BIENNIAL STRATEGY REVIEW SYSTEM
Chesapeake Bay Program

Narrative Analysis

WATER QUALITY STANDARDS ATTAINMENT AND MONITORING OUTCOME

Continually improve the capacity to monitor and assess the effects of management actions being undertaken to implement the Bay TMDL and improve water quality. Use the monitoring results to report annually to the public on progress made in attaining established Bay water quality standards and trends in reducing nutrients and sediment in the watershed.

The narrative analysis summarizes the findings of the logic and action plan and serves as the bridge between the logic and action plan and the quarterly progress meeting presentation. Based on what you learned over the past two years from your successes and challenges, you will describe whether the partnership should make adaptations or change course.

Use your completed pre-quarterly logic and action plan to answer the questions below. After the quarterly progress meeting, your responses to these questions will guide your updates to your logic and action plan. Additional guidance can be found on ChesapeakeDecisions.

1. Examine your red/yellow/green analysis of your management actions. What lessons have you learned over the past two years of implementation?

Summarize what you have learned about what worked and what didn't. For example, have you identified additional factors to consider or filled an information gap?

Successes: The Chesapeake Bay Program, led by the Scientific, Technical Analysis and Reporting (STAR) team and in partnership with federal agencies, academic institutions and the states, has made progress in analyzing and communicating estimated water quality standards attainment, water quality trends, and water quality monitoring data. The **partnerships to conduct monitoring** between EPA, USGS, state agencies, District of Columbia and non-profit partners continue to be successful in carrying out the non-tidal and tidal monitoring network programs. The Integrated Trends Analysis Team is an example of productive collaborations between CBP partners that result in analysis and reporting of water quality trends. Continued collaborations with academic institutions have been successful in producing research and analysis that move progress forward on the outcome.

The maturation of the Chesapeake Monitoring Cooperative has demonstrated the **utility and the importance of citizen science and alternative monitoring data**. Investments in citizen science have helped generate new data streams that can support enhanced analyses of Bay health and reduce the uncertainties of present assessments.

The development of the CBP's Strategic Science and Research Framework, led by STAR, has been very successful in **tracking the science needs across the program, identifying overlapping**

interests between teams, and engaging additional science providers. The development of the Framework was carried out with input from STAR, the GITs, and STAC, and has successfully been integrated into the Strategy Review System (SRS) process. It has shown that looking holistically across the program at science is incredibly beneficial.

The CBP monitoring team and partners (USGS, UMCES, MD DNR, VA DEQ, ODU, VIMS, and others) increased understanding of the factors affecting water-quality changes in the watershed and estuary. Multiple synthesis reports were generated for the tidal waters and watershed, and the findings in these reports were communicated to the jurisdictions through a series of presentations and in-person workshops during Phase III WIP development. We found it beneficial to integrate information for each jurisdiction and work individually with each to communicate relevant results.

For communication of the estimated water quality standards attainment and water quality monitoring results, we've found it **beneficial to develop metrics that show incremental progress and communicate results in multiple different ways across multiple different platforms**. These platforms can include research publications, publicly available websites, and online interactive tools.

Challenges: **Funding remains a major challenge for meeting this outcome's goal of improving the capacity to monitor.** The combination of level funding, increasing monitoring costs, and reduced actual monitoring committed by States when applying matching funds in Clean Water Act 117e monitoring grants may lead to some sites and program elements to be eliminated from the current monitoring networks. Additionally, state and local budgets reduced by COVID-19 will likely cause reductions in monitoring support. Restrictions due to the early COVID-19 response also led to many of the non-tidal and tidal network sites going unsampled in March-April 2020.

The current framework to assess water quality standards attainment in the Bay, adopted in 2003, **does not allow for a full accounting of water quality standards criteria**. Because of insufficient data collections relative to the information needs to assess all criteria for dissolved oxygen, SAV for water clarity, and chlorophyll, a water quality standards (WQS) indicator was developed. The WQS indicator uses a small subset of criteria assessments with limited data available, and based on a set of scientifically-based rules, applies the rules to produce an accounting for the over 1000 decisions otherwise needed to create a full accounting for bay health as defined by the TMDL. Unassessed criteria remain a hurdle for delisting decisions of State-adopted water quality standards with the existing framework.

For the analysis of water quality trends, the USGS and partners are **striving to** reduce **the time needed to update trends analysis and reporting**. The time between collection of samples, lab analysis, quality assurance, and data verification is often 6-9 months. The compilation of data for trend analysis and results verification can take a similar amount of time. USGS and partners are examining ways to shorten the entire process.

A **challenge also arises with a growing number of new living resource data streams** being managed by a single CBPO employee who already also manages all the water quality data. The addition of the living resources data management will overload one person and there is a learning curve to handling the datasets.

While efforts to understand factors affecting water quality changes made progress, they also revealed challenges where **more analysis is needed to explain nontidal water quality changes** and their relationship to nutrient and sediment reduction efforts, especially at sites within each jurisdiction. Additionally**, more research is needed to understand tidal water quality response** including understanding phytoplankton response in regions with decreasing nutrient loads and understanding shallow water dynamics.

Communication of the estimated water quality standards attainment and the tidal and nontidal water quality monitoring trends is continuing to improve; however, we identified challenges that can be

addressed moving forward. **Better communication is needed of the new and improved metrics** developed for tracking water quality standards attainment. Although these methods have been published and the estimated water quality standards attainment and water quality monitoring trends are updated annually, the jurisdictions and their partners may not be aware of them. For citizen science data, the jurisdictions signed an MOU supporting the use of data as available, but **more engagement is needed between the jurisdictions and the Chesapeake Monitoring Cooperative** to integrate citizen science and nontraditional partner data into state assessment programs.

Although we've made improvements in the breadth of communication of water quality monitoring data, and had some success engaging the jurisdictions during Phase III WIP development, **more effort is needed to get the monitoring data into the hands of the jurisdictions** on a timeframe that allows them to use the information for 2-year milestone development. These needs involve two-way communication with the jurisdictions on their needs and questions, possible analyses, and how that information can be used in a Milestone context. Some challenges that were identified during WIP development include:

- The analysis of factors affecting trends provided insights into water-quality changes related to major source sectors but could not provide information on response to specific BMPs.
- For some source sectors, especially urban and agricultural areas, there was limited understanding of why nutrient trends were both improving and degrading in different areas of the watershed.
- Difficulty in summarizing and communicating results in ways that the jurisdictions could better apply the findings.

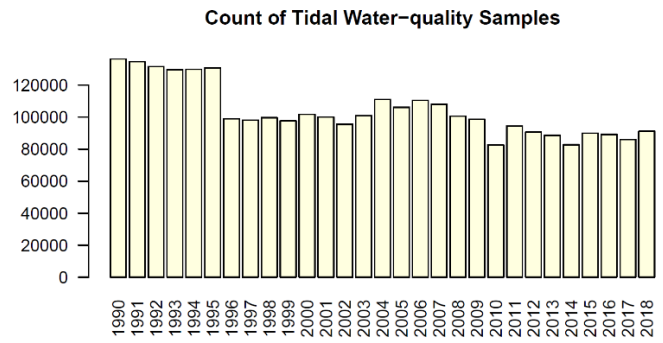
2. Regardless of how successful your short-term progress has been over the past two years, indicate whether we are making progress at a rate that is necessary to achieve the outcome you are working toward. The example graph below illustrates this concept.

Because this outcome does not work toward a quantifiable goal on a specific timeframe, we have assessed progress of indiviudal components of the outcome and provided supporting graphics.

Component – Capacity to monitor: Data collections remain "marginal" for the Bay and tidal tributary waters, "adequate" for the watershed, while capacity is highly stressed and declining.

The watershed (nontidal) monitoring network expanded in 2004 and operates at "adequate" levels to support management needs. The network peaked at 125 stations about 2012 and has steadily declined since then to 115 stations. The tidal water quality monitoring network has only ever operated at a "marginal" level with respect to collecting data necessary to evaluate all applicable criteria in the new (USEPA 2003) water quality standards (WQS) for dissolved oxygen, SAV & water clarity, and chlorophyll-a, in all applicable seasons, across all 92 tidal segments and their respective designated uses associated with the TMDL.

Tidal Water-quality Sampling, 1990-2018, showing a steady decline in water quality samples through time:



Component – Assessment of water quality monitoring: Good progress has been made in the ability to analyze water quality monitoring data to assess the effects of management actions.

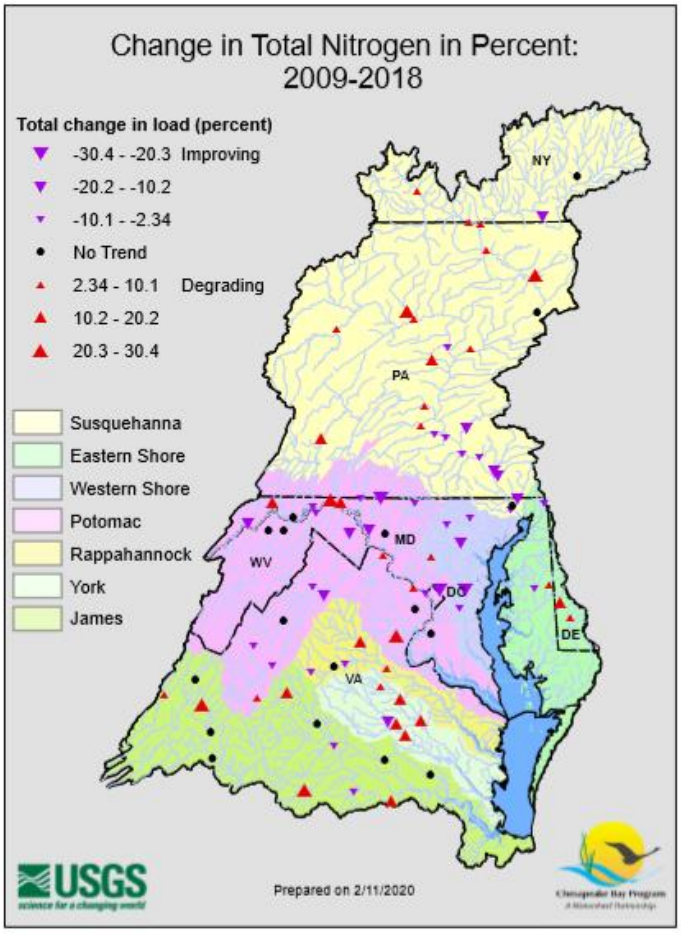
Over the past several years, good progress has been made in the development and application of more advanced techniques to assess and explain water quality changes over time across the watershed, tributaries, and mainstem bay. As a result, we are now in a better position than ever before to address questions about what is driving observed changes in key water quality and living resource indicators. In addition to developing and applying new tools, CBP, USGS, academic, and state analysts partnered to produce syntheses of the current state of knowledge on factors affecting patterns in nutrient and sediment concentrations and loads, estuarine hypoxia, water clarity, and SAV abundance. These syntheses were critical to effectively target the next cycle of analysis to address questions of management concern. CBP, USGS, and partner analysts are on track to build on the lessons learned from past work. More insights are expected through ongoing application of advanced analytical and modeling approaches. Detecting and explaining the effects of BMP implementation in the face of ongoing changes in land use, climate patterns, and other stressors, is the major focus of analysis.

Component – Report results annually: Good progress has been made on reporting and communicating estimated standards attainment, tidal monitoring data, and nutrient and sediment trends in the watershed.

The CBP reports results from three coordinated monitoring networks. The tidal monitoring program is used to assess estimated attainment status related to water quality standards and changes in tidal water quality each year. The River-Input Program (RIM) provides annual reporting of flow, loads, and nutrient and sediment trends at 9 key sites (one site at the tidal/nontidal boudary of each major river basin). Due to a large amount of data collected from the approximately 115 sites in the watershed monitoring network, the USGS reports these trends every 2 years. The CBP partnership has functioned adequately with the 2-year staged analysis and reporting approach for the nontidal water quality monitoring assessments. The tidal monitoring program produces annual updates.

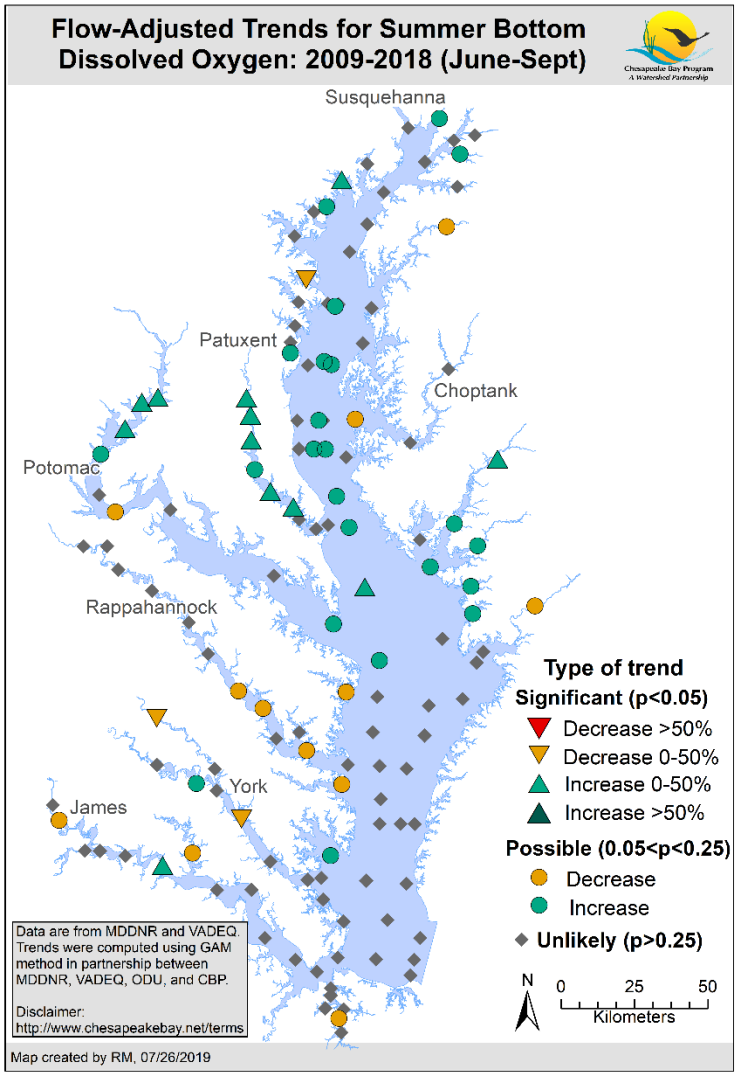
Example – Nontidal Trends:

USGS short-term trends in flow-normalized loads represents the total change in loads from 2009 – 2018. This map shows the trends as a percent change for total nitrogen from 2009 – 2018.



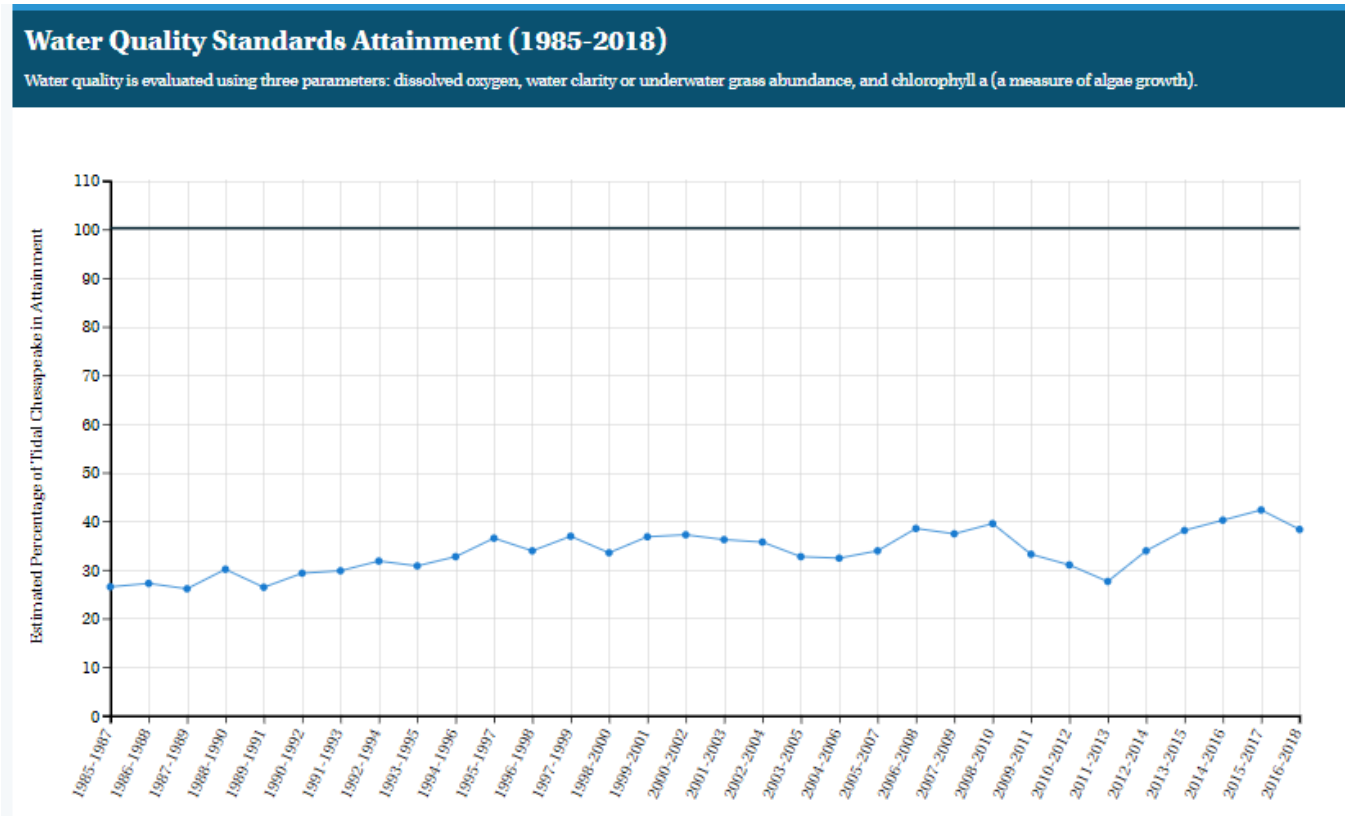
Example – Tidal Trends:

Annual tidal trends results are generated for long- and short-term, both observed and flow-adjusted. The following map depicts the short-term (most recent 10-years) flow-adjusted trends for summer bottom dissolved oxygen from 2009 – 2018.



Example – Water Quality Standards Attainment Indicator:

An estimated 38% of the Chesapeake Bay and its tidal tributaries met water quality standards during the 2016-2018 assessment period. This score is lower than the record high of 42% during the 2015-2017 assessment period but is still the fifth highest estimate of water quality standards attainment since 1985.



3. What scientific, fiscal and policy-related developments will influence your work over the next two years?

This may include information learned at the previous biennial SRS meeting or more specific information about your outcome such as an increase or decrease in funding, new programs that address gaps, and new scientific data or research. Describe how these developments are likely to impact your recommended measure(s) of progress, the factors you believe impact your ability to succeed, and newly created or filled gaps. These changes should be reflected in the first three columns of your revised logic and action plan after your quarterly progress meeting.

Fiscal developments:

Funding for monitoring: Fixed and reduced funding levels of the Federal and State water quality monitoring program funding sources **is currently negatively impacting the CBP partnership's ability to assess progress toward the Bay TMDL**. This funding situation will continue under present funding forecasts. The business model used to run the program is dependent on making decisions on 1-year timelines and has depended on an approach of holding investments constant over multiple years. There is an implicit assumption that Federal funding provides a substantial foundation for States to leverage to meet their monitoring requirements and that States will address cost of living adjustments needed to round out the capacity over time. Further, match funding in grants by the States for many years was specifically monitoring-to-monitoring match. Until recently, this model has largely sustained the program. However, over the last decade in particular, Federal investment increased to the States, but some States are struggling with covering the cost of living changes to the program. Additionally, a change in policy by EPA to allow other categories of funding as State match against the Federal monitoring investment has had unintended consequences. There are cases of reduced monitoring capacity in a match portfolio when jurisdictions apply significant levels of non-monitoring program dollars to meet their monitoring grant match obligations. This combination of the rise in costs of doing business (e.g., rising overhead, rising salaries and benefits for staff, rising laboratory costs, at times the rise in gas costs, etc.), increased non-monitoring match used in meeting Federal match

requirements in grants, coupled with a fixed funding investment on both the State and Federal sides means monitoring capacity has to be reduced to the level of available funds. The result is **fewer dollars are available to support monitoring functions of sample collection, sample processing, QA, data management, analysis, and reporting**. The impact of the present funding situation is complicated by annual inflation effects. A new concern is the evolving economic impact of the global coronavirus pandemic on available state funding support for monitoring in the future. Reduced capacity of the long-term monitoring program has and will continue to directly result in 1) fewer samples collected and processed in the traditional tidal water quality monitoring program 2) fewer samples collected at some stations in some seasons in the watershed, 3) elimination of stations in the watershed, 4) elimination of programs used to evaluate attainment of water quality criteria for standards attainment assessment in the Bay – i.e., one State aims to cut the benthic macroinvertebrate monitoring program, the only program available bay-wide annually to assess Aquatic Life designated use across the Bay, 5) elimination of staff support, i.e., total FTE's supported by one state's grant is declining as function of less funding available for monitoring activities, and 6) neglected infrastructure investment – i.e. losing operation of boat which means a state must use some other, more expensive option to collect the data outlined in their SOW. **The implications of reduced monitoring results to inform our analyses include**:

- Greater uncertainty toward assessing progress toward attainment of water-quality standards in tidal waters.
- Less ability to assess the water-quality response in nontidal rivers and streams to nutrient reduction efforts being implemented by the jurisdictions to achieve the Bay TMDL.
- The need for significantly greater management investments with more BMPs, to create a large enough signal in the environment to overcome the increased uncertainty created by fewer data to estimate the health of the Bay.
- A longer time to demonstrate progress and achievement of success.
- No dedicated "rainy day fund" to address unexpected costs each year – e.g., extra sampling needed in the event of a major water quality event in the Bay like an oil spill, a fish kill, a hurricane induced high flow event, a major algal bloom event, etc.

Policy developments:

Funding for monitoring: Regarding capacity maintenance and capacity building, approximately 10 years ago EPA implemented a change in policy expanding the forms of allowable matching funds in the Clean Water Act 117e grants that, as the options have been applied, has resulted in a watering down of capacity. Historically monitoring support from the Federal side to the State water quality monitoring program grants needed to be matched with complementary forms of monitoring match by the State. That approach allowed for the CBP partnership to have strong, integrated and diverse water quality and living resource monitoring programs.

Today, EPA allows States to match funding in this case using non-monitoring restoration project efforts to Federal investments in monitoring dollars. The 1:1 Federal:State match formula of the 117e grant leads to an expectation that produces $2 of total monitoring for every $1 invested by EPA. However, when a State chooses to match the Federal contribution with non-monitoring programs dollars, the total monitoring output per dollar invested by EPA declines. At the extreme, a State could lose all its internal funding for any monitoring effort but match its EPA contribution with all restoration project funding, i.e., the partnership would only get 50% of its expected and potential monitoring capacity for its investments. Today, **because of the existing EPA policy on allowable match that the States are using to receive federal funds, the CBP is getting less than 100% of the expected monitoring specific output from its investments.**

Incorporation of citizen science data: In 2019, all partner jurisdictions signed the Citizen Science data use MOU. Going forward, per the policy underpinning the MOU, the jurisdictions and EPA need to include approved citizen science data available into water quality standards attainment assessments,

thus enhancing CBP capacity and filling data gaps in space and time left by shortfalls of the long-term tidal water quality monitoring program. The Chesapeake Monitoring Cooperative manages data from Citizen Science monitoring and other alternative, high integrity monitoring sources (e.g. Maryland Department of the Environment) referred to as nontraditional partners. That combination of resources represents enhanced capacity for assessing Bay health.

Utilization of monitoring and assessment results: Currently, the jurisdictions are focused on implementing practices to meet the nutrient and sediment allocations under the Bay TMDL. Monitoring results, coupled with modeling information, have been used to identify areas with the highest loads to the Bay. The jurisdictions have focused nutrient reduction practices in many of these higher loading areas. However, the finding about the factors affecting trends in both nontidal and tidal waters has had limited use by most jurisdictions in developing the Phase III WIPs. The jurisdictions will be implementing their Phase III WIPs in the coming years and developing 2-year Milestones, which presents an opportunity for the CBP and the jurisdictions to work together to integrate monitoring data and results from monitoring assessments.

Communication of water quality standards attainment: As we near 2025, there will be challenges in communicating the state of water quality standards attainment given we can only estimate standards attainment under present protocols for attainment decisions. There are further challenges in our ability to project when the estuary will reach 100% attainment. Practices to restore the estuary are to be in place by 2025, but water quality standards attainment is not expected to reach 100% by 2025. However, questions may arise why water quality standards are not being met when they would be expected to be. It needs to be better recognized that water quality standards attainment indicator does not incorporate the full suite of criteria necessary for a complete accounting of water quality standards attainment assessments. While the TMDL is based on attainment of a subset of water quality criteria, de-listing of Chesapeake Bay segments requires attainment of additional criteria for which sufficient monitoring data and/or assessment methods are not currently available. In addition to the overall attainment indicator, there are benefits of quantifying and communicating the status and trends of attainment status for different water-quality criteria (i.e., dissolved oxygen, chlorophyll-a, water clarity/underwater bay grasses) and designated uses (i.e., open water, deep water, deep channel, shallow water, migratory spawning and nursery).

Science developments:

New monitoring & data streams:

- A 2019-2020 GIT funded pilot project has demonstrated the success of real-time vertical water column profilers that can improve our annual assessment of Bay hypoxia using advanced, smaller, cost-effective sensors. These methods offer considerations for revising the traditional data collection approach and process to improve Bay monitoring especially in the open water of the mainstem Bay which has historically been a limitation to fixed-site, vertical, realtime measurement operations. Applying such technology can improve the accuracy of analysis and offers a new opportunity to assess all dissolved oxygen criteria for the first time in a more cost-effective monitoring portfolio.
- The maturation of the Chesapeake Monitoring Cooperative has demonstrated the ability of citizen science and nontraditional partner data to help fill monitoring gaps. Opportunities will continue to advance with the cooperative and be more strategic in citizen and nontraditional partner data collection.
- Work continues across the partnership to assess the ability to use remotely sensed data in several applications including monitoring of SAV, wetlands, and forest buffers. There are also initiatives in place by others in the Bay community that use the historical satellite record to quantify changes in temporal and spatial distribution events (such as algal blooms or turbidity

as total suspended matter from storm runoff) through time. The new high-resolution land cover/land use data to be released in 2021 will allow enhanced analyses on factors influencing water quality.
- The current STAC Gap Analysis and other STAC synthesis projects underway will provide valuable information relevant to water quality standards attainment and monitoring.

Climate change: The CBP continues to try and better understand the impacts of climate change on all our goals and outcomes. Gaining a better understanding of these impacts may influence where and what we need to monitor and the analyses conducted. For example, work is currently underway to better understand the impacts of rising temperatures on shallow waters of the Bay, better understand where streams are warming and the impacts on brook trout population vulnerability, and better understand the impacts of climate change on BMP efficiency.

Strategic Science & Research Framework (SSRF): While the SSRF provides a mechanism for the WQGIT to identify science needs for the water quality standards attainment and monitoring outcome, it also allows for needs to be assessed across all outcomes to coordinate efforts. Needs may come up from other outcomes over the next two years that can be coordinated or integrated with those from this outcome.

4. Based on your response to the questions above, how will your work change over the next two years?
   Describe the adaptations that will be necessary to more efficiently achieve your outcome and explain how these changes will lead you to adjust your management strategy or the actions described in column four of your logic and action plan. Changes that the workgroup, GIT or Management Board consider significant should be reflected in your management strategy.

Capacity to monitor: Potential solutions we will explore over the next two years to address the challenge of multiple stressors reducing capacity in the monitoring program include:
- Use new data streams from and increase coordination with already funded programs on citizen science, volunteer monitoring, and our enhanced coordination with nontraditional partners,
- investing in technology that improves monitoring efficiency, e.g. new vertical profiler arrays,
- exploring new water quality standards attainment assessment frameworks that use model advances to address assessment of more water quality criteria than ever before in space and time,
- adopt new, freely available, high resolution data streams from satellite imagery
- where satellite-based assessments of water quality do not measure exactly what we measure in our standards, develop surrogate models for available measures to estimate conditions where measurements are sparse in space and time,
- develop recommendations to approve and adopt the use of surrogate measures as appropriate to leverage the data available and support management relevant decisions on Bay health status and change over time,
- explore options for revising the criteria such that a more concise definition of Bay health can be effectively assessed based on available data,
- explore options for revising the decisions on the protocol for application of existing data to assess existing standards,
- explore potential new funding partners and work with financial professionals,
- work with the jurisdictions to create a business plan to coordinate and fund citizen monitoring.

As part of our work to incorporate additional data streams, especially real-time and other new high temporal data streams, we will need to collaborate with the research community on data sharing, model development, and uncertainty. STAR and its workgroups need to work together with EPA and the Bay community on a preferred monitoring plan to incorporate such new technologies and published

research recommendations, plan for a phased approach toward revised program support with reinvesting existing funding where information return on investment can be shown to enhance capacity, garnering any new funding to support an advanced program, develop the QA plan necessary for using the new technologies, and updates for the indicator framework and processes to incorporate new citizen based, nontraditional partner based, and high spatial and/or temporal density data streams.

Assessments & analysis: As we draw nearer to 2025, we plan to continue to refine analyses to improve our understanding of restoration trajectories, and to better distinguish the major drivers of changing water quality, habitat, and living resource conditions around the watershed, within and across tidal tributaries, and along the mainstem Bay. We will follow the current STAC Gap Analysis to better understand how nutrients and sediments are responding to the TMDL, which will hopefully assist with trajectories of water quality standards attainment. Specific analyses we plan to undertake include:

- Analysis of shallow water and continuous monitoring data to understand impacts of climate change, local landscapes, shoreline conditions, and associated BMP implementation on water quality in tributary open waters and shallow water habitats, where the estuary model currently struggles to predict water quality standards attainment.
- Explore external and internal factors influencing the spatial and temporal trends in water quality standards attainment and the underlying water quality data.
- Explore other metrics (e.g., attainment buffer) to characterize the resiliency of the tidal segments.
- Examine the effects of climate change (particularly temperature) on water quality standards attainment.

We plan to use the SSRF to help us identify and better connect with science providers, such as members of the academic community, that can collaborate with CBP on these and other analyses. This includes developing an online database for CBP science needs that will be publicly accessible and continually updated.

Communication & utilization of monitoring and assessment results: We will use the next two years to identify ways to better engage the jurisdictions in advance of Milestone development to scope questions or analyses of interest and increase jurisdictional interaction with science providers to address priority science needs. We plan to improve communication products and tools so jurisdictions can further understand results to inform 2-year milestones. This will include conducting workshops with appropriate staff from jurisdictions and providing trainings and user testing on the new Chesapeake Bay Watershed Data Dashboard. We plan to present information on the water quality standards indicator and metrics to more audiences.

5. What, if any, actions can the Management Board take to help ensure success in achieving your outcome?

Please be as specific as possible. Do you need direct action by the Management Board? Or can the Management Board direct or facilitate action through other groups? Can you describe efforts the workgroup has already taken to address this issue? If this need is not met, how will progress toward your outcome be affected? This assistance may include support from within a Management Board member's jurisdiction or agency.

Monitoring support:

1) **We request that MB member institutions involved in providing monitoring support maintain existing support levels.** As we explore different ways to address issues of declining monitoring capacity, it is crucial to at minimum hold the line in current support for

the CBP monitoring programs. Monitoring support includes, but is not limited to, current funding levels, staff time and resources, in-kind support, etc. and includes support from many different MB member institutions including federal agencies such as EPA and USGS, jurisdictional agencies, and other partners.

2) **We request that the MB commit to assessing how their state, agency or institution can use matching funds to improve capacity in the program.** A change in EPA policy about allowable matching funds could be used to improve monitoring capacity for the Chesapeake Bay Program partnership. We ask the states to re-evaluate their policies for how they apply match funding within and across their agencies that will best leverage the available funding to the States from the Federal government to support monitoring needs evaluating the Water Quality Standards Attainment outcome and other Bay Agreement outcomes. Specifically,
    - To address the capacity shortfall due to the existing policies on allowable match to monitoring in the 117e, EPA could re-evaluate its policy on what funding categories are allowed as match dollars with the monitoring specific investments of Federal funds.
    - EPA could work with existing partners with substantial matching funds in their 117e grants and evaluate what the actual 1:1 monitoring level is. States could re-evaluate how they apply match funding across agencies to foster additional collaborations that best leverages the available funding to the States from the Federal government.
    - If an existing grantee does not have available water quality and living resource monitoring in the Bay to match, the next best cross-outcome monitoring investment could be considered. For example, instead of restoration project match, there are many monitoring programs in need of support that states are invested in such as brook trout monitoring, stream macrobenthic monitoring, crab population monitoring, oyster population monitoring, etc. Alternatively, investments in coordination of citizen science for water quality monitoring could be used. And to the degree possible, multiagency match should be considered such as a second agency that is doing oyster habitat health assessment might also be collecting water quality data now and that investment supporting water quality standards attainment could be considered.
    - If States do not have the capacity to match the Federal investment to fulfill monitoring capacity expectations of the grant program, EPA could consider alternative investment options like a new RFP for monitoring that addresses shortfalls in information needs using the balance of money that the States are unable to match with monitoring program investments linked to Bay Agreement priorities.

3) **We request the MB to commit to a future discussion on alternative financing strategies for the monitoring programs.** STAR will take the lead in meeting with financial sector professionals to develop possible ideas to frame this discussion. We ask the MB to identity staff that would work with STAR to develop ideas for a more in-depth discussion with the MB. The potential outcome of a discussion with the MB would be an action team to explore and recommend alternative financing strategies for supporting capacity needed to sustain effective water quality monitoring programs that meet decision-support needs of managers and policy-makers.

4) **We request the MB to ask the WQGIT and STAR to now incorporate available Citizen Science data from the Chesapeake Monitoring Cooperative database into water quality standards attainment assessments.** The Chesapeake Monitoring Cooperative has been funded by EPA to help coordinate data collection that fills gaps in bay and watershed monitoring. States and EPA should expect an accounting of the contributions of this investment.

5) **We request the MB to ask STAC and STAR to work with the Bay science and management communities to commit to 1) adopting data from nontraditional monitoring sources into assessments, 2) incorporating data from new**

technologies into assessments, 3) updating analysis approaches to accommodate new data sources and 4) update decision protocols for evaluating analysis results

Jurisdictional Involvement to support policy decisions:

6) **We request that the MB provide a list of essential jurisdictional participants for the Criteria Assessment Protocol workgroup.** We can provide more information on the discussions and work done by this workgroup to help MB members identify the right participants.
7) **We request that the MB make their jurisdictional staff available to improve analysis and utilization of monitoring results to inform 2-year milestones, and help identify other jurisdictional agencies or partners who should be involved in partner meetings.** The CBP will organize meetings with each jurisdiction and we need the MB to help ensure the appropriate staff are involved for successful interaction.