Spring 2026

DoW Chesapeake Bay Program Journal

Edited by the DoW Chesapeake Bay Program Team

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

Supporting Mission Readiness and Protecting the Chesapeake Bay: 2026–2027 Milestones at a Glance

By U.S. Department of War Chesapeake Bay Program and Jacobs Solutions Inc.

The U.S. Department of War (DoW) Chesapeake Bay Program (CBP) is advancing critical efforts to restore and protect the Chesapeake Bay watershed through its 2026–2027 milestones. Focused on water quality, land conservation, and stewardship, these actions demonstrate how military installations contribute to a healthier Chesapeake Bay while supporting mission readiness.

Driving Water Quality Improvements

The DoW continues to strengthen water quality outcomes through improved tracking, reporting, and implementation of best management practices (BMPs). Annual reporting to the U.S. Environmental Protection Agency (EPA) and collaboration with Chesapeake Bay jurisdictions ensures transparency while increasing BMP crediting and improving program accuracy.

DoW CBP supports the Sentinel Landscapes in implementing off-base projects that improve water quality in alignment with jurisdiction Watershed Implementation Plans, using the Readiness and Environmental Protection Integration (REPI) Program and other funding sources.

In addition, collaborative efforts enhance installation resilience by supporting projects with a water quality co-benefit through Engineering with Nature, Military Installation Resilience/Compatible Use Plan planning efforts and related programs.

Nutrient Reductions Anticipated (July 1, 2025–June 30, 2027)

Virginia	• **2,019 lbs/year total nitrogen** • **303 lbs/year total phosphorus**
Maryland	• **2,190 lbs/year total nitrogen** • **1,342 lbs/year total phosphorus**
DC	• **121 lbs/year total nitrogen** • **10 lbs/year total phosphorus**
Pennsylvania	• **640 lbs/year total nitrogen** • **207 lbs/year total phosphorus**

lbs = pounds

Protecting Land and Restoring Habitat

Land conservation and restoration remain key strategies for improving watershed health. DoW projects that 8,000 acres of conserved land through programs like REPI and Sentinel Landscapes will preserve vital ecosystems that protect unique training environments. Water quality initiatives are expected to include approximately 8,000 linear feet of stream restoration and shoreline stabilization and planting of 20,000 trees across the watershed, in order to protect and beautify valuable military property for the benefit of military personnel and families.

Building a Culture of Stewardship

DoW fosters environmental stewardship through community engagement and education. DoW CBP continues to report on installation cleanup events, such as Earth Day and Clean the Base Day activities, which remove thousands of pounds of debris from waterways while improving installation safety.

Outreach efforts – articles, reports, and educational materials – promote water quality awareness among military personnel, families, and the public. Collaborative and innovative projects further strengthen installation resilience while highlighting DoW's leadership in environmental protection.

Together, these milestones reflect a measurable commitment to restoring the Chesapeake Bay, demonstrating that environmental stewardship and military readiness go hand in hand.

IN THIS ISSUE

Commander's Corner: Strengthening Military Readiness Through Sentinel Landscapes

By U.S. Department of War Chesapeake Bay Program and Jacobs Solutions Inc.

The Sentinel Landscapes Partnership enhances military readiness by leveraging external, non-installation funding to reduce encroachment threats and enhance installation resilience. Dedicated Sentinel Landscapes coordinators expand installation staff capacity, increasing effectiveness and reach.

Military readiness depends not only on installation activities but also on the surrounding land use. The Sentinel Landscapes Partnership brings together federal, state, and local governments with private organizations to promote compatible land uses. Working with willing landowners and land managers, the Sentinel Landscapes Partnership protects working lands and natural resources while reducing incompatible development like residential growth that can interfere with training, testing, and operational flexibility.

Sentinel Landscapes coordinators expand the reach of installation staff by building relationships, leading working groups, coordinating projects, tracking progress, securing grants, and leveraging partner assets to implement solutions that protect the landscapes and installations.

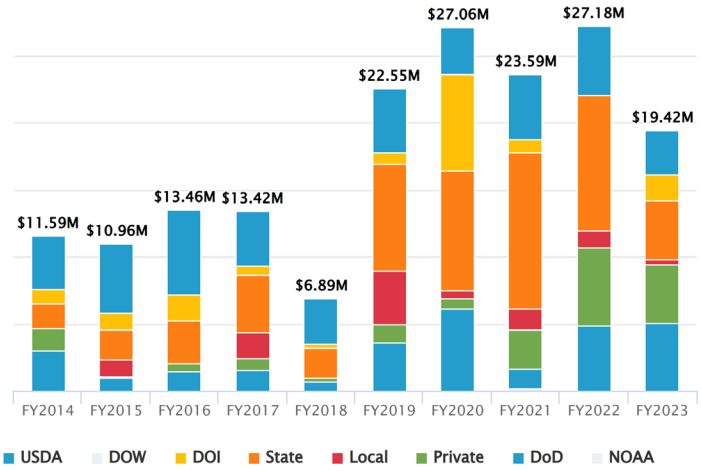


IMAGE CREDIT: HTTPS://SENTINELLANDSCAPES.ORG/LANDSCAPES/MIDDLE-CHESAPEAKE

Partner Funding to Support Military Readiness in the Middle Chesapeake Sentinel Landscapes

Four Sentinel Landscapes within the Chesapeake Bay watershed – Kittatinny Ridge, Middle Chesapeake, Potomac, and Tidewater – are advancing sustainable land use projects that directly support DoW readiness and mission objectives.

The Middle Chesapeake Sentinel Landscape is one example that demonstrates how these partnerships directly support military readiness. Established in 2015 and spanning more than 2 million acres across Maryland, Virginia, and Delaware, the Middle Chesapeake Sentinel Landscape surrounds Naval Air Station Patuxent River, a premiere Navy aviation testing facility. As development pressures increase in this desirable coastal region, the Middle Chesapeake Sentinel Landscape plays a critical role in maintaining compatible land uses.

The Middle Chesapeake Sentinel Landscape results reflect the win-win nature of this collaborative approach, including:

- The partnership has grown to a coalition of 40 federal, state, and local partner organizations.
- 63,242 acres around the installation are permanently preserved in compatible land uses, with an additional 123,939 acres under active conservation management that support military missions.
- $148 million in non-DoW funding was leveraged between FY2014 and FY2023, five times DoW's direct investment.

While participation requires extensive coordination, the results are evident. The Sentinel Landscapes Partnership delivers projects that enhance installation resilience, protect training corridors, and align community development with mission needs. For Installation Commanding Officers, the message is clear: the Sentinel Landscapes Partnership is not just a conservation initiative, it is a critical installation readiness tool that protects both mission capabilities and the landscapes that sustain it.

FOR MORE INFORMATION

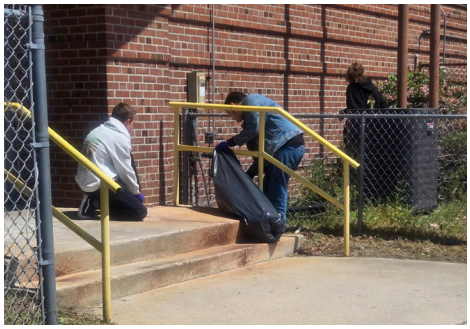
To learn more, explore success stories, and sign up for the Sentinel Landscape program's newsletter, visit: https://sentinellandscapes.org/.

Success Stories: Naval Station Norfolk

Teen Cleanup Creates Safer Environment for Military Families

By Thomas Caldwell, Navy Child & Youth Programs, Naval Station Norfolk

On April 8, 2026, the Naval Station Norfolk (NSN) Teen Program and adult volunteers spent the afternoon cleaning the Youth Center surroundings. They collected 50 pounds of trash and removed more than 20 cut tree limbs that had been piling up in an outdoor play area used by the school-aged children. By working together, the volunteers created a safer and more attractive area for the benefit of NSN families.


PHOTOS PROVIDED BY: THOMAS CALDWELL, NAVAL STATION NORFOLK

The NSN Teen Program and adult volunteers worked to improve the grounds around the Youth Center.

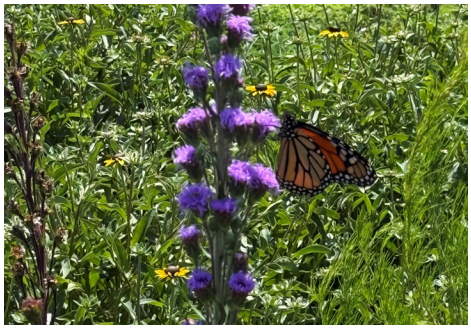
Cleanup of USS Cole Memorial Garden Honors Fallen Warfighters and Promotes Wellness

By James Micalizzi, Naval Station Norfolk

In early April, NSN conducted a spring weeding and cleanup in its USS Cole Memorial Pollinator Garden. Approximately 35 sailors and civilians pulled weeds and removed dead vegetation for approximately 1.5 hours. The USS Cole Memorial Pollinator Garden was created in 2025 with a grant received from the National Environmental Education Foundation, related to National Public Lands Day.

The NSN Environmental Department continues to tend to the young garden as it establishes, working to give the garden an opportunity to continue to mature and support the installation's pollinators. The NSN Environmental Department has been applying its Integrated Pest Management practices in the garden, continuing to remove any undesirable vegetation by hand before considering the use of herbicides. This is important because of the garden's proximity to the shore, which directly supports the Navy's commitment to stewardship of its environment and surrounding waterways. The garden represents a valuable resource for imperiled pollinator species such as bees and butterflies. For example, in its first summer after being planted, NSN Environmental Department staff were able to document the presence of Monarch butterflies, a species currently listed as a candidate for protection under the Endangered Species Act.

Gardens like the USS Cole Memorial Pollinator Garden not only support the diversity of the environment around NSN but also promote the wellness of warfighters and their families by providing a beautiful place for reflection and an opportunity to participate in community events like this cleanup.


PHOTOS PROVIDED BY: JAMES MICALIZZI, NAVAL STATION NORFOLK

NSN sailors and civilians cleaned up the USS Cole Memorial Pollinator Garden.

Success Stories: Naval Support Activity Bethesda

Cleanup Event Supports Warfighter Quality of Life

By Connor Smith, NSA Bethesda

Naval Support Activity (NSA) Bethesda Environmental and the Uniformed Services University of the Health Sciences (USUHS) each held a volunteer cleanup event at NSA Bethesda the week of Earth Day (April 22). Across both cleanups, 57 volunteers collected and disposed of more than 350 pounds of trash, preventing trash from entering waterways around the installation. The events saw participation from a wide variety of tenants, support staff, and contractors including personnel from Walter Reed National Military Medical Center; Uniformed Services University; Commander, Navy Installations Command; Navy Federal Credit Union; the Navy Exchange; and Naval Facilities Engineering Systems Command (NAVFAC). Installation warfighters and their families collected an estimated 135 pounds of trash, and the USUHS event collected an estimated 215 pounds.

PHOTOS PROVIDED BY: CONNOR SMITH, NSA BETHESDA

NSA Bethesda military and civilian volunteers worked together to clean up trash around the installation.

Environmental Fair Promotes Military/Community Partnership

By Connor Smith, NSA Bethesda

The NSA Bethesda environmental team hosted an Environmental Action Fair during the week of Earth Day (April 22). Event coordinators invited exterior organizations to join the NAVFAC Environmental Division in providing general environmental information, as well as more specific local environmental resources that are available to installation personnel and patients.

NSA Bethesda hosted Montgomery County recycling; Montgomery County Master Gardeners; Morale, Welfare, and Recreation (MWR); the US Forest Service; the National Oceanic and Atmospheric Administration (NOAA); and the National Aeronautics and Space Administration (NASA). Each organization provided information and handouts that promote sustainable choices, environmental requirements, and actions that individuals can take to benefit our local environment. NSA Bethesda Environmental staff provided information and handouts on installation-specific environmental activities.

NSA Bethesda also hosted an independent scientist who provided earth system talks with science-on-a-sphere visuals during their Environmental Action Fair. The visuals and discussion provided insight into the importance of environmental action and potential impacts both locally and globally. The Environmental Action Fair provided warfighters and their families with an opportunity to learn more about environmental processes and ways to get involved through local environmental programs.

PHOTOS PROVIDED BY: CONNOR SMITH, NSA BETHESDA

NSA Bethesda hosted an Environmental Fair, including an independent scientist who provided earth system talks.

The Future Outlook of Chesapeake Bay Total Maximum Daily Load Goals and Challenges

By Jacobs Solutions Inc.

Changing environmental and hydrologic conditions are eroding nutrient reduction gains across the Chesapeake Bay watershed and will increasingly challenge Total Maximum Daily Load (TMDL) compliance into the future. For the DoW, sustaining and advancing water quality progress will require the following:

- Maintaining the functionality of existing best management practices (BMPs).
- Addressing losses of effectiveness because of changing environmental and hydrologic conditions.
- Addressing new nutrient loads associated with additional impervious cover and Phase 7 Chesapeake Bay model updates.
- Accelerating natural, nature-based, and resilience-oriented projects that deliver durable nutrient reductions while supporting Integrated Natural Resources Management Plans (INRMPs) and mission readiness.

These actions will help the DoW attain new 2040 pollutant reduction goals to be developed for the Chesapeake Bay TMDL.

Introduction: Entering a New Phase for Chesapeake Bay Restoration

The Chesapeake Bay TMDL represents the nation's largest nutrient reduction effort and has guided restoration progress across the watershed for more than a decade. However, key assumptions related to land use, land cover, precipitation patterns, and water temperatures continue to evolve, affecting how nutrients are transported and processed across the watershed under changing environmental and hydrologic conditions. The Chesapeake Bay Program is entering a transition phase, with a new planning horizon extending to 2040 for achieving water quality standards. In advance of that milestone and using updated modeling and monitoring data, the Chesapeake Bay Partnership plans to revise nutrient and sediment reduction goals by December 31, 2030. These updates will redefine goal expectations and require adjustments to strategies currently used to meet the TMDL.

Erosion of Nutrient Reduction Gains and Increasing Nutrient Loads

The Chesapeake Bay Program estimates that, for the period from 1995 to 2025,[1] approximately 5 million additional pounds of nitrogen and 0.6 million pounds of phosphorus must be reduced annually to offset higher loads associated with changing environmental and hydrologic conditions and reduced BMP effectiveness. Increased precipitation intensity drives higher runoff volumes and accelerates the transport of nutrients from both developed and undeveloped lands. Increased runoff can also elevate water temperatures, which lowers the amount of dissolved oxygen and increases microbial activity, chemical reaction rates, and algal growth leading to greater amounts of nutrients in the water column.[2] These combined effects contribute to degraded water quality in streams and estuaries. As a result, roughly one fifth of the progress made toward the original 2025 TMDL goals has effectively been offset. This trend highlights the need to expand nutrient reduction efforts simply to maintain prior modeled gains, let alone accelerate progress to meet desired Chesapeake Bay Program goals.

Beyond 2025, the rate of nutrient increase because of changing environmental and hydrologic conditions is expected to accelerate. Nitrogen increases are projected to occur at approximately four times the historic rate, and phosphorus increases at about six times the historic rate. By 2035, the nitrogen reduction needed to offset these impacts is expected to double to approximately 10 million pounds per year across the watershed.[3] After 2035, the additional nitrogen reduction burden is projected to increase by approximately 5 million pounds per decade, creating a continuing and expanding challenge for maintaining water quality progress. The erosion of nutrient reduction gains and increasing nutrient loads will result in higher reduction goals for DoW installations and the need for more stormwater BMPs.

If DoW installation development or redevelopment activities add more impervious area, the installation will need to implement BMPs to offset the increased pollutant load from the additional impervious area. For installations with limited available land and/or fully developed conditions, offsetting these loads can be particularly challenging and require innovative planning, retrofit approaches, or perhaps nutrient credit purchases.

[1] Linker, L.C., G. Bhatt, R. Tian, R. Najjar, and Chesapeake Bay Program. 2024. Chesapeake climate change assessment using a suite of atmospheric, land use, watershed, and estuarine models. Management Board presentation. October 10.

[2] U.S. Geological Survey. 2018. *Dissolved oxygen and water.* U.S. Geological Survey Water Science School. June 5. https://www.usgs.gov/water-science-school/science/dissolved-oxygen-and-water.

[3] Linker, L.C., G. Bhatt, R. Tian, R. Najjar, and Chesapeake Bay Program. 2024. Chesapeake climate change assessment using a suite of atmospheric, land use, watershed, and estuarine models. Management Board presentation. October 10.

Loss of Best Management Plan Effectiveness

Existing stormwater BMPs may become less effective because of changing hydrologic conditions or degradation over time that will cause additional challenges in meeting pollutant reduction goals. Many BMPs currently in place were designed using historical rainfall data and may not perform as intended under more frequent high-intensity storm events. A BMP subjected to greater runoff flows and volume than what it was designed for could experience bypassing, overtopping, or structural degradation under these conditions, which will reduce the pollutant removal efficiency. BMPs that depend on infiltration or denitrification processes may also experience reduced effectiveness because of prolonged soil saturation or elevated groundwater levels. These conditions limit the biological and chemical processes that facilitate nutrient removal, particularly for nitrogen.

As a BMP ages, its performance may degrade causing reduced pollutant removal and making it more sensitive to increased runoff from changing environmental conditions. For example, a wet pond may become filled with sediment, reducing the water quality storage treatment volume or the filter media in a bioretention facility may become clogged with sediment, reducing how much runoff can infiltrate through the BMP. Based on DoW CBP data, the current average age of BMPs located across all installations is approximately 13 years, which is within the lower end of a typical 10- to 20-year design life,[4] but by the year 2033, the average BMP age will be 20 years. Installations will need to plan for major rehabilitation when a BMP is no longer performing as originally designed.

Implications of Phase 7 Chesapeake Bay Watershed Model Updates

In parallel with physical changes in environmental conditions and BMPs, updated modeling tools will further influence how nutrient loads and reductions are calculated and managed in the Chesapeake Bay Program. The Phase 7 Chesapeake Bay Watershed Model incorporates updated science related to BMP performance, land use, and hydrologic processes under changing environmental and hydrologic conditions. Some BMPs may receive lower nutrient reduction credit because of revised effectiveness assumptions, while some sources, including streambank erosion and legacy nutrient stores, will be more fully accounted for in the model. For DoW installations, these model updates reinforce the importance of implementing BMPs that are resilient, maintainable, and capable of performing under a range of future conditions. They also highlight the need for monitoring and adaptive management to ensure continued compliance as modeling assumptions evolve.

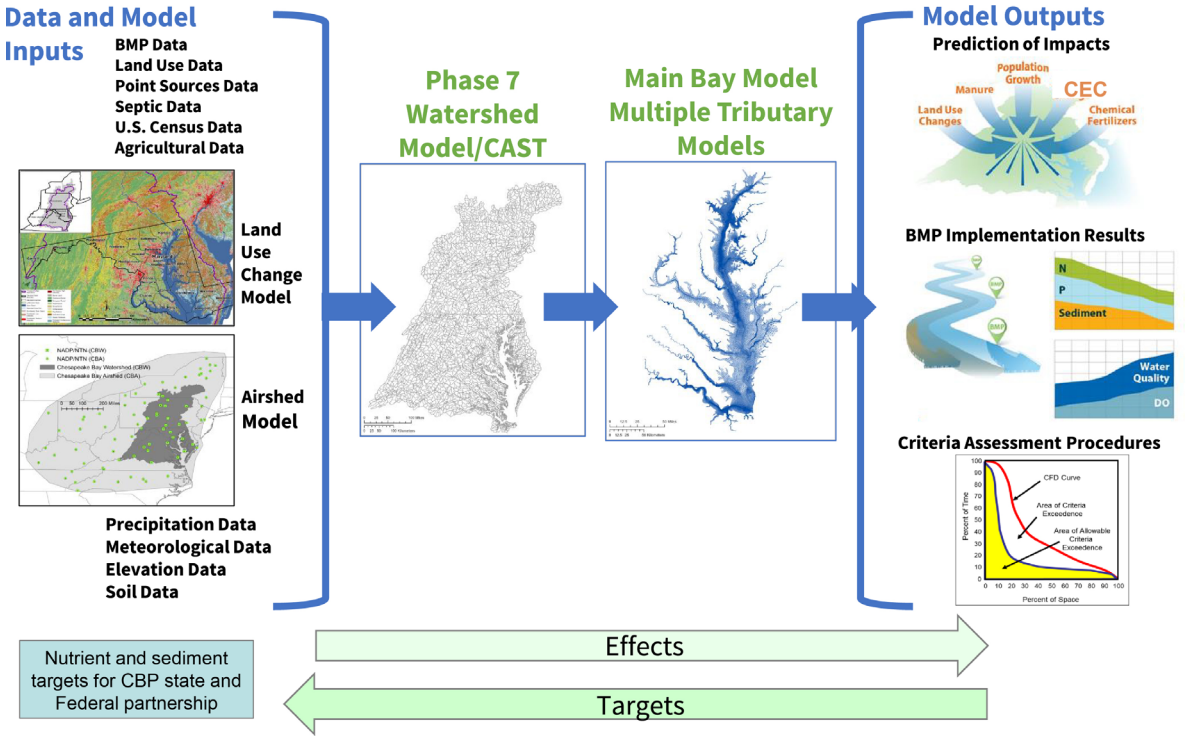


IMAGE CREDIT: HTTPS://WWW.CHESAPEAKEBAY.NET/PROJECTS/PHASE-7-MODEL-DEVELOPMENT

The development of the Phase 7 model is ongoing.

[4] Chesapeake Bay Program. 2022. *Quick Reference Guide for Best Management Practices: Nonpoint Source BMPs to Reduce Nitrogen, Phosphorus, and Sediment Loads to the Chesapeake Bay and its Local Waters.* Second Edition (2022/2024) Chesapeake Bay Program.

Maximizing Nutrient Reduction Gains Beyond 2025

To address these combined challenges, DoW installations have opportunities to maximize nutrient reduction gains through integrated, multibenefit approaches. Natural and nature-based solutions provide a means for achieving durable reductions under changing environmental and hydrologic conditions. Practices such as wetland restoration, riparian reforestation, urban tree canopy expansion, floodplain reconnection, and living shorelines can provide reliable performance while also supporting habitat and ecosystem functions outlined in INRMPs.

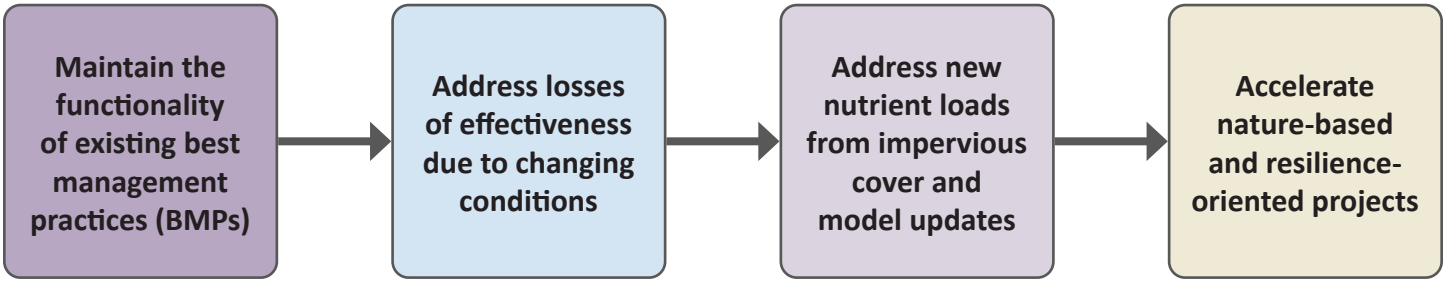
Installation resilience projects also offer significant opportunities for water quality co-benefits. One example is the shoreline stabilization project along Carr Creek at Naval Support Activity (NSA) Annapolis, where stabilization measures help reduce erosion and sediment transport while improving shoreline resilience. Projects like this demonstrate how resilience investments can also contribute to nutrient and sediment reduction goals.

More broadly, shoreline stabilization, flood mitigation, and drainage improvements can be designed to reduce nutrient loads while protecting infrastructure and supporting mission readiness. For example, streambank stabilization and riparian buffers can reduce erosion and trap nutrients, while flood mitigation features can slow and treat runoff before it reaches receiving waters.

Inspection, maintenance, and adaptive management of existing BMPs remain among the most cost effective strategies for sustaining nutrient reductions. Routine inspections allow installations to identify declining performance early and address issues before significant repairs are needed. In some cases, existing BMPs can be retrofitted or modified to improve performance under changing environmental and hydrologic conditions and achieve additional reductions. Recurring BMPs such as street sweeping and execution of nutrient management plans also play an important role in maintaining pollutant reductions over time and should be consistently implemented.

Conclusion: Sustaining Chesapeake Bay Progress for the Future

Changing environmental and hydrologic conditions have fundamentally altered the nutrient reduction landscape for the Chesapeake Bay watershed. By maintaining existing BMPs and integrating water quality improvements into resilience and natural resource management efforts, the DoW will be positioned to address changes in future Federal Planning Goals. These efforts will support water quality objectives while buffering installations from destructive flooding events, enhancing installation resilience, long-term sustainability, and mission readiness.



Actions to sustain and advance water quality progress across DoW installations

Chesapeake Bay Action Team Updates

By Jacobs Solutions Inc.

Members of the Chesapeake Bay Action Team (CBAT) last convened for a meeting on March 19, 2026.

Chesapeake Bay Service Leads and Installation Roundtable Discussion

CBAT members were provided with updates on the Middle Chesapeake Sentinel Landscape, the Virginia Security Corridor Sentinel Landscape, and the Kittatinny Ridge Sentinel Landscape.

2026 Best Management Practice and Project and Indicators Datacalls Overview and Training

A presentation on the procedures and expectations for installations in the Fiscal Year (FY) 2026 BMP and Project and Indicators datacalls was provided. It included lessons learned and focus areas for the FY2026 datacalls.

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Webinars and Links of Interest!

Upcoming and Past Webinars

(past webinars can be viewed at the links provided)

- **05/21/2026: EWN Compass: Implementation Toolbox for Natural and Nature-Based Features**
  Presented by Sarah Copertino, US Army Corps of Engineers
  https://ewn.erdc.dren.mil/engagements/event/n-ewn-seminar-ewn-compass-implementation-toolbox-for-natural-and-nature-based-features/

- **03/19/2026: Dutch Experience with Beaches and Dunes As Coastal Natural and Nature Based Features for Flood Risk Management – An Overview of 30 Years of Nature-Based Coastline Management**
  Presented by Dr. Quirijn Lodder, Principal Advisor Coastal Flood Risk Management, and Dr. Evelien Brand, Technical Lead Coastline Maintenance; both of Rijkswaterstaat
  https://ewn.erdc.dren.mil/engagements/event/n-ewn-seminar-dutch-experience-with-beaches-and-dunes-as-coastal-natural-and-nature-based-features-for-flood-risk-management-an-overview-of-30-years-of-nature-based-coastline-management/

Helpful Links

- **REPI News Roundup**
  https://www.repi.mil/News/2025/

- **Installation – Community Cooperation Against Drone Threats: New Report from Association of Defense Communities (ADC) and Matrix, Widening the Aperture Part II: (April 2026)**
  https://defensecommunities.org/wp-content/uploads/2026/04/Widening-the-Aperture-Part-II-Countering-Drones.pdf

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