Fall 2016

DoD Chesapeake Bay Program Journal

PROTECTING THE CHESAPEAKE BAY FOR MILITARY READINESS, FOR OUR COMMUNITY, FOR FUTURE GENERATIONS

Reaching the Halfway Point

By Sarah Diebel, DoD Chesapeake Bay Program Coordinator

A new year is just around the corner and 2017, in the eyes of everyone working toward Chesapeake Bay water quality, is a significant milestone. Why is 2017 so significant? First, it marks the midpoint between the baseline and 2025 water quality goals of the Chesapeake Bay total maximum daily load (CB TMDL). The CB TMDL requires jurisdictions to reduce nutrient and sediment loads by 60 percent in 2017 and have 100 percent practices in place by 2025. Second, 2017 will showcase new best management practice (BMP) efficiencies, and decision-making tools including new models that incorporate high-resolution land use, climate change, and loads from the Susquehanna River. Third, this coming year is an opportunity for more engagement at the local level to ensure jurisdictions are on track to meet the CB TMDL's 2025 goals.

Next year, EPA will be releasing their draft and final expectations, state basin planning targets, and the final version of the Chesapeake Bay model. All of these activities will lead to the development of Phase III Watershed Implementation Plans (WIPs) in Virginia, Maryland, the District of Columbia, Pennsylvania, Delaware, West Virginia, and New York.

Department of Defense (DoD) installations maintain a presence in all of these states; therefore, it is important that the DoD continue to participate as decisions are made in how to allocate loads and revise regulatory framework for stormwater.

This issue of the Fall 2016 DoD Chesapeake Bay Program (CBP) Journal provides more insight into the 2017 Mid-Point Assessment, Phase III WIPs, and other news around the watershed demonstrating how installations continue to support Chesapeake Bay protection and restoration.

Installations made significant progress this year by reporting nearly 4,000 BMPs that receive quantifiable credit for reducing nutrient and sediment runoff into the Chesapeake Bay! We will have more details on all of DoD's FY16 Chesapeake Bay progress when our annual report is released early next year, so stay tuned!

IN THIS ISSUE

Chesapeake Bay Program News

Details of the 2017 Mid-Point Assessment and What's a WIP?

By Stephanie Smith, Brown and Caldwell

Since 2015, the Water Quality Goal Implementation Team (WQGIT), Science and Technical Advisory Committee (STAC), and other relevant CBP work groups have been partnering together to conduct the Midpoint Assessment and communicate results with jurisdictions, facilities, and localities; and share new resources to help meet 2025 water quality goals. Elements of the Midpoint Assessment include:

- Refining the Phase 6 Watershed Model to improve its accuracy, transparency, and confidence;
- Collecting, compiling, and releasing detailed local land use and land cover data;
- Developing local area planning goals for Phase III WIPs;
- Analyzing water quality monitoring data and trends to evaluate progress toward reducing pollutant loads and achieving Bay water quality goals;
- Evaluating other considerations, such as the effects of the Conowingo Dam, climate change, optimization, and model uncertainty, on local efforts and model results;
- Approving additional BMP Expert Panel recommendations for the Phase 6 Watershed Model development; and
- Increased collaboration with local partners, organizations, and officials.

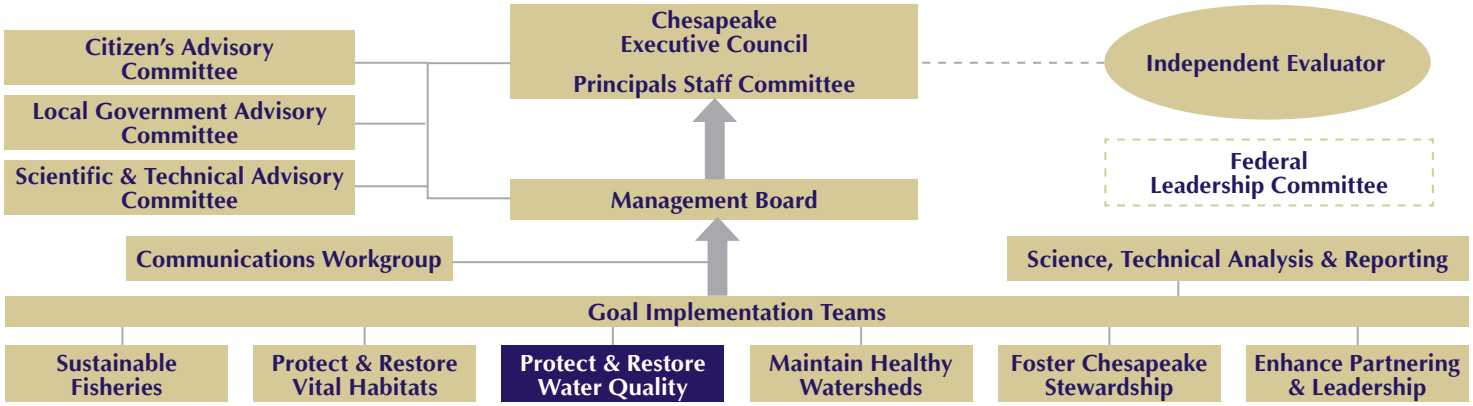
Charting a Clear Path Forward

WIPs are a key part of ensuring that progress is made towards achieving the CB TMDL water quality goals. The plans outline strategies for each of the seven Chesapeake Bay jurisdictions to achieve statewide limits of pollutants that are impairing the Bay, including nutrients and sediments, and establish local water quality targets within various sources such as wastewater treatment plants, urban stormwater, and agriculture to guide efforts towards the jurisdiction's larger goals.

WIPs create a roadmap for each of the seven Chesapeake Bay jurisdictions, defining specific steps to achieve the CB TMDL water quality goals by 2025.

Over the past six years, Bay restoration efforts by the seven area jurisdictions have been guided by the Phase I and II WIPs, developed in 2010 and 2012. Next year, the jurisdictions will develop revised WIPs based on the results of the Midpoint Assessment. These Phase III plans will build on the Phase I and II WIPs and incorporate new data, scientific knowledge, and local implementation strategies to address:

- Programmatic and numeric implementation commitments for 2018 and 2025;
- Engagement strategies for local, regional, and federal partners;
- Population growth, land use changes, and efforts to offset new or increased nutrient and sediment pollutant loads;
- Modifications to WIP planning targets;
- Development of local area planning goals; and
- Climate change in the jurisdictions' pollutant loads through programmatic and numeric commitments.



Organizational chart of the Chesapeake Bay Program Partnership

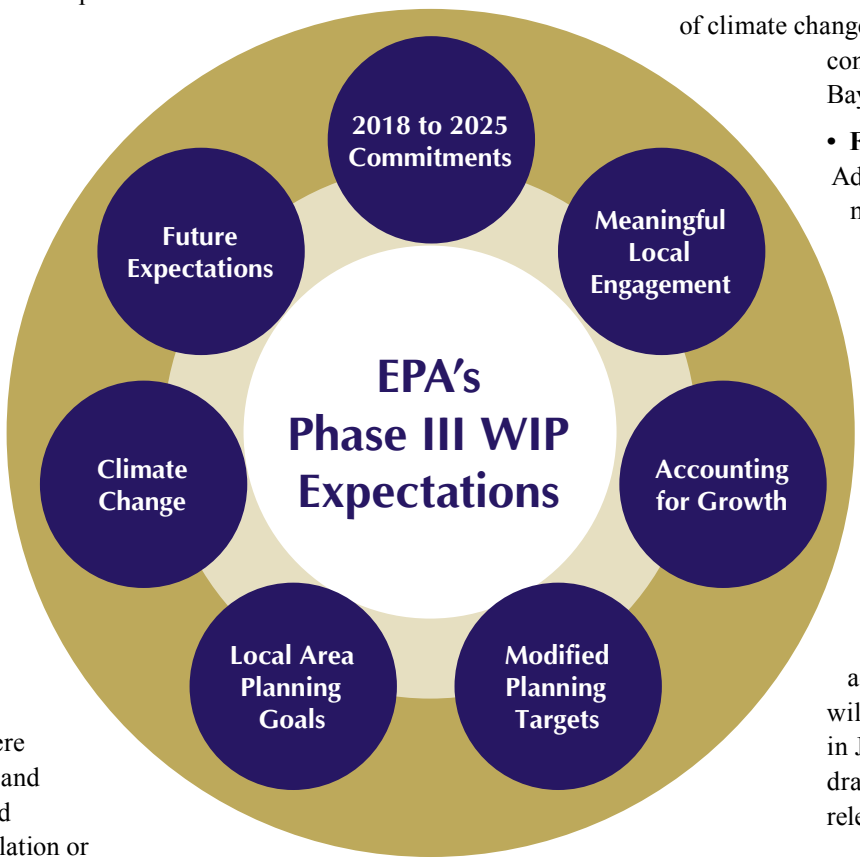
Phase III WIP Expectations

By Stephanie Smith, Brown and Caldwell

On June 27, 2016, the U.S. Environmental Protection Agency (EPA) outlined expectations of the Phase III WIPs to help Chesapeake Bay jurisdictions identify and incorporate experience from implementation of previous WIPs; update pollutant loads and offset strategies; expand and inform selection of pollutant load-reducing practices; and ensure that programmatic and funding elements are in place. Phase III WIP expectations include:

- **2018 to 2025 Commitments.** The WIPs should address gaps between current programmatic capacity and the capacity needed to achieve the 2025 goals, including program funding, technical assistance, legal authority, and regulatory oversight. The plans should also identify specific actions and practices to achieve sediment and nutrient pollutant load goals.
- **Meaningful Local Engagement.** The WIPs should detail strategies to engage and inform local and federal partners of upcoming decisions, milestones, and available resources for WIP planning and implementation.
- **Accounting for Growth.** The WIPs should account for population growth and changes in land use that result in increased nutrient and sediment pollutant loads. The plans should also discuss how loads were developed, will be offset, and will regularly be evaluated based on changes in population or land use with strategies to implement new practices.
- **Modified Planning Targets.** The WIPs should consider adjustments to the state-basin, Bay segment watershed, and source sector loading targets after a review of refinements to modeling and decision-support tools, additional science and data, local or regional experience from previous WIPs, and new technology and load-reducing practices.
- **Local Area Planning Goals.** Numeric and/or programmatic local area planning goals should be developed and implemented based on local needs and conditions, consistent with the recommendations of CBP partners, including the Local Area Targets Task Force (LATTF). During the WQGIT meeting in late October, the team agreed that local area planning goals should be developed and the Local Area Planning Goals Task Force (LAPGTF) was formed to develop these goals. The LAPGTF's preliminary recommendations favor allowing considerable flexibility in the definition and scale of local area planning goals.
- **Climate Change.** The WIPs should consider and include climate change in 2018-2025 programmatic and numeric commitments based on the characterized effects of climate change on water quality and flow conditions in the Chesapeake Bay.
- **Future Expectations.** Additional expectations may be developed for specific jurisdictions. EPA is committed to continued engagement with stakeholders and is accepting feedback on the preliminary expectations.

The CBP continues to work with the EPA and jurisdictions to identify how federal agencies, lands, and facilities will be addressed in Phase III. EPA will provide additional insight in January and April when the draft and final expectations are released.



EPA outlined expectations for the Phase III WIPs to help Chesapeake Bay jurisdictions develop informed plans to achieve Bay TMDL water quality goals.

Incorporating Climate Change into Phase III WIPs

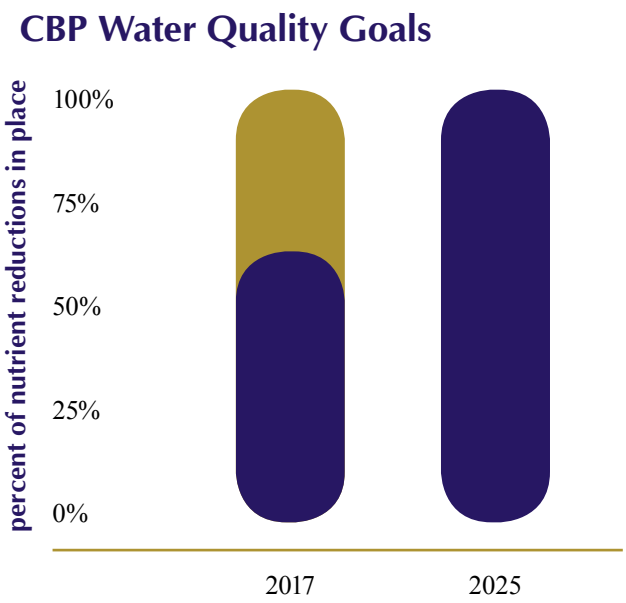
By Stephanie Smith, Brown and Caldwell

The 2010 CB TMDL, Executive Order 13508, and 2014 Chesapeake Bay Watershed Agreement include commitments to assess the effects of climate change and offset water quality impacts in the Chesapeake Bay region. As part of the ongoing Midpoint Assessment, the WQGIT in coordination with the Modeling and Climate Resiliency (CRWG) work groups initiated efforts to understand the impact of climate change on current water quality standards, the effectiveness of existing BMPs, and approaches to address climate-related changes in Phase III WIPs. These approaches will guide continued progress toward achieving CBP goals.

Predicting Future Impacts

The Chesapeake Bay Model helps predict climate-related impacts to identify the next set of management actions. Earlier this year, the CRWG and STAC selected future regional climate condition scenarios based on a review of relevant scientific literature and guidance. The scenarios include an increase in precipitation volume (by 3.1 percent), temperature (1.05 °C), carbon dioxide concentrations (to 427 ppm), sea level (0.2 to 0.4 meters), and Bay temperature (0.95 °C) by 2025.

Modeling results show the combined influence of changes in regional precipitation, temperature, and carbon dioxide will lead to increases in flow (+3 percent), nitrogen loads (+0 to 2 percent), phosphorous loads (+0 to 2 percent), and sediment loads (+0 to 5 percent) to Chesapeake Bay by 2025. The range of potential impacts reflects the variable influence of temperature and method to calculate evapotranspiration. Sea level rise will also likely inundate tidal wetlands, resulting in the loss of valuable ecosystem services such as the absorption and conversion of nutrients. Model results show little change in the total area of tidal wetlands in 2025 and 2050 with negligible changes in nutrient attenuation. However, long-term projections through 2100 predict a 40 percent loss of tidal wetlands in the Bay estuary.



CBP water quality goals aim to have 60 percent of nutrient reductions in place by 2017, and 100 percent by 2025.

In the coming months, the STAC will review the climate change assessments developed by the CRWG. In parallel, the Modeling Work Group will continue to refine preliminary model results and incorporate the latest guidance from the STAC and CRWG, including additional simulations and expanded climate scenarios. This updated version of the Bay model will be completed in March 2017.

Climate change predictions made by the Chesapeake Bay Model are helping the CRWG and STAC identify the most effective steps to improve water quality in Chesapeake Bay.

Defining an Effective Path Forward

The CRWG and the WQGIT outlined policy options the Chesapeake Bay Partnership may use to address climate change in the jurisdictions' Phase III WIPs. These policy options are based on the guiding principles recommended by the WQGIT: identify co-benefits from current practices that may mitigate climate-related impacts, account for existing stressors of climate change, align future action with existing climate resiliency plans and policies, effectively manage risk to adapt to changing circumstances, and engage local officials in the development of climate-related strategies. During WIP implementation, the WQGIT also recommends that localities and facilities incorporate climate change concerns in the selection, design, and siting of BMPs to reduce vulnerability, build flexibility in decision-making processes, and practice adaptive management to inform BMP selection as new information emerges.

The eight policy options represent a range of quantitative, qualitative, comprehensive, and general responses that may be combined to develop the best suite of actions to respond to climate change:

Incorporating Climate Change into Phase III WIPs *continued from page 4*

Sea level rise is a key concern of residents and planners in Norfolk, Virginia—an area already prone to flooding during storms, including Hurricane Matthew in 2016.

1. Factor climate change into the CB TMDL and adjust the assimilative capacity to account for changes in the Bay's ecosystem and processing of nutrients.
2. Factor climate change into the base conditions and planning targets of the Phase III WIPs as an added load, increasing the level of effort required by the jurisdictions.
3. Factor climate change in the CB TMDL (Option 1) or Phase III WIP base conditions (Option 2) with deferred implementation to 2025 or beyond. The Chesapeake Bay Partnership commits to a time frame when climate change would be addressed.
4. Factor climate change into a margin of safety in the Bay TMDL.
5. Factor climate change into the Phase III WIP BMP optimization and prioritize BMPs that will more effectively mitigate effects of climate change.
6. Adaptively manage Phase III WIP BMP implementation by monitoring BMP performance and adapting to improve performance through the prioritization of future BMPs.
7. Factor climate change into a narrative description of the programmatic commitments to climate change in the Phase III WIPs with prescribed methods to gather, analyze, and apply data to inform future actions and programmatic decisions.
8. Factor climate change into a narrative description of the programmatic commitments to climate change in the Phase III WIPs without requirements to define set expectations for the program.

Responses from jurisdictions and impacts on local facilities will depend on the WQGIT's recommendations and the time frame imposed by the selected options. Though the process is still underway, the Chesapeake Bay Partnership's efforts demonstrate a commitment to a thorough, scientific evaluation of climate change in the development of the Phase III WIPs. The Chesapeake Bay Partnership will review potential combinations of policy options and finalize its selection in May 2017. The DoD CBP office remains an active member on the WQGIT and will continue to provide updates.

Other News Around the Watershed

Gouldman Pond Conservation

By AP Hill on behalf of The Conservation Fund

Efforts to protect 395 acres along the Rappahannock River and adjacent to Fort A.P. Hill are helping to preserve the health of area waters and protect the DoD's ability to train troops for real world combat in open spaces.

The Conservation Fund and the Virginia Outdoors Foundation, together with the Gouldman family of Port Royal, recently protected 395 acres adjacent to the Rappahannock River. While helping to enhance the health of the river, this conservation effort, made possible with funding from the DoD's Readiness and Environmental Protection Integration (REPI) program, also furthers the goals of Fort A.P. Hill to preserve key buffer lands near the installation boundary.

Comprised of three separate properties, the Gouldman family lands feature the nearly 70-acre Gouldman Pond, surrounding wetlands, and Goldenvale Creek. Conservation of the Gouldman lands within the priority buffer area for Fort A.P. Hill is important to the DoD, as this area is used to train, test, operate, and prepare troops and equipment for real world combat.

Fort A.P. Hill is a regional training center, used by U.S. Army active and reserve component units, specializing in training, and maneuver and live-fire operations across its 44,000 acres of training lands. Located in Caroline County, one of the fastest growing counties in Virginia, Fort A.P. Hill's Army Compatible Use Buffer (ACUB) program is focused on promoting compatible land uses, like agriculture,

"The Gouldman easement is of strategic importance to Fort A.P. Hill because it is within the Land Use Planning Zone for noise and provides other benefits, such as permanent protection for wetlands and streams which contribute to the Army's and DoD's Chesapeake Bay Restoration efforts."

- Lieutenant Colonel Andrew Q. Jordan, Garrison Commander at Fort A.P. Hill

Gouldman Pond Conservation *continued from page 6*

conservation, and open space near the installation boundary and high-noise areas.

Through the Congressionally-authorized REPI Program, the DoD partners with state and local governments, conservation organizations, and willing private landowners to protect working landscapes and critical natural resources within the vicinity of installations, ranges, and airspaces from incompatible development and encroachment. The U.S. Congress annually appropriates funding for the REPI program, including the Virginia delegation representing Fort A.P. Hill: U.S. Senators Mark Warner and Tim Kaine and U.S. Representative Rob Wittman. In the 13 years of the REPI program's existence, it has provided approximately $32 million to military installations in Virginia, including Fort A.P. Hill, helping to maintain the military missions of the more than 240,000 DoD personnel across the Commonwealth.

Since its creation in 2006, the ACUB program at Fort A.P. Hill has helped protect over 11,000 acres in the region surrounding the base. Not only has this helped to preserve the base's critical mission, but these easements protect the farming heritage and cultural history of the surrounding communities.

The ACUB program is also supporting the efforts of the Rappahannock River National Wildlife Refuge to preserve critical habitat for birds and other wildlife in the region.

"The Gouldman conservation project is a prime example of how much we can accomplish when we work together to find solutions that support our military, our communities, and our environment. Efforts like these are critical not only to land and water conservation in the Commonwealth, but also to the maintenance of military facilities that are instrumental in making sure that our troops have access to top-notch training and our equipment is tested and battle-ready."

- U.S. Representative Rob Wittman

Efforts to improve the health of the Gouldman property—located within the Chesapeake Bay watershed—are helping to achieve CBP water quality goals.

Possum Point Shoreline Restoration

By Anna Lubetski, NAVFAC Washington

Possum Point shoreline before restoration

Possum Point shoreline after restoration

The Possum Point shoreline restoration Cooperative Agreement was awarded on September 21, 2015, by NAVFAC Washington Environmental to restore 1,517 linear feet of shoreline at Naval Support Activity Annapolis. The shoreline restoration design included stone revetment along the eastern shoreline of Possum Point, where wave energy potential is high, and a living shoreline along the western shoreline that will feature tidal marsh. The restoration project aims to control erosion, enhance habitat, and improve water quality. Water quality benefits are achieved through stormwater pollutant load reductions—eliminating 113.8 pounds of nitrogen, 103.2 pounds of phosphorus, and 207,829 pounds of sediment from entering the Chesapeake Bay each year.

Chesapeake Bay Action Team Updates

By Hee Jea Hall, Brown and Caldwell

Members of the Chesapeake Bay Action Team (CBAT) convened for their quarterly meeting on Thursday, October 27, 2016, to review updates regarding the Midpoint Assessment, Chesapeake Bay Comprehensive Water Resource and Restoration Plan, and proprietary BMPs.

DoD Chesapeake Bay Program Updates

FY16 Phase 1 BMP Datcall Results

Approximately 4,000 historical and progress BMPs were reported, with approximately 3,800 anticipated to receive credit in the Chesapeake Bay model. Based on information provided by the installations, the DoD CBP will provide recommendations to the WQGIT for additional expert panels. The DoD CBP is continuing to work with jurisdictions in the coming weeks to submit historical BMPs.

WQGIT Activities

The WQGIT agreed that local area planning goals should be established below the state major basin. Discussions are ongoing to determine if Conowingo Dam base conditions and climate change—which will be factored into the CB TMDL—should be directly incorporated into planning targets or set aside for later implementation.

CB TMDL 2017 Midpoint Assessment

A large part of the Midpoint Assessment effort involves incorporating new data and science to make decisions in meeting CB TMDL goals. To assist with this effort, the Chesapeake Bay Partnership is enhancing and refining modeling tools to determine implementation levels from 2018 to 2025 and incorporating new BMP efficiency data.

In 2016, the Partnership accomplished the following:

- Released enhanced modeling tools for a one-year review;
- Completed the Final Phase III WIP stakeholder assessment report, which includes lessons learned from stakeholders in Phases I and II, and will help inform strategies to address pollutant loads in Phase III;

Chesapeake Bay Action Team Updates *continued from page 8*

- Received high-resolution land use data for 80 percent of the Bay watershed;
- Established the LAPGTF; and
- Analyzed tidal and non-tidal network trends for nutrients and sediment.

EPA also arranged meetings with each of the Bay jurisdictions and Chesapeake Bay Commission to ensure that local governments are informed about the Midpoint Assessment and Phase III WIPs and to encourage jurisdictions to begin engaging local partners.

The Chesapeake Bay Comprehensive Water Resource and Restoration Plan

The Chesapeake Bay Comprehensive Water Resources and Restoration Plan, led by the U.S. Army Corps of Engineers (USACE) will guide priorities for implementing projects that align with USACE mission areas; help avoid duplication of ongoing or planned actions by others; maximize use of existing information; identify ecological problems, needs, and opportunities; and identify projects that can be implemented in each state and D.C. There may be future opportunities for installations to partner with local governments looking to share project costs.

The project's feasibility phase is complete and USACE and National Fish and Wildlife Foundation are now conducting public outreach, and working with the Chesapeake Bay Partnership to determine priorities regarding climate change, ecosystem restoration, federal management, riverine and coastal management, and stewardship.

Evaluation of Proprietary BMPs

To meet the goals of the CB TMDL, the Chesapeake Bay Partnership continues to evaluate and approve new BMPs that facilities can implement to receive credit for load reductions. To date, BMPs examined by CBP expert panels included only non-proprietary BMPs. However, proprietary BMPs and manufactured treatment devices (MTD) are installed on DoD properties, which are not evaluated for credit.

MTDs can offer site planners creative solutions to site-specific challenges, but information available from manufacturers is sparse or not easily compared among competing products. As a result, the STAC has proposed the creation of the Chesapeake Bay Technology Assessment Protocol to assess MTDs in the Bay watershed. Other organizations are also exploring potential for a new program, including the Water Environment Federation's National Stormwater Testing and Evaluation of Products and Practices Initiative, released earlier this year.

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Check it Out

January 26, 2017: Quarterly CBAT Meeting
Agenda to be determined.

February 7 and 8, 2017: Planning and Facilitating Collaborative Meetings
Instructors include Ann Weaver, Certified Professional Facilitator/Training Specialist, NOAA Office of Coastal Management; and Christine Feurt, University of New England, Director, Center for Sustainable Communities, Department of Environmental Studies. Registration opens in November 2016. For more information: http://www.vims.edu/cbnerr/coastal_training/upcoming_workshops/index.php

March 14-15, 2017: STAC Quarterly Meeting
Location and agenda to be determined. For more information: http://www.chesapeake.org/stac/meeting.php?activity_id_264

March 15, 2017: Chesapeake Stormwater Network Webcast: "User's Guide to Urban BMPs in the Chesapeake Bay"
For more information: http://chesapeakestormwater.net/events/webcast_users_guide_urban_bmps

May 15, 16 and 17, 2017: Wetland Delineation
CBNERR is offering this 3 day workshop on the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region" (Version 2.0). Instructed by Doug DeBerry. Registration opens in February 2017. For more information: http://www.vims.edu/cbnerr/coastal_training/upcoming_workshops/index.php

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