



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

Meet DoD’s New Regional Environmental Coordination Office Team Member

From Regional Environmental Coordination Office

Please welcome to the team, Angela Jones, our new Outreach Coordinator and Air Compliance Manager with the Region I and III Department of Defense (DoD), Regional Environmental Coordination (REC) office in Norfolk, Virginia.

“I am excited to be a part of this amazing team,” Jones said. “I look forward to working with all of you as we continue our DoD outreach efforts and maintain air compliance.”

Jones received her bachelor’s degree from East Carolina University (ECU) with a major in Chemistry and a minor in Business Administration in 2004. She also received an athletic scholarship, which gave her the opportunity to play basketball for ECU while pursuing her degrees.

From 2004 to 2010, Jones worked as a chemist in the Analytical/Environmental Branch at Norfolk Naval Shipyard in Portsmouth, Virginia, under Naval Sea Systems Command. As a chemist, she completed various inorganic analyses for metals, mercury, and nutrients, on stormwater and wastewater samples. Jones worked as a senior chemist within the branch and managed quality control processes, conducted surveillances and audits, and performed inorganic analyses, from 2010 to 2019.

Jones also coordinated environmental reporting and sampling with the Shipyard’s Safety, Health, and Environmental Department, and worked with the Virginia Department of Environmental Quality, Hampton Roads Sanitation District, and the Virginia Division of Consolidated Laboratory Services, to sustain compliance during inspections and accreditation in the Virginia Environmental Laboratory Accreditation Program. She also served as the inorganic chemistry subject matter expert for the Environmental section of the branch, with emphasis on inductively coupled plasma, wet chemistry, and atomic absorption analyses.

In March 2019, Jones accepted a position with Naval Facilities Engineering Systems Command Mid-Atlantic, onboard Joint Expeditionary Base Little Creek-Fort Story (JEBLCFS), Virginia, where she served as the Stormwater Media Manager, managing the Virginia Pollutant Discharge Elimination System and Municipal Separate Storm Sewer System permits.

Jones joined the REC team in March 2021, where she coordinates outreach events within the Mid-Atlantic region, reviews proposed Clean Air Act legislation and regulations, and supports the REC/DoD Chesapeake Bay Program through participation in partnership, outreach, and educational programs.

In her leisure time, Jones and her family enjoy camping, fishing, and going to the beach. As a Virginia Beach, Virginia native, Jones understands how important our role is in helping to maintain our environment for future generations. Welcome, Angela!



OFFICIAL U.S. NAVY PHOTO

Ms. Jones brings over 16 years of scientific, outreach, and personal stewardship experience to the REC and DoD CBP.

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Commanders' Corner: Identifying Climate Vulnerabilities

By Gabrielle Bryson, Brown and Caldwell

As directed by Section 211 of Executive Order (EO) 14008, DoD released the Installation Exposure to Climate Change at Home and Abroad Report (DoD Climate Exposure Report) in April 2021 to assess the vulnerabilities of DoD facilities to hazards created by changing climate conditions. The DoD Climate Exposure Report summarizes assessments from the agency's Climate Assessment Tool (DCAT) to assess climate-related risks (also referred to as exposure) across DoD installations by Service, region, climate hazard, and future climate scenarios. Major takeaways from DoD's climate analysis results for the continental United States include:

- Climate hazard exposures increase across all installations in the future
- Higher carbon emission scenarios and later time horizons (e.g., 2085 versus 2050) have more pronounced exposure to climate hazards
- There is no scenario in which installation exposure to climate hazards decreases over time
- Hazards tied to temperature changes (e.g., heat, drought, wildfire) are anticipated to increase in scale and severity more than other hazards (e.g., coastal flooding, energy demand, land degradation) over time

Understanding vulnerability and risk is only the first step to address potential impacts to physical infrastructure, security, and mission readiness resulting from global climate change. The DCAT and the DoD Climate Exposure Report both provide an initial assessment of the climate hazards to which installations are most exposed and provide a weighted order weighted average climate hazard exposure score (WOWA score) for each installation. The information in the DoD Climate Exposure Report will also be used to support development of a Climate Risk Analysis for the agency as required under Section 103 of EO 14008. This article will discuss the key findings of the DoD Climate Exposure Report and what these findings mean for individual installations.

Climate Hazards are Expected to Increase

The DCAT quantifies the average climate-related risks across three time periods: a "base" period (1950-2005), 2050 (2035-2064), and 2085 (2070-2099). The tool evaluates "higher" and "lower" warming scenarios and analyzes exposure to eight climate hazards: drought, coastal flooding, riverine flooding, heat, energy demand, land degradation, wildfire, and historical extreme conditions.

The analysis found that the risk of future climate-related impacts increases, regardless of location or scenario conditions, and higher warming results in increased vulnerability to climate hazards in both 2050 and 2085.

Figure 1 shows the geographic distribution of WOWA scores for the two time periods and warming scenarios across DoD installations. The U.S. East Coast, including the Chesapeake Bay watershed, displays some of the highest climate hazard vulnerability scores in the country.

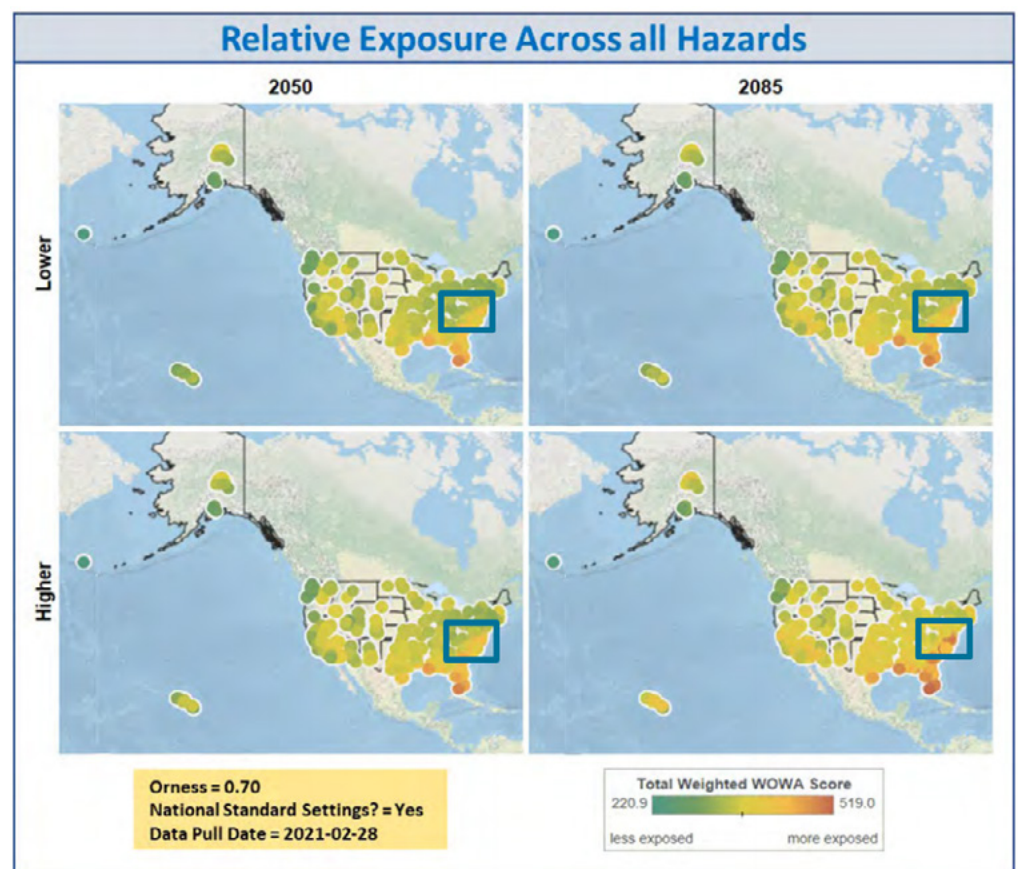


FIGURE FROM THE DOD CLIMATE EXPOSURE REPORT

Figure 1: The relative exposure of installations to climate hazards for both lower and higher emission scenarios. The gradient from green to red represents a higher WOWA score. The blue box on the maps represents the general area of the Chesapeake Bay watershed.



Prioritize Dominant Climate Hazards

Some climate hazards, such as drought and wildfires, are more sensitive to temperature changes than other hazards. Drought is the dominant indicator of climate risk for many scenarios in the DCAT, meaning that drought was the highest contributor to the installation's overall WOWA score. In the Chesapeake Bay watershed, drought, coastal flooding, and riverine flooding are the dominant indicators at military installations. These identified climate hazards increase threats of wildfires, property damage, water quality pollution, and disruption of military operations.

Identifying an installation's highest exposures informs the identification of strategies to mitigate those vulnerabilities.

It is recommended that dominant risks be addressed in Compatible Use Plans (CUPs), Integrated Natural Resource Management Plans (INRMPs), and other adaptation plans developed by installations.



Naval Station Norfolk evacuating ships in preparation for Hurricane Florence in September of 2018.

PHOTO BY MASS COMMUNICATION SPECIALIST CALEDON RABBIPAL, US NAVY.

Address Vulnerabilities with “Multiple Lines of Defense”

The DoD Climate Exposure Report suggests a “multiple lines of defense” approach to address climate vulnerabilities. In the context of climate-related risks, this means using different strategies and approaches, such as existing plans, operational management, infrastructure improvements, updated design standards, and nature-based practices, to provide a robust response to the identified hazards. Appendix 3 of the report provides an overview of measures associated with different climate hazards to enhance or build installation resilience with approximate costs. These suggested measures can be used in tandem with installation planning documents, CUPs, and INRMPs to facilitate project selection and prioritization.

Once projects are identified, installations can leverage other DoD resources such as the Sentinel Landscapes Partnership and the Readiness and Environmental Protection Integration (REPI) program for project support and funding. For more information on how to use these DoD resources for project selection and execution, refer to the article titled “Funding Projects to Sustain Military Readiness and Promote Chesapeake Bay Restoration through DoD Program Synergy” on page 4 of this Journal.

Closing Remarks for Commanding Officers

The assessments and recommendations included in the DoD Climate Exposure Report provide valuable information for Commanding Officers and installation staff when considering approaches to address climate hazards. Installations should consider ways to implement a multiple lines of defense approach for mitigating climate vulnerabilities that incorporates management strategies, infrastructure improvements, and nature-based projects. For more information on hazard exposure scores, climate risks to installation readiness, and potential climate resilience measures, refer to the DoD Climate Exposure Report linked at the end of this article.

Climate hazards are not only a concern for DoD installations; they will also affect surrounding communities. By establishing partnerships with these communities and other local stakeholders, Commanding Officers can leverage additional funding and resources to address shared climate-related issues. In addition to this report, Commanding Officers should consider leveraging other DoD resources, including the DoD CBP, Chesapeake Bay Action Team (CBAT), Sentinel Landscape Partnerships, and the REPI program, for assistance with project prioritization, identification, funding, and implementation. Prioritizing projects that address climate vulnerabilities helps installations mitigate concerns of potential physical harm, security impacts, and degradation in readiness resulting from global climate changes.

Reference

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Funding Projects to Sustain Military Readiness and Promote Chesapeake Bay Restoration through DoD Program Synergy

By Gabrielle Bryson, Brown and Caldwell and Kevin Du Bois, DoD CBP

Activities that occur outside DoD installation boundaries can threaten to limit or restrict military training, testing, and operations. Outside encroachments including land development, vertical obstructions, light pollution, frequency interference, and other incompatible land uses can impact military missions. Likewise, tidal and riverine flooding, drought, wildfire, and other threats from climate change also impact readiness. Failure to maintain critical wildlife habitat can also shift the burden for protecting rare species to DoD putting critical military mission capabilities at risk. This article will discuss three DoD programs, REPI, Military Installation Sustainability (MIS), and Sentinel Landscapes Partnership, that can be combined and leveraged to combat these threats, manage associated risks, and improve outcomes for both installations and their surrounding communities. As an added benefit, program actions that address encroachments while also maintaining healthy ecosystems fulfill Sikes Act objectives and DoD's commitment to the Chesapeake Bay watershed restoration as identified in EO 13508.

MIS - Planning Resources

The MIS program is designed to provide technical and financial assistance to states and local governments to analyze and identify actions necessary to protect and enhance military sustainability. MIS grantees work with installations through the Office of Local Defense Community Cooperation (OLDCC) to identify encroachment, compatibility and resiliency challenges, and areas of potential conflict. CUPs are developed to identify collaborative strategies and priorities to implement recommended actions to alleviate and prevent incompatible development and/or installation resiliency issues likely to impair the continued operational utility of a DoD installation, range, special use air space operation, or training area.

Previously known as Joint Land Use Studies (JLUSs), CUPs are locally or regionally developed, so the potential conflicts addressed in these plans are driven by local needs, and therefore, the focus of each CUP will vary. For example, in 2019, four naval installations, the cities of Norfolk and Virginia Beach, and the Hampton Roads Planning District Commission collaborated on the Norfolk-Virginia Beach JLUS and developed a list of 22 actions and 23 regional coordination strategies to mitigate the climate-enhanced impacts of flooding and extreme weather events on regional infrastructure or community assets that the Navy relies upon.

The REPI Program - Funding Opportunities

The REPI program is a key tool for combating encroachment that can limit or restrict military training, testing, and operations. REPI funds can be used to limit development or use of property that is incompatible with the installation mission and/or preserve habitat to relieve current or anticipated environmental restrictions. In Fiscal Year (FY) 2019, Congress expanded the REPI program authority to allow the funding of projects that also support an installation's climate resilience, which also furthers DoD's efforts toward EO 13508's "Respond to Climate Change" objective. REPI does not increase DoD acreage but provides funding in a cost-share arrangement with partners who own land or hold easements and agree to manage land to preserve compatible land uses and/or natural habitats that sustain the mission. Within the Chesapeake Bay watershed, 13 installations maintain REPI program partnerships. \$71.4 million (M) in REPI program funds have been matched by \$97.0M in partner contributions and \$41.2M in other Military Service Funds. Combined, they have conserved a total of 42,528 acres of land through FY2020. Land protected through these partnerships includes wetlands, crucial wildlife habitat, cultural spaces, forested land, and agricultural areas.



PHOTO FROM 2020 REPI CHALLENGE FACT SHEET.

Search and rescue training at 2020 REPI Challenge award winning installation, NAS Patuxent River (MD).

Success Story:

Effectively Leveraging REPI Funds

Resilience initiatives in New Jersey leveraged \$720,000 of REPI funds to receive \$61M in partner contributions. Project initiatives such as beach nourishment, storm surge protection, and stormwater management will enhance resilience for five DoD facilities and 1.6M acres of land throughout the state.



The REPI program also holds an annual REPI Challenge to recognize and fund projects that demonstrate strategic and innovative approaches to preserving land with methods that accomplish multiple objectives. In FY2020, two installations within the Chesapeake Bay watershed (Naval Air Station Patuxent River and Naval Weapons Station (NWS) Yorktown) were awarded \$4M in REPI Challenge funding and that was matched with over \$15M in non-DoD funds to conserve over 4,900 acres. Descriptions of these projects were included in the Winter 2021 Journal, which can be found on the DoD CBP DENIX webpage at www.denix.osd.mil/chesapeake/dod-cbp-quarterly-journals/newsletters/winter-2021/Final%20Winter%202021%20Journal_S508%20Sealed%20final.pdf.

Sentinel Landscapes Partnership - Technical and Funding Resources

The United States Department of Agriculture, DoD, and Department of the Interior established the Sentinel Landscapes Partnership in 2013 to promote the shared land use priorities of the three agencies. Sentinel Landscapes are designated areas of land that, if preserved, would protect DoD installations from incompatible land uses. These partnerships encourage the strategic collaboration of federal agencies, state and local governments, and non-governmental agencies to strengthen military readiness, bolster agricultural and forest productivity, conserve natural resources, and increase access to recreation. Federal partners connect willing private landowners in designated Sentinel Landscapes with government assistance programs that offset the cost of implementing sustainable management practices or conservation projects on their properties.

Of the seven Sentinel Landscapes in the United States, the Middle Chesapeake Sentinel Landscape is currently the only one in the Chesapeake Bay watershed. A second Sentinel Landscape, the Virginia Security Corridor, is proposed. Projects within a Sentinel Landscape can receive priority status for some governmental assistance programs. Figure 1 displays an interactive graphic found on the Sentinel Landscapes website that summarizes different federal programs active in these Partnerships.

Optimizing Project Opportunities in the Chesapeake Bay through DoD Program Collaboration

Federal MIS funds, through OLDCC, can be used to develop CUPs. Their collaborative joint findings, recommended actions, and strategies can then provide the justification for project implementation funding through the REPI program. REPI funding can be matched with funds from any other federal program.

Within a Sentinel Landscape, REPI dollars are typically used to match and leverage USDA and DOI federal funds. Combining the assets of the federal government with those of state and local entities, Sentinel Landscape Partnerships can provide an advantage for installations seeking to preserve their military mission through land conservation or climate resilience projects.

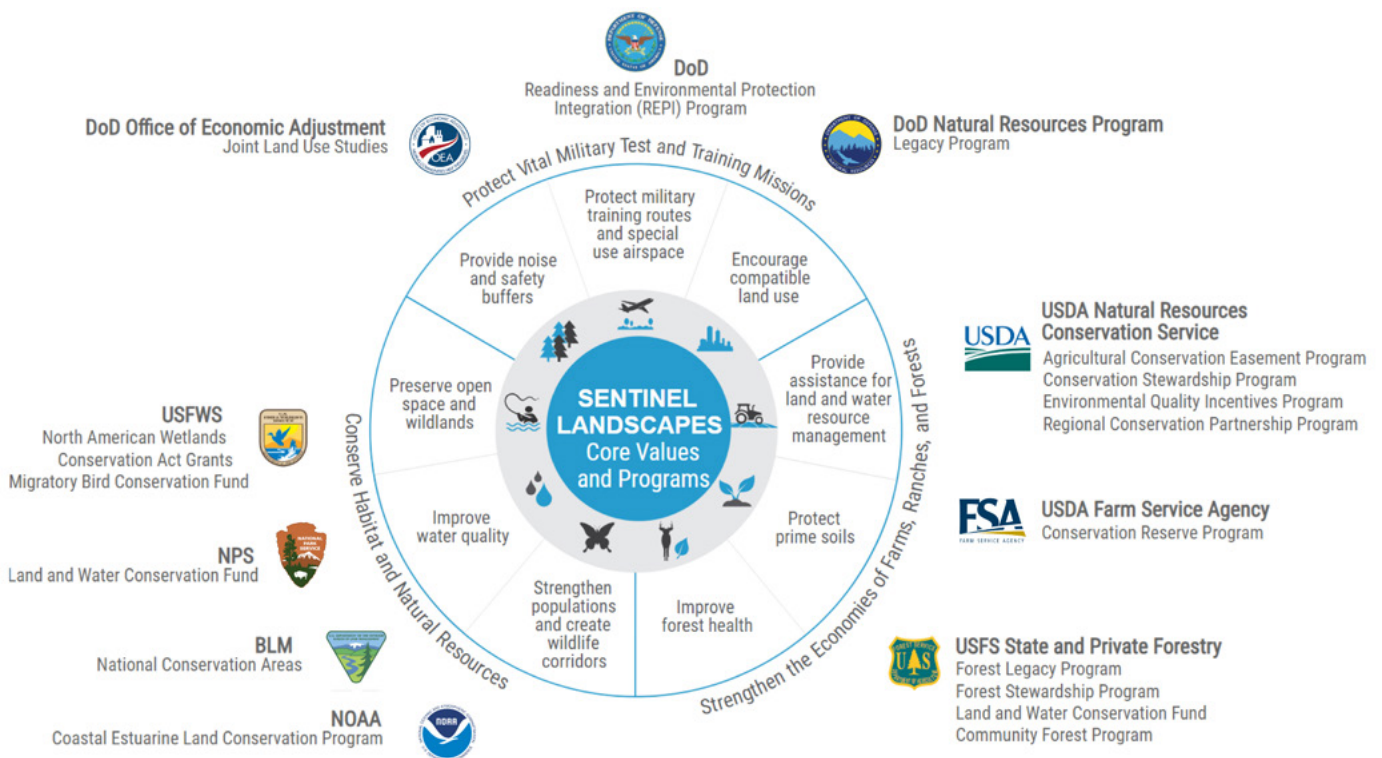


Figure 1: Federal programs active in Sentinel Landscapes. For more information of federal program involvement and resources, visit the Sentinel Landscapes website at sentinellandscapes.org/about/federal-programs/.



Program Overlap in the Chesapeake Bay watershed

- 31 installations have active CUPs
- 13 Installations with REPI partnerships
- 11 Installations with both REPI partnerships and completed CUPs

Recognizing the interrelated priorities of these three programs and leveraging the multiple sources of federal and non-federal funding provides an opportunity for DoD installations to maximize their return on investments to sustain the mission. Aligning these resources also provides the potential to accelerate the achievement of the DoD CBP's goals to improve water quality, protect natural resources, build climate resilience, or provide recreational access while also providing valuable co-benefits which help fulfill DoD's commitment to environmental stewardship.

Installations are encouraged to evaluate their existing needs to determine if there are opportunities to synergize the initiatives of the REPI, MIS, and Sentinel Landscape programs.

For installations that do not currently utilize these programs, consideration should be given to pursuing DoD resources and assistance from partners to develop a CUP or seek REPI program and Sentinel Landscape funding, where appropriate. For more information on these opportunities, refer to the REPI, MIS, and Sentinel Landscape webpages, the 2021 REPI Annual Report to Congress, and CUPs of other installations/regions in the Chesapeake Bay watershed.

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www.repi.mil/Portals/44/Documents/REPI_Challenge/2020_REPIChallenge_FactSheet_FINAL.pdf

REPI: 15th Annual Report to Congress. February 2021.
www.repi.mil/Portals/44/Documents/Reports_to_Congress/REPI2021RTC.pdf

Collaborating Enhances Best Management Practices (BMP) Design and Adds Natural Resource Benefits at Arlington National Cemetery

By Stacey Rosenquist, Environmental Compliance Program Manager & Kelly Wilson, Horticulturist, Arlington National Cemetery

Arlington National Cemetery (ANC) is a different kind of Army installation, with a unique mission and purpose. Its grounds honor those who have served our nation and provide a sense of beauty and peace for families and visitors. The rolling green hills are dotted with trees that are hundreds of years old, complementing the gardens found throughout the cemetery's 639 acres. This impressive landscape serves as a tribute to the service and sacrifice of every individual laid to rest within these hallowed grounds. Yet even here, within this special place, ANC partners with other organizations in exploring opportunities to protect the Chesapeake Bay watershed. One of the many ways DoD does this is by enhancing both the appearance and function of stormwater BMPs while maintaining the character of ANC.

In August 2018, ANC completed the Millennium Project, its most recent expansion. As a result, the cemetery grew by 27 acres, adding four new columbarium courts and several new burial sections. To address the stormwater impacts of the new development, ANC constructed stormwater BMPs around the site. They include rain gardens, underground treatment devices, permeable pavement, and a restored stream with a conservation area.

Columbarium Courts 10 and 11 include two complex urban rain gardens. Each columbarium features long curving landscape beds with smaller landscape beds within each court. The slightly depressed beds receive stormwater runoff from the surrounding hardscapes (Figure 1). Upon completion of the cemetery expansion project, the beds in each columbarium featured only locust trees. While these trees work well as a canopy, the ANC Horticulturist and Environmental Compliance Program Manager identified additional plantings to improve its appearance and function as a rain garden.



These ANC staff members teamed together to add middle-height and groundcover layers to soften the surrounding hardscape and provide additional stormwater management. They also identified a local group of certified Chesapeake Bay Landscape Professionals (CBLP) as a partner to collaborate on their project. As a result, ANC and CBLP held a “virtual” landscape design charrette. ANC and CBLP, along with the Groundsmith Collective landscape firm, presented information on local stormwater management, a history of ANC and its rain gardens, and sustainable design practices utilizing native plants. After the presentation and discussion on the site characteristics, the charrette participants broke out into four groups to design improved rain gardens.

Using elements from these four unique and creative designs, ANC’s Horticulturist created a final design to improve the function and appearance of the rain gardens. ANC planted evergreen holly (*Ilex glabra*) (Figure 2) and deciduous dogwood (*Cornus* sp.) shrubs in the fall of 2020 and additional perennials and shrubs in the spring of 2021. ANC selected these climate-adapted plants for their ability to thrive during harsh summer heat, humidity, and more intense periodic downpours.

Dogwood, holly, and ‘Sugar Shack’ buttonbush (*Cephalanthus occidentalis*) shrubs provide a middle-height vegetative layer adding to the original landscape design, which featured the tall locust trees. The pastel blue of the spring-blooming flowers of creeping phlox (*Phlox subulata*, see Figure 3) offer a colorful groundcover and greet families and visitors as they step into Columbarium Courts 10 and 11. Finally, to entice pollinators and provide another pop of color in the courts, ANC planted groups of bee balm (*Monarda bradburiana*) plugs adjacent to the phlox.

In addition to ANC’s perfect rows of marble headstones, curving roads, and graceful trees, ANC has many beautiful, ecologically rich, and diverse landscape features including rain gardens designed for improving water quality and pollinator habitat in the Chesapeake Bay watershed. In fact, as a result of ANC’s high standards of professional practices deemed important for arboreta and botanic gardens, ANC received Level III Arboretum accreditation in 2018. Visitors, families of the fallen, and various dignitaries may catch a glimpse of a goldfinch, colorful insects, or various pollinators, such as butterflies, moths, and bees as they pass by these picturesque landscape features. Natural beauty provides a comforting and calming atmosphere for the bereaved, all while restoring the Chesapeake Bay.



Figure 1: The original landscape design featured locust trees in Columbarium Courts 10 and 11.



Figure 2: In the final design, *Ilex glabra* provides winter interest with its evergreen leaves.



Figure 3: *Phlox subulata* offers a colorful groundcover.



Remediating Land and Supporting Green Approaches

Original article provided by and approved by Paul Corwell, Defense Services, adapted by Gabrielle Bryson, Brown and Caldwell.

Allegany Ballistics Laboratory (ABL), in West Virginia (WV), is a government-owned and contractor-operated facility under a lease managed jointly by Naval Sea Systems Command, NAVFAC, and the facility operator. The installation is conducting remediation as a result of historical activities on the site, including waste disposal, waste burning, and ash spreading. Investigations of soil and groundwater contamination detected volatile organic compounds (VOCs), specifically trichloroethene. If not removed, VOC exposure can lead to nervous system dysfunction or damage, allergic reactions, liver damage, and eye, nose, and throat irritation. In addition to the negative health effects for humans and animals, VOCs can also result in the formation of hazardous ground-level ozone, which damages plants, reduces agricultural yields, and can contribute to the formation of smog.

Remediation of several sites at ABL is required by law under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Soil and groundwater clean-up efforts will improve the quality of local soil, groundwater, and surface waters and contribute to the removal of toxic contaminants in the Chesapeake Bay watershed, which is one of the stated objectives in the Chesapeake Bay Watershed Agreement. The ABL Environmental Partnering Team tasked with these efforts consists of Remedial Project Managers representing the Navy, EPA, and the WV Department of Environmental Protection, as well as consultants contracted by the Navy. This article describes remedial activities and green initiatives at Site 1, also known as the Northern Riverside Waste Disposal Area, at ABL.



Aerial image of ABL in West Virginia.

PHOTO BY NAVSEA 041

Identifying Challenges

Site 1 encompasses 13.9 acres of land, including 8.5 acres known as the Active Burning Grounds (ABG) and 5.4 acres referred to as the OABG or Outside the ABG. The ABG is operated under a Resource and Recovery Act permit but contains several historical disposal units. The OABG was historically used for the disposal of various wastes (demolition debris, drums, and other metals debris), and for burning waste and spreading ash from the early 1960s until roughly 1981. Initial investigations to identify contaminants began in the 1980s and continued through the early 1990s and were followed by a focused Remedial Investigation conducted in 1994 to pinpoint the highest concentration areas. These investigations identified VOCs, specifically trichloroethene, as the most prominent contaminants of concern, which were mainly concentrated at operable units (OU) 3 and 4.

Operable Unit 3

Groundwater, surface water, and sediment remediation efforts at OU-3 are currently considered operational and functional in accordance with CERCLA with progress being made towards achieving the Remedial Action Objectives (RAOs) identified in a 1997 Navy Record of Decision. Remedial activities for OU-3 included the construction of a groundwater treatment plant (GWTP) to remove hazardous constituents from groundwater extracted at Site 1 beginning in September of 1997 with continuous operation being achieved in September of 1998. This GWTP is also used for Site 10 at the ABL. Treated water from the GWTP is discharged to the Potomac River.

Additional pilot studies and testing have been performed throughout the OU-3 clean-up period to further optimize the remedies' effectiveness and to ensure that human and ecological risk factors continue to be reduced. Ultimately OU-3 Receptor exposure to contaminated groundwater has been reduced by implementing the groundwater extraction system and land use controls. Contaminant sources are continually being reduced and ongoing long-term monitoring will continue until RAOs are achieved.

OU-3 is now considered to have reached the "Remediation in Place" milestone, indicating the completion of the Remedial Action Construction phase of the selected remedy and that operations are expected to meet project RAOs in the future. Site 1 groundwater continues in Remedial Action Operations phase, and the status continues to be updated in the annual site management plan.



Operable Unit 4

Remediation for OU-4 began in October 2015 with excavation and soil removal at the ABG. This soil removal was completed in November of 2015, except for one additional area being remediated in August of 2017 during the OABG remedial action (RA). Approximately 2,673 tons of soil were removed during the initial ABG RA excavation.

A baseline river protectiveness study involving collection of sediment, surface water, and benthic macroinvertebrate samples was conducted in 2015. Results of this 2015 study were used to evaluate ecological risks in the North Branch Potomac River adjacent to Site 1 and assess the potential impacts of the Site 1 OABG soil RA on the river. Methods and results from this study will be used as a baseline for conducting similar sampling efforts now that the Site 1 soil OU-4 action at the ABG is complete.

In May of 2017, the remediation plan for the OABG portion was finalized. Excavation and soil removal at the OABG were conducted from June 2017 to October 2019 followed by additional site restoration activities that were completed in December of 2020. With the remedy complete (removal of surface debris, excavation of contaminated soils and offsite disposal, and long-term management), Site 1 OU-4 is expected to be of no harm to human health and protective of the surrounding environment.

Prioritizing Green Initiatives

The Navy and contracted consultants proactively sought green initiative integration throughout the remediation activities at ABL. Methods of reducing energy, recycling materials, and minimizing waste were identified and integrated whenever possible. Green approaches taken specifically in FY2019 by the Navy and contracted consultants during Site 1 remediation include:

- ✓ Partnering with the ABL onsite operator to recycle used and discarded equipment and materials, such as an old air compressor, electric motors, scrap metal, plastics, and lead-acid batteries as part of their recycling program
- ✓ Reducing overall energy consumption with equipment upgrades and changes to the GWTP
- ✓ Lowering thermostat temperature by ten degrees Fahrenheit during the winter months

The accomplishments above were engineered by the ABL Tier I team and highlight the critical importance of the leadership and teamwork between the Navy, its contractors, and regulatory agencies to accomplish a shared set of conservation goals. The ABL Tier I Team was recognized as the Team of the Year and the Best Green Team of the Year for FY2018 for their achievements toward sustainable cleanup approaches. This recognition was awarded by the management representatives for the Tier I Team Members in the Mid-Atlantic region.

Restoring the soil and groundwater quality to a healthy state is a regulatory requirement and a restoration goal for the Chesapeake Bay watershed. While the toxic contaminant remediation initiatives at ABL were driven by compliance responsibilities, those involved in this ongoing project have gone above and beyond to complete its work in an environmentally conscious manner. The Navy, contracted consultants, and facility operators participating in this effort set an example for other site clean-up initiatives by proactively seeking effective, long-lasting, and valuable solutions to soil and groundwater contamination.



OFFICIAL U.S. NAVY PHOTO

ABL Environmental Restoration Partnering Team who were awarded the Tier I Green Team of the Year in 2018.



Upcycling Christmas Trees to Improve Recreational Fish Habitat

By Kristina Witter, Natural Resources Specialist, JEB Little Creek-Fort Story



PHOTO BY JEB LITTLE CREEK.

Image here and at the bottom of the page show volunteers participating in submerged Christmas tree placement at Lake Bradford on JEB Little Creek.

As any seasoned angler will tell you, one of the most important factors to fishing success is the quality of the fish habitat. A key feature is the presence of underwater structures, which many fish utilize for cover. Without refuge from predators, fish may remain inactive for much of the day or simply remain hiding in deep waters farther from shore. Therefore, without underwater structures, it can be difficult for anglers to find, reach, or engage their intended targets.

Adding structures to ponds and lakes not only improves conditions for anglers but also provides healthy habitats for spawning, juvenile nurseries, and areas for foraging. Furthermore, when they improve the diversity and productivity of local fisheries, these activities also support the goals and outcomes of the Chesapeake Bay Watershed Agreement and EO 13508 to restore habitat and sustain fish and wildlife. One method to improve habitat quality by adding structure involves submerging discarded natural Christmas trees. The trees create harborage for a variety of plant life and small fish near the shoreline. Additionally, the decomposing woody plant tissue

provides food for microorganisms and algae and encourages growth of new vegetation on the lakebed. This vegetation attracts snails and aquatic insects which act as a natural food source for baitfish. These baitfish, in turn, are prey for larger fish species targeted by recreational anglers.

Because of these potential benefits, JEB Little Creek-Fort Story annually conducts a Christmas tree upcycling program. The installation's Natural Resources Specialist solicits base commands and installation residents to voluntarily contribute to this effort as it serves multiple INRMP goals, including fish and dune habitat improvement, and supports the climate resilience of installation assets and natural resources by building and restoring dunes that protect against coastal erosion. Discarded Christmas trees were submerged in 2017 and 2021 to create and improve fishery habitats, including 55 trees that were transported to Lake Bradford on JEB Little Creek in 2021.

In preparation for tree placements, installation staff coordinated with the Virginia Department of Wildlife Resources (VADWR) for their expertise, assistance, and the use of their vessel to deploy the trees. Fisheries Biologists with VADWR manned the craft and additional volunteer assistance was provided by the installation's Morale Welfare and Recreation program, Amphibious Construction Battalion 2, and the NAVFAC Mid-Atlantic Planning and Conservation Branch. Using nylon rope, the Christmas trees were tied to cinder blocks to ensure they remained in place until they became waterlogged and sank to the bottom. The submerged trees can last for years, continuing to provide habitat for fish until the trees biodegrade completely. The cinder blocks also remain and continue to provide shelter for fish in the lake for a lifetime.

For more information about this annual event, contact Sharon Waligora at sharon.waligora@navy.mil.



PHOTO BY JEB LITTLE CREEK.



Chesapeake Bay Action Team Updates

By Heather Benson, Brown and Caldwell

Members of the CBAT convened for their quarterly meeting on 29 April 2021. Members reviewed ongoing Chesapeake Bay-related service and installation projects and activities and listened to three presentations.

Presentation 1: Climate Change and Stormwater Management

David Wood with the Chesapeake Stormwater Network (CSN) highlighted four reports developed by the CSN: the *Stormwater Stakeholder Climate Survey*, *Summary of Current Stormwater Design Standards*, *Synthesis of Chesapeake Bay Climate Projections*, and *BMP Vulnerability Analysis and Resilient Design Considerations* reports. The reports explore the current state of climate science, current and projected climate conditions in the Chesapeake Bay watershed, the preparedness of states and communities for climate change, and resilient design considerations for water quality and quantity control.

Presentation 2: Vulnerability Analysis & Resilient Design Considerations for Stormwater BMPs

Stephanie MacDurmon summarized the fourth CSN report, *BMP Vulnerability Analysis and Resilient Design Considerations*, and described how changes in climate conditions may impact the integrity and performance of stormwater BMPs, as well as resilient design considerations and adaptation for DoD installations to reduce these vulnerabilities. Currently, BMPs are designed using criteria that relies on historical precipitation data, but climate change is expected to change rainfall intensity, volume, and distribution in the Chesapeake Bay watershed. The consequences of climate-induced changes will affect both the water quality and water quantity performance of BMPs. Ms. MacDurmon highlighted the vulnerability of BMPs based on their location in one of four watershed zones: upland BMPs/low impact development, conveyance practices, ponds and constructed freshwater wetlands, and stream corridors/shorelines. The CSN has identified resilient design principles for stormwater infrastructure to prepare for future climate conditions. These principles include utilizing a comprehensive watershed management approach, applying size criteria that account for future conditions, using a full-cycle approach to implementation, adding redundancies (such as a treatment train), adding performance enhancers to buffer against future changes, and maintaining your existing systems. For planned BMPs, installations should consider practices that build resilience. A robust maintenance program will also be essential.

Presentation 3: DCAT

David Schulte provided an overview of the DCAT, a DoD web-based tool that provides a screening-level exposure assessment of installations for eight climate-related hazards. The DCAT assists installations in understanding the applicable climate hazards in their area and the necessary timing of action to mitigate and adapt. Mr. Schulte also provided examples demonstrating how the tool can be utilized on its own and combined with the Defense Installations Spatial Data Infrastructure (DISDI) portal. The DISDI is a geographic information system database that allows users to view climate exposure data and maps of all DoD installations.

Chesapeake Bay Service Leads and Installation Updates

- Cynthia Brown asked when installations should begin to plan for the cost of additional BMPs due to climate change. Kevin Du Bois replied that installations can begin now by programming for inspection and maintenance of existing BMPs.
- Jeffrey Saunders asked when DoD will know the expectations for climate change that will be included in the DoD 2022-2023 two-year milestones. Mr. Du Bois replied that he has asked the Federal Facilities Workgroup to identify which jurisdictions will require additional pollutant reductions and the amount.
- Mitch Keiler would like input from CBAT members on standards for climate-resilient culvert sizing and outfall design.
- Ms. Brown noted that House Bill 1144 proposes to establish a Puget Sound National Recovery Program Office within EPA. Mr. Du Bois noted this sounded similar to the structure of the Chesapeake Bay Program Partnership.

DoD Chesapeake Bay Program Updates

- The DoD CBP will collect information about environmental clean-ups conducted between April and June as part of Clean the Bay Day. If your installation is holding a clean-up event after Earth Day, please provide photos and information about the amount of material collected to Angela Jones.
- Congratulations to NWS Yorktown, which received the 2021 SECNAV Environmental Award for Natural Resources Conservation.

The next CBAT meeting is scheduled for 29 July 2021.



1510 Gilbert Street
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Norfolk, VA 23511
DoD/Don Chesapeake Bay Program Office

✓ Check it Out

FY2020 DoD CBP Annual Progress Report is now available on the DoD CBP DENIX webpage. Thank you to the individuals and installations that contributed to this year's report: <https://www.denix.osd.mil/chesapeake/dod-cbp-annual-progress-reports/index.html>

FY2021 BMP Datacall Release is approaching. The FY2021 BMP datacall will be released on 30 July 2021. Responses are due by 31 August 2021. The CBAT meeting on 29 July 2021 will include a training presentation for the FY2021 datacall.

Sentinel Landscapes Webinar: Land Management Innovations, REPI webinar, recorded from 2 June 2021. View the recording on the REPI Webinar Series page at www.repi.mil/Resources/Webinars/.

DoD Tackling the Climate Crisis Spotlight. Learn more about how the DoD is elevating climate change as a national security priority through stories, resources, and an overview of DoD efforts to integrate climate considerations in policies, strategies, and partner engagements. www.defense.gov/explore/spotlight/tackling-the-climate-crisis/

NWS Yorktown Wins 2021 SECNAV Environmental Award for Natural Resources, Military News. The Natural Resources Program at NWS Yorktown has been recognized for its innovative stewardship of natural resources at its installation. www.militarynews.com/news/naval-weapons-station-yorktown-wins-2021-secnav-environmental-award-for-natural-resources-conservation/article_d1b24d18-a394-11eb-a464-abb81158e8d6.html

CBAT Quarterly Conference Call and Meeting. The meeting will include an overview of the FY2021 BMP datacall, as well as a discussion on the DoD 2022-2023 two year milestones for the Chesapeake Bay watershed. 29 July 2021, 10:00 am to 12:00 pm. EDT.

Call in: 1.888.404.2493/Passcode: 629082042#

Web connect: <https://teams.microsoft.com/l/meetup-join/19%3ameetingODEzYjU4MjltYjVjNC00YjAyLTg3YWItZjkzMTI4ZWU0NDk2%40thread.v2/0?context=%7b%22id%22%3a%22cb2bab3d7d9044ea-9e31531011b1213d%22%2c%22oid%22%3a%22b354c18a-21034f2380e6-28159a0799be%22%7d>

This newsletter is produced by Brown and Caldwell under NAVFAC Atlantic A E Contract N62470 14 D 9022 for Support of Safe Drinking Water Act and Clean Water Act Environmental Compliance Program. For more information or to be added to the email distribution list, please contact the DoD Chesapeake Bay Program: <http://www.denix.osd.mil/chesapeake/home>.

