Summer 2019

DoD Chesapeake Bay Program Journal

Edited by the DoD Chesapeake Bay Program Team

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

Volunteer Stewardship and Use of an Adaptive Management Approach Enhances Progress Towards Restoration Goals

By Sarah Diebel, DoD Chesapeake Bay Program Coordinator

Adaptive management is an iterative approach to meet long-term program objectives. Teams apply the knowledge gained throughout program phases to update and adjust future management decisions that lead to action. Utilizing an adaptive approach and adjusting the way we manage our activities is based on results from past performance. As the process illustrated in Figure 1 shows, the Chesapeake Bay Program Partnership (Partnership), of which DoD is a partner, must achieve outcomes that we have committed to and leverage limited resources. Taking the management strategies that each of the Goal Implementation Teams (GIT) have developed and reviewing their progress through the strategy review system (SRS), the Partnership is able to assess recent developments in science, economics, environmental conditions, and current policies. The SRS also allows to assess gaps to attaining the Partnership's 10 overarching Bay goals.

Recently, the Partnership completed its first SRS meeting for 2017-2018. From that meeting, the topics identified for additional focus in the future are environmental justice, social science, local government engagement, and finance. The DoD CBP is looking at ways in which we can integrate recommendations to adaptively manage activities that support the Chesapeake Bay restoration and protection effort.

Figure 1. Adaptive management process utilized to assess and adjust future management actions

On a separate note, the DoD CBP also wants to recognize the numerous contributions made by staff and volunteers for Earth Day, Arbor Day, and other environmental stewardship events that educated and inspired local communities to make positive environmental impacts.

Additionally, we also want to recognize several installations for their restoration efforts. The hard work and creativity of those working toward the Bay's restoration deserves credit. On an annual basis, the Best Urban Best Management Practice (BMP) in the Bay Award contest (BUBBA) recognizes the BMPs installed in the Chesapeake Bay watershed. This year, several outstanding installations submitted packages highlighting projects that provided tangible benefits to local communities. These standout installations deserve acknowledgment for their outstanding accomplishments.

The DoD CBP would like to thank the installations and individuals that contributed information and content for this journal, including:

- Rachel Felver, Chesapeake Bay Program Communications Director, Alliance for the Chesapeake Bay
- The installations who applied for the Best Urban BMP in the Bay Award and to Rachelle Knight (Naval District Washington) and Stacey Rosenquist (ANC) for providing those nomination packages to the DoD CBP
- The staff and volunteers from across the Bay watershed that conducted stewardship activities this spring.

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What Challenges Remain in Restoring the Chesapeake Bay?

By Rachel Felver, Chesapeake Bay Program Communications Director, Alliance for the Chesapeake Bay

December 2018 marked a significant anniversary for the Chesapeake Bay Program – it had been 35 years since representatives from throughout the watershed signed a simple one-page agreement acknowledging that to restore the polluted Chesapeake Bay, unprecedented cooperation and coordination involving all levels of government and other stakeholders would be necessary.

In April 2019, the Bay Program released its annual report, the Bay Barometer, that tracks progress towards restoring and protecting the Bay. The Bay Barometer is a science-based snapshot that provides the most up-to-date information and data to present the whole picture about the health of the watershed—from the blue crabs in tidal waters to the brook trout in freshwater streams to the progress being made in training the next generation in environmental literacy.

A lot has changed since 1983 – that simple one-page agreement signed by six partners now contains 10 goals and 31 outcomes related to restoring the health of the Bay. Six states (Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia), the District of Columbia, the Environmental Protection Agency on behalf of the federal government, and the Chesapeake Bay Commission have all committed to meet these goals.

Extraordinary levels of success have been achieved toward restoring and protecting the Bay in the past 35 years. Underwater grasses are abundant, oyster restoration is thriving, and over a million acres of land across the watershed are now permanently protected from development. There is now a target for increasing diversity in leadership positions, a dedicated effort to engage local governments, and – presented in this year's Barometer for the first time – data that tracks the impacts of a changing climate.

Despite these successes, challenges remain that need attention and support from all of the Bay Program's partners, including the DoD. These may seem like impossible challenges to overcome – but remember that even the smallest actions can add up!

PHOTO RELEASED AND PROVIDED BY JOHN SELSTROM

Forest Buffers

Planting a tree is one of the most simple and cost-effective ways to help the Chesapeake Bay. However, the Bay Program continues to struggle with meeting its annual goal to plant 900 miles of forest buffers. In 2017, 56 miles were planted across the watershed, achieving only six percent of the annual goal.

U.S. NAVY PHOTO BY COTTON PURYEAR, VIRGINIA NATIONAL GUARD PUBLIC AFFAIRS/RELEASED

Toxic Contaminants

When the water quality of the Bay is mentioned, it is almost always in the context of nutrients and sediment. More rarely discussed is that 83 percent of the Chesapeake Bay is considered to be partially or fully impaired by toxic contaminants. This percentage has only continued to increase since 2010.

PHOTO RELEASED AND PROVIDED BY JOSEPH HOVIS

Stream Health

While the overall water quality of the Bay receives a lot of attention, the condition of our streams is not well known. Only 25 percent of streams in the watershed are in fair, good, or excellent condition, while 21 percent are in poor or very poor condition. This data reflects thousands of samples that have been taken from streams around the watershed, but 54 percent of these waterways are not reflected in the indicator for stream health due to insufficient or absent data.

PHOTO RELEASED AND PROVIDED BY STAFF SGT. NATASHA STANNARD

Wetlands

Wetlands act as natural filters for pollution and help to slow the flow of water. They provide habitat for wildlife and can even be a source of economic value for agriculture and recreation purposes. However, only 9,103 acres of wetlands have been restored on agricultural lands through 2017, which is 11 percent of the goal to restore 85,000 acres (83,000 of them on agricultural lands) by 2025.

The Chesapeake Bay Program offers several helpful tips that individuals can take to help restore and protect the Chesapeake Bay watershed. Here are a few to help you get started:

Buy local

Grow your own food, shop your local farmers' market, and eat less meat.

Conserve energy

Turn off lights and unplug appliances when not in use. Install energy-efficient light bulbs.

Conserve water

Take shorter showers and turn off the water when you brush your teeth.

Green your commute

Walking, biking, or carpooling reduces emissions, traffic congestion, and the need to burn fossil fuels.

Plant native plants

Help increase wildlife habitat and reduce water usage by planting trees, shrubs, and flowers that are native to where you live.

Reduce and reuse

Use a lunch box instead of a plastic or paper bag and look for items made from recycled materials and reuse school supplies.

To stay informed about the progress the Chesapeake Bay Program is making, please visit the Chesapeake Progress website at **www.chesapeakeprogress.com.**

Increasing DoD's Support of Partnership Goals

By Mira Micin, Brown and Caldwell

The recently released Chesapeake Bay Program 2017-2018 Bay Barometer provides the status on the goals and outcomes of the Chesapeake Bay Watershed Agreement and whether the Partnership is on the right track. As previously noted by Rachel Felver, the implementation rates of several outcomes are not on target and call for increased focus by the Partnership. As a member of the Partnership, the DoD is committed to supporting these outcomes that are falling behind. The DoD continues to develop and implement water quality milestones that contribute to the 2017/2025 Watershed Implementation Plans (WIP) outcome, which calls for reductions of nutrient and sediment pollution. In addition, DoD has developed an implementation scenario in the Chesapeake Assessment Scenario Tool (CAST) that includes a range of practices to demonstrate how it could meet its federal planning goals defined in the Phase III WIPs.

The DoD CBP found that many of the projects installations reported in the annual datacall already support these lagging outcomes and that installations are equipped to assist the Partnership in its efforts. Furthermore, DoD installations can do so in ways that also benefit their mission. Through Integrated Natural Resource Management Plans (INRMPs), the Readiness and Environmental Protection Integration (REPI) program, and water quality improvements to meet total maximum daily load (TMDL) goals, DoD is achieving a wide range of co-benefits that align with Partnership goals. The following are three outcomes where the DoD CBP has identified special alignment between projects on DoD installations and outcomes that are falling behind.

PHOTO RELEASED AND COURTESY OF FORT BELVOIR

Stream at Fort Belvoir, Virginia.

Riparian Forest Buffers

Riparian forest buffers (RFBs) help filter excess nutrients, sediment, pesticides, and other pollutants from surface runoff. As of 2018-2019, the Partnership is behind the target of 900 miles per year of RFBs. DoD recognizes the importance of RFBs to support fish and wildlife habitats. Therefore, DoD continues to track the total miles of RFBs located on installations and reported 3,210 miles across all installations in 2018. RFBs are a creditable BMP for the Chesapeake Bay TMDL, provided that the projects meet minimum design criteria established by the Partnership.

Other BMPs that support the establishment of RFBs include stream restoration and land conservation. Stream restoration projects to improve water quality or protect habitat may include an opportunity to establish an RFB. Likewise, land conservation projects to prevent encroachment may allow installations to protect an existing buffer. Installations should consider if these project types provide an opportunity to protect or create RFBs. As shown with Figure 2, DoD's 2025 implementation scenario includes 6,200 feet of stream restoration to meet the federal water quality planning goals. In this way, DoD can align INRMP, REPI, and water quality objectives with the Partnership's RFB outcome.

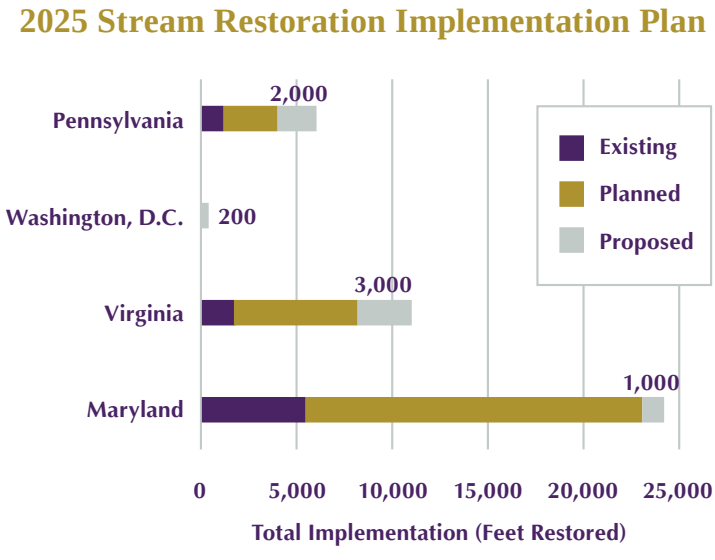

Figure 2: DoD's 2025 implementation scenario meets federal water quality planning goals.

U.S. NAVY PHOTO BY PETTY OFFICER 1ST CLASS PATRICK GORDON/RELEASED

An Arbor Day tree planting at NAS Patuxent River.

Tree Canopy

The Partnership's goal is to protect, maintain, and increase the number of trees in urban areas to improve water quality and habitat. In addition to those benefits, urban tree plantings provide a range of unique returns to DoD installations. They provide nutrient and sediment credit toward the Chesapeake Bay TMDL, create realistic training conditions that support the military mission, serve as buffers from encroachment, and increase resiliency to extreme heat events, flooding, and storm-based erosion.

DoD already contributes meaningfully to tree canopy in the Chesapeake Bay watershed through tree plantings. DoD also supports the Tree Canopy outcome through land conservation. Land purchased through the REPI program often includes forested land, which is conserved to protect the installation from encroachment by incompatible development. You can learn more about the REPI program and land conservation in the latest DoD CBP fact sheet, which will be available on DENIX.

Installations with natural resources plans and water quality compliance requirements can look to optimize funds through the consideration of co-benefits. BMP types with tree canopy co-benefits defined in CAST include urban forest buffers and urban tree plantings. In its 2025 implementation scenario to meet our federal planning goals, installations in Maryland, Virginia, Washington, D.C., and Pennsylvania need to plant an additional 217 acres (or 65,000 trees) above the previously reported planned BMPs by 2025, as shown in Figure 3. In doing so, DoD will create additional opportunities to further the tree canopy outcome.

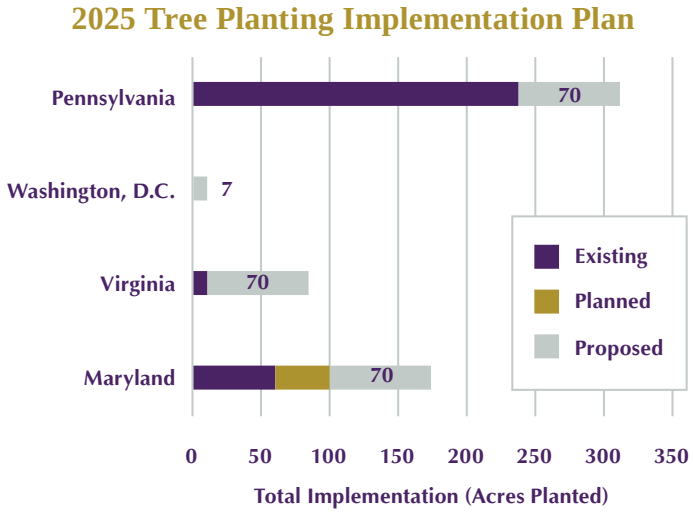

Figure 3: Acres of trees planted create beneficial environmental outcomes.

Did You Know?

Almost 20,500 trees were planted during the 2016-2017 two-year work plan, primarily through community outreach events and natural resource management programs, and an additional 6,324 trees were planted in 2018. This effort is equivalent to around 90 acres of tree canopy that reduce stormwater runoff and further support the Partnership's progress toward its Tree Canopy outcome.

Wetlands

Wetlands are known to create opportunities for recreation, habitat, water filtration, and flood mitigation. Furthermore, their creation, restoration, or enhancement also provide TMDL credit. As of 2018-2019, the Partnership is not on track to meet its 2025 goal to create wetlands across the watershed with the largest gap on agricultural lands.

With over 43,900 acres of wetlands reported by installations in FY2018, DoD can support this outcome on urban lands by leveraging both INRMP and water compliance requirements. Other than stream restoration, which was discussed above, these BMPs are not explicitly part of DoD's 2025 WIP Implementation Plan, but due to the wide-ranging benefits of wetlands for species habitat, water quality, and resilience, wetland benefits ought to be considered in the development and implementation of INRMP, REPI, and water quality projects. DoD has technical experts available, including Kevin DuBois, DoD CBP Coordinator, to assist installations with tidal wetland restoration through the vast network of contacts in the Partnership.

How You Can Increase Your Support

DoD installations have the potential to accelerate and support these three outcomes through the implementation of their INRMPs, water quality programs, and authorities within the REPI program. This article highlights the various opportunities there are between installation projects and how DoD can support the Partnership in a way that aligns with DoD's mission and regulatory obligations. Recognizing and strategically targeting co-benefits that align with both DoD and Partnership goals will also provide the best use of taxpayer funds.

For more information on the 2017-2018 Bay Barometer report, go to:
https://www.chesapeakebay.net/documents/2017-2018_Bay_Barometer.pdf

PHOTO RELEASED AND PROVIDED BY JOHN SELSTROM

Water quality projects with wetland co-benefits include Wet Pond & Wetland BMPs, stream and shoreline restoration, and land conservation.

DoD Installation Stewardship Activities Around the Watershed

By Sarah Diebel, DoD Chesapeake Bay Program Coordinator

With the return of warmer weather, environmental staff are actively engaging with the Chesapeake Bay community to educate and empower those on and off installations to improve local watersheds. The DoD CBP thanks all personnel that volunteered their time and participated or held Earth Day, Arbor Day, and clean-up events—everyone is truly making a positive impact!

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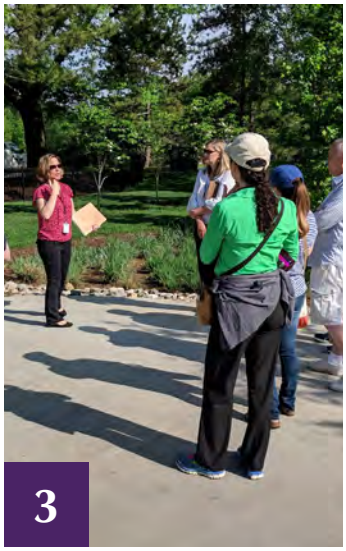
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April was a busy month for stewardship activities with Earth Day on April 22nd and Arbor Day on April 26th. Over the following pages, you can learn more about the many educational events, cleanups, and celebrations this spring.

1 The environmental team at Aberdeen Proving Ground (APG) in Maryland held their second annual Discovery Fest on May 4th where the team demonstrated the effects of sediment pollution on the Chesapeake Bay. The demonstration included the effects of stormwater flow on soil without any erosion controls, soil with a filter sock as the erosion control, and soil stabilized with vegetation (grass cover).

2 Joint Base Little Creek-Fort Story held Earth Day activities at their Child Development Center where staff discussed the life cycle of a bat, how the installation is protecting the federally-threatened Northern Long-Eared Bat, and the importance of bats for humans.

3 ANC in Virginia held three events including a rain garden tour, Memorial Avenue Cleanup in partnership with the National Park Service, and an Arbor Day tour and tree planting. The rain garden tour was open to the public to inform visitors on what ANC has implemented to treat stormwater. The arboretum walking tour discussed the significance of the cemetery's status as a Level III accredited arboretum. ANC ended the tour with the arborist planting a ceremonial tree. The Memorial Ave cleanup, in coordination with National Park Service, had five participants who showed their strength by collecting 46 pounds of debris.

4 NSF Indian Head held cleanup events at Indian Head and Stump Neck. There were 71 volunteers, 105 bags of trash collected, and 22 tires removed. A combined weight of 3,700 pounds of trash was collected from one mile of beach shoreline. The installation also continued their Earth Day tradition by planting willow oak trees and eastern red cedars.

PHOTOS RELEASED AND COURTESY OF:

1. Aberdeen Proving Ground

2. Gary Jordan, U.S. Fish and Wildlife Service

3. ANC

4. NSF Indian Head

5 **Getting the youngest of environmental stewards involved, Defense Logistics Agency Installation Management in Richmond, Virginia** commemorated Earth Day 2019 with the planting of a dogwood tree at their Child Development Center at Defense Supply Center Richmond. They had four volunteers and fifteen of the Chesapeake Bay's youngest attendees who also wanted to help!

6 **Fort Belvoir environmental staff in Virginia have been busy the last few months hosting and coordinating multiple cleanup and stewardship events.** Through the Potomac River Watershed cleanup, small group cleanup events, D.C. National Guard cleanup, and the Fort Belvoir Community Hospital cleanup, over 130 volunteers collected nearly 200 bags of trash. Most of the trash consisted of recyclable plastic water bottles and non-recyclable styrofoam.

In addition, Fort Belvoir celebrated Earth Day with twelve interactive educational booths geared towards children that included topics on bat conservation, bird migration, recycling, spills, tree identification, stormwater, energy conservation, and many others! Over 100 visitors, including a large contingent from the nearby Markham School, participated. Over 65 trees of varying species were planted on April 18th with nearly 40 volunteers. Fort Belvoir also hosted World Migratory Bird Day on May 9th to provide awareness to enlisted soldiers, officers, retirees, military spouses, and civilian employees on the installation's trail maps, bird sighting checklists, and brochures on the impacts of outdoor cats.

7 **Fort Lee, Virginia participated at Riverfest in Petersburg, Virginia on April 27th for a third year.** The event is hosted annually by the Friends of the Lower Appomattox River and co-sponsored by US Army Garrison Fort Lee with the goal of providing environmental education and promoting outdoor activities along the scenic Appomattox River, a tributary of the Chesapeake Bay. This fun-filled and educational event was supported by 15 volunteers who built an obstacle course made entirely out of recycled and repurposed materials, exhibited archaeology techniques, and provided kayak lessons for around 1,000 attendees.

8 **Fort Meade, Maryland celebrated Earth Day as a community event with about 200 participants of 4th graders and high school JROTC students** from local schools, along with installation residents, soldiers, and employees. The event had military personnel working with high school students completing 40 feet of shoreline restoration and elementary school students planting four trees and a native plant garden with a rain barrel.

PHOTOS RELEASED AND COURTESY OF:

5. Defense Logistics Agency, Richmond, VA

6. Fort Belvoir

7. Fort Lee

8. Fort Meade

9

10

11

12

9 Norfolk Naval Shipyard (NNSY), Virginia, held its fourth annual Earth Day celebration on April 18th. The event promoted sustainability at NNSY and within the community through education on recycling, wildlife rehabilitation, local rivers, energy conservation, and pollinator importance. Attendees received a plant for participating in an environmental trivia game and a tree sapling for making a sustainability pledge. Over 300 pledges were made to help the environment. Over 700 attendees participated with over 50 volunteers helping to facilitate the event.

10 Naval Support Activity (NSA) Bethesda hosted several events throughout the week in honor of Earth Day including their first Earth Day 5K with over 70 runners. Additionally, they held an installation clean-up event where nearly 1,000 pounds of trash was collected by 52 volunteers and participated in an Environmental Action Fair with other local partners.

11 Despite gloomy weather, the 32 volunteers of NSA Annapolis pressed forward to pick-up/recycle trash, clear nature trails, and plant a garden. Cleaning along fence-lines, roadsides, and the Possum Point shoreline, volunteers recovered seven bags worth of debris. The trail team worked to clear the installation's handicap-accessible trail, which is the most popular among recreationists. The gardening team planted a pollinator garden and a teaching garden by the installation's nature center. The pollinator garden will provide habitat, and the teaching garden encourages visitors to learn the history of their food and options for self-sustainment. In addition to these outdoor activities, environmental staff held informational sessions for their Earth Day activities. Over 60 people stopped by their booth to learn about composting, green gardening, climate impacts, stormwater management, and recycling.

12 The United States Army Garrison Adelphi Laboratory Center's (ALC) mission is to support innovative science and technology by providing equitable service and infrastructure while optimizing resources, sustaining the environment, and enhancing the well-being of our workforce and community. To support that mission, the Army organizes a campus-wide Earth Day celebration each year. This year marked the Army's 49th commemoration of celebrating Earth Day. At this event, ALC's Environmental Division provided information on upcoming environmental projects on the base for over 1,600 employees. The Environmental Division also conducts an annual Earth Day Walk to inform and show personnel pollinator plants, animal, reptile, and amphibian species located on site and stormwater projects aimed at reducing pollution to the Chesapeake Bay.

PHOTOS RELEASED AND COURTESY OF:

9. NNSY

10. NSA Bethesda

11. NSA Annapolis

12. Jamie Pierce, Adelphi Laboratory Center, https://mygreenmontgomery.org/2019/army-earth-day-adelphi/

13 **The Naval Research Lab Environmental Team integrated Take Your Child to Work Day with Earth Day activities** to learn more about pollinators and help add to the installation's pollinator patchwork quilt. Thirty participants helped plant trees, grasses, and wildflowers.

14 **In honor of Earth Day week at Marine Corps Base (MCB) Quantico, environmental staff organized an installation cleanup and environmental events.** Debris was removed from their shores, roadsides, and trails. A garden at the recycling center was also created with roses, blueberries, and figs. To make sure everything was done just right, an eagle stood watch over the clean-up activities!

15 **NSF Dahlgren's 20 volunteers hosted their Earth Day activities with over 100 students ranging from pre-K through 8th grade.** Students rotated through stations where they experienced hands-on learning activities that focused on science and the environment. At each station, they earned badges and received tokens for their Earth Day passport. At the end the event, the community came together and planted four native Virginia trees.

16 **On April 18th, Fort A.P. Hill welcomed more than 1,000 visitors from 10 local schools to participate in one of the installation's largest Earth Day celebration to date.** More than 62 public and private entities volunteered their time to exhibit educational displays and engage the local youth on all aspects of natural resources and environmental management. This annual event is recognized by the surrounding community for its quality and excellence, due in large measure to the support it receives from a diverse spectrum of environmental organizations.

17 **On May 9th, NAS Oceana (NASO) celebrated Arbor Day, Earth Day, and Migratory Bird Day with their Installation Commanding Officer (CO), Capt. Chad Vincelette who kicked off the event by reading and signing the Installation's Arbor Day Proclamation.** Representatives from the Virginia Department of Forestry (VDOF) and the Natural Resources program led 63 children and adults through an interactive lesson on the importance of trees; how wildlife, such as birds, and humans, utilize trees; and how to properly plant trees. The children helped the CO and VDOF forester with planting the ceremonial event tree, a native Eastern redbud tree (Cercis canadensis). Smokey the Bear also made an appearance at the NASO event, and the children wished him a happy 75th birthday by singing Happy Birthday. Smokey and the VDOF forester presented the CO with the Tree City USA Award for the Urban Forestry Stewardship efforts completed on the installation over the past year. This was the 25th consecutive year that NASO received this award.

PHOTOS RELEASED AND COURTESY OF:

13. Alisha Sutton

14. MCB Quantico

15. NSF Dahlgren

16. Fort A.P. Hill

17. NASO

Honoring DoD's Outstanding Urban BMPs in the Bay Watershed

By Jessica Rowe, Brown and Caldwell

The BUBBA contest, by the Chesapeake Stormwater Network, recognizes the best urban BMPs that have been installed in the Chesapeake Bay watershed. This year's BUBBA Awards submissions featured many innovative projects, including several by DoD installations. Five of the DoD project nominees are highlighted below and were selected by the Journal specifically because they each provide solutions that benefit the area and communities they serve.

PHOTOS RELEASED AND COURTESY OF NAVAL AIR STATION PATUXENT RIVER

The project is located near military housing and the shoreline is important to this community. Living shorelines are known to build beaches, reduce erosion, and restore natural vegetation thereby improving habitat for wildlife.

Cedar Point at NAS Patuxent River

The project repaired and restored 4,207 linear feet of shoreline at NAS Patuxent River on the western shore of the Chesapeake Bay at the confluence of the Patuxent River in St. Mary's County, Maryland. Previously, a wooden bulkhead ran along the length of the shoreline and was weakened over many years by strong waves. The restored living shoreline protects infrastructure, maintains the safety and usefulness of the NAS Patuxent River assets, and reduces total nitrogen (TN), phosphorus (TP), and sediment (TSS) loadings.

Challenges Overcome: Buildings, roadways, threatened species, archaeological resources, and utilities are close to the edge of the shore and were susceptible to damage. Restoration of 1,550 linear feet of living shoreline and will create 39,000 square feet of tidal marshland habitat. The Navy's evaluation of environmental impact determined that the project would have a long-term positive effect on vegetation and wildlife.

PHOTOS RELEASED AND COURTESY OF NAVAL SUPPORT ACTIVITY ANNAPOLIS

With the retrofits in place, more than 50 percent of the previously untreated impervious area is now being treated. The storage capacity afforded by the retrofits translates to large pollutant reductions and accounts for 13 percent of the entire installation's permit requirement.

Perry Center Retrofits at USNA

The Perry Center in Anne Arundel County, Maryland was developed during the 1950s and 1960s, long before current stormwater regulations. This project sought to reduce pollutant loadings for TN, TP, and TSS to Dorsey Creek (College Creek) and the Chesapeake Bay. A suite of structural BMPs were constructed and include 1) 16,997 square feet of pervious concrete paving in three areas; 2) a 4,200 square foot bioretention filtration practice; 3) a 25,000-gallon storage vault; 4) restoration of three existing outfalls including one coastal plain outfall; and 5) two rain gardens. USNA chose a sustainable approach by installing the underground vault for additional storage, adding the benefit of stormwater harvesting and reuse.

Challenges Overcome: Aging infrastructure, a collapsed stormwater conveyance line, and upstream flooding added complications to the repair. USNA decided on an integrated approach to solving its flooding and repair challenges to fulfill local needs while improving water quality for the watershed. Additional achievements were highlighted in an article in the Fall 2018 Journal at **https://denix.osd.mil/chesapeake/journals/**.

Possum Point Repair and Restoration of the North Severn Shoreline

As an important component of a larger effort totaling 28,000 linear feet of shoreline restoration at the North Severn Complex, this project included the repair and restoration of 1,517 linear feet of shoreline that was severely damaged by erosion for decades. The project protects both nearby infrastructure and the North Severn Complex and reduces TN, TP, and TSS loads.

Challenges Overcome: The project included five reaches subject to high wave action and storm energy, which led to extensive erosion. The shoreline along Mill Creek was also dominated by Phragmites australis, a non-native invasive species. Rather than repairing the existing bulkhead, stone revetment, which has a 50-year useful life, was recommended. To minimize the impact to tidal water, the existing stone at the toe of the slope in front of the bulkhead was retained. In areas where native tidal wetlands grew behind the bulkhead, the design was modified by adding stone to the top and front of the bulkhead, allowing tidal water to flood the area.

The project created almost 61 acres of impervious area treatment credit, exceeding its impervious area restoration requirement by 12 acres. As a result, the facility surpassed its TP goal by 30 pounds per year (lb/year) and achieved 14 percent of its required TN reduction.

PHOTO RELEASED AND COURTESY OF NAVAL SUPPORT ACTIVITY ANNAPOLIS

North Willow Oaks Wetland at NSF Dahlgren

The Willow Oaks Wetlands is a textbook example of how to eliminate a portion of an aged stormwater conveyance system, introduce a cost-effective retrofit, and reduce excessive pollutants and sediments in one BMP.

A team of engineers and scientists at NSF Dahlgren had the forethought to use a portion of a former golf course to install a constructed wetland. The BMP was designed to treat stormwater from 160 acres (40+ acres were impervious surfaces) in 5 acres of wetlands. Additionally, 600 linear feet of conveyance piping was removed.

Challenges Overcome: The project proposed that the Willow Oaks wetlands mimic the natural local water bodies. The wetlands consist of a meandering channel connecting a series of deep pools through marshes. Since the completion of Willow Oaks, the wetlands have been a showcase for the Navy.

As an amenity and to facilitate education and outreach, two walking paths wind around the south wetland which allow base residents to enjoy natural scenery.

The combined wetlands provide 424 lb/year TN and 93 lb/year TP reduction, which exceeds their pollutant reduction goals for years to come. Combined with other BMPs that have been installed, the facility's reduction goal was achieved in 2017!

PHOTO RELEASED AND COURTESY OF NAVAL SUPPORT FACILITY DAHLGREN

Improvements to Arlington National Cemetery

Visitors, families, and dignitaries travel along the historic Memorial Avenue and through the beautifully landscaped site that includes perfect rows of marble headstones, curvilinear roads, and manicured landscape near the Potomac River, a tributary of the Chesapeake Bay.

As an active cemetery conducting between 25-30 funerals daily, ANC requires parking for families and visitors attending services. In 2015, ANC embarked on a project to maximize parking spaces adjacent to the Administration Building. This five-acre project required the construction of five stormwater BMPs: four rain gardens and one underground treatment device.

Challenges Overcome: Rain gardens create beautiful landscape features in the parking lots, but the grass channel leading to the underground device did not meet beautification standards. Keeping with the standards expected of ANC, the facility installed boulders and rocks to create a curving channel to slow stormwater flow and beautify the small area.

To honor the aesthetic character of ANC, plants were carefully selected. Species tolerant of wet conditions were selected to soak up water, provide food for local wildlife, and create a serene view and sitting area for visitors.

PHOTO RELEASED AND COURTESY OF ARLINGTON NATIONAL CEMETERY

Chesapeake Bay Action Team Updates

By Hee Jea Hall, Brown and Caldwell

Members of the CBAT convened for their quarterly meeting on April 18, 2019 to discuss ongoing Chesapeake Bay-related service and installation projects and activities, CAST tools for water quality planning, legacy sediment, and CBP updates.

Chesapeake Bay Service Leads and Installation Updates

- The Facility Sustainment Model Stormwater BMP Funding Sub-committee is making headway on establishing new Facility Category codes in the Real Property system which would allow installations to allocate funding for BMP operation and maintenance.
- All Naval District Washington (NDW) facilities in Maryland now hold municipal separate storm sewer system permits. NDW will meet with the District of Columbia Department of Energy and Environment to discuss how they will receive TMDL credit from stormwater fees. NDW submitted three award nomination packages for the BUBBA awards.
- MCB Quantico planned several Earth Day stewardship activities including a multi-base cleanup, shore and roadside cleanups, and recycling events. MCB Quantico will update their Bay TMDL Action Plan.
- Defense Logistics Agency Headquarters are reviewing Phase III WIPs for Pennsylvania and Virginia.
- Joint Base Myer-Henderson Hall reported that four BMPs are under construction and the installation has exceeded its first permit cycle's 5 percent reduction goals.

Using CAST for Water Quality Planning

The CAST and its features can help installations evaluate their individual load reductions from planned BMP implementation. Recently released features, including the inclusion of land-use-defined loading rates in the Reports section of the webpage, can help installations assess loads and reductions from their individual facility. The DoD CBP is evaluating DoD performance in each progress year and its progress to meet 2025 goals. The CAST webpage and Olivia Devereaux are helpful resources to answer outstanding questions.

Getting the Dirt on Legacy Sediment and its Impact on the Chesapeake Bay

A 2019 Science and Technology Advisory Committee report evaluated legacy sediment (sediment resulting from past erosion that has not left the watershed) and its potential impact on the Bay. Sites with higher rates of stream bank erosions, risk factors such as mill dams or significant construction, and proximity to the Bay should be prioritized over other sites for mitigation.

DoD Chesapeake Bay Program Updates

- DoD was the only federal agency to submit narrative and numeric data on time for Phase III WIPs.
- The 2018 Maryland and DoD Memorandum of Understanding Annual Report was submitted in March.
- An EISA Section 438 and State Stormwater Standards fact sheet was released in April; the next fact sheet will discuss authorities for the REPI program and other land conservation programs within DoD.
- DoD CBP coordinated with the Virginia Institute of Marine Science (VIMS), NAS Patuxent River, NSF Dahlgren, and APG to secure Restricted Area Access to conduct SAV aerial surveys.
- The DoD CBP thanks contributors to the FY2018 Annual Progress Report, which is now published at **https://www.denix.osd.mil/arc/home/**.
- The DoD CBP and Regional Environmental Coordination staff represented DoD at the 2019 Virginia Environment Symposium.
- The DoD CBP partners with the Virginia Interagency Oyster Team on oyster restoration in Virginia. The Lafayette River in Norfolk is fully restored, and the next priority is the York River.
- Naval Weapons Station Yorktown and VIMS were awarded a grant for a living shoreline design proposal at Penniman Spit through the Chesapeake Bay Trust.
- The National Military Fish and Wildlife Association's Climate Change Working Group released guidance on climate adaptation planning for natural resource managers which can be found at **www.denix.osd.mil/nr/DoDAdaptationGuide.**

The next CBAT meeting is scheduled for July 25, 2019.

DoD/DoN Chesapeake Bay Program Office
1510 Gilbert Street
Building N-26, Room 3300
Norfolk, VA 23511

Save the Date

DoD Chesapeake Bay Commanders' Conference

at

MCB Quantico
Quantico, Virginia

August 22, 2019

Agenda and registration information will follow

No registration fee will be collected

Note: Formal invitations will be sent to Installation Commanding Officers and Environmental Staff. For additional information, contact the DoD Chesapeake Bay Program office.

REAR ADMIRAL
CHARLES W. ROCK
COMMANDER,
NAVY REGION MID-ATLANTIC

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