Logic and Action Plan: Post Quarterly Progress Meeting

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**2025 WIP Outcome—have all practices and controls installed to achieve the Bay’s water quality standards.**

**2020-2021**

**Long-term Target:** (the metric for success of Outcome)

**Two-year Target:** (increment of metric for success)

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| **Instructions:** Before your quarterly progress meeting, provide the status of individual actions in the table below using this color key. |
| Action has been completed or is moving forward as planned. |
| Action has encountered minor obstacles. |
| Action has not been taken or has encountered a serious barrier. |

Additional instructions for completing or updating your logic and action plan can be found on [ChesapeakeDecisions](http://www.chesapeakebay.net/decisions/srs-guide).

| Factor | Current Efforts | Gap | Actions | Metrics | Expected Response and Application | Learn/Adapt |
| --- | --- | --- | --- | --- | --- | --- |
| *What is impacting our ability to achieve our outcome?*  *Need to add why these factors are important to achieving our 2025 WIP outcome* | *What current efforts are addressing this factor?* | *What further efforts or information are needed to fully address this factor?* | *What actions are essential (to help fill this gap) to achieve our outcome?* | *What will we measure or observe to determine progress in filling identified gap?* | *How and when do we expect these actions to address the identified gap? How might that affect our work going forward?* | *What did we learn from taking this action? How will this lesson impact our work?* |
| Best Management Practices:  Technical assistance with implementing, tracking, reporting, and verifying source control and mitigation practices. | Convening a BMP Verification Ad-hoc Action Team, which includes the development of a task statement, schedule, and deliverables.  An optimization framework and tool is under development in CAST to help plan and target implementation efforts.  The Chesapeake Bay Watershed Data Dashboard is available for use that provides comprehensive to support planning implementation efforts, such as BMP targeting and monitoring trends analyses | Technical assistance, and specificity on what assistance is needed, in agricultural sector at the local scale.  The evaluation of BMP implementation and maintenance costs.  Updates to the BMP verification framework to recognize resource limited verification programs.  BMP Panel protocols.  BMP expert panel process to incorporate new creditable BMPs into framework.  Needs assessment to target implementation efforts to improve water quality. What specifically is needed?  Target lands that produce disproportionate pollutant loads, incentivize treatment by selecting cost-effective control measures. | BMP verification training.  Increased staffing support.  Development and approval of alternative verification methodologies.    Work with the GITs and workgroups to identify new BMPs using expert panels.  Explore alternatives to BMP reverification.  Reassess and update BMP credit durations.  Explore lesser-used approaches to BMP verification.  Review recommendations from ongoing BMP verification work undertaken by the CBP.  Potential refinements to the partnership’s BMP Verification framework document.  Potential refinements to the partnership’s BMP Expert Panel Protocols | Number of BMP verification trainings provided  Number of staff increases or providers to deliver technical assistance  Adoption of revisions to BMP verification framework document  Adoption of revisions to BMP Expert Panel Protocols  Number of trainings for the Data Dashboard  Completion and release of the optimization framework and tool | Increased delivery of technical assistance to support and accelerate BMP implementation, particularly in the agricultural sector  Revisions to BMP verification and panel protocols that adheres to a robust scientific process and framework while recognizing application challenges |  |
| Funding for implementation:  Assistance in the agricultural sector to implement local-scale programs, plans, and practices. | Continued funding though Chesapeake Bay Program Office Grant Programs (CBIG, CBRAP), Watershed Implementation Plan assistance, state programs, Farm Bill and NRCS.  Exploring pay for performance programs at various scales.  Learning from Conowingo WIP financing strategy | Opportunities to leverage funding and resources to increase rate of on-the-ground practices.  CBRAP funding to reduce and prevent pollution and improve living resources.  Innovative technical and financial solutions and assistance to implement practices, plans, and programs.  Opportunities to increase cost effectiveness for non-point source pollution reduction.  Increase flexibility in how to incentivize non-point source pollution reduction.  Understanding restoration efforts that store carbon to carbon markets and private financial strategies. | More “boots on the ground” support.  Perhaps expand circuit rider type programs to deliver technical assistance.  Dedicated funding stream for technical assistance providers.  Continue to support implementing Phase III WIPs and 2-year milestones.  Identify lessons learned from the Conowingo WIP financing strategy and determine if there are opportunities elsewhere in the watershed. | Increased funding for technical assistance delivery in the agricultural sector | Accelerated implementation in the agricultural sector  Innovative financing approaches to attract private sector funding |  |
| Communication and Coordination: Consistent efforts with diverse stakeholders | The Diversity Equity, Inclusion, and Justice (DEIJ) Initiative.  Consulting with Tribes within the Bay watershed | Participation from under-represented groups in the WQGIT and source sector workgroups.  Clear and concise communication with the agricultural community.  Integrating the Partnerships social science strategy to support water quality goal implementation. What the barriers to greater implementation?  Strengthen coordination between federal, state, and local levels to accelerate implementation.  Coordinating efforts to achieve consensus-based decisions. | Solicit membership from under-represented groups to participate in the WQGIT and its source sector workgroups.  Coordinate with LGAC.  Using innovative online tools to quicken pace to consensus-based decision making. | Number of tribal consultations  *Need some metrics for DEIJ and social science*  Increased implementation | Increased engagement from under-represented communities  Greater understanding and application of social science in addressing implementation barriers |  |
| CAST Model Updates: Changes to the level of effort to meet load targets | Drafted and approved a Chesapeake Assessment Scenario Tool (CAST) workplan for 2021. | Understanding how model update changes apply to milestone development and implementation.  Translating and communicating model updates at the local level  Methods for identifying spatial variation in pollutant source areas and BMP effectiveness.  Spatial resolution of the Chesapeake Bay TMDL accounting system.    Assessing progress using common currency—eutrophying units.  Nitrogen and phosphorus transformation (speciation) and transport from landuse to receiving waters.  Constraints on Bay model to assess dissolved oxygen water quality attainment in the Bay’s shallow waters. | Continue updates to data and methods associated with CAST.  Investigate alternative methods for forecasting agricultural land uses.  Investigate Agriculture Census changes for crop types.  Investigate use of latest land cover and LiDAR imagery to better define acreage changes in agricultural crops and other land uses.  Propose options for estimating acres of agriculture double-crops.  Propose options for crediting nutrient management on soybeans.  Accommodate data for Hillandale Farms, PA.  Build in Partnership-approved products of the BMP Verification Ad-Hoc Action Team related to credit duration.  Request that STAR and the Modeling Workgroup investigate methods of refining the spatial resolution of the TMDL accounting system, refine nutrient speciation accounting, and begin development of an estuarine model with improved shallow water simulation | Finalization and release of CAST 2021 for application | Updated decision support tool with the latest scientific information and data to support implementation efforts |  |
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| Water Quality: Sustain and enhance monitoring and interpretation of results to help understand water quality response to management actions  This is important to demonstrate progress towards attainment of water quality standards. | Ongoing loads and trends project in the Chesapeake Bay nontidal monitoring network  Ongoing work in the USGS/CBPO being undertaken by STAR and associated science partners | Incorporate more monitoring trends and loads data into assessment of progress toward outcome.  Translate monitoring findings to management implications. Use monitoring data to target practices to demonstrate success.  Assess the time it takes for different tidal segments to achieve water-quality standards to better understand responses to restoration efforts in the watershed.  Monitoring to support targeting programs. |  |  |  |  |
| Co-Benefits: integrating co-benefits, beyond water quality improvements, into BMP implementation | Projects underway to understand and quantify ecosystem services. | Understanding the science to support including co-benefits into BMPs, plans, and programs.  Understanding the carbon sequestration and toxic contaminant retention from Bay restoration efforts. Link to carbon markets and private financial markets. | Work with greater intention across GITs and workgroups to integrate climate resiliency and habitat protection into the implementation of water quality BMPs. | Quantification and integration of co-benefits into CAST and optimization decision support tools | Stronger cross-GIT coordination  Increased understanding of those practices that have benefits beyond water quality for living resources, public safety, property protection, etc. |  |
| Land Use: understanding land use change and cover through time | Updating the high-resolution land cover and land use datasets of the Chesapeake Bay watershed. | Modeling enhancements to support finer scale targeting of practices | Partnership review and approval of updated land use and high-resolution land cover data | Incorporation of updated land use data into CAST 2021 | Decision support tools available with latest land use data support more targeted BMP implementation |  |
| Climate Change Tracking: understanding and allocating impacts of climate change induced watershed loads for 2022-2023 milestones. | Modelling to allocate climate induced additional loads across the watershed.  Modelling to understand Bay’s response for climate change.  Understanding and communicating climate resilient BMPs | Understanding how to incorporate climate change impacts into 2022-2023 milestones. | Work with greater intention across GITs and workgroups to integrate climate resiliency and habitat protection into the implementation of water quality BMPs.  Continue to encourage the STAC technical synthesis on climate resilient and adapted BMPs and management actions.  Continue to work through the USWG, Modeling WG, and CRWG to develop updated and forward-looking Intensity Duration, and Frequency curves (IDFs) for all counties in the Chesapeake watershed and to encourage the adoption and implementation of the updated IDFs for stormwater and other applications. | Specific BMPs and programmatic milestones to address climate effects. | Greater understanding of climate resilient BMPs to help mitigate climate effects |  |
| 2035 Climate Change Watershed Model Assessment | A fine scale model of the Chesapeake watershed is currently under development. Th model will have 50 times more spatial resolution than the current Phase 6 CAST. The fine scale model will allow improved spatial assessment of BMPs, allowing application of recent scientific discoveries that the location of BMPs in the watershed are a prime determinant of their nutrient and sediment removal efficiency. | The next generation fine scale watershed model simulation  coupled with the consideration of cobenefits and a fully integrated optimization capability in CAST will be used to provide the least cost/most environmentally protective management in response to the ongoing challenges of climate change and other headwinds post 2025. | Provide for WQGIT direction to, and progress reporting from, the Modeling Workgroup, as determined by the WQGIT. | A fully operational fine scale model for CBP decision makers use in the 4th quarter of 2023.  Intermediate improvements available for consideration for the 2023-2024 and 2024-2025 milestone application. | A decision support tool available with latest land use, atmospheric deposition, and climate change assessment ability at a spatial scale 50 times greater than Phase 6 Model allowing for spatially targeted BMP implementation to provide least cost, highest environmental protection. Cobenefits and optimization tolls will further assist in lower cost more efficient CBP management. |  |
| 2035 Climate Change Tidal Bay Model Assessment | Beginning in 2021 an unstructured grid model of the tidal Chesapeake will be developed which will allow for the complete assessment of all of the tidal Chesapeake with a single model which will streamline and improve TMDL assessments in all tidal waters of the Chesapeake Bay. | The current Bay Model is incapable of assessing the Open Water Dissolved Oxygen water quality standard in shallow tidal waters under climate change. The Bay Model that will address ongoing challenges to Bay water quality standards post 2025 will address that shortcoming. In addition, the new model will improve management by having one state-of the art linked airshed watershed, and tidal Bay model to address all of the different tidal TMDLs in the Chesapeake. | Provide for WQGIT direction to, and progress reporting from, the Modeling Workgroup, as determined by the WQGIT. | Fully operational model for CBP decision makers use in 3rd quarter 2025 and application to 2035 climate targets in 2025-2026. | Improved tidal Bay management will be achieved with a state-of-the-art water quality model using an unstructured grid. In addition, the CBO mission critical need of assessment of Open Water Dissolved Oxygen water quality standard under climate change in shallow waters will be resolved, which is a task the current Bay Model is incapable of. The refined Bay model will be ready for operations and use by the WQGIT and other CBP decision makers in time to assess what’s required to address 2035 climate change conditions. |  |
| Funding |  |  |  |  |  |  |

|  | ACTIONS – 2020-2021 | | | | |
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| Action # | Description | Performance Target(s) | Responsible Party (or Parties) | Geographic Location | Expected Timeline |
| Management Approach 1: | | | | | |
| 1 | BMP verification training. | Increased number of trainings available to support verification program implementation and reporting | Jurisdictions, EPA | Watershed-wide | 2021 |
| 2 | Increased staffing support to provide technical assistance. |  |  | Watershed-wide |  |
| 3 | Development and approval of alternative verification methodologies. | Updated partnership’s BMP verification framework | BMP Verification Ad-hoc Action Team; Source Sector Workgroups; WQGIT | Watershed-side | 2020-2021 |
| 4 | Work with the GITs and workgroups to identify new BMPs using expert panels. | Final recommendations for BMP efficiencies | WQGIT and Source Sector Workgroups | Watershed-wide | 2020-2021 |
| 5 | Explore alternatives to BMP reverification. | Case study on animal waste management systems | BMP Ad-hoc Verification Action Team | BMP Ad-hoc Verification Action Team |  |
| 6 | Reassess and update BMP credit durations. | Recommendations to source sector groups and the WQGIT. | BMP Ad-hoc Verification Action Team, WQGIT, and Source sector workgroups | Watershed wide | 1 year through fall of 2021 |
| 7 | Explore lesser-used approaches to BMP verification. |  |  |  |  |
| 8 | Review recommendations from ongoing BMP verification work undertaken by the CBP. | Approved revised BMP verification protocols pending Partnership decisions on BMP credit duration | BMP Ad-hoc Verification Action Team, WQGIT, and workgroups | Watershed-wide |  |
| 9 | Convene Expert Panels on dredging and freshwater mussels | Approved panel recommendations by the partnership and incorporated into CAST 2023 | BMP Ad-hoc Verification Action Team, WQGIT, and workgroups | Watershed-wide | ~1-2 years over the 2021-2022 timeframe |
| 10 | Continue updates to data and methods associated with CAST. | Findings presented to responsible party for decision  Recommendations in a report  Revised reported BMP history from jurisdictions | BMP Ad-hoc Verification Action Team, WQGIT, and workgroups (e.g., agriculture, forestry, land use, stormwater) | Watershed-wide | 1 year, September 2021 |
| 11 | Investigate alternative methods for forecasting agricultural land uses. | Adoption of alternative methods for application in CAST 2021 | AgWG | Watershed-wide |  |
| 12 | Investigate Agriculture Census changes for crop types. |  |  |  |  |
| 13 | Investigate use of latest land cover and LiDAR imagery to better define acreage changes in agricultural crops and other land uses. |  |  |  |  |
| 14 | Propose options for estimating acres of agriculture double-crops. |  |  |  |  |
| 15 | Propose options for crediting nutrient management on soybeans. |  |  |  |  |
| 16 | Accommodate data for Hillandale Farms, PA.  Build in Partnership-approved products of the BMP Verification Ad-Hoc Action Team related to credit duration. |  |  |  |  |
| 17 | Revise BMP Panel Protocols | Updated and approved BMP Expert Panel Protocols to inform future panels | WQGIT | Watershed-wide | 2020 |
| 18 | Placeholder: Increased cross-GIT and source sector workgroup coordination |  |  |  |  |
| Management Approach 2: | | | | | |
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