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

## Meet the DoD Chesapeake Bay Program’s New Team Member

By *Jessica Rodriguez, Department of Defense (DoD) Chesapeake Bay Program (CBP) Coordinator*

As someone who grew up between the Eastern Shore of Maryland and Virginia Beach, VA, the Chesapeake Bay has always been part of the backdrop of my childhood. That is why I am excited to introduce myself as a new DoD CBP Coordinator in the Regional Environmental Coordination Office here in Norfolk, VA. I look forward to bringing many years of experience related to the development of environmental policy and collaboration with internal and external stakeholders at both a national and regional level to the DoD CBP team.

I received a bachelor’s degree from Virginia Polytechnic Institute and State University in Wildlife Science and a master’s degree from George Mason University in Environmental Science and Policy. While in graduate school, I worked at the National Wildlife Federation to help further their environmental policy initiatives.

From 2008 to 2019, I worked for the U.S. Environmental Protection Agency Headquarters in Washington D.C. where I oversaw the review of land use planning documents and worked to streamline the National Environmental Policy Act (NEPA) process. In that role, I established strong relationships with multiple federal and state agencies and non-governmental stakeholders. I also served as the technical expert on environmental issues as a member of the U.S. Delegation at Antarctic Treaty Consultative Meetings which broadened my environmental experience internationally and allowed me to hone my communication skills.

In June 2019, I accepted a position with the Navy working for Naval Facilities Engineering Command Mid-Atlantic which brought my family and I home to the Hampton Roads area. There I managed NEPA reviews for shore command operations, training, and construction. I most recently joined the DoD CBP staff in March 2020. In my role in the CBP, I look forward to expanding my water quality expertise to contribute to the existing team in support of the DoD’s commitment for restoration of the Chesapeake Bay.

Outside of the office, you will find my husband, daughter, and I enjoying the wonderful outdoors and various coastlines that the Hampton Roads area has to offer.

*Thank you to the individuals who contributed to this Summer’s Journal, including John Moeller, Fort Belvoir; Linda Hicks, Naval Support Activity (NSA) Hampton Roads (HR); Mike Khalamayzer, US Army Service Lead; Kyle Rambo, Naval Air Station (NAS) Patuxent River; Art Silver, Joint Base Langley-Eustis (JBLE); and Cathy Mulhearn, NSA Mechanicsburg.*



PHOTO BY JESSICA RODRIGUEZ, DOD CBP

*Jessica brings over 12 years of experience in federal environmental policy to the DoD CBP.*

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# Commanders' Corner: Environmental Authorities for Commanders

By DoD CBP Editorial Team

The central drivers for the DoD CBP are the Chesapeake Bay Watershed Agreement and Executive Order 13508. Together, these documents define measurable outcomes to improve the health of the Chesapeake Bay. Each outcome falls under one of several overarching goals, including wildlife and habitat diversity, clean water, land conservation, citizen stewardship, and climate resilience. Though they are categorized separately, these objectives are parts of interrelated natural systems that can, and arguably should, be addressed holistically. Installation Commanding Officers/Commanders (COs) are in a unique position to appreciate the many, and sometimes competing, priorities that must be balanced across an installation. In support of environmental stewardship, COs balance responsibilities related to pollution prevention, watershed management, water quality improvements and natural resource management. With limitations on open space, staff capacity, and funding for environmental programs, there is a need to prioritize and implement projects that meet multiple installation objectives. COs can promote the wise use of these limited resources and maximize the land available to carry out the mission by fully utilizing the authorities granted to them. These authorities encompass the ability to oversee the fulfillment of numerous environmental requirements and the staff who manage compliance in their respective subject matters. COs are empowered to have a direct role in ensuring that the installation's approach to environmental management is collaborative, effective, and efficient, which ultimately allows the focus of resources to remain on the installation's mission. While specific authorities and responsibilities will vary by Service, COs can utilize their authority to do the following:

## Direct coordination among internal DoD stakeholders.

COs can promote collaboration among the environmental professionals at the facility to identify projects that maximize benefits across the installation environmental programs. Key stakeholders will include natural resource managers, water program managers, installation environmental program directors, planning staff, climate resiliency and other appropriate subject matter experts (SMEs), and tenant commands. Internal stakeholders should be able to speak to mission, training, or support requirements, natural resources, land and watershed management, pollution prevention, and other activities specific to the installation, such as agricultural leases and shore operations. These stakeholders should share information and identify opportunities to meet compliance goals—for the Chesapeake Bay, other total maximum daily loads (TMDLs), endangered species, waste management, etc.—through projects that meet multiple objectives. The goals of this collaboration are to

draw upon their respective expertise to foster environmental sustainability and restoration and ensure continued mission operation and military function. CO engagement and support can also inspire a greater commitment among environmental staff, other installation leadership, and the greater installation community.

**“I have a great relationship with my CO, and he is very supportive and shows great interest in environmental stewardship. All events are well represented by the Command Staff and they provide volunteer labor to support our outreach events.”**

-Linda Hicks, Installation Environmental Program Director  
NSA Hampton Roads

## Participate in the identification and review of INRMP metrics and projects.

The Integrated Natural Resources Management Plan (INRMP) can be a powerful tool for COs. As a required signatory of the final INRMP, COs can ensure that the INRMP engages the correct stakeholders, identifies and integrates the installation's multi-faceted environmental resources and needs, and balances the military mission. The projects and metrics in the INRMP are selected based on the unique combination of mission requirements and natural conditions specific to the facility. However, all Services are required to comply with state and federal regulations related to clean water, pollution prevention, and natural resources, among others. That said,



U.S. AIR FORCE PHOTO BY AIRMAN 1ST CLASS ANTHONY NIN LECLEREC



installations have latitude to determine how compliance is achieved. By acknowledging when the selection of funded projects meet multiple objectives, COs can promote best use of installation resources and fulfill their public trust stewardship responsibilities.

### See to the sustainable future of environmental resources.

Each Services' environmental guidance documents emphasize the importance of protecting the environment for the future. In the short term, COs can use their authority to position their installation to respond to future requirements effectively and ensure minimal disruption to military operations and the work of environmental staff. For example, COs can proactively build installation staff knowledge and capacity in anticipation of future regulatory requirements and deadlines. Though a deadline may occur after the end of a CO's tenure, laying the groundwork for future success demonstrates commitment to a sustainable future and provides continuity for his or her successor.

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**“The INRMP is, “The *installation commander’s adaptive plan for managing natural resources to support and be consistent with the military mission while protecting and enhancing those resources for multiple use, sustainable yield, and biological integrity.*”**

-Army Regulation 200-1, Environmental Protection and Enhancement, December 13, 2007

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With regard to the longer-term effect of extreme weather events, the 2019 National Defense Authorization Act requires that updates to INRMPs consider current and future climate impacts. INRMP recommendations should assess climate risks and vulnerabilities based on current and future projected conditions and recommend adaptation strategies and projects to address the identified risks and vulnerabilities. COs can support climate

resilience by encouraging participation of climate resilience SMEs in the early stages of project development and planning.

### Support integration of installation environmental programs.

COs can exercise their authority to integrate the various documents developed by the installation, including the INRMP, the Integrated Cultural Resources Management Plan, Bird/Wildlife Strike Hazard (BASH) Plan, Integrated Pest Management Plan, Cleanup Installation Action Plans, development master plans, and other applicable documents. Navy COs sign an Installation Commanding Officer Environmental Policy Statement, which broadly outlines the installation's mission and environmental management priorities. This document, or similar statements that apply to other Services, can set the tone for how the COs will address environmental compliance and coordination in an integrated and watershed-based manner.

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**“Given Fort Meade’s proximity to the Chesapeake Bay, we have always taken very seriously our responsibility to help preserve and restore this national treasure for future generations to enjoy.”**

-John M. Moeller, PhD  
Deputy to the Garrison Commander, Fort Belvoir

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For installations in the Chesapeake Bay watershed, environmental management within the fenceline supports the restoration of the Chesapeake Bay, in addition to the multiple environmental objectives that apply to all DoD facilities. For its part, the DoD CBP can help support the efforts of COs with education and outreach events like the Chesapeake Bay Commanders' Conference; planning for the 2021 conference has already begun. To learn more about the DoD CBP and the 2019 Commanders' Conference, visit the DoD CBP webpage on DENIX at <https://www.denix.osd.mil/chesapeake/>.

### Additional References

[Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers - The Commander's Guide](#)  
[Commander's Guide to Environmental Requirements, U.S. Army, January 2019](#)

[Army Regulation 200-1, Environmental Protection and Enhancement, December 13, 2007](#)

[OPNAV 5090.1, Environmental Readiness Program Manual, September 3, 2019](#)

[Air Force Instruction 32-7064, Integrated Natural Resources Management, November 18, 2014](#)

[Climate Adaptation for DoD Natural Resource Managers, dated March 2019](#)



# You Asked For It! New Facility Analysis Category Codes Coming to Improve BMP Maintenance

By Mike Khamayzer, U.S. Army Service Lead

All installations within the Chesapeake Bay watershed rely on a variety of stormwater best management practices (BMPs) to meet municipal separate storm sewer system (MS4) permit requirements and total maximum daily load (TMDL) pollution reduction goals. Over the last 35 years, approximately 3,800 BMPs have been implemented by the DoD to contribute to the environmental improvements seen to the Chesapeake Bay today. BMPs also control the quantity and delivery of stormwater to receiving water bodies which minimizes flooding that would otherwise affect an installation's peak operational performance and mission function. However, these benefits may be short lived if the BMPs are not performing to their design specifications due to lack of inspection and maintenance.

Every year, installation program managers are faced with the challenge to secure adequate inspection and maintenance funding for stormwater BMPs. In the world of installation management, BMP maintenance is a competing priority with a multitude of other traditional operational infrastructure, including buildings, structures, and utilities in need of maintenance. Each year, DoD components receive funding for all facilities maintenance, and yet the proportion of funding assigned for BMP maintenance appears to be consistently less than other similar core maintenance priorities. But why is that? A big part of the answer lies in the DoD real property management process.

In a nutshell, DoD manages real property through the Real Property Categorization System (RPCS) by assigning facilities and structures into very broad categories called a Facility Analysis Category (FAC). Each FAC has a pre-determined value and maintenance cost assigned to it, and DoD uses FACs to calculate sustainment funding needs

for each property asset as a part of the DoD budget request submission process.

For many FACs, the real property management system allows the DoD to ensure that its installation sustainment needs are supported to the greatest extent possible. However, for modern-day BMP maintenance, the current real property system organizes most engineered BMPs into oversimplified FAC categories (ponds, stormwater sewer lines, and landscape features). These categories do not accurately reflect the true cost to maintain BMPs installed to meet current design standards. Over the last 30 years, as stormwater BMP technology has evolved in complexity and maintenance costs needs, DoD RPCS categories have stayed relatively unchanged, and real property managers did not have updated FACs to appropriately categorize BMPs. That has led to underfunding of BMP inspection and maintenance.

The good news is that this problem came to light two years ago during a meeting of the Chesapeake Bay Action Team (CBAT). Recognizing that this is a major issue impacting all DoD installations, the Clean Water Act Services Steering Committee voted in February 2018 to form the Facilities Sustainment Model Stormwater BMP Funding Subcommittee. The subcommittee's purpose is to:

- Examine sustainment funding estimates for stormwater BMPs produced by the DoD Facilities Sustainment Model (FSM)
- Recommend additional FACs and Service-specific Real Property Category Codes to incorporate BMPs that do not already exist in the FSM.

The subcommittee brought together Real Property and Stormwater Management SMEs from all Services to develop

## Recommended FAC Code Changes

### Modified FAC Codes

**Stormwater Ponds** to include constructed wetlands and stormwater retention and detention (wet and dry) ponds

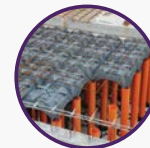
### New FAC Codes



**Stormwater Filtration**  
(permeable pavement, infiltration trench)



**Stormwater Treatment  
Manufactured/Constructed**  
(Manufactured treatment devices (MTDs))



**Stormwater Collection Systems**  
(rainwater harvesting & cisterns)



and propose new FAC codes specifically designed for the current suite of stormwater management strategies and the associated costs of inspection and maintenance.

The subcommittee faced many challenges while working on this task. Environmental SMEs had to learn about how RPCS works, Real Property SMEs had to learn about stormwater BMPs and why they are different from a landscaping feature (e.g. biofiltration or a swale) or equipment (e.g. filter vault), and everyone had to determine how to properly describe the proposed categories. At the end, the subcommittee proposed three new FAC codes to be published in the RPCS, and they are: Stormwater Filtration, Stormwater Treatment Manufactured/Constructed, and Stormwater Collection Systems. Additionally, the subcommittee requested that the existing FAC for “Stormwater Ponds” be modified to include BMPs such as constructed wetlands, stormwater retention, and detention ponds; this would allow for an update of that FAC to allow for sustainment associated with those features. At the annual meeting in March 2020, the DoD Real Property Board approved the proposal, and the new FAC codes will be published sometime in 2021.

Before FSM begins to work, there is more to be done. Over the course of this summer, the subcommittee will work with the Real Property Board to develop a formula for calculating sustainment costs for the new FACs. Once the FACs are published for use, the Services will need to create their unique property category codes from the new FACs and then reclassify their BMPs under the new scheme, so that they can be counted. When complete, this process will ensure that stormwater BMPs can compete with other installation core infrastructure needs and will be fairly and accurately accounted for in the DoD’s sustainment funding modeling process.

## NAS Patuxent River Recognized for Tree Planting Excellence

*By DoD CBP Editorial Team with Kyle Rambo, NAS Patuxent River*

In 2019, NAS Patuxent River was recognized as a Tree City USA for the 30th consecutive year. It also received its 14th Growth Award, which recognizes participants of the Tree City USA program that go above and beyond the program’s basic requirements. Tree plantings provide a unique nexus of multiple benefits: TMDL credit (and therefore, water quality improvement), citizen stewardship, community beautification, and health benefits associated with reducing heat islands and improving mental health.

Among the installation’s tree planting projects for which it was recognized, one was a partnership with the local county to beautify a former housing area that was converted to a public park. Though they were the first, NAS Patuxent River is now one of nine naval facilities around the country that participate in Tree City USA. Will your installation be next to join the list?



*Executive Officer Captain John Brabazon accepts a plaque from the National Arbor Day Foundation recognizing NAS Patuxent River for the distinction as a Tree City USA.*



*Volunteers from NAS Patuxent River participate in a tree planting event in 2019.*

PHOTOS BY PATUXENT RIVER



# Improving Pond Performance and Their Benefits

By Lauren Strader, Brown and Caldwell

Stormwater BMP selection requires the consideration of maintenance needs, overall cost, nutrient removal efficiency, and mission impacts. Since they effectively control stormwater volume and are generally considered low-maintenance, ponds have been a popular BMP option for decades. In addition to their widespread use in Chesapeake Bay communities, there are over 500 stormwater ponds that treat over 5,400 acres of DoD land in the Chesapeake Bay watershed. Many of these ponds were installed before 2010. Therefore, regular inspection and proper maintenance of these structures is important to sustain TMDL credit, avoid major repairs, and continue to provide their environmental co-benefits.

## Pond BMPs are grouped into two categories:

### Wet Ponds



- Maintain a permanent pool of water and provide both flood control and pollutant removal benefits.
- Include constructed wetlands (shallow wet ponds) designed to remove additional pollutants by encouraging growth of wetland plants and creating environments so microbial activity can further enhance water quality.
- Provide valuable co-benefits for installations, including groundwater recharge, climate resilience (by mitigating potential flooding), and habitat, even though they are not the most efficient practice for nutrient removal of total nitrogen (TN) and total phosphorus (TP).
- Treat over 3,000 acres of DoD land in the Chesapeake Bay watershed.

### Dry Ponds



- Provide flood control, rather than pollutant removal, as they remain dry between storm events.
- Include dry extended detention (ED) ponds that remain dry most of the time but also provide 24 to 48 hours of runoff after storms. Therefore, minimal water quality improvement can typically be achieved with dry ED ponds.
- Treat 2,400 acres of DoD land in the Chesapeake Bay watershed.

Unfortunately, the historical approach to pond upkeep has been reactive rather than proactive. This means potential issues are flagged during inspection but not always addressed until the pond stops functioning, thereby requiring more extensive repairs. Depending on the age and location of the pond, these issues can lead to a loss of TMDL credit due to its reduced performance. To efficiently address this maintenance issue, the Chesapeake Stormwater Network (CSN) developed a protocol to rapidly evaluate pond conditions ([The Pond Protocol: Visual Indicators for Maintaining and Managing Legacy Stormwater Ponds](#)). The goals of the Pond Protocol are to:

- Use visual indicators to rapidly inspect stormwater ponds to assess dam safety and water quality functions in both wet and dry ponds.
- Establish numeric criteria that trigger critical pond repairs or retrofits.
- Outline a range of pond management choices that will either restore, maintain, or enhance water quality functions.
- Create a system to make cost-effective decisions to manage the local inventory of legacy stormwater ponds to maintain dam safety and optimize pollutant removal.

The first step of the Pond Protocol is to conduct an initial field investigation to flag dam safety concerns or water quality issues. Identified issues can range in severity from preventative maintenance needs to outright pond failures resulting in complete loss of function.



Figure 1. Example of outfalls passing and failing visual inspection

IMAGES PROVIDED BY THE CHESAPEAKE BAY STORMWATER TRAINING PARTNERSHIP

A pond's ability to safely convey stormwater without breaching or failing is a dam safety flag, whereas a pond's ability to remove pollutants is evaluated by identifying water quality flags. Examples of dam safety flags include threats to embankment integrity and obstructed low flow drains, as shown in Figure 1. Examples of water quality flags include identification of invasive species, loss of storage capacity, or inadequate hydraulic retention time.

Once potential issues are identified during field inspections, pond performance can be grouped in four levels: non-performing (NP), under-performing (UP), performing (P), and over-performing (OP) ponds as outlined in Table 1. The thresholds for these categories vary depending on the pond type. For example, a dry ED pond is defined as NP if one water quality issue is identified while a wet pond with only one flagged water quality issue may be categorized as a UP pond. The CSN developed these categories and their associated removal efficiencies using various expert panel reports, retrofit adjustor curves, and best professional judgment rather than approved efficiencies for nutrient credit.

The Pond Protocol then provides a series of remedies to restore or increase pond performance. Depending on the technique chosen, an NP or UP pond has the potential to become a P or OP pond as outlined in Table 2. Because cost versus pounds of nutrient reduction will ultimately decide the best approach, the type of treatment employed (runoff reduction (RR) versus stormwater treatment (ST)), the amount of runoff captured, and the amount of impervious area within the drainage area should also be evaluated when assessing retrofit options.

For situations when a retrofit or repair is not practical or where funding for those repairs is not available, the Pond Protocol outlines a list of appropriate management techniques. For example, if a pond has passed its functional test, the pond can be monitored closely for future issues with providing only cosmetic maintenance in the interim. Conversely, severely neglected ponds may be abandoned if it is not cost-effective to retrofit or repair them. This will result in a permanent loss of water quality credit for the pond.

When utilized, the Pond Protocol can be adapted for individual installations based on various key considerations. For the DoD, these may include evaluating the potential for additional nutrient removal credits using existing BMP footprints versus obligating new land for additional BMPs, impacts to the DoD mission, available budget, and aesthetics. The Pond Protocol provides a useful suite of techniques installations may consider to improve inspection procedures or enhance the performance of their over 500 ponds to increase TMDL credit without taking additional developable land for new BMPs.

Table 1. Factors for classifying pond performance

Code	Definition	Pond Types	TP % Removal	TN % Removal
NP	Not functioning, does not provide treatment	Any pond with a dam safety fail	0	0
		Dry pond		
		Dry ED pond with 1 water quality fail		
UP	Does not meet performance standards, provides some treatment	Wet pond with 2 water quality fails	20	10
		Dry ED pond with 1 water quality fail		
		Wet pond with 1 water quality fail		
P	Meets performance standards	Self-converted dry pond	55	35
		Wet pond pass		
		Wet ED pond pass		
OP	Exceeds performance standards	Dry pond conversion to ST	56-70	36-50
		Dry pond conversion to RR		
		Enhanced wet pond retrofit		

Table 2. Techniques to increase pond performance

Type	Technique	Applies to
Wet Pond	Dam Safety remediation	NP to P
	Retrofit to increase residence time	NP to P
	Pond repairs to get to pass	UP or NP to P
	Major sediment cleanout	UP or NP to P
	Channel protection	UP to P
	Aquatic management practices	UP to P
	Retrofit to increase water quality	UP to P or OP
Dry Pond	Floating treatment wetland	P to OP
	Dam Safety Remediation	NP to P
	Allow self conversion	NP to P
	Dry pond conversion to ST	UP or NP to P
	Pond repairs to get to pass	UP or NP to P
	"Smart" dry pond retrofit	UP to P
	Channel protection	UP to P
Dry pond conversion to RR	UP or NP to OP	



# Joint Base Langley-Eustis: Protecting Our Nation, Protecting Our Environment

By Art Silver, Air Force Civil Engineer Center/Environmental Operations- East Branch, JBLE

JBLE, located on the Virginia Peninsula at the mouth of the Chesapeake Bay, undertakes a dual operation: to protect our nation and to protect our environment. For over 100 years, Army and Air Force units, which were combined in 2010 to create JBLE, have provided key support for military activities in the Hampton Roads area of Virginia. Since operations began, mission requirements have expanded, and environmental regulations have evolved to encompass the diverse ecosystems that exist around the base. The JBLE environmental (EV) staff ensure that the military tenants and the natural ones co-exist by managing the risk of bird air strikes and undertaking restoration projects to improve the installation's natural resources.

## Raptors Soaring with Raptors

Two types of Raptors can be seen soaring over the skies above JBLE: those with human pilots and those with feathers. JBLE's 633rd Air Base Wing (ABW) is host to two Fighter Wings, the 1st Fighter Wing and the 192nd Wing. It is also host to multiple thriving ecosystems, which are composed of thousands of species of plants, mammals, and birds. JBLE civilian and military staff are committed to conserving local natural resources in these ecosystems, while executing the combat mission.

JBLE's feathered raptors include eagles, ospreys, and kestrels. Standard characteristics of these exceptional birds of prey include sharp beaks, strong talons, and an impressive visual identification system. These living raptors use their innate version of altitude stealth to feed on fish, invertebrates, and small animals that live in the installation's wetlands and shoreline areas. Their habitats are along the James, Warwick, and Back Rivers, which share boundaries with JBLE.

The Air Force's BASH program serves as an Air Traffic Control system that keeps the feathered raptors separated from the metal raptors. JBLE's BASH program utilizes pyrotechnics and propane cannons to disperse birds near runways and tarmacs. JBLE biologists also provide consultation on proper placement of plastic spike strips on buildings and static displays to discourage roosting near the flight line. The Air Force Civil Engineer Center is currently advocating for a Raptor Study in the next couple of years to support the BASH program.

## Protecting Environmental Resources

Air Force civil engineers strive to support the mission, while promoting good environmental stewardship and honoring the Chesapeake Bay Watershed agreement. The JBLE EV staff advocate for funding to achieve the goals and objectives outlined in their respective INRMPs. The plans target benchmarks to reduce shoreline erosion, improve stormwater quality, and complete urban forest surveys for preservation of wildlife habitats. The projects described below, which were funded with Air Force dollars, are examples of how JBLE is achieving these objectives.



*Osprey roosting at JBLE-Eustis*

USAF PHOTO BY DONNA HAYNES







*JBLE-Eustis Western Shoreline Project after the restoration.*

USAF PHOTO BY ART SILVER

A recent restoration project was completed at JBLE (the Western Shoreline Project) to replant marshy areas on the western shoreline area. As the plants mature, they provide natural stormwater filtration, which reduces sediment and nutrient loading. This ecological enhancement helps ensure that the beneficial bacteria and algae that sustain coastal food chains in the local waters remain healthy.

An additional shoreline restoration project was completed in the marina area at JBLE-Langley. This project replaced deteriorated concrete/asphalt areas with permeable sand and a stone wave barrier. The sand allows for future planting of wetland habitat that supports fish the raptors prey upon. The rock barrier also helps to protect the installation shoreline from erosion and acts to mitigate the effects of rising sea levels. Completion of the project also allows for greater access for service members to fish, kayak, and bird watch in the Back River.

In addition, an airfield clear zone drainage project was recently completed at JBLE-Langley. Part of this project’s piping system helps rapidly remove storm water around the runways. Additional underground piping was added to detain collected water for gradual release to the Bay through tidal action. This reduces stormwater nutrient pollution in support of the Chesapeake Bay TMDL and provides the water quality and healthy ecosystems needed for raptors and other wildlife to thrive.

These completed projects are evidence of the installation’s commitment to protecting the environment and its wildlife.

Service members and visitors traveling across the King Street Gate Bridge often start their mornings with views of bald eagles returning with fish and ospreys feeding their young in nests on the parallel tramway. These picturesque views offer a glimpse into the positive impact that JBLE is having on the natural environment as it continues to support the combat mission.



USAF PHOTO BY ALICIA GARCIA



USAF PHOTO BY ALICIA GARCIA

*JBLE-Langley Marina Shoreline Project before (above) and after (below) restoration*



# Celebrating Innovation in Citizen Stewardship

By Lauren Strader, Brown and Caldwell, with Cathy Mulhearn, NSA Mechanicsburg

As COVID-19-related shutdowns extended from March into April, the annual rites of Spring, celebrating Earth Day and Arbor Day, were canceled or moved to virtual forums across the country. Though many DoD installations and communities were not able to come together for their usual celebrations, the future return to “normal” should include the opportunity to work together to restore the Chesapeake Bay. Environmental stewardship is an important part of building support for citizen-led action, and NSA Mechanicsburg provides a great story of success for their long-running and innovative celebration of Earth Day and Bring Your Child to Work Day.

To bring environmental awareness to audiences of all ages, NSA Mechanicsburg has combined stormwater outreach activities with Earth Day and Bring Your Child to Work Day for the last 22 years. As a holder of both a National Pollution Discharge Elimination System industrial stormwater and MS4 permits within the Chesapeake Bay watershed, NSA Mechanicsburg is required to promote public education and engagement. The installation takes those requirements to the next level.

Earth Day festivities include many common activities, like tree planting. However, NSA Mechanicsburg continues to challenge themselves to be creative in educating its audience about the environment. For example, a spill cleanup activity demonstrates the need to protect our water resources. The participants start with a clean lake with rocks along its border. A chocolate vegetable oil is used to simulate an “oil spill,” and participants are shown how easily it spreads across the landscape and coats everything it touches, including bird feathers. Volunteers then clean the rocks, feathers, and water using a variety of absorbent materials. Participants can see how technology has improved as more advanced materials, such as a plant-based polymer, clean up the oil more effectively.

Another popular hands-on exercise allows visitors to build mini-bioretenion systems with real grass and plants, engineered soils, and underdrains. These mini-bioretenion areas are then “polluted” with dirty water to demonstrate how the natural systems in the bioretention system, the plants and soil, filter contaminants. The polluted water looks much cleaner after being filtered through the bioretention. Activities are also conducted to promote plant and wildlife diversity; children are invited to plant milkweed seeds to attract monarch butterflies in the installation’s existing bioretention facilities.



Children attending Bring Your Child to Work Day can build their own mini-bioretenion system.

PHOTO BY CATHY MULHEARN, NSA MECHANICSBURG

Base cleanups also attract participants to Earth Day events. They include maintenance of stormwater BMPs like planter boxes, rain gardens, and bioretention areas. This annual cleanup effort is mutually rewarding as personnel enjoy getting their hands dirty for a good cause, and their efforts help the BMP facilities operate and look their best. It is also educational. Volunteers are given a brief definition of stormwater, a summary of its impact on and off the installation, and a description of how anyone can make a difference.

Aside from Earth Day events, the EV staff at NSA Mechanicsburg conduct annual stormwater and EV awareness training to tenants on the installation. Locally-created educational BMP signage and photo collages of stormwater bioretention facilities inform the public that NSA Mechanicsburg cares and remains committed to protecting and improving the Chesapeake Bay. Though 2020’s Earth Day was put on hold, NSA Mechanicsburg’s tenants, staff, and community have a strong foundation of over 20 years of great educational content to sustain them until Earth Day events resume in 2021.



Volunteers help clean up a BMP at NSA Mechanicsburg.



# Chesapeake Bay Action Team Updates

By Hee Jea Hall, Brown and Caldwell

Members of the CBAT convened for their quarterly meeting on 23 April 2020 to review ongoing Chesapeake Bay-related service and installation projects and activities. Members reviewed BMP implementation and opportunities at DoD installations. NSA HR also highlighted their award-winning environmental stewardship projects, which are recognized and supported by the local non-profit organization, the Elizabeth River Project (ERP).

## Chesapeake Bay Service Leads and Installation Updates

- No major impacts to day-to-day operations were reported due to COVID-19. However, most outreach events were canceled or postponed this year. As an alternative to in-person events, installations distributed digital materials and those with MS4 permits are working with their permit writers to fulfill their outreach requirements.
- Michael Khamayzer, U.S. Army Service Lead, shared that a new BMP verification requirement in Maryland will require submission of BMP as-built plans. CBAT members and the DoD CBP agreed to follow-up actions to discuss and coordinate the official DoD response.
- Robert Durham is seeking input from installations on smart pond technology.

## A Review of BMP Implementation and Opportunities at DoD Installations

Stephanie MacDurmon, Brown and Caldwell, reviewed the trends in the types of water quality BMPs installed at DoD installations, as reported in the 2019 datacall. Since 2010, DoD installations have implemented more practices that rely on infiltration, which efficiently reduce pollutant loads. However, a large of number of acres are treated by wet and dry ponds, which remove pollutants at a lower rate. This presents opportunities to retrofit less efficient practices to achieve additional pollutant removal. She highlighted types of retrofit opportunities such as new BMP retrofits, existing BMP retrofits, and BMP restoration retrofits. Other innovative options could include impervious surface disconnection, conservation landscaping, smart ponds, and MTDs.



Volunteers at NSA HR perform oyster gardening.

PHOTO FROM NSA HR

## NSA HR and the ERP Partnership

Taylor Austin highlighted NSA HR's River Star activities conducted in coordination with ERP, a local non-profit organization in Hampton Roads, Virginia, that is dedicated to protecting and restoring the Elizabeth River and its watershed. Through its programs, such as the River Star Business Program, the ERP recognizes area businesses and organizations for their work to reduce pollution and create wildlife habitats. Three NSA HR sites (main site, Lafayette River Annex, and Portsmouth Annex) participate in the program. They have been recognized by the ERP for their successes in pollution prevention, stormwater management, oyster reef restoration/gardening, shoreline buffer planting, increasing recycling, habitat enhancement projects and various community outreach events. Funding from the National Environmental Education Foundation, the DoD Legacy Grant Program, volunteers from the ERP and Chesapeake Bay Foundation, and support from the Virginia Department of Forestry, Tree City USA, and DoD CBP have proven essential to the projects they have executed. Finally, the support they receive from the command's leadership have also proven essential to their success.

## DoD CBP Updates

- The DoD CBP will coordinate with the Air Force to identify an installation to participate in the pilot Installation Status Reports
- The Spring and Summer 2020 Journals are available on DENIX at <https://www.denix.osd.mil/chesapeake-dod-cbp-quarterly-journals/>
- The DoD CBP is seeking volunteers to represent DoD on the CBP's Goal Implementation Teams and Workgroups.
- The next CBAT meeting is scheduled for 23 July 2020.



DoD/DoN Chesapeake Bay Program Office  
1510 Gilbert Street  
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## ✓ Check it Out

**2019 Chesapeake Bay Watershed Report Card** was released, and this year, the Chesapeake Bay scored a C . Despite the lower score from 2018, long term trends continue to show improvement. You can view the full dashboard at [https://ecoreportcard.org/report\\_cards/chesapeake\\_bay/bay-health/](https://ecoreportcard.org/report_cards/chesapeake_bay/bay-health/)

US Forest Service Urban Forest Connections Webinar, **CommuniTree: A Model for Engaging Communities in Tree Planting and Maintenance Projects**, Drew Hart, USDA Forest Service Daiva Gyls, Student Conservation Association. Recording from 8 April 2020 available at [https://www.fs.fed.us/research/urban\\_webinars/communitree.php](https://www.fs.fed.us/research/urban_webinars/communitree.php)

Chesapeake Water Environment Association webinar: **Introduction to the Maryland MS4 Phase II General Permit**. 18 July 2020 from 12:00 1:30 pm. [https://www.chesapeakewea.org/upcoming\\_cwea\\_webinars.php](https://www.chesapeakewea.org/upcoming_cwea_webinars.php)

**CBAT Quarterly Conference Call and Meeting**, 23 July 2020 from 10:00 am to 12:00 pm. EDT.

Call in: 1. 301 909 7350 /Passcode: 68233076

Web connect: <https://conference.apps.mil/webconf/quarterlyCBAT>

The DoD CBP will be releasing the **FY2020 BMP and Projects and Indicators datacalls** on 31 July and 30 August 2020, respectively. Please contact the DoD CBP Office with POC updates or questions.

REPI Webinar, **Effective Community Engagement** 9 September 2020 from 1:00 2:30 pm. <https://www.repi.mil/Resources/Webinars/ModuleID/84948/ItemID/4568/mctl/EventDetails/>

**Center for Watershed Protection Webcasts** (<https://www.cwp.org/webcasts/>)

Webcast 5: IDDE – New Technologies and Techniques, 16 September 2020 at 1:00 pm.

Webcast 6: Watershed Modeling, 21 October 2020 at 1:00 pm.  
**National Public Lands Day** is on Saturday, 26 September 2020.

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