonable solution is to dredge the 14 miles of buildup behind the Dam and reuse and repurpose dredged material.[3]

The Certification should require reductions in both nutrients and sediment from the Dam and should include specific dredging requirements to ensure these reductions actually are achieved. Notably, the new material on climate change and scour confirm that the reductions needed to make the Bay safe from the Dam and the colossal accumulation of nutrient-laden sediment behind it cannot occur without dredging. Even if inputs of nutrients and sediments to the reservoir stop today, the nutrients and sediments that already fill the reservoir will continue to harm the Bay on a continuous basis – and threaten the Bay with catastrophic harm in the next big storm – until the reservoir is adequately dredged.

New material also confirms the importance of eel passage and healthy mussel populations. As MDE found in the Certification,

> Millions of Eel, an important host species for freshwater mussels that filter pollution out of waters, should be present in the Lower River, including areas upstream of the Dam; in 2017, only thousands were collected at the base of the Dam and transported upstream. Consequently freshwater mussel populations have declined dramatically in the system. The River should support tens of millions of freshwater mussels; today, the freshwater mussel population is significantly diminished above and below the Dam such that it is considered unviable.[4]

Now it is clear that restoring the eel and mussel populations will have even greater benefits – and therefore is even more imperative – than MDE realized when it issued the Certification. The Certification should include a requirement, similar to its requirements for Shad and Herring, that Constellation take all steps necessary to restore the populations of eel and mussels to the millions and tens of millions respectively that MDE found the River "should support."

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[3] Comments of the Local Government Members of the Clean Chesapeake Coalition Regarding the Joint Offer of Settlement of Exelon Generation Company, LLC and the Maryland Department of the Environment Re: Conowingo Dam Water Quality Certification (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5236) at 4.

[4] Certification at 12 (emphasis added).

New information also confirms that the flow rates in the private settlement agreement that MDE reached with Constellation are not adequate. As explained in more detail below, comments submitted by The Nature Conservancy show those flows were very similar to – or even lower than – the inadequate flows in Constellation's existing license that have contributed to water quality impairments. MDE should not weaken the flow requirements in the Certification, but should strengthen them to allow the best possible opportunities for the restoration of aquatic habitats below the Dam.

Finally, new information confirms that the passage of American shad and river herring past the Dam remains inadequate and is getting worse. MDE should not weaken the Certification's fish passage requirements in any way and should move expeditiously to implement the requirements of the Fishway Prescription so that the changes necessary to restore fish passage can begin right away rather than waiting until after a new license is issued.

BACKGROUND

I. THE CONOWINGO DAM'S OPERATIONS SIGNIFICANTLY CONTRIBUTE TO POLLUTION IN THE BAY AND IMPAIRMENT OF THE SUSQUEHANNA RIVER, NEGATIVELY IMPACTING SPECIES, HABITAT, AND DESIGNATED USES OF STATE WATERS. THESE CONTRIBUTIONS ARE PROPERLY ADDRESSED IN THE STATE WATER QUALITY CERTIFICATION.

The Susquehanna River forms in central New York and flows over 400 miles through central Pennsylvania to Maryland. It is the greatest contributor of fresh water to the Chesapeake Bay. The Conowingo Dam, which includes an approximately 8,500-acre, 14-mile-long reservoir, was built in 1928 on the Lower Susquehanna River about 10 miles upstream from where it flows into the Chesapeake Bay at Havre De Grace, Maryland. Since the Dam was built, its impact on the Susquehanna River has been significant, affecting water quality, depleting migratory fish and their habitat, and altering recreational uses. These impacts have not diminished since the 2018 Water Quality Certification ("Certification") was issued by the Maryland Department of the Environment ("MDE") and are only expected to worsen with climate change.

In the Certification, MDE specifically found that "[t]he discharge from the Project impacts water quality in the River below the Dam and in the Bay."

Certification at 8. Based on the evidence before MDE, it determined that the Dam has adversely impacted water quality in the State of Maryland "over the past 90 years of operation" in numerous ways.[5] The failure to take proper action to avoid or mitigate those harms cannot be defended, and it is important to note that the Certification is intended to support another 50 years of operation. As MDE itself has stated, "[e]nvironmental progress at Conowingo has historically been slow" and "[i]mpounded sediment is like a loaded cannon pointed at the Bay."[6]

The Dam has "significantly and adversely impacted biota in the Lower River and the northern Bay."[7] The Susquehanna River once supported large numbers of migratory fish, including the American shad, river herring such as the blueback herring and alewife, hickory shad, striped bass, Atlantic sturgeon, and shortnose sturgeon, and had an abundance of American eel.[8] "These fish played a vital role in the Chesapeake region's history, supporting one of the most valuable finfish fisheries in the region."[9] "Populations of American shad, alewife, blueback herring, and American eel were reduced or essentially eliminated in the Susquehanna River and other Chesapeake Bay tributaries by dams."[10] While there are other dams upstream, the Conowingo Dam is the first one encountered when migratory fish begin their journey upstream to their natural spawning habitats and nurseries. The Dam causes adverse impacts on aquatic resources because it is an obstacle to fish passage, degrades habitat, and has "highly unnatural operational flow regimes."[11]

Construction of the Dam resulted in the loss of miles of migratory fish runs. While fish lifts were finally constructed in 1972 and 1991 to support fish passage, MDE found that the years before there was any required minimum flow and any

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[5] Certification at 11-13.

[6] Certification Overview at 3, 7.

[7] Certification at 11.

[8] Susquehanna River Anadromous Fish Restoration Cooperative, *Migratory Fish Management and Restoration Plan for the Susquehanna River Basin*, at 5, 9 (2010), *available at* https://www.nrc.gov/docs/ML1327/ML13274A047.pdf.

[9] Testimony of Genevieve Larouche, Field Office Supervisor, Chesapeake Bay Field Office U.S. Fish and Wildlife Service, U.S. Department of the Interior Before the Senate Environment and Public Works Subcommittee on Water and Wildlife, May 5, 2014, https://www.fws.gov/testimony/oversight-hearing-conowingo-dam ("Larouche Testimony").

[10] Larouche Testimony, *supra* n.9.

[11] Certification at 11.

working fishlift the Dam "had significant consequences for the health of the aquatic system from above the Dam to the northern Bay."[12] Even with the fish lifts, "studies found that 69 percent of shad attempting to pass were blocked at the Conowingo Dam and unable to reach their spawning grounds and the remaining 31 percent of shad took an average of 2 weeks to pass over the Conowingo Dam."[13] Because the spawning migration of coastal migratory fish is a time sensitive event, these blockages and delays have adverse impacts that can result including re-absorption of eggs, spawning in unsuitable areas, depletion of energy reserves, and fish mortality.[14] By preventing their migration upstream to spawn, the Dam has almost entirely destroyed the Susquehanna River's once-teeming populations of American Shad and River Herring. Although "millions of Shad and Herring should be passing upstream in the River every year," MDE's Certification found that "only 15,000 Shad and 65 Herring passed the Dam" in 2017.[15]

The flow regime used is also of particular importance, as it can have significant adverse impacts on fish species.[16] The "day-to-day operation of the Conowingo Dam affects wildlife and habitat downstream" due to the creation of unnatural river conditions and degradation of downstream habitat.[17] Unnatural river conditions are created by the rapid cycling of rising water during power generation, followed by falling water levels after generation. "These unnaturally rapid changes in water levels impact migratory fish by interrupting migratory cues, lengthening migration times, stranding fish, and reducing suitable habitat."[18]

The Certification gives Maryland authority to require "such actions as may be necessary to permit *at least* 5,000,000 Shad and *at least* 12,000,000 Herring."[19] It requires Constellation to increase minimum flows and significantly reduce the drastic flow fluctuations that harm aquatic life below the Dam.[20]

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[12] *Id.*

[13] Larouche Testimony, *supra* n.9.

[14] Larouche Testimony, *supra* n.9.

[15] Certification at 12.

[16] *Id.* at 11.

[17] Larouche Testimony, *supra* n.9.

[18] Larouche Testimony, *supra* n.9.

[19] Certification at 13 (emphasis added).

[20] *Id. a*t 14-15.

Other species have been severely impacted by the construction and operation of the Conowingo dam, such as American eel and thereby freshwater mussels. Although "millions of eel" should be present, MDE found that only "thousands" were collected and transported upstream in 2017.[21] Eels play an especially important role in the ecosystems of the Susquehanna River and the Chesapeake Bay by providing transport for the larvae of freshwater mussels which, in turn, "filter pollution out of waters."[22] "The River should support tens of millions of freshwater mussels; today, the freshwater mussel population is significantly diminished above and below the Dam such that it is considered unviable."[23] The Certification requires an MDE-American Eel Passage Improvement Plan, which requires the construction, operation, and maintenance of Eel fishways at the Dam to pass upstream migrating Eels.[24] The Dam must also be operated to "provide safe, timely, and effective downstream passage of Eels."[25] Additional measures addressing species impacts include, but are not limited to, requiring an MDE-Invasive Species Plan, monitoring and, if necessary, reduce levels of algae in the reservoir, and protecting habitat for Bog Turtles, nesting waterfowl (including Black-Crowned Night Heron), Sturgeon and other species.[26]

Constellation has contended that the Dam provides benefits to users of the Bay. Indeed, the Dam's reservoir was to provide some benefits for water quality and to meet the needs of fishing and recreational uses. It had captured sediment—and the often attached nutrients—flowing down the Susquehanna River, reducing the amount of sand, silt, nitrogen, and phosphorus pollution entering the Chesapeake Bay. But, MDE's findings in the Certification regarding the *adverse* impacts of the reservoir cannot be disputed:

> The Reservoir, formed by the construction of the Project, replaced 14 miles of flowing, dynamic River habitat with an impoundment and fundamentally altered aquatic habitat. The Reservoir lacks suitable habitat for freshwater mussels, which has adverse consequences for water quality, as these organisms provide important

[21] *Id.* at 12.

[22] *Id.*

[23] *Id.*

[24] *Id.* at 2-1.

[25] *Id.*

[26] *Id.* at 17-22.

> ecosystem services of filtration and transformation of sediment and nutrient pollution. Reservoir-adapted fish such as gizzard shad have replaced and continue to threaten populations of riverine species that would typically be dominant. The Reservoir has elevated levels of chlorophyll-A during summer months with increased water temperatures, which impact drinking water supply uses of the water. Elevated PCB levels in fish tissue in fish in the Reservoir and below the Dam impact fish consumption related uses, and have triggered the development of TMDLs to address these impairments.[27]

The Dam also harms water quality by blocking much of the coarse sediment that the River would otherwise transport downstream.[28] Coarse sediment is important to the growth and survival of submerged aquatic vegetation, which in turn provides habitat for fish, mussels, and other aquatic species in the lower portion of the River.[29] The Dam's "highly unnatural" flows further harm habitat by preventing the deposition of course sediment that does make it past the Dam.[30] Without the Dam, there would be some attenuation of the sediments and nutrients, as the River would be better connected to its floodplain and there would be coarse sediment regularly moving downstream, which would make the River system more resilient and minimize damage associated with moderate to large rainfall events.[31]

[27] Certification at 12.

[28] Certification at 11.

[29] *Id.*

[30] *Id.*

[31] *Id.* at 13.

The Dam's discharges contribute significantly to the nutrient and fine sediment pollution that degrade water quality in the Lower Susquehanna River and Chesapeake Bay.[32] MDE's Certification found:

> the Reservoir is now full, as no efforts have been undertaken over the life of the Project, such as routine dredging, to maintain any trapping function. As a result, sediments and nutrients move downstream, and during large storm events, significant amounts of trapped sediment and nutrients are scoured from the behind the Dam and discharged downstream. By releasing significant amounts of sediment and nutrients through scouring during storm events, the Dam has altered the nature, timing, and delivery method of these materials with adverse consequences for the Lower River and the Bay.[33]

As climate change causes ever more frequent and severe storms, the unchecked buildup of sediment and nutrients behind the Dam threatens even greater damage to the Bay and its ecosystem over the next fifty years. Again, MDE's own words aptly summarize the situation: "For 90 years, the dam has generated profits for its

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[32] It cannot be disputed that the Dam itself discharges pollutants under the Clean Water Act, regardless of the origin of the nutrients in the water. *See S.D. Warren Co. v. Maine Bd. of Envtl. Protection*, 547 U.S. 370, 385-86 (2006) (finding hydroelectric dams releasing water constituted a discharge for purposes of section 401 certification); *see also* 87 Fed. Reg. 35,318, 35,328 (June 9, 2022) ("The [Supreme] Court explicitly rejected the argument that an 'addition' was necessary for a 'discharge,' stating '[w]e disagree that an addition is fundamental to any discharge.'") (quoting *S.D. Warren Co.*, 547 U.S. at 379 n.5. Where there is a discharge, the state has broad authority to ensure the Dam's entire operations are in compliance with water quality standards. *See PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 711-12 (1994) (holding Section 401 "is most reasonably read as authorizing additional conditions and limitations on the activity as a whole once the threshold condition, the existence of a discharge, is satisfied."); *see also* 87 Fed. Reg. at 35,342-35,343). This is a long standing interpretation of the Clean Water Act. *See, e.g.*, EPA, Office of Water, Wetlands and 401 Certification, Opportunities and Guidelines for States and Eligible Tribes, at 23 (Apr. 1989) (available at www.regulations.gov (EPA-HQ-OW-2022-0128-0015)); EPA, Office of Wetlands, Oceans, and Watersheds, Clean Water Act Section 401 Water Quality Certification: A Water Quality Protection Tool for States and Tribes, at 23 (Apr. 2010) (available at www.regulations.gov, EPA-HQ-OW-2022-0128-0067).

[33] Certification at 12.

owner. … Meanwhile, environmental challenges have continued to compound, and now the challenges are big."[34]

High flow or "scour" events routinely send debris and pollution from the reservoir through the Conowingo Dam and into the Bay. As the Certification found, the Dam "traps trash and debris behind the Dam, which accumulates over time, threatening recreational uses of the Reservoir and potentially concentrating pollutants, and if not removed regularly is vulnerable to downstream transport during moderate to large storm events."[35] Climate change makes it all but inevitable that a major storm will cause a catastrophic scour event, doing permanent damage to the Bay and defeating all other cleanup efforts. Additionally, the Certification requires improved management of debris that collects at the Dam, requiring frequent trash and debris removal on a weekly and even daily basis.[36] It also requires prompt responses to complaints about trash and debris, including within 48 hours when they obstruct recreational uses during the recreational season, and a study regarding the feasibility of "trash wheel" technology to remove trash and debris from the reservoir.[37] It is immaterial how the trash or debris entered the reservoir, as it is the Dam's operations that are discharging them downstream, having significant impacts on the Bay, its ecosystem, and those that seek to use and enjoy the Bay's rich resources.

The objective of the Clean Water Act "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[38] Water quality standards are to provide "for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water" and include designated uses of the waters.[39] Courts long have recognized the states' broad authority to take appropriate actions under Section 401 to protect water quality, including enforcing state antidegradation policies and maintaining of designated

[34] Certification Overview at 10.

[35] Certification at 13.

[36] *Id.* at 17-18.

[37] *Id.*

[38] 33 U.S.C. § 1251(a).

[39] 40 C.F.R. §§ 131.2, 131.10.

uses.[40] As the Supreme Court explained, "State certifications under §401 are essential in the scheme to preserve state authority to address the broad range of pollution."[41] Consistent with this intent, States have increased their efficacy under Section 401 to prevent projects from being developed within their borders from having lasting impacts on the quality of their local waterways.

To address nutrient discharges from the Dam and their impacts on water quality downstream, the Certification requires Constellation to either reduce the amount of nitrogen and phosphorus the Dam's discharges annually by 6,000,000 pounds and 260,000 pounds respectively or make payments to achieve the required nutrient reductions and restore dissolved oxygen levels in the Lower Susquehanna River and the Bay.[42] It should be noted that the Certification allows Constellation to seek "credit against its Required Nutrient Reduction obligation" based on committed actions under the Conowingo Watershed Implementation Plan ("WIP" or "CWIP").[43] Thus, the "'Credit' provision in the WQC makes the CWIP and WQC work together."[44] As such, the Certification already contemplated future actions under the Conowingo WIP, rendering any "new" information related to the Conowingo WIP implementation irrelevant to *reconsideration* of the 2018 Certification. In other words, complaints that the Dam doesn't introduce nutrients or may be better addressed through the Conowingo WIP are irrelevant to reconsideration of the Certification. Rather, Constellation can argue that the nutrients MDE is requiring be addressed in the Certification are already being accounted for through the Conowingo WIP.

The Certification also seeks to ensure water quality continues to be protected throughout the 50-year time frame of the federal license sought. While Petitioners believe the Certification should provide more concrete details on the plans required

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[40] *P.U.D. No 1 of Jefferson Cty.*, 511 U.S. at 714-715 (upholding state authority to include conditions in 401 certification state determined were necessary to protect and comply with water quality standards "or any other 'appropriate requirement of State law,'" and explaining that "under the literal terms of the statute, a project that does not comply with a designated use of the water does not comply with the applicable water quality standards"); *AES Sparrows Point LNG v. Wilson*, 589 F.3d 721, 731-34 (4th Cir. 2009).

[41] *S.D. Warren Co. v. Maine Board of Environmental Protection*, 547 U.S. 370, 386 (2006)(citation omitted).

[42] Certification at 15-16.

[43] *Id.* at 15.

[44] Certification Overview at 12.

and did not adequately address the potential impact of climate change, the Certification provides for modifications if research or monitoring identifies water quality problems and if new information indicates the Dam is not in compliance with water quality standards.[45] Consistent with Clean Water Act § 401, the Certification states that the Conowingo Dam "will comply" with applicable water quality standards "provided that [Constellation] complies with all the provisions, requirements, and conditions in this Certification." [46]

The Certification carefully considered and addressed the impacts the Dam's operations have on vulnerable waters in the State. It represents a significant and needed (though not sufficient) step towards meeting the water quality requirements of the State and would help restore and enhance impacted fisheries and recreational uses.

II. CONSTELLATION'S BARRAGE OF LITIGATION AND THE PRIVATE SETTLEMENT AGREEMENT.

After MDE issued the Certification in 2018, Constellation filed an administrative request for reconsideration. Constellation also immediately filed suits in Maryland state court and in the U.S. District Court for the District of Columbia and, shortly afterwards, an action for declaratory judgment by the Federal Energy Regulatory Commission ("FERC") that Maryland had involuntarily waived its opportunity to issue a § 401 certification.[47]

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[45] *See, e.g.*, Certification at 14, 25-27.

[46] Certification at 7.

[47] The request for declaratory order was found moot, but, in any case, was improperly relying on *Hoopa Valley*. The D.C. Circuit has limited *Hoopa Valley Tribe v. FERC*, 913 F.3d 1099 (D.C. Cir. 2019), to the facts in the case, recently affirming a State's certification issued after earlier applications were withdrawn as the State was awaiting further environmental review to issue a certification. *Turlock Irrigation Dist. v. FERC*, 36 F.4th 1179, 1183 (D.C. Cir. 2022) (affirming finding that California did not waive certification authority when it denied requests for certification without prejudice to refile within one year of receipt because it "'act[ed]' within the meaning of section 401(a)(1)"), *reh'g denied*, 2022 U.S. App. LEXIS 25620 (D.C. Cir. 2022), *cert. denied*, 143 S. Ct. 1746 (2023). In other words, MDE's request for additional information to grant a certification (and Constellation's wish not to have it denied) was appropriate grounds to withdraw and resubmit a request. *See also AES Sparrows Point LNG*, 589 F.3d at 729 (affirming Army Corps' determination that "only a valid request for § 401(a)(1) water quality certification ... will trigger the one-year waiver period").

With all of these actions still pending, Constellation and MDE entered into private, closed-door settlement negotiations, reaching a deal in the action before FERC in October 2019.[48] Under the settlement agreement, Constellation agreed to do significantly less to clean up the Susquehanna River and the Chesapeake Bay than what is required in the Certification. Among other things, the settlement agreement did not include sufficient provisions to assure that Shad or Herring are able to pass the Dam, whereas the Certification requires actions to lead to significant restoration of Shad and Herring populations. With respect to flow fluctuations, the settlement agreement also required considerably less than the Certification. At year 10, for example, the settlement agreement allowed far lower minimum flows, requiring only half to a third of what the Certification requires in some months. The settlement agreement did not require Constellation to reduce the nutrients and sediment discharged from the Dam at all. While providing for some payments to MDE, these monies fall far short of the amount likely needed to achieve the nitrogen and phosphorous reductions required in the Certification.

Not surprisingly, then, the settlement agreement did not purport to assure the Dam will operate in compliance with water quality standards. Importantly for a 50-year license, it largely precludes MDE from requiring cleanup measures that are not in the settlement agreement, no matter how clear it becomes that such measures are necessary to protect the River and the Bay from the Dam's discharges and to achieve water quality standards.[49]

In addition, even if the settlement agreement had included requirements that assured compliance with any of Maryland's water quality standards – which it did not – those requirements would have remained largely or entirely unenforceable by the public for at least two reasons. The settlement agreement largely precluded Maryland from taking any action to reduce the Dam's discharges even in the entirely predictable event that they continued to cause violations of water quality standards.[50] Remarkably, it also required MDE to "represent in any Collateral Proceedings that Exelon's compliance with this Agreement and the New License satisfy Exelon's obligations under applicable water quality standards," regardless of whether that was true.[51]

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[48] Water Quality Settlement by and between State of Maryland Department of the Environment and Exelon Generation Company, LLC (Oct. 29, 2019) ("Settlement").

[49] Settlement at 16-17.

[50] Settlement at 16-17.

[51] *Id.* at 17.

III. WATERKEEPERS CHESAPEAKE V. FERC, 56 F.4TH 45 (D.C. CIR. 2022), RESTORES MDE'S "ONCE-IN-A-GENERATION OPPORTUNITY" TO SAVE THE BAY.

The flawed theory behind the settlement agreement was that states and private parties can enter into private agreements to bypass the Clean Water Act's requirement for water quality certifications that assure compliance with states' water quality standards. Although MDE had issued the Certification in 2018, the settlement agreement called for MDE to waive its rights to issue a certification.

Because MDE had already exercised that right and the Certification already existed, that scheme was conceptually absurd. More insidious, though, was its practical effect. The settlement agreement would have allowed Constellation to get a new 50-year license for the Dam that did not contain any of the requirements MDE – approximately one year earlier – found necessary to assure compliance with Maryland's water quality requirements. Further, while the Certification could only have been withdrawn through a legitimate public process requiring public comment, a lawful and rational basis supplied by MDE in the administrative record, and the opportunity for judicial review in Maryland state court, the settlement agreement effectively sought to make the Certification vanish without any public process and without any opportunity for judicial review.

As the Clean Water Act makes plain, the entire scheme was unlawful. Section 401 of the Act provides that FERC may issue a license for a dam only if the state in which the dam is located either: (1) issues a certification for the dam that assures it will comply with the state's water quality standards; or, (2) waives certification of the dam by failing or refusing to act on the dam owner's request for a certification within a reasonable time not exceeding one year.[52] In *Waterkeepers Chesapeake v. FERC*, the D.C. Circuit squarely rejected the notion that MDE had actually waived certification in its private settlement agreement with Constellation:

> Here, Maryland did not fail or refuse to act. Just the opposite. The state *acted* when it issued the 2018 certification. *See Turlock Irrigation District v. FERC*, 36 F.4th 1179, 1183 (D.C. Cir. 2022) (explaining that "[e]ach time" a state agency denies or grants a certification application, it "act[s] within the meaning of section 401(a) (1)"). Because Maryland's subsequent backtracking in the settlement agreement, in which it "conditionally

[52] 33 U.S.C. § 1341(a)(1), (d).

> waiv[ed]" its authority to issue a water quality certification after the fact, is neither a "fail[ure]" nor a "refus[al]" to act, it cannot qualify as a section 401(a)(1) waiver.[53]

The Court vacated the 50-year license for the Dam that FERC had issued based on the settlement agreement, finding that FERC acted unlawfully by issuing it.[54] The Court found that:

> Vacating the license … will allow completion of the administrative and judicial review that was interrupted by the settlement agreement. … That review could result in either (1) the invalidation of Maryland's 2018 certification, which would require Constellation to request a new certification, or (2) the validation of the 2018 certification, which would require FERC to issue a license incorporating the conditions contained therein. Either result would comport with a major goal of the Clean Water Act: to make states the "prime bulwark in the effort to abate water pollution.[55]

PROCEDURAL ISSUES

As an initial matter, while the undersigned petitioners seek to be responsive to the Department's request for this brief and will present new, updated, or relevant information, we want to express a concern we have about the potential hazards of this step in the process. While we fully appreciate the unique circumstances that have led to a roughly four and a half year delay in the reconsideration process, we do not believe that such significant delay – brought on by a flurry of litigation from Constellation – should necessarily allow for a disruption in the normal process that typically accompanies a petition for administrative reconsideration in Maryland, before federal agencies, or in the several states that generally recognize the authority to reconsider past decisions.

Maryland courts have long made clear that there is a high bar for agencies to clear in reconsidering prior decisions. A "mere change of mind" is not a

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[53] 56 F.4th at 49.

[54] *Id.* at 49-50.

[55] *Id.* at 50 (quoting *Keating v. FERC*, 927 F.2d 616, 622 (D.C. Cir. 1991) (internal quotation marks and citation omitted)).

permissible basis for the reconsideration of a prior decision.[56] While *res judicata* does not apply to the decisions of administrative agencies, "this does not mean that such agencies are completely free to disregard prior rulings."[57] Instead, the Maryland Supreme Court established in 1938 that an administrative agency may "correct errors" in a prior decision, but only if it found "fraud, surprise, mistake, or inadvertence."[58] Absent a finding of one of these factors, the Maryland Supreme Court has deemed an action to reconsider to be "null and void."[59]

Therefore, as a concept, administrative reconsideration is about *correcting an error* that infected the original decision, not allowing agencies to change their minds, reopen past decisions, or issue what is essentially a new decision without following the normal administrative process for that decision; such reversals of agency decisions could then be made on a whim and undermine the predictability of administrative actions and confidence in those decisions, disrupting the expectations of parties and the public.

The relevant Department regulation authorizing reconsideration of the water quality certification in the present case further confirms that the locus of this particular inquiry is the previous final determination, requiring the aggrieved person to state in its appeal of the decision "the reason why the final determination should be reconsidered."[60] This regulation thus requires parties to reconsideration proceedings to demonstrate at the time of the appeal that there was a defect in the Department's past decision that the Department must now correct. A second comment period or solicitation of new information is neither required, nor authorized, in the regulations, and the case law in Maryland is similarly stringent regarding the right of an agency to simply revisit its past decisions.

In 1962, the Maryland Supreme Court in *Schultze* examined the role of new information in an administrative reconsideration process. As the facts of that case made clear, such new information was, once again, only relevant for the purpose of correcting an error made in the initial decision, implicating two of the existing

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[56] *Schultze v. Montgomery Cty. Planning Bd.*, 230 Md. 76, 81-82 (1962).

[57] *Gaywood Cmty. Asso. v. Metro. Transit Auth.*, 246 Md. 93, 99 (1967).

[58] *Bd. of Zoning Appeals v. McKinney,* 174 Md. 551, 564 (1938).

[59] *Redding v. Bd. of Cty. Comm'rs,* 263 Md. 94, 111 (1971).

[60] COMAR 26.08.02.10F(4)(a).

McKinney factors - "mistake or inadvertence."[61] What the *Schultze* Court found could form a valid basis for reconsideration was "ignorance of information later supplied by an assistant engineer."[62] Thus, the information was "new" only in that it was not previously available to be considered by the decision maker at the time of the initial decision, but it was not "new" in the sense that it became available years later, allowing the agency to make a wholly new policy decision.[63]

In the same term, the Maryland Supreme Court heard a second case involving administrative reconsideration.[64] Once again, the pertinent question was whether there was a "plain and simple error of judgment" in the initial decision, not whether an agency has the right to merely change its mind or "shift [its] opinion."[65]

The Supreme Court has upheld these standards more recently, reaffirming the message that there must be "good cause shown" and a "legitimate basis" for reopening a past decision.[66] In *Cinque*, for example, the petition for reconsideration was based upon an allegation that the decision did not conform to the relevant law.[67] Notably, the written rules of procedure governing the administrative reconsideration proceedings in that case specified that one of the only permissible bases to petition for reconsideration was that relevant evidence was not presented in the record at the time of the initial decision – not new information collected well after the initial decision was made.[68] In fact, those rules of procedure (similar to many federal rules for reconsideration of agency decisions) emphasize the need to first determine whether there is even a permissible basis for the reconsideration before any new information would be considered. Determining whether there was a permissible basis for reconsidering the initial decision in the first place is a key step absent in the present case before

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[61] *Schultze*, 230 Md. at 81.

[62] *Id.*

[63] *See also Redding v. Bd. of Cty. Comm'rs*, 263 Md. 94, 111, 282 (1971) (finding that "there was no newly discovered evidence... justifying a rehearing or reconsideration.")

[64] *Kay Constr. Co. v. County Council for Montgomery County*, 227 Md. 479 (1962).

[65] *Id.* at 484.

[66] *See Cinque v. Montgomery Cty. Planning Bd.*, 173 Md. App. 349, 362-364 (2007).

[67] *Id.*

[68] *Id.* at 365.

the Department today. And just because subsequent state and federal lawsuits interrupted the reconsideration process, this should not alter the fundamental rules applicable to this process.[69]

In light of these legal standards and out of respect for courts' longstanding reluctance to allow agencies to freely reopen past decisions, we believe that, if any change should be entertained by the Department at all, it is crucial to carefully consider the proportionality between the nature and import of the "new information" presented and the significance of the changes proposed. In other words, overwhelmingly direct, relevant, and compelling new information that then supports a narrow tailoring of a particular condition in the 2018 Certification might be considered reasonable if the new information corrects a prior misunderstanding. On the other hand, merely casting a wide net for any and all studies, data, or anecdotes that arose after April 2018 and then making a fundamental reversal or a wholesale change in the 2018 Certification we believe would be unreasonable and unlawful. Finally, it should go without saying that the Department should ensure that any new information presented is clearly traceable to the initial petition for reconsideration submitted to the Department and not introducing information to support wholly new objections not relevant to the present record of decision.

NEW INFORMATION

I. NEW INFORMATION REGARDING NUTRIENTS AND SEDIMENT.

A. Maryland's Final 2018 Integrated Report of Surface Water Quality (Submitted October 23, 2018; EPA Approval Date April 9, 2019)[70]

Maryland's 2018 Integrated Report presented the current status of water quality of the Susquehanna River. The 2018 Integrated Report made use of "the most comprehensive dataset ever assembled for the Lower Susquehanna River in

[69] *See Woodlawn Area Citizens Asso. v. Board of County Comm'rs*, 241 Md. 187 (1966) (discussing whether there was a substantial change in conditions following a lapse of time since initial decision); *see also Lawrence N. Brandt, Inc. v. Montgomery Cnty Comm'n on Landlord-Tenant Affairs*, 39 Md. App. 147 (Spec. App. 1978) (evaluating the timeliness of a petition for rehearing).

[70] MDE, *Maryland's Final 2018 Integrated Report of Surface Water Quality* (2018), *available at* https://mde.maryland.gov/programs/Water/TMDL/Integrated303dReports/Documents/Integrated_Report_Section_PDFs/IR_2018/2018IR_Parts_A-E_Final.pdf.

Maryland, in both the portion upstream of the Conowingo Dam (also known as the Conowingo Reservoir) and immediately downstream of the Dam."[71] This data and information helped to inform:

- a new Category 5 listing for the public water supply use related to total phosphorus in the Conowingo Reservoir;
- a Category 2 (meeting some water quality criteria) listing for the aquatic life use for total phosphorus in Conowingo Reservoir;
- a Category 3 (insufficient data for assessment) listing for debris in the Conowingo Reservoir; and
- Maryland's first ever impairment listing (Category 4c – impaired by pollution not caused by a pollutant) for flow alteration (changes in depth and flow velocity) for the portion of the Susquehanna River immediately downstream of the Dam and extending to the head of tide.[72]

As with the Certification, the Dam's water quality impacts were attributed to pollution from nutrients (*e.g.*, phosphorus), debris, and flow alteration.[73] "Recent Chesapeake Bay modeling efforts have also shown that this build-up of sediments poses a major threat to Chesapeake Bay restoration efforts and that without addressing the additional load due to the lack of trapping, the Bay partnership will not be able to meet its water quality standards for the long term."[74] Maryland also identified issues with excessive debris collecting upstream of the Project's dam and being distributed downstream in the upper Chesapeake Bay during high flow events.[75] EPA agreed "with MDE's assessment and conclusion that the Susquehanna River downstream of the Conowingo Dam is impaired due to flow alterations and changes in depth and flow velocity ***due to the operations of the Conowingo Dam.***"[76]

The 2018 Integrated Report concluded:

[71] Maryland 2018 Integrated Report at 11.

[72] *Id.*

[73] *Id.* at 38, 112.

[74] *Id.*

[75] *See id.* at 38.

[76] *Id.* at 106 (emphasis added).

> This information also underscores the importance of managing dam operations in a way that supports not only the creation of carbon-free energy but also aquatic life and recreational uses of the Susquehanna River as well. The federal relicensing process and the water quality certification for the Conowingo Dam issued in April 2018 represent a critical opportunity to determine how best to deal with the water quality challenges presented by the dam.[77]

"Restoring water quality to the Chesapeake Bay requires action by entities across the watershed, ***including actions by Exelon to address nutrient pollution in discharges from the Conowingo Dam***."[78] The 2018 Integrated Report stated that "EPA Chesapeake Bay Program modeling shows that, without addressing [the sediment built-up behind the Conowingo Dam], Maryland will not be able to meet the requirements of the Chesapeake Bay TMDLs, thus making addressing the impacts of these accumulated sediments a high priority."[79]

B. Maryland's Final Combined 2020-2022 Integrated Report of Surface Water Quality (approved by EPA on February 25, 2022).[80]

In 2022, MDE released Maryland's Final Combined 2020-2022 Integrated Report of Surface Water Quality, approved by EPA on February 25, 2022. MDE states that "Conowingo Dam's impacts on the water quality and flow along the Susquehanna River and the downstream Chesapeake Bay continue to be a concern for Maryland and the other Chesapeake Bay watershed states."[81] Like earlier reports, it makes clear fact that the reservoir has reached capacity and is now causing an additional pollutant load that "must be addressed in order to meet the

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[77] *Id*. at 11.

[78] *Id.* at 116 (emphasis added).

[79] *Id.* at 15.

[80] MDE, Maryland's Final Combined 2020-2022 Integrated Report of Surface Water Quality (2022), approved by EPA on February 25, 2022, *available at* https://mde.maryland.gov/programs/water/TMDL/Integrated303dReports/Documents/Integrated_Report_Section_PDFs/IR_2020_2022/MD_Combined2020_2022_Final_Approved_Integrated_Report_2_25_22.pdf.

[81] Maryland 2020-2022 Integrated Report of Surface Water Quality at 40.

Bay's water quality standards."[82] MDE lists the settlement agreement as part of its "multi-pronged approach to address the Conowingo Dam's impacts,"[83] but does not state the settlement agreement actually helps to meet the water quality standards, let alone explain how it might do so.

C. MDE's Overview of Maryland's Water Quality Certification for the Conowingo Dam (January 3, 2019).

In 2019, MDE gave a presentation to the Chesapeake Bay Commission that addresses, among other things, Constellation's complaints about the Certification.[84] MDE's presentation emphasizes three "Key Takeaways":

1. We have a once-in-a-generation opportunity to get this right.

2. There is a sound scientific and legal basis for the Conowingo water quality certificate.

3. We remain optimistic about a constructive resolution.[85]

It explains that the Conowingo Dam "has fundamentally altered the ecosystems of the River and the Bay, resulting in negative impacts on water quality and the ability to attain water quality standards" and that impounded sediment behind the Dam "is like a loaded cannon pointed at the Bay."[86]

With respect to nutrients, MDE's presentation points out that, for 90 years, the Dam's owners have not addressed the accumulation of nutrient-laden sediment behind the Dam and, as a result, "[l]arge storm events now trigger massive releases of accumulated materials and associated nutrients during a short timeframe."[87] The requirement that Constellation reduce the Dam's annual nutrient discharges by 6 million pounds of nitrogen and 260,000 pounds of phosphorous was based on the findings in the Conowingo Watershed Implementation Plan Framework ("CWIP

[82] *Id.*

[83] *Id.*

[84] Certification Overview.

[85] *Id.* at 2.

[86] *Id.* at 3.

[87] *Id.* at 8.

Framework") that these amounts reflect the portion of the "nutrient problem caused by the dam."[88]

Prepared by the Chesapeake Bay Program partnership, the CWIP Framework finds that, because the reservoir behind the Dam has not been maintained and is no longer trapping sediments, "more sediment, nitrogen, and phosphorous are now entering the Chesapeake Bay than were estimated when the [total maximum daily load] TMDL was established."[89] Therefore,

> Even with full implementation of the seven Bay jurisdictions' [water implementation plans] WIPS, this additional pollutant loading from Conowingo reservoir reaching dynamic equilibrium will cause or contribute to water quality standards exceedances in the upper Bay. This additional pollutant load must be addressed if the Bay's water quality standards, as they are currently written and implemented, are to be met. The Chesapeake Bay Partnership (CBP) partnership estimates that after fully implementing the Bay TMDL and Phase I/II WIPs, an additional reduction of 6 million pounds of nitrogen and 0.26 million pounds of phosphorous is needed in order to mitigate the water quality impacts of Conowingo Reservoir infill.[90]

Because discharges of nutrient-laden sediment from behind the Dam are estimated to cause additional excess nutrient loading of 6 million pounds of nitrogen and 260,000 pounds of phosphorous annually and because "[n]o reservoir maintenance to restore trapping capacity has occurred over the life of the Dam,"[91] the Certification requires Constellation to reduce the Dam's nutrient discharges by these amounts. Echoing the findings in the CWIP Framework, it finds

> Although the Dam has in the past trapped and stored sediment and nutrients and served as a barrier to downstream transport to the Bay, the Reservoir is now full, as no efforts have been undertaken over the life of the Project, such as routine dredging, to maintain any trapping function. As a result, sediments and nutrients move downstream, and during large storm events, significant amounts of trapped sediment and nutrients are scoured from the

[88] *Id.* at 12 (emphasis added).

[89] Framework for the Conowingo Implementation Plan (Final, January 31, 2019), at 1.

[90] *Id.* (emphasis added).

[91] *Id.* at 1, 3.

> behind the Dam and discharged downstream. By releasing significant amounts of sediment and nutrients through scouring during storm events, the Dam has altered the nature, timing, and delivery method of these materials with adverse consequences for the Lower River and the Bay. Nutrients discharged as a result of the in-filled state of the Reservoir adversely impact DO levels and thus aquatic life in the DO Non-Attainment Area.[92]

Accordingly,

> To ensure the Project's compliance with DO WQS including designated and achieved uses, beginning with calendar year 2025, the Licensee shall annually reduce the amount of nitrogen included in the Project's discharges by six million (6,000,000) pounds and the amount of phosphorus in the Project's discharges by two hundred sixty thousand (260,000) pounds (or such different amounts of phosphorus and nitrogen reductions as may be approved by MDE, provided that such different amounts of nitrogen and phosphorus reductions provide the equivalent protection of DO levels in the DO Non-Attainment Area that would be provided by six million (6,000,000) pounds of nitrogen reductions and two hundred sixty thousand (260,000) pounds of phosphorus reductions) (the "Required Nutrient Reductions").[93]

The Certification Overview confirms that the Certification requires Constellation to reduce the Dam's annual nutrient discharges by six million pounds of nitrogen and 260,000 pounds of phosphorous because that is how much the Dam discharges as a result of the Dam's owners' ninety-year failure to address the buildup of nutrient-laden sediment behind it.[94] Finally, it reflects MDE's conclusion that requiring Constellation to make these reductions, or pay for them, is both appropriate and fair. As MDE points out, "For 90 years, the Dam has generated profits for its owner," but "[o]nly a very small portion of those profits have been reinvested in environmental mitigation, and only under pressure to do so."[95] "Meanwhile environmental challenges have continued to compound, and now the challenges are <u>big</u>."[96]

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[92] Water Quality Certification at 12.

[93] *Id.* at 15.

[94] Certification Overview at 8, 12.

[95] *Id.* at 10.

[96] *Id.*

D. Maryland's Watershed Implementation Plans for Conowingo and the Chesapeake Bay.

1. Maryland's Watershed Implementation Plan for the Chesapeake Bay Watershed.

In August of 2019, the *Final Phase III Watershed Implementation Plan To Restore Chesapeake Bay by 2025* (Aug. 23, 2019), was issued.[97] This document looks more broadly at all the factors impacting the health of the Bay and "charts a course" for Maryland to achieve compliance with the Total Maximum Daily Load ("TMDL") established for the Bay in 2010.[98] In particular, it focuses on reducing the load of "nutrients" – nitrogen and phosphorous – that are flowing into the Bay and preventing it from achieving water quality standards. One of the main "challenges" to this goal is "the Conowingo Dam."[99] The Plan states that even "after full Phase III WIP implementation," which seeks to reduce the nutrients entering the waters, an additional watershed-wide reduction of 6 million pounds of nitrogen per year and 0.26 million pounds of phosphorus per year is needed to mitigate the increased pollution from Conowingo Dam infill and meet downstream water quality standards.[100] The Plan acknowledges that "[t]hrough Clean Water Act Section 401 water quality certification (WQC) authority, Maryland has assigned the responsibility of this pollution reduction to Exelon, Conowingo Dam's operator."[101]

Thus, to be in compliance with water quality standards also depends on Constellation achieving significant reductions in the nutrients that the Dam discharges.[102] These reductions are needed "to mitigate the water quality impacts of the Dam's lost trapping capacity" which "threatens the ability of both the state

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[97] *Available at* https://mde.maryland.gov/programs/water/TMDL/TMDLImplementation/Documents/Phase-III-WIP-Report/Final%20Phase%20III%20WIP%20Package/Phase%20III%20WIP%20Document/Phase%20III%20WIP-Final_Maryland_8.23.2019.pdf.

[98] *Id.* at 4.

[99] *Id.* at 10-11.

[100] *Id.* at 11.

[101] *Id.*

[102] *Id.*

and the region to meet their Chesapeake Bay cleanup goals."[103] Reduction of "pollution loads from Conowingo Dam" through, among other things, the water quality certification was identified as a "key message" that will "likely remain prominent throughout WIP implementation.[104]

2. Conowingo Watershed Implementation Plan Documents.

Recognizing the need for additional reductions from the Conowingo Dam, MDE developed a separate CWIP. CWIP documents that post-date MDE's Certification confirm that absolving Constellation of its obligation to make the necessary reductions in the Dam's nutrient discharges, or pay for them, leaves the protection and restoration of the Bay and Susquehanna unfunded wishful thinking.

As pointed out in comments on the Draft CWIP submitted by Waterkeepers Chesapeake and Lower Susquehanna Riverkeeper Association, Ben Grumbles, then MDE Secretary and chair of the Principal's Staff Committee (PSC) wrote in 2017 that:

- "It is the PSC's expectation that, as owner and operator of the Conowingo Dam, Exelon will also share in the responsibility for achieving the additional phosphorus load reductions that are now necessary due to the current "in filled" condition of the Conowingo Reservoir."; and

- Conowingo had to be a "key partner in addressing downstream water quality impacts" and must be "held responsible for some portion of the [pollutant load] reduction.[105]

The understanding that Constellation is responsible for its nutrient discharges continued to be a part of the Draft CWIP Framework through January of 2019.[106] Without involving the public in its decision or providing any explanation, however, the PSC reversed itself at its January 31, 2019 meeting, literally redlining out any

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[103] *Id.* at 40.

[104] *Id.* at 29.

[105] Waterkeepers Chesapeake, et al., Chesapeake Bay Program Solicitation for Draft Conowingo Implementation Plan ("CWIP") Comments, Jan. 20, 2021, at 2 (citing Chesapeake Bay Program, PSC Letter to Exelon (DRAFT) (Dec. 15, 2017) *available at* https://www.chesapeakebay.net/channel_files/25523/revised_draft_psc_letter_to_exelon_conowingo_171215_draft_2.pdf) ("Waterkeepers Comments on Draft CWIP").

[106] *Id.* at 3-4.

mention of Constellation and MDE's water quality certification from the CWIP Framework.[107] For example, the PSC eliminated statements that the CBP Partnership has "signaled that Exelon should be held responsible for some portion of the reduction" necessary to comply with the TMDL and that the options it provided for assigning loads "do not yet include an assignment to Exelon," which could be impacted by MDE's Certification.[108]

Later in the same year, PSC issued a draft CWIP that not only failed to require or even discuss nutrient reductions by Constellation, but also failed to identify any source of funding for the CWIP.[109] Shortly afterwards, the Conowingo Watershed Implementation Plan Financing Strategy ("CWIP Financing Strategy") was issued.[110] This document confirms there is no plan to pay for – and therefore no plan to achieve – the nutrient reductions that MDE has found necessary to meet Maryland's water quality standards and that PSC has found necessary to implement the CWIP. The Draft CWIP goes on to offer nothing but generalized and purely aspirational ideas about how the CWIP will be funded.[111] As Waterkeepers' comments on the draft CWIP point out, the Chesapeake Bay and the Susquehanna River cannot possibly be cleaned up unless Conowingo "is required to shoulder its fair share of the costs of cleaning up the pollution and contamination that its Dam causes."[112]

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[107] *Id.* at 4 (citing Chesapeake Bay Program, Framework for the Conowingo Watershed Implementation Program RFA edits (Jan. 2019), *available at* https://www.chesapeakebay.net/channel_files/32915/iv.b._cwip_framework_jan_2019_rfa_edits.pdf ("2019 CWIP Framework Redline")).

[108] 2019 CWIP Framework Redline at 1 (emphasis added); *compare with* Chesapeake Bay Program, *Framework for the Conowingo Watershed Implementation Plan*, Feb. 16, 2018 DRAFT, at 1, *available at* https://d38c6ppuviqmfp.cloudfront.net/channel_files/26045/iv.b.__conowingo_draft_framework_.pdf.

[109] Chesapeake Bay Program, et al., Conowingo Watershed Implementation Plan, DRAFT Oct. 14, 2020, at 4-5, *available at* https://d18lev1ok5leia.cloudfront.net/chesapeakebay/draft_conowingo_watershed_implementation_plan_10_14_20.pdf.

[110] University of Maryland School of Public Policy Center for Global Sustainability, *Conowingo Watershed Implementation Plan Financing Strategy*, Dec. 10, 2020 ("CWIP Financing Strategy").

[111] CWIP Financing Strategy at 2.

[112] Waterkeepers Comments on Draft CWIP at 1.

This problem has not gone away. As EPA pointed out in its evaluation of the final CWIP,

> there are currently no funding mechanisms or commitments in place to implement the final CWIP and anticipated two-year milestones. Without a PSC-approved financing strategy in place and dedicated funding sources to support CWIP implementation, there is little confidence that the plan will be implemented, and the Conowingo pollutant loads will be reduced by 2025.[113]

As of January of this year, PSC still had not identified funding for the needed reductions or explained how they might be achieved. In a January 2023 statement of its "Expectations," EPA pointed out that PSC had yet to "[d]emonstrate, through the annual submission of BMP data to EPA and the setting of BMP implementation targets through the Conowingo two-year milestones, that at least 25 percent of the necessary nitrogen reductions and 100 percent of the necessary phosphorus reductions will be achieved by 2025.[114] EPA further made clear that PSC has yet to "[i]dentify the specific funding, financing, cost-share, technical assistance, voluntary, incentive, policy, programmatic, legislative, and regulatory actions needed to be taken to achieve at least 25 percent of the CWIP nitrogen target and 100 percent of the CWIP phosphorus target by 2025."[115] Notably, even if PSC had identified funding for 25 percent of the necessary reductions, it would still be 75 percent short.

Most recently, less than two weeks ago, EPA reaffirmed the absence of any actual plan to fund and achieve the necessary nutrient reductions if Constellation does not meet its obligations under the Certification.[116] It reiterates that the CWIP jurisdictions must "Demonstrate, through the annual submission of BMP data to

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[113] EPA Evaluation of the Final Conowingo Watershed Implementation Plan, Jan. 24, 2022, at 5-6, *available at* https://www.epa.gov/system/files/documents/2022-01/cover-letter-and-epa-evaluation-of-final-cwip_v1.24.2022.pdf .

[114] Draft EPA Expectations: Implementation of the Conowingo Watershed Implementation Plan's Phased Approach (Jan. 26, 2023), at 3, *available at* https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/EPA-Expectations_CWIP-Phased-Approach_DRAFT_1.26.2023_2023-03-29-194537_oxgk.pdf.

[115] *Id.*

[116] EPA Expectations: Implementation of the Conowingo Watershed Implementation Plan's Phased Approach (July 19, 2023).

EPA, that at least 25 percent1 of the necessary nitrogen reductions and 25 percent of the necessary phosphorus reductions will be achieved by December 31, 2025" and "[i]dentify the specific funding, financing, cost-share, technical assistance, voluntary, incentive, policy, programmatic, legislative, and regulatory actions needed to be taken to achieve at least 25 percent of the CWIP nutrient targets by December 31, 2025."[117] Needless to say, it would not be necessary to "[d]emonstrate" the necessary reductions will be achieved and "[i]dentify" the funding to pay for them if the CWIP jurisdictions had found the funding and demonstrated how the reductions would be achieved already.

In short, multiple documents post-dating the Certification confirm that the Certification's nutrient reduction requirements are necessary – as MDE found in the Certification – to ensure the Dam's compliance with Maryland's water quality standards. The CWIP that was developed and issued based on the notion that Constellation should not have to take responsibility for the Dam's nutrient discharges confirms where that notion leads: a scenario where there is neither a plan to achieve the necessary reductions nor any realistic expectation they will ever be achieved.

E. MDE's Protest and Answer to Constellation's Petition to FERC for a Declaratory Judgment.

Prior to its settlement with Constellation, MDE opposed Constellation's petition to FERC for a declaratory order that the Certification was improperly issued. In addition to refuting the notion that the decision in *Hoopa Valley Tribe v. FERC*,[118] has any relevance to the facts of the MDE Certification process here,[119] MDE cogently explained that the provisions in the Certification should be adopted to "promote the purposes of the CWA … because such action will protect Maryland and its waters in accordance with the State's expert judgment about how best to do so."[120]

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[117] *Id.* at 2-3.

[118] 913 F.3d 1099 (D.C. Cir. 2019).

[119] Indeed, MDE's alternative was to deny the certification request based on insufficient information as to how to address the changing conditions as a result of the loss of long-term sediment trapping capacity at the Dam.

[120] Protest and Answer of Maryland Department of the Environment at 4 (Submitted on Mar. 28, 2019 to FERC Docket) (20190328-5210) ("MDE Answer").

With respect to the Certification conditions that Constellation sought to eliminate, including those related to nutrients, fish passage and flow, and trash and debris removal, MDE explained that "[e]ach of these issues [were] raised in the re-licensing proceeding."[121] "Flow and fish passage conditions are supported both by the record before MDE (upon which the Certification is based), and by the record before the Commission itself."[122] MDE further noted that "neither of these conditions were challenged by [Constellation] in the pending administrative appeal," and, as described above, new information cannot be used now to reopen those provisions.[123]

MDE further explained it had "consistently pointed out … that [Constellation's] license application fails to address trash removal and debris management adequately."[124]

Regarding nutrients, MDE confirmed:

> [T]he Certification identifies the numerous key ways that the dam's existence has fundamentally altered the river system. As a facility fully spanning the river, the dam traps sediment, blocks upstream fish and eel passage, and creates a large impoundment. Separately, the Project's operations and maintenance—including a peaking flow regime—alters the quality and quantity of sediment transport downstream and negatively impacts aquatic habitat in the river below the dam. These impacts have exacerbated water quality concerns with the nutrients already present in the system.[125]

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[121] MDE Answer at 54.

[122] *Id.*

[123] *Id.* (emphasis added); *see also* Protest and Answer of the Susquehanna River Basin Commission to the Petition for Declaratory Order of Exelon Generation Company, LLC at 9-10 (Submitted on Mar. 27, 2019 to FERC Docket) (20190328-5311) (noting Constellation's admissions that MDE can regulate water flow through water quality certification process).

[124] MDE Answer at 55.

[125] *Id.* at 55-57.

Finally, MDE pointed out the "decades of unmitigated sediment build-up behind the structure and the current lack of sediment trapping capacity" as well as the unsuitability of the impoundment as habitat, the unnatural flow regime, and the lack of a healthy habitat downstream as a result of its operations all impair Maryland's water quality.[126]

F. Widespread and Compelling Opposition to Settlement in Comments to FERC.

In October of 2019, MDE abruptly reversed course. Having made clear until then that all the requirements in the Certification were necessary to assure the Dam's compliance with Maryland's water quality standards and having vigorously and persuasively defended the Certification from attacks by Constellation, MDE suddenly announced that it had reached a private settlement agreement with Constellation regarding Constellation's petition to FERC for a declaratory judgment that MDE had issued the Certification improperly.[127] Importantly, the offer of settlement did not indicate that the settlement agreement ensured that water quality standards would be met like the Certification, rather it noted that the settlement agreement would provide some mitigation of these significant impacts and "avoid protracted and adversarial litigation."

The overwhelming majority of commenters – comprised of numerous local governments, environmental groups, and private citizens – opposed the settlement agreement as essentially letting Constellation off the hook at the expense of the Bay's water quality.[128]

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[126] *Id.* at 56-57.

[127] Joint Offer of Settlement and Explanatory Statement of Exelon Generation Co., LLC and MDE at 1 (Submitted Oct. 29, 2019 to FERC Docket) (20191029-5119).

[128] *See, e.g.*, Comments of Dawn Jacobs, Mayor, Town of Rock Hall, MD (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5023); Comments of the Local Government Members of the Clean Chesapeake Coalition Regarding the Joint Offer of Settlement of Exelon Generation Company, LLC and the Maryland Department of the Environment Re: Conowingo Dam Water Quality Certification (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5236); Letter from County Council of Cecil County (Posted on Jan. 22, 2020 to FERC Docket) (20200122-0010) (endorsing comments of Clean Chesapeake Coalition).

Local governments objected that, even though they represent the communities most impacted by the harm the Dam causes, they were excluded from the private negotiations between MDE and Constellation that led to the settlement agreement and their interests were ignored. As they pointed out "[t]he exclusion of downstream local governments from Settlement Agreement discussions is an affront to those Coalition counties and officials who over the past 8 years have steadfastly been raising awareness and sounding the alarm about the Conowingo factor in the context of the Bay TMDL and in reality."[129]

Local governments also expressed deep concern that the settlement agreement absolved Constellation of any obligation to clean up its discharges of nutrients and sediment, scrapping the nutrient reduction benefits offered by the Certification. For example, although it required a study to be conducted for the first three years on nitrogen and phosphorus levels, the settlement agreement had no reduction requirements for nitrogen or phosphorus regardless of the results of that study. Although nutrient reductions could be achieved by dredging, the settlement agreement had no requirements for dredging the reservoir or other sediment management options and no requirements for continued monitoring of downstream nutrient levels.

As the local governments explained,

> The Conowingo Reservoir, just like any stormwater management pond, has to be dredged and maintained or it will continue to be an environmental hazard. With the loss of trapping capacity, the Conowingo Reservoir is an environmental hazard. The Bay's natural ecosystems are not able to ameliorate the deleterious impact of the massive release of scoured nutrient-laden sediments during significant storm events.[130]

In addition to the long-term impacts of scour events, the major short-term impacts were also highlighted by local governments:

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[129] Comments of the Local Government Members of the Clean Chesapeake Coalition Regarding the Joint Offer of Settlement of Exelon Generation Company, LLC and the Maryland Department of the Environment Re: Conowingo Dam Water Quality Certification (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5236) at 4.

[130] *Id.* at 13.

> The Coalition counties situated on the Chesapeake Bay are directly impacted by the sediments scoured from the floor of the Conowingo Reservoir. The oyster, rockfish, crab and other marine populations off the shores of Cecil, Kent, Queen Anne's and Dorchester Counties have been greatly diminished, if not totally wiped out, due to scour from the Conowingo Reservoir. This has resulted in the decimation of seafood harvesting and seafood processing/packaging industries that once thrived in those counties prior to Hurricane Agnes in 1972. Additionally, the marina industry and related trades in Cecil, Kent, Queen Anne's and Dorchester Counties have been detrimentally impacted by sediment scour that fills the navigable channels of the Bay, the marinas in those counties, and the Bay tributaries in those counties used to access the Bay. Sediment scour has detrimentally and directly impacted the way of life in those counties and adversely affected the human and economic environment in those counties in addition to the adverse impact on the natural environment, which is exactly why MDE and Exelon should have coordinated with the local governments in reaching the Settlement Agreement.[131]

The local governments further stated:

> The Dam traps the best sediment - sand - and releases the most damaging sediments - clay and silt - into the Bay. The Bay has thus been deprived of sand that is necessary: (1) to hold the roots of SAV during storm events; (2) to support the shell beds of oysters; (3) to fortify shorelines and thus reduce erosion; and (4) to cover and suppress the clays and silts that are washed into the Bay so that those clays and silts (a) do not continue to emit phosphorus and nitrogen bound to them in the Susquehanna estuary, (b) do not continue to agitate into

[131] *Id.* at 4-5.

> suspension and cloud the Bay waters; and (c) do not deprive Bay flora and fauna of needed sunlight and habitat.[132]

Of particular concern was that the settlement agreement precluded MDE from requiring Constellation to take any additional steps to control pollution from the Dam, even if such steps are necessary to meet the Bay TMDL targets.

Approximately 46 non-profit organizations, including petitioners Waterkeepers Chesapeake and Lower Susquehanna Riverkeeper, which were joined by Arundel Rivers Federation, Potomac Riverkeeper, Gunpowder Riverkeeper, and ShoreRivers, also submitted comments raising objections.[133] In addition, approximately 646 private citizens objected. These citizens included Marylanders who are impacted directly by discharges from the Dam, and they made up the overwhelming majority of individual commenters on the settlement agreement.

Like the local governments, the environmental groups and private citizens objected that the settlement agreement scrapped the protective requirements MDE had found necessary to assure the Dam's compliance with Maryland's water quality standards and, in particular, excused Constellation from reducing its discharges of nutrient-laden sediment. They expressed deep concern that, because climate change is bringing more severe and more frequent storms the Chesapeake Watershed, Constellation's discharges will also get more frequent and severe and will do catastrophic and irreversible damage to the Chesapeake Bay and the Lower Susquehanna River.[134]

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[132] *Id.*, Ex. G at 4.

[133] Waterkeepers Chesapeake et al., Comments on Proposed Settlement Agreement and exhibits (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5095); *see also, e.g.*, Letter from Choose Clean Water Coalition (Posted on Oct. 13, 2020 to FERC Docket) (20201013-5189); Chesapeake Bay Foundation, Inc.'s Comments on Offer of Settlement (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5154); Comments from Corsica River Conservancy (Posted on Jan. 27, 2020 to FERC Docket) (20200127-0017); The Nature Conservancy's Comments on Offer of Settlement, at 5 (submitted on Jan. 17, 2020 to FERC Docket) (20200117-5199).

[134] *See* Comments of the Local Government Members of the Clean Chesapeake Coalition Regarding the Joint Offer of Settlement of Exelon Generation Company, LLC and the Maryland Department of the Environment Re: Conowingo Dam Water Quality Certification, at 12-19

Among the most important comments regarding nutrient and sediment and pollution from the Dam were those addressing a solution that had been dismissed improperly and not cost-effective. As noted above, local governments pointed out that the nutrient-laden sediment in the reservoir behind the Dam has to be dredged, and the Certification explained that the current state of the reservoir results from its owners' failure to dredge it at any time over the last 90 years.

As many of the issues raised by these comments are discussed in more detail in other sections, we do not provide a summary here. We are, however, incorporating these comments by reference and attaching them here.

In stark contrast to the nearly unanimous and strong opposition to the settlement agreement from local governments, environmental groups, and the public, a mere handful of commenters offered support for it and that support was tepid. One commenter simply offered suggestions on research that could be done with the monies collected under the Settlement, one provided no detail as to the basis for the support, and about three others essentially supported certain aspects of the settlement agreement as an improvement over the status quo (a low bar) – but not the Certification.[135] Even these few comments expressing support for the settlement agreement, moreover, include agreement that the Conowingo Dam has adverse impacts on the watershed and that Constellation "has received considerable economic gain from its engineered structures and operations on the

(Submitted to FERC on Jan. 17, 2020) (20200117-5236); *see also* Waterkeepers Chesapeake et al., Comments on Proposed Settlement Agreement at 5-7 (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5095); Chesapeake Bay Foundation, Inc.'s Comments on Offer of Settlement, at 4-5 (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5154).

[135] *See, e.g.*, Letter from the Susquehanna River Basin Commission (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5093); Comments of the Pennsylvania Fish & Boat Commission (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5198) (providing commentary and suggested revisions). The Susquehanna River Basin Commission also, however, supported the flow regimes in the Certification and called into question the flow regimes analyzed by FERC, and the comments on the Settlement do not indicate that those in the Settlement are comparable to the Certification. *See* Protest and Answer of the Susquehanna River Basin Commission to the Petition for Declaratory Order of Exelon Generation Company, LLC, at 8-12 (Submitted on Mar. 28, 2019 to FERC Docket) (20190328-5311).

Susquehanna River ...[and] should play a role in achieving sediment and nutrient reductions in the Susquehanna River to help restore the Chesapeake Bay."[136]

G. New Information Confirming that the Release of Sediments, Trash and Debris from Behind the Dam Has Devastating Impacts on Bay Resources and Designated Uses, Particularly Impacting Those Residents that Rely on the Bay for Their Livelihoods.

As MDE has recognized, "[t]he Chesapeake Bay is intrinsic to life in Maryland. It is part of [Maryland's] state identity, local culture, and a vibrant part of Maryland's history and State pride."[137] The value of the Bay has been estimated from over 100 billion dollars annually to over one trillion dollars.[138] Fishing and other recreational uses of the Bay provide substantial benefits to the local economies. The release of sediments, trash, and debris from behind the Dam, which is likely to increasingly occur, has substantial impacts on these uses, greatly impacting the livelihoods of the region's watermen, among others.

"The Chesapeake Bay is one of the most productive fisheries in the United States.... The bountiful waters of the Chesapeake form an important part of the Maryland economy and have provided a livelihood for thousands of watermen and other seafood industry workers for hundreds of years."[139] In 2020, the commercial seafood industry, excluding imports, contributed over $316 million in sales and

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[136] Comments of the Pennsylvania Department of Environmental Protection at 3 (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5069).

[137] MDE, *Our Treasured Ecosystem*, https://mde.maryland.gov/programs/water/TMDL/TMDLImplementation/Pages/what-is-the-bay.aspx (last visited July 31, 2023).

[138] *See* U.S. Geological Survey, *U.S. Geological Survey Science—Improving the Value of the Chesapeake Bay Watershed*, at 1 (2017), *available at* https://pubs.usgs.gov/fs/2017/3031/fs20173031.pdf; Chesapeake Bay Foundation, *The Economic Argument for Cleaning Up the Chesapeake Bay and its Rivers*, at 1 (2012), *available at* https://www.cbf.org/document-library/cbf-reports/2012-Economic-Report3788.pdf.

[139] MDE, *Our Treasured Ecosystem*, https://mde.maryland.gov/programs/water/TMDL/TMDLImplementation/Pages/what-is-the-bay.aspx (last visited July 31, 2023) (citations omitted); *see also* Final Brief of *Amicus Curiae* Maryland Charter Boat Association, Inc. In Support of Petitioners at 5-8, *Waterkeepers Chesapeake v. FERC*, No. 21-1139 (D.C. Cir. filed June 21, 2022).

5,021 jobs to the Maryland economy.[140] Recreational fishing contributed another $335 million in sales and 3,393 jobs in Maryland.[141] Recreational boating has been estimated to have a $4.2 billion annual economic impact in Maryland, supporting 16,871 jobs.[142] A recent report for the Maryland Department of Tourism found visitors to Maryland's Chesapeake Bay Region in 2021 supported 58,683 Maryland jobs, generating $1.94 billion in paid wages, adding $3.2 billion to Gross State Product (GSP) and generating state and local tax revenue of $610 million.[143] A significant part of these tourist visits center around the Bay's natural resources, including, but not limited to, enjoying local seafood, engaging in outdoor activities, watersports/water activities, and fishing.

But, the area has suffered substantial economic losses associated with the decline in fisheries resources.[144] While still providing substantial economic benefits, the data through 2020 shows that landings revenue and fish species numbers have been falling in recent years.[145] While total trips increased in 2020 (7,974,000) from 2019 (6,836,000) and 2018 (6,762,000), they are below numbers seen in 2016 (9,364,000).[146]

Watermen and recreational users of the Bay have been directly impacted by the trash, debris, and pollution released from the Dam. Charter boat captains, marina operators, oyster farmers, recreational boaters, among others, all were

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[140] National Oceanic and Atmospheric Administration, *Fisheries Economics of the United States 2020: Economics and Sociocultural Status and Trends Series*, at 118 (2023), *available at* https://media.fisheries.noaa.gov/2023-03/FEUS-2020-final-web.pdf ("NOAA 2020 Fisheries Economics Report").

[141] *Id.* at 119. Prior reports showed much higher impacts, but certain information is no longer reported.

[142] National Marine Manufacturers Association Infographic, *Recreational Boating Impact in Maryland*, *available at* https://www.nmma.org/statistics/publications/economic-impact-infographics (last visited July 31, 2023).

[143] Rockport Analytics, *Comprehensive Study of Visitation to Maryland's Chesapeake Bay Region*, at 6 (2023), *available at* https://www.visitmaryland.org/sites/default/files/2023-04/MOTD-Chesapeake-Bay-Visitor-Research-%20FULL-REPORT-FINAL-4-24-23.pdf.

[144] *See, e.g.*, Final Brief of *Amicus Curiae* Maryland Charter Boat Association, Inc. In Support of Petitioners at 11-16, *Waterkeepers Chesapeake v. FERC*, No. 21-1139 (D.C. Cir. filed June 21, 2022).

[145] NOAA 2020 Fisheries Economics Report at 118.

[146] *Id.* at 119.

engaged in the licensing proceedings because of the harms caused by the Dam, including, but not limited to, debris causing damage to boats, scattering fish which could destroy fishing grounds for whole seasons, and spoiling shorelines preventing boats from being able to leave the docks resulting in lost business.[147] These are residents that directly experience the Dam's impacts: "Every time the gates were opened, even 20 years ago, you could see the sediment and debris coming downstream—and then the watermen and working families couldn't put fish, crabs, and oysters on the table. Things have only gotten worse in the last 20 years, as the Dam pushes out more sediment, nutrients, and debris with heavy rainfall."[148]

These impacts are being felt today. Concerns with major storms are prevalent. In September 2021, it was reported that a heavy river flow caused by rain from Hurricane Ida required the Dam "to open an unusual number of floodgates," pushing sediment and debris into the river and downstream.[149] Debris can threaten boaters and can make navigation in the area difficult to impossible, sometimes taking days to wash away and ending up on the shore.[150] We will likely see an expansion of hurricanes and typhoons further North, as a result of climate change.[151]

While a significant fear is the ticking time bomb of another major hurricane, like Hurricane Agnes in 1972, heavy rains can also trigger these events. In 2018, it was reported that Constellation "had to open the Conowingo Dam flood gates multiple times, allowing a deluge of water carrying sediment and trash to pour into

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[147] *See, e.g.*, Addendum to Final Opening Br. of Pet'rs, Declarations of Jeffrey Andrews (DEC001-003), Scott Budden (DEC004-007), Zack Kelleher (DEC0065-0069), Declaration of Garrett Pensell (DEC0086-0089), Declaration of Keith Williams (DEC0176-0181), *Waterkeepers Chesapeake v. FERC*, No. 21-1139 (D.C. Cir. filed June 21, 2022); Final Brief of *Amicus Curiae* Maryland Charter Boat Association, Inc. In Support of Petitioners at 1-3, *Waterkeepers Chesapeake v. FERC*, No. 21-1139 (D.C. Cir. filed June 21, 2022).

[148] Declaration of Zack Kelleher, *supra* n.147, at DEC0066.

[149] Meg Walburn Viviano, *Conowingo Floodgates Cause Flooded Roads and Bay Debris*, Chesapeake Bay Magazine, Sept. 3, 2021, https://chesapeakebaymagazine.com/conowingo-floodgates-opened-causing-flooded-roads-and-bay-debris/.

[150] *Id.*; *see also* David Collins, *Storm debris becomes invisible menace to boaters*, WBAL TV11, Aug. 3, 2018, https://www.wbaltv.com/article/storm-debris-remains-threat-for-maryland-boaters/22640495.

[151] Jim Shelton, *Future hurricanes will roam over more of the Earth*, Yale News, Jan. 3, 2022, https://news.yale.edu/2022/01/03/future-hurricanes-will-roam-over-more-earth-study-predicts.

the upper bay, clogging harbors and coloring the water murky brown."[152] In August of 2018, when Constellation was "pursuing legal action to circumvent its environmental responsibilities," MDE and the Maryland Department of Natural Resources ("MDNR") were forced to write to the Dam operator's because "the massive amounts of sediment and debris that flowed through the opened floodgates is now having a detrimental and dangerous impact on downstream waterways across the watershed. This pollution is a threat to our environment and a serious danger to wildlife, boaters, and swimmers."[153] Discussing key provisions in the Certification, MDE and MDNR stated the Dam's operator "has a critical role to play in a comprehensive strategy for By restoration."[154] MDE and MDNR also outlined the impacts these releases have had, including presenting a "serious ecological threat to the Bay," causing cancellation of events impacting the economy and tourism industry, and state and federal agencies incurring costs and time to clear debris.[155]

The turbidity from the sediments impacts fish and crab, but also those engaged in recreational uses of the Bay.[156] Oyster farmers must plan and engineer their operations around sediment loads from the Dam in a manner that is more costly and labor intensive.[157] This is in addition to the negative impacts of excess nutrients from the Dam's operations on the availability and flavor of the oysters

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[152] Jenna Miller, *Frustration builds against Conowingo Dam after season of releases, progress in 2019?*, The Daily Times, Updated Jan. 18, 2019, https://www.delmarvanow.com/story/news/local/maryland/2019/01/17/conowingo-frustration-builds-after-releases-looking-progress-2019/2578380002/.

[153] MDE and MDNR Letter to Exelon Corp., at 1-2, App. A, Aug. 3, 2018, *available at* https://htv-prod-media.s3.amazonaws.com/files/dnr-mde-exelon-letter-8-3-18-1533557428.pdf.

[154] *Id.* at 2.

[155] *Id.*; *see also* AP, *State seeks help from Exelon to bear responsibility for storm debris cleanup*, WBAL TV11, Aug. 6, 2018, https://www.wbaltv.com/article/state-seeks-help-from-exelon-to-bear-responsibility-for-storm-debris-cleanup/22651122 ("The debris that flowed through the dam clogged waterways, including at the Annapolis City Dock, and forced the DNR to ban swimming at Sandy Point State Park for days because of debris that washed onto the beach.").

[156] *See, e.g.*, Declaration of Scott Budden, *supra* n.147, at DEC0005-0006.

[157] *Id.*

themselves.[158] Local fishermen in the area recount that: "[e]very time those gates would open, the flooding, the debris, the garbage—just time, and time, and time again."[159]

Maryland "is one of the most vulnerable states in the nation to climate change."[160] Among other impacts identified, Maryland is already experiencing "[m]ore frequent heavy rain and flooding events, which can devastate local communities."[161] As MDE has recognized, "one of the primary threats posed by climate change to meeting water quality goals for Chesapeake Bay is increased precipitation."[162] It is a "race against a thousand tiny cuts to the Bay's health."[163] Again, the Certification here is to support a 50-year license. The provisions in the Certification, at a minimum, is what's needed to address these known, ongoing, and likely to get worse impacts on Bay resources and those that use them.

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[158] *Id.*; *see also* Lowell Melser, *"Worst oyster season ever," watermen blame record Maryland rainfall for high mortality rate*, WBAL TV11, Oct. 3, 2018, https://www.wbaltv.com/article/worst-oyster-season-ever-watermen-blame-record-maryland-rainfall-for-high-mortality-rate/23585539# ("The problem mainly started up the bay at the Conowingo Dam which had to open a majority of its gates to let a tremendous amount of water and debris through. Because of it, salinity levels went down dramatically in normally salty portions of the bay, killing adult oysters and stunting the growth of babies.").

[159] Julia Rentsch, *Dammed if you dredge, dammed if you don't: Conowingo's toxic muck a vexing problem for bay*, Salisbury Daily Times, updated Mar. 25, 2021, https://www.delmarvanow.com/in-depth/news/2021/02/02/conowingo-dams-toxic-muck-vexing-problem-chesapeake-bay-susquehanna-river/3258294001/.

[160] Maryland Commission on Climate Change, *Maryland is Serious About Addressing Climate Change: How the Maryland Commission on Climate Change is preparing our state*, at 1, *available at* https://mde.maryland.gov/programs/Air/ClimateChange/MCCC/Publications/FactSheet1Overview.pdf (last visited July 31, 2023).

[161] *Id.*

[162] MDE, *Report on Maryland Climate Change Accomplishments*, at A-3 (2021), *available at* https://mde.maryland.gov/programs/water/TMDL/TMDLImplementation/Documents/Phase-III-WIP-Report/MD_Climate_Change_Addendum_2022.pdf.

[163] Scott Budden, *Oyster Farmers Breathe Hopeful Sigh after Conowingo Dam Decision*, Maryland Matters, Feb. 21, 2023, https://chestertownspy.org/2023/02/21/oyster-farmers-breathe-hopeful-sigh-after-conowingo-dam-decision-by-scott-budden/.

H. New Information on Climate Change and the Discharge of Scoured Sediment and Nutrients from the Conowingo Dam.

As the Department is acutely aware at this time, the intensity, duration, frequency, and overall volume of precipitation has been increasing in Maryland and throughout the Mid-Atlantic region.[164] Moreover, the rate of change for these trends has also been increasing.[165] Certainly, the summer of 2023 has exemplified the alarming rapidity in the destabilization of our climate and the particular impacts on this region.[166]

As recently as the years after the turn of the twenty-first century, there was little awareness of how fast the climate would be changing, how it would be changing differently in different regions, and what governments would need to do to adapt to climate change. But not even two decades later, the federal government and State of Maryland are already at the point of simultaneously implementing a "whole of government" approach to addressing climate change, forced by the dire and worsening conditions during the intervening few years.[167]

Maryland now has an entirely new Office of Resilience[168] and an entirely new principal department of Maryland's Executive Branch (Maryland Department of

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[164] *See* Maryland Department of the Environment, *Advancing Stormwater Resiliency in Maryland (A-StoRM) Maryland's Stormwater Management Climate Change Action Plan*. Available at: https://mde.maryland.gov/Documents/A-StorRMreport.pdf. *See also* U.S. Global Change Research Program's Fourth National Climate Assessment, V*olume II: Impacts, Risks, and Adaptation in the United States*, Chapter 18 (2018). Available at: https://nca2018.globalchange.gov/chapter/18/ (Last accessed July 25, 2023).

[165] *See* Mid-Atlantic Regional Integrated Sciences and Assessments (MARISA), *Developing Future Projected Intensity-Duration-Frequency (IDF) Curves* (August 3, 2021). Available at: https://rb.gy/9kfj6 (Last accessed July 25, 2023).

[166] *See* The New York Times, *Around the Globe, Searing Heat With No Sign of Relief* (July 21, 2023), *available at* https://www.nytimes.com/2023/07/21/world/asia/record-heat-wave-flooding-climate-change.html (Last accessed July 25, 2023); *see also* The New York Times, *Five Dead in Flash Flooding in Philadelphia Suburbs* (July 16, 2023), *available at* https://www.nytimes.com/2023/07/16/us/pennsylvania-flooding-family.html .

[167] The Office of Governor Moore, Press Release (April 3, 2023), https://rb.gy/b33xd; National Climate Task Force, https://www.whitehouse.gov/climate/ (Last accessed July 24, 2023).

[168] Chapter 482 of 2022.

Emergency Management)[169] tasked with, among many other things, implementing a whole new Resilient Maryland Revolving Loan Fund.[170] MDE has suddenly been charged with reporting to the public on precipitation trends and updating the technical standards for both stormwater management[171] and erosion and sediment control plans[172] with new precipitation data every five years. All of these and many other policy changes are new since 2018 and reflective of the resolve of our elected leaders to ensure that our response to climate change moves as quickly and forcefully as the climate itself.

The 2019 UMCES study of the Conowingo Reservoir repeatedly emphasized the fact that prior assumptions of what would constitute an "event flow" are being reconsidered.[173] What had long been assumed to constitute a flow volume of 400,000 cubic feet per second (cfs), the new "scour threshold" could be "as low as 175,000 cfs."[174] And this new assumption was based on a study conducted in 2012, not reflective of the even greater amount of infill that has occurred in the last decade.[175]

The UMCES study also illustrates a twin challenge for downstream communities and water quality. At the same time that the scour threshold is decreasing dramatically, the number of event flows is increasing dramatically because of climate change.[176] Historically, because of the only partially-filled reservoir and

[169] Chapters 287 and 288 of 2021.

[170] Chapter 644 of 2021.

[171] Chapters 640 and 641 of 2021.

[172] Chapter 547 of 2023.

[173] Palinkas *et al.* 2019. *Influences of a River Dam on Delivery and Fate of Sediments and Particulate Nutrients to the Adjacent Estuary: Case Study of Conowingo Dam and Chesapeake Bay*. Estuaries and Coasts ("UMCES Study"), at 18.

[174] *Id.* at 3, 18.

[175] *Id.* at 1.

[176] National Oceanic and Atmoshpheric Administration National Centers for Environmental Information, *U.S. Climate Normals Collections* (May 2021). Available at: https://www.noaa.gov/news/new-us-climate-normals-are-here-what-do-they-tell-us-about-climate-change (Last accessed July 25, 2023).

under historic climate conditions it took a massive 400,000 cfs event – a hurricane or tropical storm – to surpass the scour threshold in any meaningful way.[177]

Today, because of the complete infilling of the reservoir and the massive surge in intense precipitation events in this region, scour events could now be happening multiple times per year, as discussed below. As the 2019 UMCES study noted, even "moderately large flows" now contribute to increased suspended sediment loads reaching well into the main stem of the Chesapeake Bay.[178]

To further illustrate this point, consider what happened to the Chesapeake Bay only two months after the 2018 Certification was issued. Following a summer storm – not a hurricane or even tropical storm – that travelled through Maryland and Southeastern Pennsylvania the Conowingo Dam's operators opened 20 floodgates, sending "a pile-up of woody debris, plastic bottles and broken Styrofoam" through the dam where it then piled up on state beaches, parks, marinas, and waterfront across the Bay.[179] This storm not only left "masses of garbage floating in the bay" *with the potential to "reverse years of progress" in reducing nutrient pollution*, but also caused direct violations of Maryland's surface water quality standards.[180] (Emphasis added).

Maryland's water quality standards, of course, are not limited to dissolved oxygen or chlorophyll-a concentrations, but also include "floating debris" that are "unsightly" or "create a nuisance."[181] Additionally, "[t]urbidity may not exceed levels detrimental to aquatic life."[182] Turbidity "resulting from any discharge may not exceed 150 units at any time or 50 units as a monthly average."[183] As long as even "moderately large flows" can send immense volumes of sediment and even trash throughout the Chesapeake Bay, the full reservoir behind the dam will continue

[177] *Id.* at 18-19.

[178] UMCES Study at 5.

[179] The New York Times. *Garbage Pours Into Chesapeake Bay, and States Quarrel Over Whose Mess It Is.* (August 10, 2018).

[180] COMAR 26.08.02.03.

[181] *Id*.

[182] COMAR 26.08.02.03-3.

[183] COMAR 26.08.02.03-3

to violate Maryland's water quality standards and inhibit the State's efforts to fulfill its legal obligations under the Clean Water Act without appropriate conditions expressed in the Certification.

A central point of the UMCES study is that, to understand the impact of the full reservoir, one must recognize the difference between event flows and non-event flows.[184] Overall, *upstream nutrient pollution* reduction efforts throughout the Susquehanna Basin have resulted in "decreasing loads over time" to the Susquehanna River, while at the same time overall nutrient loads to the Upper Bay have been *increasing*; this difference is not caused by average "non-event" flows, but solely attributable to the cumulative effect of nutrient and sediment transport during sporadic and stochastic event flows.[185] This dichotomy regarding upstream nutrient pollution reduction efforts and downstream water quality impacts associated with the dam operation is something that the study noted repeatedly and that has important implications for the Department's decision on the Certification.[186]

Critically, the UMCES study was published in 2019 and based largely on a study conducted between 2012 and 2017.[187] What has happened since 2017 is astonishing and further emphasizes how fast our climate is changing, how dramatic the impact of these changes is on our region, in particular, and how that will continue to dramatically worsen the impact of the dam in the years and certainly decades to come during the time for which this WQC will be in effect.

As noted in the UMCES study, the dam's floodgates begin to open with a flow around 86,000 cfs.[188] The United States Geological Survey has maintained a record of river flows for the Susquehanna River at Harrisburg every half hour since October 1, 2007.[189] A download of the data from this flood gage shows that the number of

[184] UMCES Study at 18.

[185] *Id.*

[186] *Id* at 3.

[187] *Id.* at 1.

[188] *Id.* at 3.

[189] United States Geological Survey, Susquehanna River at Harrisburg, PA – 01570500. Available at: https://waterdata.usgs.gov/monitoring-location/01570500/ (Last accessed July 24, 2023).

readings above 86,000 cfs has more than doubled in the period between 2018 and 2023, compared to the UMCES study period of 2012 through 2017.[190] The UMCES study states that the Conowingo Dam's new scour threshold could be 175,000 cfs, and perhaps even lower now; this volume of flow has occurred *more than four times as often* since 2018 as it did between 2012 and 2017 according to USGS flood gage data at Harrisburg.[191]

Because of the 2019 UMCES study we now know that the dam no longer needs a 400,000 cfs "mass wasting" event caused by something like a hurricane to generate significant scouring, with even moderate event flows at 175,000 cfs potentially triggering scour.[192] And in this region, the public is all too familiar with previously unknown weather phenomena and terminology like "atmospheric rivers" that now cause multiple inches of rain to fall over a location in a matter of hours, which easily triggering event flows at the dam. Flashy storms cause massive quantities of rain multiple times in a decade that would not previously have been expected more than once in a thousand years.[193] Any one of these now routine loading events can substantially increase phosphorus discharges from erosion of bottom sediments within the reservoir and into the Lower Susquehanna and Upper Bay.[194]

Of course, the impact of climate change is unpredictable and certainly varies from one year to the next. But one thing that climatologists have been warning about for more than a decade, and that recent data is now confirming with alarming precision, is that our region, including Central Maryland, through Southeast Pennsylvania, through Southern New York and into New England, is experiencing the greatest rate

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[190] United States Geological Survey, Data Download for Susquehanna River at Harrisburg, PA – 01570500. Available at: https://waterdata.usgs.gov/monitoring-location/01570500/#parameterCode=00065&period=P7D. (Last accessed July 24, 2023).

[191] *See supra* note 12.

[192] Palinkas *et al.* at 18.

[193] USA Today, *Why A 1-in-1000-Year Rain Event Devastated Ellicott City, Maryland – Again* (May 28, 2018). Available at: https://www.usatoday.com/story/weather/2018/05/28/ellicott-city-flooding-why-1-000-year-rain-event-happened-again/649502002/ (Last Accessed July 25, 2023).

[194] Cerco, 2016. Conowingo Reservoir Sedimentation and Chesapeake Bay: State of the Science. *Journal of Environmental Quality*.

of change in precipitation intensity and among the greatest increases in flood risk anywhere in the country.[195]

At the time of the Department's issuance of the 2018 Certification, we all understood that the global climate was changing and that its impacts were likely worsening. But what has happened to precipitation patterns in this region in particular since April 2018 has only exceeded our worst expectations and further broken previous assumptions and records. It is not only the assumptions and expectations of our climate that are being swiftly rewritten, however. We have also learned that the Conowingo reservoir's infilling happened much more quickly than had previously been understood. The combination of these two trends portends ominously for the Chesapeake Bay, as the lowering of the scour threshold and the increasing of intense precipitation events happen simultaneously. To address this worsening situation and significant threat to water quality in the Chesapeake Bay, the Department must expeditiously affirm the 2018 Certification, if not strengthen it further.

I. New Information Regarding the Impacts of Mussel Populations on the Dam's Nutrient Discharges.

"Following the construction of the Conowingo Dam in 1928 near the mouth of the Susquehanna River, eel migration into the Susquehanna watershed drastically declined."[196] "Since the Conowingo Dam was built in 1928, eels have lost access to some 400 miles of riverine habitat, decimating a once vibrant eel fishery and altering the river's ecosystem. When eels are restocked above the dam, they still risk death on their downstream spawning migration as they pass through the dam's turbines."[197] MDE and MDNR have confirmed the need for an eel migration program, which, in turn, should support increased mussels in the River; "More eels and mussels mean cleaner water as part of our holistic approach to

[195] *See* David Wood, Chesapeake Stormwater Network, *Review of Recent Research on Climate Projections for the Chesapeake Bay Watershed* (Oct 20, 2020), *available at* https://chesapeakestormwater.net/wp-content/uploads/2022/07/10027-3.pdf.

[196] U.S. Fish & Wildlife Service, *American Eel Restoration*, https://fws.gov/project/american-eel-restoration (last visited July 24, 2023).

[197] Wendy Mitman Clarke, *American Eels: Population, fishery, and poaching*, Sea Grant Maryland, May 12, 2020, https://www.mdsg.umd.edu/onthebay-blog/american-eels-population-fishery-and-poaching.

Susquehanna River and Chesapeake Bay restoration and resiliency."[198] Dispersal of mussels is dependent on the movement of eels and other fish, and the mussels help retain, remove, and recycle nutrients and sediment before it enters the Chesapeake Bay. "Each mussel filters more than 10 gallons of water per day."[199]

The 2018 Certification required implementation of the MDE American Eel Passage Improvement Plan under which Constellation was to "construct, operate, and maintain Eel fishways at the Dam to pass upstream Eels that arrive at the Project in a safe, timely, and efficient manner."[200] The Certification requires "new permanent East Eel Fishway(s) ('EEF') located in *one or more areas that have high potential to capture Eels* migrating up the east side of the mainstream River in the Tailrace."[201] It also included an Eel Reintroduction Plan, which does not appear to be included in the Settlement.[202]

Under the settlement agreement, on the other hand, Constellation was required only to provide a temporary East Eel Facility located within the East Fish Lift, and, if it meets certain criteria for a period of ten years, then the facility will become permanent.[203] The most recent report found regarding the status indicates that the temporary eel facility in the East Fish Lift will start within 12 months of completion of modifications to the East Fish Lift.[204] Under the Settlement,

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[198] MDNR Aug. 31, 2021 Press Release, *Record-breaking Half Million American Eels Navigate Eel Ramp at Conowingo Dam To Deliver Cleaner Water for Susquehanna River and Chesapeake Bay*, https://news.maryland.gov/dnr/2021/08/31/record-breaking-half-million-american-eels-navigate-eel-ramp-at-conowingo-dam-to-deliver-cleaner-water-for-susquehanna-river-and-chesapeake-bay/.

[199] *Id.*

[200] Certification, Attach. 2, at 2-1.

[201] *Id.* at 2-2 (emphasis added).

[202] Rather, the Settlement included providing an area for mussel restoration and some funds to support state efforts to restore mussels. "However, no specific timetable, milestones, or delivery dates are linked to MDE's development of a mussel restoration program." Comments of the Pennsylvania Fish & Boat Commission on Joint Offer of Settlement at 4 (2020) (submitted Jan. 17, 2020 to FERC Docket) (20200117-5198).

[203] Normandeau Assocs., *Summary of Conowingo East Side Evaluation for Potential Collection Locations for American Eel, 2021*, Prepared for Constellation, at 2 (submitted June 27, 2022 to FERC Docket) (20220727-5093).

[204] *Id.*

"Constellation will not be required to maintain and operate more than two permanent eel traps at any time during the term of the new license."[205]

MDE and MDNR have cited to the commitments for another eel ramp and monies for mussel restoration as potentially resulting in "greater results."[206] This is based on one year's results at an eel collection facility operated by Constellation on the west side of the dam. But, as MDE found in the Certification, "[m]illions of eel ... should be present in the Lower River, including areas upstream of the Dam; in 2017, only thousands were collected at the base of the Dam and transported upstream."[207] "Consequently freshwater mussel populations have declined dramatically in the system."[208]

The west eel passage has only collected 1,333,974 American Eel since operations began in 2017, and almost 47% of that total occurred in one year, as shown in the following table.[209]

	Conowingo West Eel Collection Facility	East Eel Collection
2017	122,300 juvenile eels collected	n/a
2018	67,949 juvenile eels collected	n/a
2019	126,181 juvenile eels collected	n/a
2020	254,651 juvenile eels collected	n/a

[205] *Id.* at 1-2. A temporary eel trapping facility at Octoraro Creek is being operated pursuant to Constellation's Muddy Run project. *Id.* at 1.

[206] DNR Aug. 31, 2021 Press Release, *Record-breaking Half Million American Eels Navigate Eel Ramp at Conowingo Dam To Deliver Cleaner Water for Susquehanna River and Chesapeake Bay*, https://news.maryland.gov/dnr/2021/08/31/record-breaking-half-million-american-eels-navigate-eel-ramp-at-conowingo-dam-to-deliver-cleaner-water-for-susquehanna-river-and-chesapeake-bay/.

[207] Certification at 12.

[208] *Id.*

[209] Normandeau Assocs., *Muddy Run Pumped Storage Project and Conowingo Hydroelectric Project Conowingo West Eel Collection Facility, 2022*, Prepared for Constellation, at 3, 47 (submitted Feb. 7, 2023 to FERC Docket) (20230207-5171).

2021	623,095 juvenile eels collected	n/a
2022	139,798 juvenile eels collected	n/a

Although MDNR reported a record number of eels collected in 2021, they did not identify a reason for the increase in 2021. In any event, the numbers decreased again in 2022 to levels below those reported for 2013 and 2014 prior to Constellation operating the eel lift.[210] For 2021, the U.S. Fish & Wildlife Service has reported 174,360 eels collected at the Conowingo Dam for 2023 through the week of July 16.[211]

After it issued the Certification, MDE released a draft report discussing the potential benefits of mussel restoration on the Susquehanna River.[212] It found "[t]he decline in range and abundance of North American mussel populations from historical levels has been well documented and attributed to anthropogenic impacts.[213] The reproductive strategy of mussels makes their populations particularly vulnerable to habitat modification and fragmentation from dams.[214] If host fish cannot access habitat occupied by mussels, recruitment will cease.[215] Over time, these mussel populations lose their viability and become co-extirpated with their host fish regardless of the number of adult mussels present or quality of environmental conditions. MDE's draft report describes what the Conowingo Dam has done to the mussel population on the Susquehanna where, as MDE found in the Certification, the mussel population is now "considered unviable."[216] In particular, MDE's draft report finds "[t]he dwindling Susquehanna River mussel populations are isolated and consist primarily of large (older) individuals. The lack of Eastern

[210] U.S. Fish & Wildlife Service, *Susquehanna River American Eel Passage,* https://fws.gov/project/susquehanna-river-american-eel-passage (last visited July 26, 2023).

[211] *Id.*

[212] MDE, "Large Scale Mussel Restoration in the Susquehanna River: Potential Benefits for Nutrient Reduction (*Draft*) (2019) ("Mussel Restoration Report").

[213] *Id.* at 1 (citing Strayer et al. 2004, Haag 2012).

[214] *Id.* (citing Vaughn and Taylor 1999, Watters 1999).

[215] *Id.* (citing Kelner and Seitman 2000).

[216] Certification at 12.

Elliptio recruitment in the Susquehanna River has been attributed to the exclusion of their host fish by large dams, such as the Conowingo Dam."[217]

MDE's 2019 draft report goes on to discuss the density of mussel populations in different rivers now and in the past. In the early 1900s, for example, it notes that earlier studies based on mussel harvests indicates populations reaching 100 mussels per square meter (mussels/m2) in large rivers.[218] A survey recently contracted by Constellation reported mussel densities of just 0.11 mussels/m2 to 4.26 mussels/m2 downstream of the dam. [219] In other words the population density now ranges from about 4 percent to about one tenth of one percent of what it should be.

The draft report discusses how effective mussels are at filtering water and, in particular, removing nitrogen and phosphorous. It states

> Particle filtration by mussels range from 0.50 to 3.7 Liters per hour per mussel. The Eastern Elliptio is estimated to filter 16.5 gallons of water per mussel per day (24 hours). Through daily feeding activities, mussels improve water quality by reducing nutrient transport in riverine systems. Nutrients taken in by mussels are either stored in the tissue of the mussel (soft tissues and shell material), translocated from the water column to the substrate in the form of biodeposits (feces and pseudofeces), or returned to the water column as excreted (soluble) nutrients.[220]

It then provides "Examples of nutrient assimilation capacity in Susquehanna River tributaries:

- Charlotte Creek (area=2,124/m^2, density = 0.6 mussels/m^2)
  - Standing stock is 892 g N and 11 g P
  - Clearance rate of seston is 3,313 L/hr
- Aughwick Creek (area = 4,760/m^2, density = 2.8 mussels/m^2)
  - Standing stock is 9,330 g N and 120 g P
  - Clearance rate of seston is 34,653 L/hr

[217] Mussel Restoration Report at 1 (Reese et al. 2014, Gailbraith et al. 2018).

[218] *Id.* at 2.

[219] *Id.*

[220] *Id.*

- Pine Creek (area = 9,656/m^2, density = 6.1 mussels/m^2)
    - Standing stock is 41,231 g N and 530 g P
    - Clearance rate of seston is 153,145 L/hr
    - Note: Pine Creek was a site for U.S. Fish and Wildlife Service experimental eel stocking in 2010-2013.[221]

Because nutrients are retained in biodeposits, it also provides "Biodeposition rates":

- *Margaritifera falcata* - 14 mg/hr per mussel*Lasmigona complanata* - 59 mg/hr per mussel
- *Pyganodon grandis* - 128 mg/hr per mussel.[222]

Thus, it notes that one earlier study estimated the biodeposition rates for the 1% of the Hudson River Estuary with the densest freshwater mussel populations; these mussels were capable of retaining 440 pounds of nitrogen per day (80.3 tons annually) and 110 pounds of phosphorus per day (20.1 tons annually).[223] Another study estimated that in the Brandywine River mussels "removed 4.3 metric tons (9,700 pounds) of TSS per river mile annually, or 7% of the suspended solids passing through the system."[224] A third study MDE considered "estimated total mussel mediated denitrification for the East Branch of the DuPage River near Chicago.[225] There, where "the average mussel density was 0.97 mussels/m^2 (approximately 23,000 mussels/mile), [t]he study calculated a denitrification rate of 0.0897 grams N/m^2/day. Annual mussel-enhanced reduction of nitrogen was 44,968 pounds (~1,730 pounds N per mile) in the DuPage River." MDE concluded that "Scaling the results from the DuPage River would result in 251,901 pounds of N removed per year per river mile in the Susquehanna River."[226]

Finally, MDE's draft report concludes that "Increasing the size and biomass of mussel populations through a combination of augmentation, reintroduction, and re-establishing the host-affiliate relationship could improve water quality through enhanced nutrient reduction due to filtration, retention, and biodeposition by

[221] *Id.* at 3 (citing Minkkinen at al. 2014).

[222] *Id.* (citing Howard and Cuffey 2006 and Hoellein at al. 2017 for biodeposition rates).

[223] *Id.* at 3 (citing Strayer 2014).

[224] *Id.* at 3 (citing Kreeger (2005)).

[225] *Id.* (citing Hoellein *et al.* (2017)).

[226] *Id.*

mussels."[227] It provides the following table showing different levels of mussel restoration and the resulting nutrient reductions that could be expected to result.

[227] *Id.* at 4.

POTENTIAL MUSSEL MEDIATED NUTRIENT RETENTION IN THE SUSQUEHANNA RIVER

# mussels/ river mile	# miles restored	Annual Biodeposition Rates (pounds)			Standing Stock (pounds)	
		TSS	Nitrogen	Phosphorus	Nitrogen	Phosphorus
25 thousand	1	10,250 - 13,750	30 - 38	10 - 15	39	0.5
	10	102,500 - 137,500	300 - 375	100 - 150	386	5
	25	256,250 - 343,750-	750 - 950	250 - 375	965	13
100 thousand	1	41,000 - 55,000	120 - 150	40 - 60	154	2
	10	410,000 - 550,000	1,200 - 1,500	400 - 600	1,543	20
	25	1.0 - 1.4 million	3,000 - 3,750	1,000 - 1,500	3,858	50
500 thousand	1	205,000 - 275,000	600 - 750	200 - 300	772	10
	10	2.1 - 2.8 million	6,000 - 7,500	2,000 - 3,000	7,716	99
	25	6.3 - 6.9 million	15,000 - 18,750	5,000 - 7,500	19,290	248
1 million	1	410,000 - 550,000	1,200 - 1,500	400 - 600	1,543	20
	10	4.1 - 5.5 million	12,000 - 15,000	4,000 - 6,000	15,432	198
	25	10.3 - 13.8 million	30,000 - 37,500	10,000 - 15,000	38,580	495
	1	1.2 - 1.7 million	3,600 - 4,500	1,200 - 1,800	4,630	60

3 million	10	12 - 17 million	36,000 - 45,000	12,000 - 18,000	46,297	595
	25	30 - 43 million	90,000 - 1.1 million	30,000 - 45,000	115,743	1,488

The average mussel density found in the 2010-2012 surveys of the Susquehanna River downstream of Conowingo Dam averaged 2.6 mussels/m^2.[228] Similarly, a moderate sized mussel bed (Aughwick Creek) for tributaries to the Susquehanna River has a density of 2.8 mussels/m^2. This conservative restoration goal would result in approximately 3.5 million mussels per river mile downstream of Conowingo Dam[229]

Target population sizes for various river widths and mussel densities (# mussels/river mile)

Average river width	5 mussels/m^2	2.5 mussels/m^2	1 mussel/m^2
0.5 mile (805 m)	6.5 million	3.2 million	1.3 million
0.25 mile (402 m)	3.2 million	1.6 million	647 thousand
0.1 mile (161 m)	1.3 million	648 thousand	259 thousand
Tributaries (15 m)	121 thousand	60 thousand	24 thousand

II. NEW INFORMATION REGARDING FLOW AND DOWNSTREAM HABITAT.

Commenters on the settlement agreement also objected that, unlike the Certification, it allowed Constellation to adopt a flow regime that will continue to harm fish, wildlife, and their habitat. For example, the Nature Conservancy called into question whether the flow regime in the Settlement agreement will address the

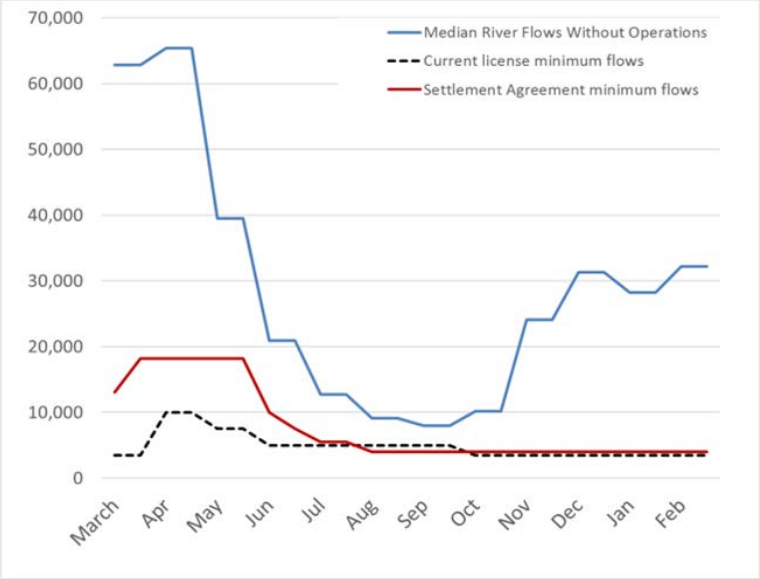
[228] *Id.* at 4 (citing Biodrawversity and Gomez and Sullivan Engineers, 2012)

[229] *See* calculations in Spreadsheet, Mussel Calculations Based on "Mussel Restoration in Susquehanna River (draft)," July 2023).

Conowingo Dam as the source of flow alteration and changes to stream hydraulics that have caused non-attainment of the designated use of supporting aquatic life and wildlife on the Lower Susquehanna River.[230] As was further noted, the settlement agreement would have effectively waived MDE's ability to go beyond the agreement to address that impairment.

Significantly, the minimum flows in the Settlement were found to be very similar to or lower than the existing license for the summer, fall and winter months, which has been deemed inadequate, as evidenced by the listing of the Lower Susquehanna River as impaired.[231] This is illustrated in Figure 1 below from the Nature Conservancy's comments:[232]

Figure 1. A Comparison of median river flows without operations (blue), current minimum flows requirements (dashed black) and minimum flows in the Proposed License Articles (red).



The Nature Conservancy identified numerous species whose propagation and growth are dependent on the summer, winter and fall months, not just the spring, which is reproduced below.

[230] The Nature Conservancy's Comments on Offer of Settlement, at 5 (submitted on Jan. 17, 2020 to FERC Docket) (20200117-5199).
[231] *Id.* at 10-11.

[232] *Id.* at 13.

Table 1. Under the Settlement Offer, **minimum flows will remain the same or lower than the existing condition through the summer, fall and winter. As illustrated by RSP 3.16, most species have life stages that require suitable habitat during summer, winter and fall.**

TABLE 3.2.1-2: SEASONAL PERIODICITY OF OCCURRENCE OF TARGET SPECIES IN THE SUSQUEHANNA RIVER BELOW CONOWINGO DAM. ITALICIZED LIFE STAGES ARE CONSIDERED IMMOBILE. HABITAT GUILDS ARE SHOWN IN PARENTHESES.

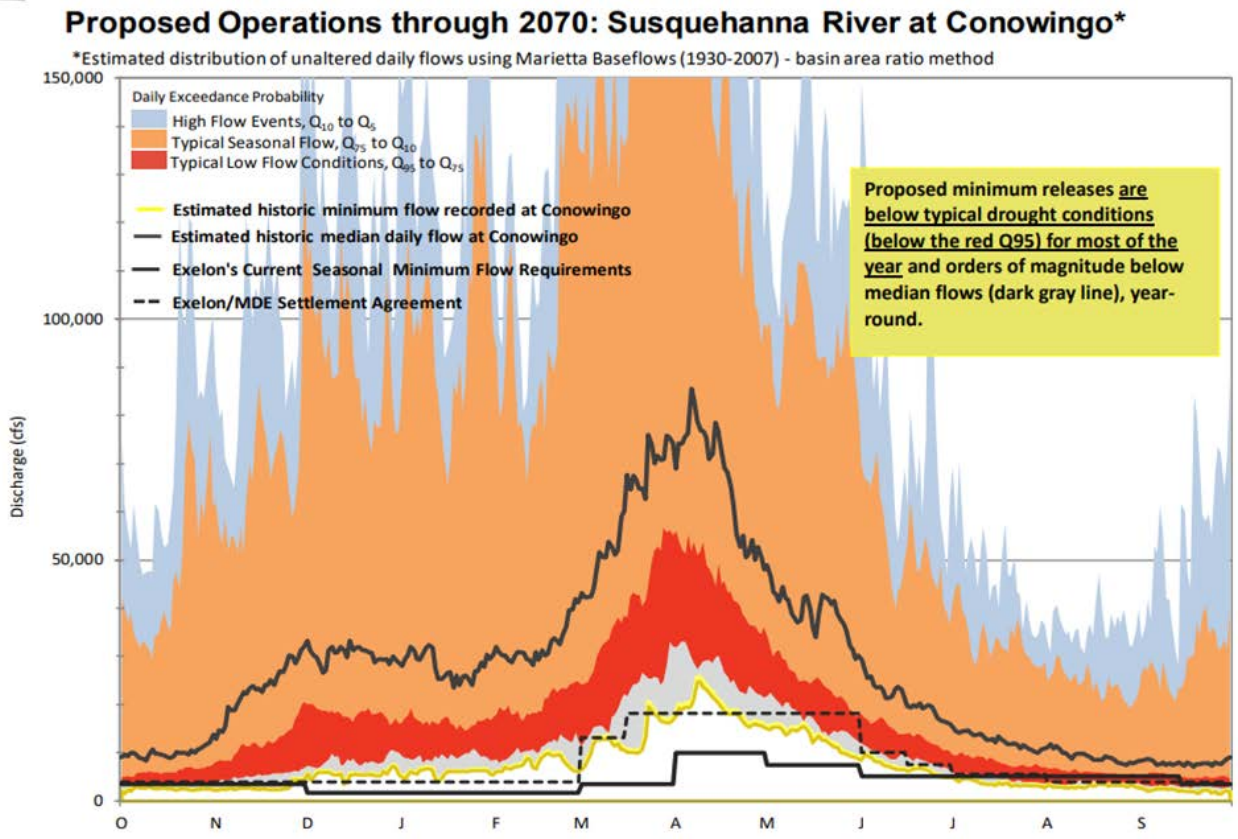
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
American Shad												
Spawning				■	■	■						
Fry					■	■	■					
Juveniles							■	■	■	■	■	
Adults				■	■	■						
Hickory Shad												
Spawning (Deep-Slow)			■	■	■							
Fry(Shallow-Slow)				■	■	■						
Juveniles (Deep-Slow)						■						
Adults (Deep-Fast)			■	■	■							
Blueback Herring												
Spawning (Deep-Slow)				■	■	■						
Fry (Shallow-Slow)					■	■						
Juveniles (Shallow-Slow)							■	■	■	■		
Adults (Deep-Slow)				■	■	■						
Alewife												
Spawning (Deep-Slow)			■	■	■							
Fry (Shallow-Slow)			■	■	■							
Juveniles (Deep-Slow)						■	■	■	■	■		
Adults (Shallow-Slow)				■	■							
White Perch												
Spawning (Shallow-Fast, Deep-Fast)				■	■	■						
Fry (Shallow-Slow)				■	■	■	■					
Juveniles (Shallow-Slow, Deep-Slow)					■	■	■	■	■	■	■	■
Adults (Deep-Slow)	■	■	■	■	■	■	■	■	■	■	■	■
Yellow Perch												
Spawning (Deep-Slow)			■	■								
Fry (Shallow-Slow)				■	■							
Juveniles (Deep-Slow)						■	■	■	■	■	■	■
Adults (Deep-Slow)	■	■	■	■	■	■	■	■	■	■	■	■
Striped Bass												
Spawning				■	■	■						
Fry				■	■	■	■					
Juveniles						■	■	■	■	■	■	■
Adults	■	■	■	■	■	■	■	■	■	■	■	■

Table 1 continued.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Largemouth Bass												
Spawning (Shallow-Slow, Deep-Slow)					■	■						
Fry (Shallow-Slow, Deep-Slow)						■	■					
Juveniles (Shallow-Slow, Deep-Slow)								■	■	■	■	■
Adults (Deep-Slow)	■	■	■	■	■	■	■	■	■	■	■	■
Smallmouth Bass												
Spawning					■	■						
Fry						■	■					
Juveniles								■	■	■	■	■
Adults	■	■	■	■	■	■	■	■	■	■	■	■
Walleye												
Spawning (Deep-Fast)			■	■								
Fry (Deep-Slow)				■	■	■						
Juveniles (Deep-Slow)						■	■	■	■	■	■	■
Adults (Deep-Slow)	■	■	■	■	■	■	■	■	■	■	■	■
Shortnose sturgeon												
Spawning				■	■							
Fry					■	■	■					
Juveniles/Adults	■	■	■	■	■	■	■	■	■	■	■	■
Atlantic sturgeon												
Spawning (Deep-Fast)				■	■							
Fry (Deep-Slow, Deep-Fast)					■	■	■					
Juveniles/Adults (Deep-Slow, Deep-Fast)	■	■	■	■	■	■	■	■	■	■	■	■
American eel												
Elver (Shallow-Slow, Deep-Slow, Deep-Fast)				■	■	■	■	■	■	■		
Yellow (Shallow-Slow,Deep-Slow,Deep-Fast)	■	■	■	■	■	■	■	■	■	■	■	■
Silver (Deep-Slow)									■	■	■	■
Alewife floater												
Adultz/juveniles	■	■	■	■	■	■	■	■	■	■	■	■
Spawning										■	■	■
Larvae			■	■	■							
Eastern elliptio												
Adultz/juveniles	■	■	■	■	■	■	■	■	■	■	■	■
Spawning	■	■	■									
Larvae				■	■	■	■	■				
Fingernail clams												
Adultz	■	■	■	■	■	■	■	■	■	■	■	■
Spawning/larvae	■	■	■	■	■	■	■	■	■	■	■	■
Ephemeroptera-Plecoptera-Trichoptera												
all life stages	■	■	■	■	■	■	■	■	■	■	■	■

The Nature Conservancy's comments further compared the Settlement's flow rates with historical flow rates, finding them substantially below median conditions, year-round.

Figure 2. A comparison of interannual variability and minimum flows proposed in the Settlement Agreement Operational Flow Regime (dashed black line).



In addition, the Nature Conservancy explained how the magnitude of daily peaking will continue to severely limit habitat availability for fish, wildlife and aquatic vegetation, and the proposed down ramping conditions to not adequately consider stranding.[233] As they explain, the variable in flow as a result of a daily peaking operation can have varying impacts and all life stages of species must be considered to ensure protection of fish and wildlife in the watershed. They also noted that the Settlement would not mitigate stranding mortality as flows drop from 86,000 cfs to 30,000 cfs despite record evidence that the impact to shad is significant. While Constellation has argued that the flow rate has many of the same elements as that proposed by the Nature Conservancy, that does not obviate that

[233] *Id.* at 10, 17-31.

what is in the Settlement is sufficiently protective to support fish and wildlife in the Bay.

Constellation's response to these comments before FERC was largely that provisions in the Settlement are better than the prior license and improvements over recommendations from a 2015 Final Environmental Impact Statement prepared by FERC, not MDE.[234] Tellingly, however, Constellation did not defend the Settlement as meeting water quality standards. To the contrary, Constellation argued that the Clean Water Act, as well as state water quality standards, "are irrelevant here."[235] Under Clean Water Act § 401, however, they are directly relevant to any water quality certification.

III. NEW INFORMATION SHOWS THAT FISH PASSAGE AT THE DAM REMAINS INADEQUATE.

The depletion of American shad starkly illustrates the impact the Dam has had on fisheries in the Bay. "American shad once ruled the waters of the Susquehanna River and its tributaries," becoming one of the region's most valued commodities for commerce in the 1830s.[236] Alterations in the Project's dam operations (more frequent peaking and the ability to peak at higher flows) following the installation of additional generating units in the mid-1960s also has been cited as a reason for the decline in shad.[237] American shad seemed to be returning by 2001 when over 200,000 adult shad were counted at the Project's fish lifts,[238] but, since then, adult numbers have decreased as shown in the following

[234] *See, e.g.*, Reply Comments of Exelon Generation Company, LLC at 9-10 (Submitted on Jan. 31, 2020 to FERC Docket) (20200131-5251).

[235] *Id.* at 58.

[236] Pennsylvania Fish and Boat Commission, *Migratory Fish Restoration and Passage on the Susquehanna River*, at 1, *available at* https://www.fishandboat.com/Education/ActivitiesAndEducationPortal/Fish/Documents/migratory_fish.pdf (last visited July 20, 2023).

[237] *Id.*

[238] *Id.* at 5.

charts obtained from the Trap and Transport Logistics Plan for Adult American Shad and River Herring at Conowingo Dam.[239]

Figure 2-1: American Shad Collections at Conowingo Dam, 1985 - 2001.

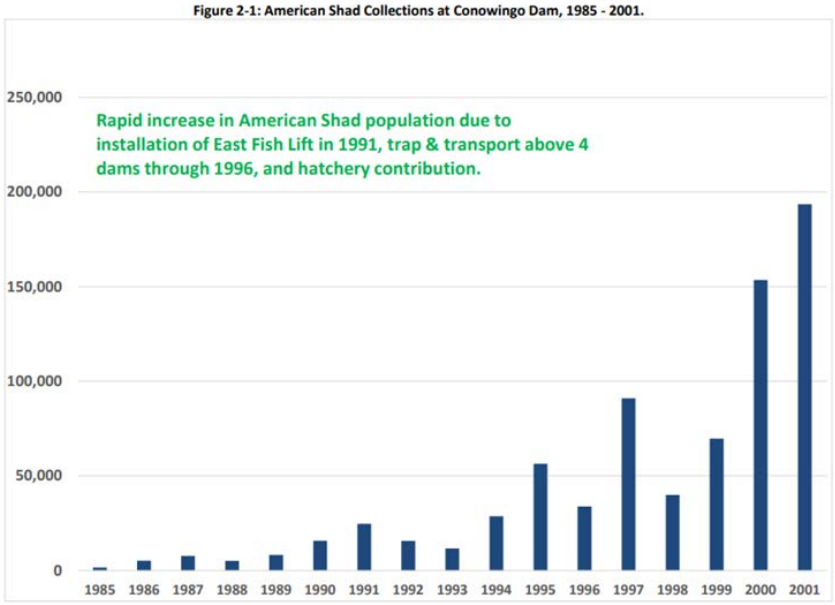
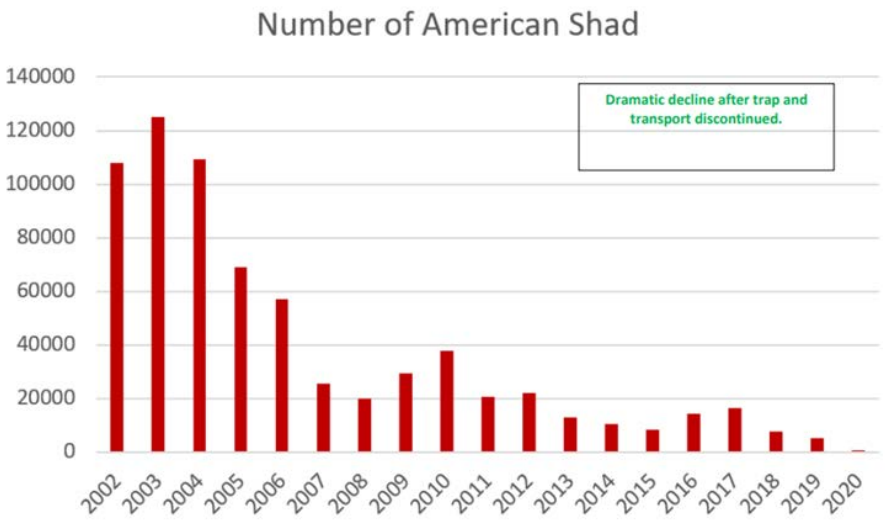


Figure 2-2. American Shad Collections at Conowingo Dam, 2002 - 2020.



[239] This plan was submitted to FERC on August 2021, and the tables are found at pages 13 and 14. It is Appendix F to the Fishway Operation and Maintenance Plan submitted to FERC in January of 2023, which is available in the FERC Online Library, Docket P-405, Document Accession #: 20230131-5337.

MDE cited fish count information for American Shad and River Herring for 2017. The following table provides the fish counts for 2018-2022, which have declined since then.[240]

Year	Passed at Conowingo East Fish Lift		Collected at Conowingo West Fish Lift	
	American Shad	River Herring	American Shad	River Herring
2018	6,992	60	465	27
2019	4,787	15	390	13
2020	485	1	No operation	0
2021	No operation	No operation	6,825	27
2022	2,283	95	2,314	961

"Safe, timely and effective fish passage at Conowingo is essential to the American shad restoration on the Susquehanna River."[241]

[240] The data for years 2018-2020 was obtained from Table 7-1 in the Trap and Transport Logistics Plan for Adult American Shad and River Herring at Conowingo Dam (FERC Project No. 405), submitted to the Federal Energy Regulatory Commission on August 2021 (page 12), Appendix F to the Fishway Operation and Maintenance Plan submitted to FERC in January of 2023, which is available in the FERC Online Library, Docket P-405, Document Accession #: 20230131-5337. The data for 2021 were obtained from the Fishway Operation and Maintenance Plan: 2021 Annual Report submitted to FERC in December of 2021 (pages 10-12), which is available in the FERC Online Library, Docket P-405, Document Accession #:20211230-5300 The data for 2022 were obtained from the Fishway Operation and Maintenance Plan: 2022 Annual Report submitted to FERC in December of 2022 (pages 9 and 12), which is available in the FERC Online Library, Docket P-405, Document Accession #:20221229-5243.

[241] Testimony of Genevieve Larouche, Field Office Supervisor, Chesapeake Bay Field Office U.S. Fish and Wildlife Service, U.S. Department of the Interior Before the Senate Environment and Public Works Subcommittee on Water and Wildlife, May 5, 2014, https://www.fws.gov/testimony/oversight-hearing-conowingo-dam.

CONCLUSION

For the reasons given in their 2018 administrative petition and above, Waterkeepers respectfully request that MDE not weaken the Certification in any way, but strengthen it.

LIST OF ATTACHMENTS TO
RESPONSE OF LOWER SUSQUEHANNA RIVERKEEPER ASSOCIATION AND WATERKEEPERS CHESAPEAKE TO MARYLAND DEPARTMENT OF THE ENVIRONMENT'S REQUEST FOR SUPPLEMENTAL BRIEFING REGARDING THE PETITIONS FOR ADMINISTRATIVE RECONSIDERATION OF THE CLEAN WATER ACT SECTION 401 CERTIFICATION FOR THE CONOWINGO HYDROELECTRIC PROJECT

August 1, 2023

1. NUTRIENT MATERIALS
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    b. Maryland Department of the Environment, *Maryland's Final Combined 2020-2022 Integrated Report of Surface Water Quality* (2022), approved by EPA on Feb. 25, 2022, *available at* https://mde.maryland.gov/programs/water/TMDL/Integrated303dReports/Documents/Integrated_Report_Section_PDFs/IR_2020_2022/MD_Combined2020_2022_Final_Approved_Integrated_Report_2_25_22.pdf
    c. Maryland Department of the Environment, *Overview of Maryland's Water Quality Certification for the Conowingo Dam,* Mike Pedone Presentation to the Chesapeake Bay Commission, Jan. 3, 2019 ("Pedone Presentation")
    d. Chesapeake Bay Program, Framework for the Conowingo Watershed Implementation Plan, Feb. 16, 2018 DRAFT, *available at* https://d38c6ppuviqmfp.cloudfront.net/channel_files/26045/iv.b._conowingo_draft_framework_.pdf ("Draft CWIP Framework")
    e. Chesapeake Bay Program, Framework for the Conowingo Watershed Implementation Plan, Jan. 2019 Redline, *available at* https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/iv.b._cwip_framework_jan_2019_rfa_edits.pdf ("Redline CWIP Framework")
    f. Chesapeake Bay Program, Framework for the Conowingo Watershed Implementation Plan, Final Jan. 31, 2019, *available at* https://d18lev1ok5leia.cloudfront.net/chesapeakebay/cwip_framework_-_final_1_31_19_version.pdf ("Final CWIP Framework")

g. Maryland Department of Environment, et al., *Maryland's Phase III Watershed Implementation Plan to Restore Chesapeake Bay by 2025*, Aug. 23, 2019, *available at* https://mde.maryland.gov/programs/water/TMDL/TMDLImplementation/Documents/Phase-III-WIP-Report/Final%20Phase%20III%20WIP%20Package/Phase%20III%20WIP%20Document/Phase%20III%20WIP-Final_Maryland_8.23.2019.pdf ("Final Phase III WIP")

h. Chesapeake Bay Program, et al., *Conowingo Watershed Implementation* Plan, DRAFT Oct. 14, 2020, *available at* https://d18lev1ok5leia.cloudfront.net/chesapeakebay/draft_conowingo_watershed_implementation_plan_10_14_20.pdf ("Draft CWIP")

i. University of Maryland School of Public Policy Center for Global Sustainability, *Conowingo Watershed Implementation Plan Financing Strategy*, Dec. 10, 2020 ("CWIP Financing Strategy")

j. Waterkeepers Chesapeake, et al., Chesapeake Bay Program Solicitation for Draft Conowingo Implementation Plan ("CWIP") Comments, Jan. 20, 2021 ("Waterkeepers Comments on Draft CWIP")

k. Chesapeake Bay Program, et al., Conowingo Watershed Implementation Plan, Rev. July 31, 2021, *available at* https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/final_cwip.pdf ("CWIP")

l. EPA Evaluation of the Final Conowingo Watershed Implementation Plan, Jan. 24, 2022, *available at* https://www.epa.gov/system/files/documents/2022-01/cover-letter-and-epa-evaluation-of-final-cwip_v1.24.2022.pdf

m. Draft EPA Expectations: Implementation of the Conowingo Watershed Implementation Plan's Phased Approach (Jan. 26, 2023), *available at* https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/EPA-Expectations_CWIP-Phased-Approach_DRAFT_1.26.2023_2023-03-29-194537_oxgk.pdf

n. EPA Expectations: Implementation of the Conowingo Watershed Implementation Plan's Phased Approach (July 19, 2023)

o. Protest and Answer of Maryland Department of the Environment (submitted on Mar. 28, 2019 to FERC Docket) (20190328-5210)

p. Chesapeake Bay Program, PSC Letter to Exelon (DRAFT) (Dec. 15, 2017) *available at*

https://www.chesapeakebay.net/channel_files/25523/revised_draft_psc_letter_to_exelon_conowingo_171215_draft_2.pdf.

q. Waterkeepers Chesapeake et al., Comments on Proposed Settlement Agreement and exhibits (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5095)
r. Comments of the Local Government Members of the Clean Chesapeake Coalition Regarding the Joint Offer of Settlement of Exelon Generation Company, LLC and the Maryland Department of the Environment Re: Conowingo Dam Water Quality Certification (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5236)
s. Chesapeake Bay Foundation, Inc.'s Comments on Offer of Settlement (Submitted on Jan. 17, 2020 to FERC Docket) (20200117-5154)
t. Final Brief of *Amicus Curiae* Maryland Charter Boat Association, Inc. In Support of Petitioners, *Waterkeepers Chesapeake v. FERC*, No. 21-1139 (D.C. Cir. Filed June 21, 2022)
u. Declarations, Addendum to Final Opening Br. of Petitioners, *Waterkeepers Chesapeake v. FERC,* No. 21-1139 (D.C. Cir. filed June 21, 2022)
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y. Katherine Rapin, *How Using Nature's Tools is Helping to Clean Up Urban Rivers*, Yale Environment 360, Aug. 11, 2022, https://e360.yale.edu/features/river-cleanup-oysters-mussels-seagrass-delaware
z. Clare Sevcik, *Delaware's Freshwater Mussels*, The Official Blog of the Wetland Monitoring & Assessment Program, May 14, 2019, https://wmap.blogs.delaware.gov/2019/05/14/delawares-freshwater-mussels/
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https://pa.audubon.org/news/%E2%80%9Cmussel%E2%80%9D-behind-delaware-river-watershed%E2%80%99s-clean-water

bb. Maryland Department of the Environment and Maryland Department of Natural Resources Letter to Exelon Corp., Aug. 3, 2018, available at https://htv-prod-media.s3.amazonaws.com/files/dnr-mde-exelon-letter-8-3-18-1533557428.pdf

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    b. U.S. Global Change Research Program's Fourth National Climate Assessment, Volume II: Impacts, Risks, and Adaptation in the United States, Chapter 18 (2018), *available at* https://nca2018.globalchange.gov/chapter/18/
    c. Mid-Atlantic Regional Integrated Sciences and Assessments (MARISA), Developing Future Projected Intensity-Duration-Frequency (IDF) Curves (August 3, 2021), *available at* https://rb.gy/9kfj6
    d. Carl F. Cerco, *Conowingo Reservoir Sedimentation and Chesapeake Bay: State of the Science*, Journal of Environmental Quality (Mar. 4, 2016)
    e. David Wood, Chesapeake Stormwater Network, Review of Recent Research on Climate Projections for the Chesapeake Bay Watershed (Oct 20, 2020), *available at* https://chesapeakestormwater.net/wp-content/uploads/2022/07/10027-3.pdf
3. Flow Materials
    a. FERC, Order Addressing Arguments Raised on Rehearing, 176 FERC 61,029 (July 15, 2021) (20210715-3033)
    b. Petition for Rehearing of FERC's Order Issuing New License, P-405-106 and P-405-121 (Apr. 19, 2021) (20210419-5251)
    c. The Nature Conservancy's Comments on Offer of Settlement (submitted on Jan. 17, 2020 to FERC Docket) (20200117-5199), and attachments (20200117-5196).
4. Other
    a. Dear Constituent Letter from MDE, Mar. 23, 2020

b. Protest and Answer of the Susquehanna River Basin Commission to the Petition for Declaratory Order of Exelon Generation Company, LLC (Submitted on Mar. 28, 2019 to FERC Docket) (20190328-5311)