Virginia Department of Planning and Budget

# Economic Impact Analysis

**9 VAC 25-260 Water Quality Standards**
**Department of Environmental Quality**
**Town Hall Action/Stage: 6517 / 10399**
September 3, 2024

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with § 2.2-4007.04 of the Code of Virginia (Code) and Executive Order 19. The analysis presented below represents DPB's best estimate of the potential economic impacts as of the date of this analysis.[1]

## Summary of the Proposed Amendments to Regulation

The State Water Control Board (Board) proposes to allow "any scientifically defensible assessment method" to assess eleven dissolved oxygen criteria for the Chesapeake Bay and the tidal portions of its tributaries that protect certain designated uses; this would be in addition to the cumulative frequency distribution methodology, which is the only methodology that is currently allowed.

## Background

Under the federal Clean Water Act, states are required to monitor and assess the surface waters within their jurisdictional boundary with respect to water quality standards. Water bodies that are determined not to meet water quality standards are identified as impaired by the Department of Environmental Quality's (DEQ) water quality assessment program and are placed on Virginia's 303(d) list, which is often referred to as the impaired waters list, The 303(d) list is sent to the Environmental Protection Agency (EPA) every two years for approval. Per the federal

[1] Code § 2.2-4007.04 requires that such economic impact analyses determine the public benefits and costs of the proposed amendments. Further the analysis should include but not be limited to: (1) the projected number of businesses or other entities to whom the proposed regulatory action would apply, (2) the identity of any localities and types of businesses or other entities particularly affected, (3) the projected number of persons and employment positions to be affected, (4) the projected costs to affected businesses or entities to implement or comply with the regulation, and (5) the impact on the use and value of private property.

Clean Water Act, a water body placed on a state's 303(d) list is prioritized for a clean-up plan known as a Total Maximum Daily Load (TMDL). The pollutant addressed by a TMDL is determined to be the likely cause of a water body's impairment. A TMDL represents the maximum load of the pollutant that a water body can assimilate while still meeting water quality standards, which is instrumental in identifying the corrective actions that must be taken.

This regulatory action pertains to eleven dissolved oxygen criteria for the Chesapeake Bay and the tidal portions of its tributaries that protect the following four designated uses as follows.

- Two criteria for migratory fish spawning nursery (i.e., 7-day mean, instantaneous minimum),
- Five criteria for open water (i.e., **30-day mean with 0-0.5 ppt salinity, 30-day mean with > 0.5 ppt salinity**, 7-day mean, instantaneous minimum for < 29 degrees Celsius, instantaneous minimum for >= 29 degrees Celsius),
- Three criteria for deep water (i.e., **30-day mean**, 1-day mean, instantaneous minimum),
- One criterion for deep channel (i.e., **instantaneous minimum**).

The current regulation stipulates that the criteria shall be assessed "*through comparison of the generated cumulative frequency distribution of the monitoring data to the applicable criteria reference curve for each designated use,*" also known as the cumulative frequency distribution (CFD) methodology. The CFD approach has been used by the Chesapeake Bay program office since the early 2000s to assess water quality thresholds and criteria in the Chesapeake Bay and its tidal tributaries. This statistical tool allows criteria nonattainment to be expressed in terms of space and time, rather than just in time as more conventional tools do. However, the existing language in the regulation limits which methods DEQ can use to assess the criteria for dissolved oxygen.

One limitation of the current regulatory language is that it limits assessments to using only discrete datasets, and excludes other types of available data. For example, water quality data from state-of-the-art automated continuous monitoring instrumentation that collects high-frequency data are not compatible with the CFD procedures. This limitation means that the current CFD approach only allows for the assessment of four (i.e., criteria in bolded text above) of the eleven dissolved oxygen criteria in the Chesapeake Bay and its tidal tributaries.

Furthermore, according to DEQ, although failure to meet any of the eleven criteria may be sufficient for the water body to be placed on the impaired water list, to be removed from that list all eleven criteria may have to be be met. Generally, exceeding any of the applicable criteria may result in an impaired categorization. DEQ uses a weight of evidence approach where it considers all available data and information as well as available assessment procedures. It is possible that a weight of evidence analysis would identify that there is not sufficient information to make a determination and that additional data must be collected. Similarly, while failure to meet any of the eleven criteria may be sufficient for the water body to be placed on the impaired list, there is the caveat that not all eleven criteria would necessarily apply to all waterbodies.

Since seven of the eleven criteria cannot be assessed with the CFD methodology, failing one of the four criteria using the CFD methodology just once results in that water body being placed on the impaired water list permanently, even if the criteria that triggered placement may have been satisfied later. In other words, when failed, assessment of any one of the four criteria places the water body on the impaired water list and that water body cannot be removed from the list because all of the eleven criteria (provided all are applicable) cannot be assessed with the CFD methodology.

As a result of these limitations, DEQ staff have identified a need for greater flexibility to utilize scientifically defensible water quality criteria assessment methodologies for the Chesapeake Bay and its tidal tributaries. In addition, DEQ reports that monitoring datasets composed of the state-of-the-art automated, continuous, and high frequency data are available to be used for assessment using methodologies other than the CFD methodology. Thus, the Board proposes to allow other assessment methodologies that can make use of the readily available data to assess potentially all eleven dissolved oxygen criteria.

## Estimated Benefits and Costs

According to DEQ, applying appropriate and scientifically based methods contribute to improved water quality assessment procedures. This protects human health and aquatic life in the Bay and its tidal tributaries, and results in healthier fisheries, safer and reliable public water supplies, and also contributes to economic benefits from tourism, economic development, and commercial and recreational fishing industries.

Additionally, DEQ reports that an estimated $2.5 million from state and federal funds is annually spent acquiring high frequency, continuous monitoring data in the tidal waters of the Chesapeake Bay watershed. However, the CFD methodology cannot be employed to analyze those types of data. Therefore, allowing other scientifically defensible methods that are capable of analyzing readily available high frequency, continuous monitoring data is expected to provide a better return on investment for the data collection and monitoring efforts.

Moreover, the use of other methods is expected to allow the assessment of potentially all eleven criteria which should result in a better and more comprehensive assessment of designated uses. However, the capability to assess more criteria may increase the number of waterbodies that are designated as impaired. On the other hand, the capability to assess potentially all eleven criteria would also make it possible to determine if all criteria are satisfied and, in the event all criteria are satisfied, provide a way for a waterbody to be removed from Virginia's impaired waters list. DEQ believes that the latter scenario is more likely, and that fewer waters may remain on the list as a result of this regulatory change. This is partly because many of the waterbodies in the Chesapeake Bay and its tidal tributaries are already included on the impaired waters list.

Generally, a decrease in the number of impaired waters should reduce the number of TMDLs and perhaps also reduce cleanup costs. According to DEQ, the average cost of a TMDL is approximately $100,000. TMDL requirements are implemented through VPDES permits for authorized point source discharges and through TMDL implementation plans for nonpoint sources. Compliance with TMDL requirements are then achieved through permit requirements for regulated entities and/or incentive-driven best management practices for nonpoint sources. An impaired water body retains its classification as such even after the completion and implementation of the TMDL. It is not considered "non-impaired" until monitoring data indicate it is meeting water quality standards.

Other costs may be associated with an impaired water body apart from the costs of a clean-up plan and its implementation. Impaired waters may require additional monitoring resources so that the nature of the impairment can be properly characterized. Additionally, water bodies that are not meeting water standards by definition do not attain the beneficial uses they are supposed to be providing. This may mean that there are elevated public health risks for

individuals who recreate in or consume the fish or shellfish taken from the water body. Suboptimal habitat for aquatic life may translate into reduced yields for commercial and sports fishing. There may also be negative impacts on tourism when a water body is declared unsafe for swimming.

DEQ reports that much of Virginia's portion of the Chesapeake Bay (and some waters in its tidal tributaries) were listed as impaired in 1999 by EPA. EPA made this determination based primarily on exceedances of dissolved oxygen criteria, which was the standard used at that time. In 2010, EPA finalized the Chesapeake Bay TMDL—the most expansive TMDL in the country to date. While there were no direct costs to Virginia resulting from EPA's listing decision and the subsequent TMDL, millions of dollars have been spent to implement the TMDL so that the impaired waters identified by EPA can be restored. The costs have been borne by both the private and public sectors. Wastewater dischargers authorized under the VPDES program include both private and publicly owned facilities, which have installed upgraded treatment processes and/or installed best management practices to limit pollutant discharges. Additionally, local, state and federal funding has supported establishment of programs and implementation of practices to limit discharges in nonpoint sources, such as stormwater from agricultural and developed lands.

Removing a water body from the impaired waters list after a TMDL has already been developed and implemented—as is the case with the Chesapeake Bay—does not eliminate all costs. Some compliance costs are ongoing, since the water body must be kept from relapsing into an impaired condition. However, some cost avoidance may be expected in terms of no longer needing to implement point source pollution control measures and install best management practices (e.g., stream fencing), and hence the costs associated with increased protection of water quality can be avoided.

### Businesses and Other Entities Affected

The proposed allowance of new water quality criteria assessment methodologies does not directly affect any entities other than DEQ. With the proposed changes, DEQ is expected to have enhanced ability to assess and report on progress towards meeting water quality standards in the Chesapeake Bay and its tidal tributaries. To the extent some water bodies are removed from the impaired water list, there may be some cost avoidance benefit to point and non-point sources.

However, there is no way of knowing which waterbodies and entities would be affected at this time. This regulation geographically applies to the Chesapeake Bay and its tidal tributaries.

The Code of Virginia requires DPB to assess whether an adverse impact may result from the proposed regulation.[2] An adverse impact is indicated if there is any increase in net cost or reduction in net benefit for any entity, even if the benefits exceed the costs for all entities combined.[3] As noted above, the addition of other scientifically defensible methods may primarily provide some benefits in terms of better assessing water quality and may provide some benefits in cost avoidance. Thus, no adverse impact is indicated.

### Small Businesses[4] Affected:[5]

The proposed amendments do not appear to adversely affect small businesses.

### Localities[6] Affected[7]

The proposed amendments geographically apply to the Chesapeake Bay and its tidal tributaries. However, no direct costs on localities in that geographic location is indicated.

### Projected Impact on Employment

The proposed amendments do not appear to directly affect employment.

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[2] Pursuant to Code § 2.2-4007.04(D): In the event this economic impact analysis reveals that the proposed regulation would have an adverse economic impact on businesses or would impose a significant adverse economic impact on a locality, business, or entity particularly affected, the Department of Planning and Budget shall advise the Joint Commission on Administrative Rules, the House Committee on Appropriations, and the Senate Committee on Finance.

[3] Statute does not define "adverse impact," state whether only Virginia entities should be considered, nor indicate whether an adverse impact results from regulatory requirements mandated by legislation. As a result, DPB has adopted a definition of adverse impact that assesses changes in net costs and benefits for each affected Virginia entity that directly results from discretionary changes to the regulation.

[4] Pursuant to § 2.2-4007.04 of the Code of Virginia, small business is defined as "a business entity, including its affiliates, that (i) is independently owned and operated and (ii) employs fewer than 500 full-time employees or has gross annual sales of less than $6 million."

[5] If the proposed regulatory action may have an adverse effect on small businesses, Code § 2.2-4007.04 requires that such economic impact analyses include: (1) an identification and estimate of the number of small businesses subject to the proposed regulation, (2) the projected reporting, recordkeeping, and other administrative costs required for small businesses to comply with the proposed regulation, including the type of professional skills necessary for preparing required reports and other documents, (3) a statement of the probable effect of the proposed regulation on affected small businesses, and (4) a description of any less intrusive or less costly alternative methods of achieving the purpose of the proposed regulation. Additionally, pursuant to Code § 2.2-4007.1, if there is a finding that a proposed regulation may have an adverse impact on small business, the Joint Commission on Administrative Rules shall be notified.

[6] "Locality" can refer to either local governments or the locations in the Commonwealth where the activities relevant to the regulatory change are most likely to occur.

[7] § 2.2-4007.04 defines "particularly affected" as bearing disproportionate material impact.

## Effects on the Use and Value of Private Property

No direct effects on the use and value of private property nor on real estate development costs are expected. However, to the extent proposed changes result in better water quality in the Chesapeake Bay and its tidal tributaries, a positive impact on real estate values in that area may be expected.