

What does Tiered Implementation mean or look like to you?

Following the Clean Water Goal Team [June 22-23](#) meeting, voting members were asked to share an answer to “What does Tiered Implementation mean or look like to you?” Below is a compilation of responses received. This document is shared as a supporting material for the CWGT [August 24th](#) meeting, which includes a follow-up discussion on Tiered Implementation, and as reference for future discussions on the topic.

Maryland (submitted by Greg Sandi, MDE):

- Definition of shallow waters (and local areas) is about the land-water interface across the watershed, not just in the tidal sections of the Bay.
- A tiered implementation approach should be about prioritizing actions that achieve habitat and ecological improvement in tandem with water quality, not lowering expectations or delaying achievement of 2040 targets.
- This is an opportunity to frame our work into small, incremental wins that keep the public engaged in the partnership effort while accelerating our target achievement and ecological uplift.

Pennsylvania (submitted by Scott Heidel, PADEP):

Pennsylvania makes up a significant portion of the Chesapeake Bay watershed but does not have any tidal waters of the Bay located within the state. Waters flowing from PA do impact the marine environments of the upper Bay (CB1 & CB2) as well as the deep channel. Restoration work and water quality improvements in PA will benefit Tiered Implementation of the Bay TMDL by improving the water quality of CB1 and CB2, downstream of PA in the near term. CB1 and CB2 are Bay segments of significant ecological value with restoration likely occurring on a more rapid pace and of greater ecological significance than in the deep channel of the Bay.

Similarly, PA contains large areas of High Quality (HQ) and Exceptional Value (EV) streams and watersheds of significant ecological value for brook trout and other sensitive species. Some of these streams are impaired and require restoration while most are currently attaining their designated uses. To support Tiered Implementation within Pennsylvania as well as in the Chesapeake Bay, PA Department of Environmental Protection has developed the Watershed Assessment for Restoration Potential (WARP). WARP is a GIS based tool that allows project partners to drill down to highly restorable HQ and EV watersheds at the HUC 12 level that also have agricultural impairments. With WARP and other targeting tools in hand, project partners may use their local expertise to prioritize watersheds for restoration within their area of operation. These priority watersheds could then receive funding for BMP saturation through a combination of 319,

Growing Greener, ACAP, the Countywide Action Plan Program, and other restoration funding opportunities. Select priority watersheds will receive assessments and monitoring pre- and post-BMP saturation to document incremental improvements to water quality with the goal of restoration and delisting from the 303(d) list of impaired waters.

It is important to note that while the priority watersheds are being worked on, all watersheds in PA receive high impact BMP implementation and NPDES permit compliance enforcement to mitigate local and far field sediment and nutrient pollution. These efforts are further enhanced by the ongoing reestablishment of freshwater mussel populations and the environmental services associated with them, as well as the deployment of Manure Treatment Technologies capable of impressive levels of treatment of the manure from the increasing animal populations of the vibrant and growing agricultural industry in PA. Water quality improvement across the state from the priority headwaters to the large rivers of Pennsylvania will incrementally improve the local freshwater and marine systems downstream as Tiered Implementation occurs and is tracked through monitoring, BMP reporting and local watershed modeling.

Virginia (submitted by Amanda Shaver, VADEQ):

Stepped exceedance frequencies of key criteria, stepped percentages of applicable criteria attained, or attainment of a specific designated use, but they should be tied to routine monitoring actions so effectiveness of the management plan can be determined without the expenditure of resources that could be used to support implementation activities. The interim goal should be a subset of the overall management goal.

Here is a way to suggest writing up specific/detailed monitoring to measure effectiveness.

<https://www.eli.org/water-quality/compendium-approaches-evaluating-water-quality-effects-tmdl-implementation>

West Virginia (submitted by Dave Montali, WVDEP/Tetra Tech):

We view TI as less about jurisdictional BMP targeting and more about setting interim milestones as dates by which the Partnership's collective work will result in criteria attainment. Rather than aiming only at the ultimate goal by some far away date, and/or using statistics like 0.2 %/yr improvement rate for 100% segment attainment, we could have milestones along the way into which we could bucket segment/designated use combinations and show substantive incremental improvement.

TI can be discussed in terms of the 250-300 tidal water segment/designated use combinations and dates by which specific combinations will demonstrate water quality improvement.

Communication of the restoration path in sequential terms where "practices in place" precedes "attainment via monitoring" is still needed. There could be categories like - "achieved practices in

place”, “achieved criteria attainment”, 2030 pip, 2030 ca, 2035 pip, 2035 ca, etc. In this way, the Partnership can communicate progress with respect to segment/designated use combinations that should move faster than segment level accounting with a binary pass/fail for all criteria. Along the path of nutrient input reduction to the Bay, past modeling generally indicates open water criteria attainment will be achieved first, followed by deep water then deep channel. If the open water criteria are the easiest to attain, particularly in tidal fresh segments, then the partnership should be able to communicate quicker success in some shallow water locations where more public use of resources occurs and where the public might recognize living resource improvements.

To populate the buckets, generally consider Partnership collective work and use the P7 model suite for “practices in place” buckets and attainment deficit for “attainment achieved” buckets. There is also some potential for BMP targeting to apply but recognize that there can be no effective targeting of implementation for tidal segments by some headwater states because all efforts result in specific pollutant input location (WV- Mostly Potomac fall line, very limited James) NY Susquehanna fall line, PA mostly Susquehanna, limited Potomac). VA and MD clearly have more locational options to target management practices. If those states (and/or DC and DE) want to achieve specific segment attainment, and if they intend to focus implementation for that reason, and if the P7 model indicates that local watershed load reductions are primarily needed for segment response, then signatory priorities can be a reason to bucket a segment/DU earlier.

There could still be an additional “all practices in place” and /or universal criteria attainment dates. TI may soften the blow of the reality that realistic universal dates will be later than 2040.

Chesapeake Bay Commission (submitted by Marel King):

“A tiered approach to TMDL implementation would identify the locations or habitats expected to achieve pollutant reduction limits first.” (CESR, p. x (Executive Summary)).

“Achievement of TMDL targets could be prioritized according to location (segments) or habitat type for most living resources.” (CESR, p. 83)

CBC’s interpretation: The next Planning Targets identify the reductions needed to achieve the TMDL across all 92 segments of the Bay. The 2025 revision to the Chesapeake Bay Watershed Agreement identifies 2040 as the deadline to have the programs and practices in place to achieve those reductions. A “Tiered Implementation Approach” allows jurisdictions to prioritize actions between now and 2040 to areas where focused investment could achieve attainment of water quality standards and living resource response in individual segments in the near-to-mid-term. The resulting success, though localized, would demonstrate the effectiveness of management actions, incentivize continued investment, and create conditions for positive biofeedback within the Bay ecosystem as the partnership continues to work toward full achievement of the TMDL.

EPA (submitted by Suzanne Trevena, EPA R3):

Tiered implementation refers to a strategic approach by the Chesapeake Bay Program for achieving Chesapeake Bay water quality goals by establishing a staggered timeline with interim targets. Instead of focusing solely on meeting final pollutant reduction targets everywhere at once, tiered implementation prioritizes actions in local areas (i.e., Chesapeake Bay tidal segment/habitat combinations given existing 92 Bay segments and 5 habitat types) where improvements are expected to provide the greatest benefit for water quality and living resources. This approach recognizes that water quality improvements in different regions of the Bay have varying impacts on living resources and seeks to maximize those benefits in the near term, while still progressing toward the ultimate goal of obtaining achieving water quality standards. This method maintains final targets but offers flexibility to adapt and respond to local needs, using habitat suitability and monitoring data to guide prioritization and complementary actions.

Joe Wood, CBF (at-large member):

The **tiered approach** is a prioritization framework for implementing the Chesapeake Bay TMDL that maintains the full nutrient and sediment reduction targets and all existing water quality standards, but prioritizes implementation to maximize interim ecological benefit. Instead of focusing exclusively on achieving dissolved oxygen criteria in the mainstem deep-water habitats—the basis of the current accountability—the tiered approach **prioritizes nutrient and sediment reductions in specific Bay segments and habitats where water quality improvements are expected to produce the greatest gains for living resources**. This approach recognizes that different regions of the Bay respond differently to nutrient reductions and that improvements in certain open-water, shallow-water, and tributary habitats can yield more immediate and meaningful benefits for key species than improvements in deep-channel habitats alone. Notably, this approach commits to better understanding the relationship between management intentions and realized outcomes in the high impact areas, which historically have not received the same level of attention as the deep trench. Further, this approach is primarily associated with local watersheds of shallow tidal bay segments that have high living resource value, require nutrient reductions to improve local conditions, and exert higher local control (some %?); As such, this approach applies primarily to Virginia and Maryland. Under a tiered approach, partners would:

- **Identify priority segments and habitats** where improved water quality would most enhance living resource habitat conditions.
- **Determine the sources of loads** influencing those local conditions, including both upstream watershed inputs and estuarine sources.
- **Set nutrient and sediment targets** for these priority areas, while working in concert with broader WIP efforts that work towards the final TMDL targets. These targets should include localized modeling efforts, but ideally future targets for empirical water quality conditions

or trends would be established as well. For instance, the partnership could choose to alter the current trajectory of rising Phosphorous levels in the Rappahannock River.

- **Conduct planning efforts that protect and restore conditions for local segments.** These efforts could include efforts to preserve critical habitats from future climate conditions, provide local uplift to critical habitats, and address other conditions that are limiting living resource response.
- **Regularly assess local water quality response** to nutrient and sediment reductions at the segment scale. For instance, the eastern shore and southern rivers have high impact living resource areas and local water quality challenges, but these areas are also home to significant “response gaps” with the model’s predictive ability.

A tiered approach does **not** change the commitments made by the renewed Chesapeake Bay Agreement and the associated timeline, the final TMDL load allocations, the obligations of permittees, or the ultimate requirement to meet all water quality standards. Instead, it **prioritizes the sequence of implementation and management focus** to accelerate ecological improvements, strengthen habitat conditions for living resources, and improve understanding of local stressor-response dynamics—in concert to efforts working towards full Bay-wide attainment.

KC Filippino, HRPDC (at-large member):

I think a strict definition is premature right now, and we need to work through how we achieve the ultimate goals of the TMDL and meeting the criteria through this process. I think an infographic needs to be developed to show how in space and time, planning targets can be developed that will meet the criteria and achieve the TMDL WLAs. So tiered, spatially, would cover geographic regions that can be differentiated by what improvements can be made to impact specific criteria/attainment, whether it’s for water quality or other outcomes, ideally both. And tiered, temporally, would have short term goals that achieve some outcomes/criteria, medium term goals, and long term goals that collectively achieve all outcomes/criteria. I think this has to be a visual representation.