



DoD CHESAPEAKE BAY PROGRAM JOURNAL

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

Exploring the Great Outdoors on DoD Lands

By Sarah Diebel, DoD Chesapeake Bay Program Coordinator

As I mentioned in the last issue, the Department of Defense (DoD) Chesapeake Bay Program (CBP) team developed a series of editorial focus areas and featured articles surrounding specific Chesapeake Bay Watershed Agreement (Agreement) Goals and Outcomes that align with installation initiatives. This issue’s focus: public access and its relationship to DoD.

Public access is designated in the Agreement because without it, quality of life, local economies and long-term conservation would decline: “Increasing public access to local waterways for fishing, swimming, boating and other activities fosters a shared sense of responsibility and increased stewardship.”

203 Public access sites on DoD lands reported in FY2016



\$600k

Committed to future public access projects

DoD installations host a diverse range of land- and water-based public access options, including hunting and fishing programs, boardwalk and trail networks, boat launch sites, interpretive displays, fishing piers, wildlife viewing areas, marinas, and other recreation areas.

In 2009, DoD documented 31 existing public access sites in the “Landscape Conservation & Public Access in the Chesapeake Bay Region,” which was developed to fulfill section 202(e) of Executive Order 13508. In 2016, installations reported a total of 203 public access sites across DoD lands and facilities and multiple installations reported projects associated with creating or maintaining public access sites. In total, these installations devoted more than \$220,000 to these projects.

While full public access is limited, military installations provide opportunities for our service men and women, veterans, civilians, and their families to enjoy the recreational benefits we all know and love about the Chesapeake Bay and help them make a connection between their personal and local concerns and the well-being of the bay.

This issue highlights a few installations that provide an open door to our great outdoors and demonstrates DoD’s shared commitment to our military mission, the environment and our surrounding communities.

Bravo Zulu to the following installation representatives that made this issue possible by sharing information about their public access areas:

- Bridget Kelly Butcher, Garrison Adelphi Laboratory Center Blossom Point Research Facility
- Thomas Wray, Naval Support Facility Dahlgren
- Seth Berry, Naval Support Facility Indian Head
- Craig Kindlin, Letterkenny Army Depot
- Nicholas Hoffman, Fort Indiantown Gap
- Robert Stamps, Marine Corps Base Quantico

IN THIS ISSUE

Exploring the Great Outdoors

Connecting the Public to the Outdoors: Thousands of Acres on DoD Lands Enjoyed by Hunters and Anglers 2

Hiking, Biking, and More at Fort Indiantown Gap and USMCB Quantico4

ZooAmerica, Military Base Continue Cooperation to Save Butterfly Species in South Central Pennsylvania6

Other News

Understanding the Benefits of Urban Tree Canopy8

Chesapeake Bay Action Team Updates 11

Check it Out.....12



Connecting the Public to the Outdoors: Thousands of Acres on DoD Lands Enjoyed by Hunters and Anglers

By Heidi Franklin and Hee Jea Hall, Brown and Caldwell

DoD installations throughout the Bay watershed are home to a number of fish, waterfowl, small game, and other habitat. Many installations open select areas for hunting and fishing for active-duty military, installation employees, and in some locations, the public.

A number of special opportunities for hunters and anglers are held each year at installations throughout the Chesapeake Bay watershed that encourage participation among diverse groups. Letterkenny Army Depot (Letterkenny), in south central Pennsylvania, hosts hunts for Wounded Warrior active-duty soldiers from Walter Reed National Military Medical Center and for Hunt of Lifetime, Inc., a non-profit organization that provides hunting opportunities for children with life-threatening illnesses. Letterkenny is also open to the public for hunting and fishing. Hunting for white-tailed deer, turkeys, and small game is

open on most weekends throughout the Fall. Fishing for warm-water species such as bass and bluegills is open during designated periods at several small ponds and lakes within the installation.

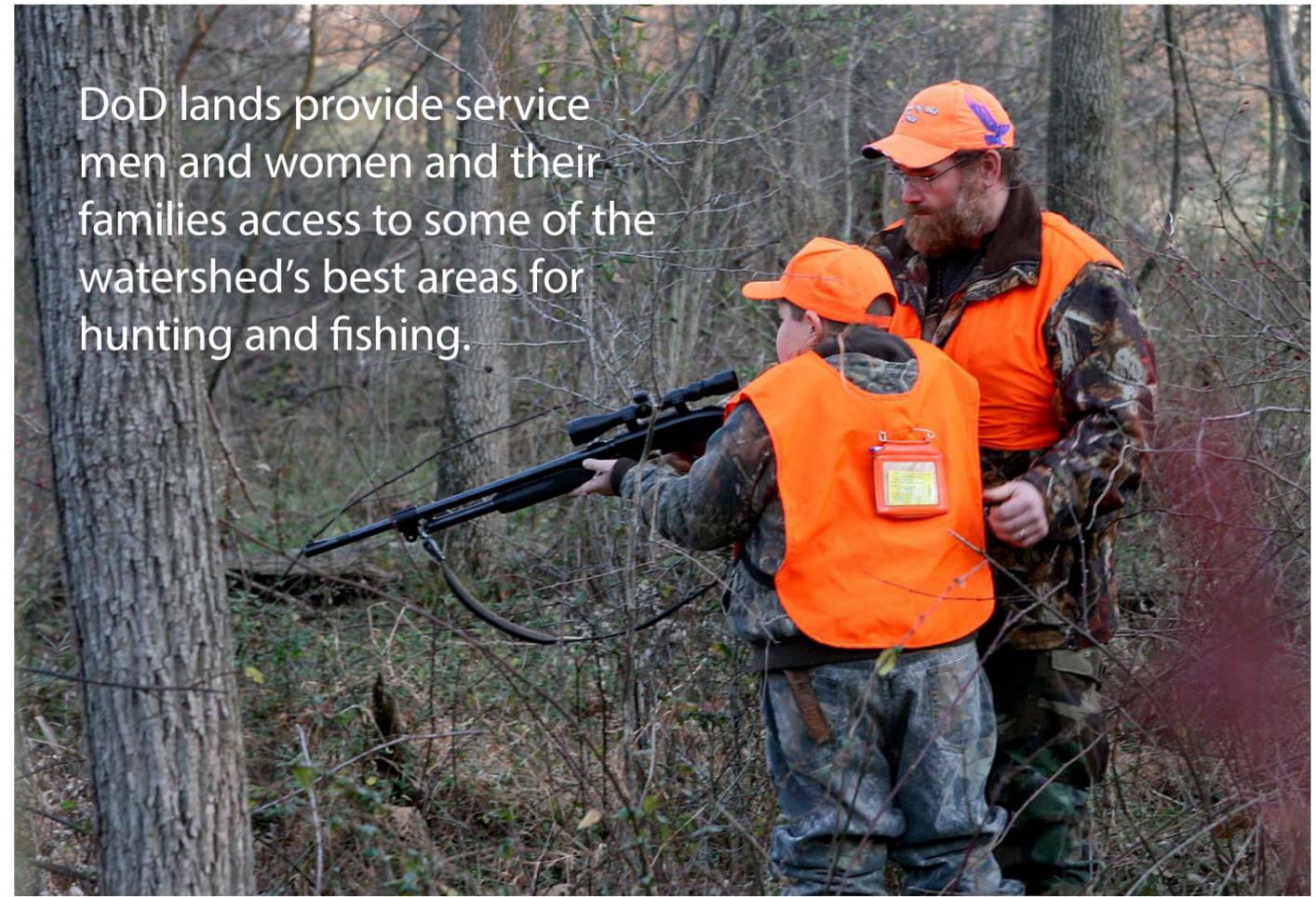
In southern Maryland, the U.S. Army Garrison Adelphi Laboratory Center Blossom Point Research Facility (BPRF) has hosted managed white-tailed deer hunts for the public since 1993. These hunts provide a safe hunting environment that attracts first-time and experienced hunters and help maintain sustainable levels of the deer population on installation grounds. BPRF's hunting program continues to expand the diversity of hunters by hosting the Maryland Department of Natural Resources (MDNR) Becoming an Outdoors Woman (BOW) Program. This two-day hunting event includes classroom and field training and shotgun qualifications. Due to BPRF's well-established program, some

participants have been hunting on the installation since they were junior hunters.

Naval Support Facility Dahlgren (NSFDL), located on the Potomac River in Virginia, provides hundreds of acres of land open to fishing and hunting. Approximately 100 fishing permits and 80 hunting permits are issued each year to active and retired military, and other personnel associated with the base. NSFDL provides hunters access to a number of game species. It also provides anglers the opportunity to fish along nearly two miles of river and creek shoreline, a 200-acre tidal marsh, and two ponds.

Dozens of young anglers-in-training learn to fish for rainbow trout each year at the Naval Support Facility Indian Head (NSFIH) annual youth fishing derby. NSFIH, located on the Potomac River in Maryland, also welcomes hundreds of hunters each season to its more than 1,500 acres that are open to white-tailed deer, turkey, waterfowl, and small game hunting. The base's ideal hunting grounds include tidal and non-tidal wetlands, forests, and 16 miles of shoreline, and are home to nearly 20 species of ducks and geese, white-tailed deer, and turkey.

A fishing pier at Naval Station Norfolk gives anglers an ideal place to cast for a number of Bay fish species. At USMCB Quantico, fishing is open to the public and offers anglers the opportunity to pursue a variety of sport fish including largemouth bass, bluegill, and catfish within three large impoundments and several ponds ranging from 5-16 acres. Brook trout are stocked in the spring for put and take and youth fishing events. The Potomac River and Quantico and Chopawamsic Creeks provide access to tidal freshwater fishing for largemouth bass and migratory fish such as striped bass and herring. Anglers can launch their boats from 10 boat ramps located throughout the base.



DoD lands provide service men and women and their families access to some of the watershed's best areas for hunting and fishing.

Letterkenny has hosted more than 4,000 hunting trips in the 2016-2017 hunting season.

Installations throughout the watershed host special opportunities for diverse groups of hunters and anglers, including Wounded Warrior active-duty soldiers and children with life-threatening illnesses.



MDNR BOW Program Workshop participants are given a tree stand safety demonstration (left) and participate in a shotgun qualification (right) at BPRF in Southern Maryland.



The military community can cast a line from Naval Station Norfolk's fishing pier for flounder, rockfish, bluefish, and other Atlantic fish.



Letterkenny's ponds and lakes are open to the public for fishing at designated periods throughout the year.



Hiking, Biking, and More at Fort Indiantown Gap and USMCB Quantico

By Heidi Franklin and Hee Jea Hall, Brown and Caldwell



USMCB Quantico's Chopawamsic Creek on the Northbank Trail includes a Wildlife Viewing Area (left) where visitors can enjoy an enhanced vantage point of the creek and its habitats, and launch access for canoes and kayaks (right).

Military installations are known as bases of training and operations, and for providing housing for military personnel. However, many DoD installations include lesser known features enjoyed every day by the military community and the public: thousands of acres of recreational areas including networks of trails designated for hiking, biking, and exploring the outdoors.

Every day at USMCB Quantico, located just outside of Washington, D.C., a vast 17-mile network of trails is enjoyed by hikers, bikers, runners, and walkers. The trails are also used by the military as part of their daily physical training. Dozens of trail signs and kiosks throughout the network help users find their way, and feature information about local flora. USMCB Quantico's Natural Resources and Environmental Affairs and Mountain Bike Club organize volunteer events to build and maintain bridges along the trails.

USMCB Quantico's popular Northbank Trail runs one mile along the lower end of Chopawamsic Creek and features the Chopawamsic Creek Wildlife Viewing Area, a raised platform where visitors can watch for large wintering flocks of geese, ducks, hundreds of tundra swans, migratory songbirds, ospreys, bald eagles, green heron, great egret, and great blue heron.

In south central Pennsylvania, Fort Indiantown Gap welcomes more than 2,000 visitors each year for activities including bird watching, fishing, walking, and picnicking. Located near Memorial Lake State Park, the installation's recreation areas are popular destinations for the public. These areas also provide soldiers, training at Fort Indiantown Gap, opportunities for rest and recreation without having to leave the installation.

The installation's public access areas include an interpretive nature trail running through a mitigated wetland site. With Fort Indiantown Gap located along the Kittatinny Ridge/Atlantic

Flyways, which channels millions of birds migrating through the region, it is one of Pennsylvania's most Important Bird Areas and provides access to bird watching associations for recording migrating birds of prey.

Shuey Lake, Marquette Lake, and approximately two miles of Indiantown Run are open to the public for fishing and are typically stocked with trout for the Pennsylvania trout fishing season. Installation personnel work with conservation organizations to stock the ponds and partner with volunteers from local school groups, scouts, conservation clubs, and birding organizations to assist with recreation site maintenance.

In Virginia, the Cove Marina at Joint Expeditionary Base Little Creek-Fort Story allows the military community to get out and enjoy the Chesapeake Bay. Boats are available to rent, and a boat ramp and moorage are available for boat owners. The full-service marina can also outfit visitors with bait, tackle, fuel, and marine supplies.



Signs placed along trails through Fort Indiantown Gap's wetlands, open to the public, educate visitors about the local ecosystem and the species that live there.



The Cove Marina at Joint Expeditionary Base Little Creek-Fort Story gives boaters direct access to the Bay.

Trails, wildlife viewing areas, and boat access at coastal installations give the military community an open door to the outdoors throughout the Chesapeake Bay watershed.



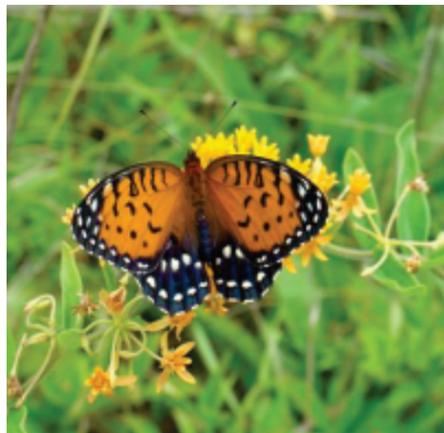
ZooAmerica and Military Base Continue Cooperation to Save Butterfly Species in South Central Pennsylvania

By Tech. Sgt. Ted Nichols, Fort Indiantown Gap

Over the past 30 years, the regal fritillary, an unmistakable large, orange and black butterfly, has disappeared entirely east of Indiana with the exception of the remaining population at Fort Indiantown Gap. The butterfly that looks like no other in the world, according to Mark Swartz, wildlife biologist at Fort Indiantown Gap, was once common throughout the Northeast and found in at least 39 counties in Pennsylvania.

Thanks to a cooperative project between Fort Indiantown Gap and ZooAmerica, the population at the Central Pennsylvania installation continues to be a stronghold, with a population estimated at 5,000 adults during the summer of 2015, according to Swartz. The project, which started in 2011, is in the middle of its fifth season raising regal fritillary butterflies for release into new areas of Pennsylvania, and is providing hundreds

The regal fritillary butterfly population at Fort Indiantown Gap continues to be a stronghold with a population estimated at 5,000 adults. The Fort opens private training areas each year to showcase this rare butterfly to the public.



Male Regal Fritillary (lower left); female Regal Fritillary (upper left); Regal larva in habitat (upper right); Regal pupa, possibly the only one photographed in the wild (lower right).

of people each year the opportunity to see this rare butterfly.

The project's annual process begins in the fall when fertile female regals collected at Fort Indiantown Gap are brought to ZooAmerica labs to lay eggs. In 2015, eight females were brought to the zoo and laid approximately 9,000 eggs, according to Fort Indiantown Gap research associate Erika McKinney. Once the eggs hatch into caterpillars, they are distributed among the zoo's lab facilities and butterfly houses, as well as active reintroduction sites. Once this process is complete, the remaining females are also released into reintroduction sites to live out the remainder of their four-month adult lives.

Since its inception, the project has added cooperative partners and received funding from several grants that contributed to the overall success of the project. One of those cooperative partners is the Pennsylvania Game Commission, which has become a partner for release sites. Several of these sites have already experienced success and efforts are continuing to expand these sites through this continuing cooperative project. The Pennsylvania Department of Conservation and Natural Resources' Wildlife Resource Conservation Program has been one of the major grant funding sources for the project.

Those interested in seeing this rare butterfly have the opportunity to do so each year. Fort Indiantown Gap showcases this butterfly to the public each year by opening up training areas normally closed to the public for tours of the habitat. Four dates are set aside for tours each summer with more than 500 people coming from around the world to see this rare butterfly. More information can be found at www.ftig.pa.gov and zooamerica.com.



Hundreds of visitors to Central Pennsylvania each year can view the once nearly extinct regal fritillary butterfly at Fort Indiantown Gap.



Understanding the Benefits of Urban Tree Canopy

By Mira Micin, Brown and Caldwell



What is urban tree canopy?

Urban tree canopy is the layer of leaves, branches, and stems of trees that cover the ground and provide important functions that benefit human and environmental health by:

- Intercepting stormwater runoff
- Removing air pollutants
- Sequestering carbon
- Lowering the urban heat index

Tree canopy can also reduce a utility's operating costs, as less stormwater runoff is routed to a facility for treatment.

Urban tree canopy (UTC) is an important issue for communities within the Chesapeake Bay region. While local studies on UTC have been performed in many areas including Washington D.C. and throughout Virginia, communities seeking information about UTC can also look to efforts outside of the watershed.

The City of Portland, Oregon completed a study that focused on collecting data to support future planting efforts, help develop public outreach and education programs, and quantify the benefits of UTC. Similar to studies performed locally, Portland's objective was to develop a blueprint for future planting efforts and identify locations where canopy needs were the greatest. The following research topics were identified:

Equitability: Does everyone benefit from and have access to the trees?

Resiliency: Is there enough species diversity to withstand climate change and pest/disease outbreaks?

Optimization: What does the distribution of trees look like? Where is there room for planting?

A unique aspect of the study was the involvement of over 1,000 trained volunteers from local communities. The volunteers helped to identify species type, size, condition rating, location, and planting site details for each tree species. The information collected was compiled into a database and Geographic Information System (GIS) program to develop a comprehensive map of UTC within the city.



The study developed a comprehensive map of UTC including tree locations, measurements, and conditions.



Data collected by more than 1,000 volunteers helped determine how to increase UTC throughout the city.

The data evaluation concluded:

Equitability: Lower income areas have on average less than 30 percent canopy cover, while some more affluent areas may have more than 90 percent tree canopy cover.

Resiliency: Portland has few evergreens, with more than a quarter of all trees from the genus Acer and Prunus, and few trees measuring more than 24 inches diameter at breast height.

Optimization: Many areas (residential and commercial rights-of-way) have no canopy, and some large sites were planted with mostly smaller young trees.

Based on this information, Portland developed outreach activities and informational brochures to engage citizens. New program funds are being directed towards citizen groups in low-income areas wanting to add trees to their neighborhoods. New brochures are being focused on public education, an important component in the effort to clean up the Chesapeake Bay, and locally relevant planting considerations.



Study volunteers helped to identify type, size, condition, location, and other planting details for each tree.

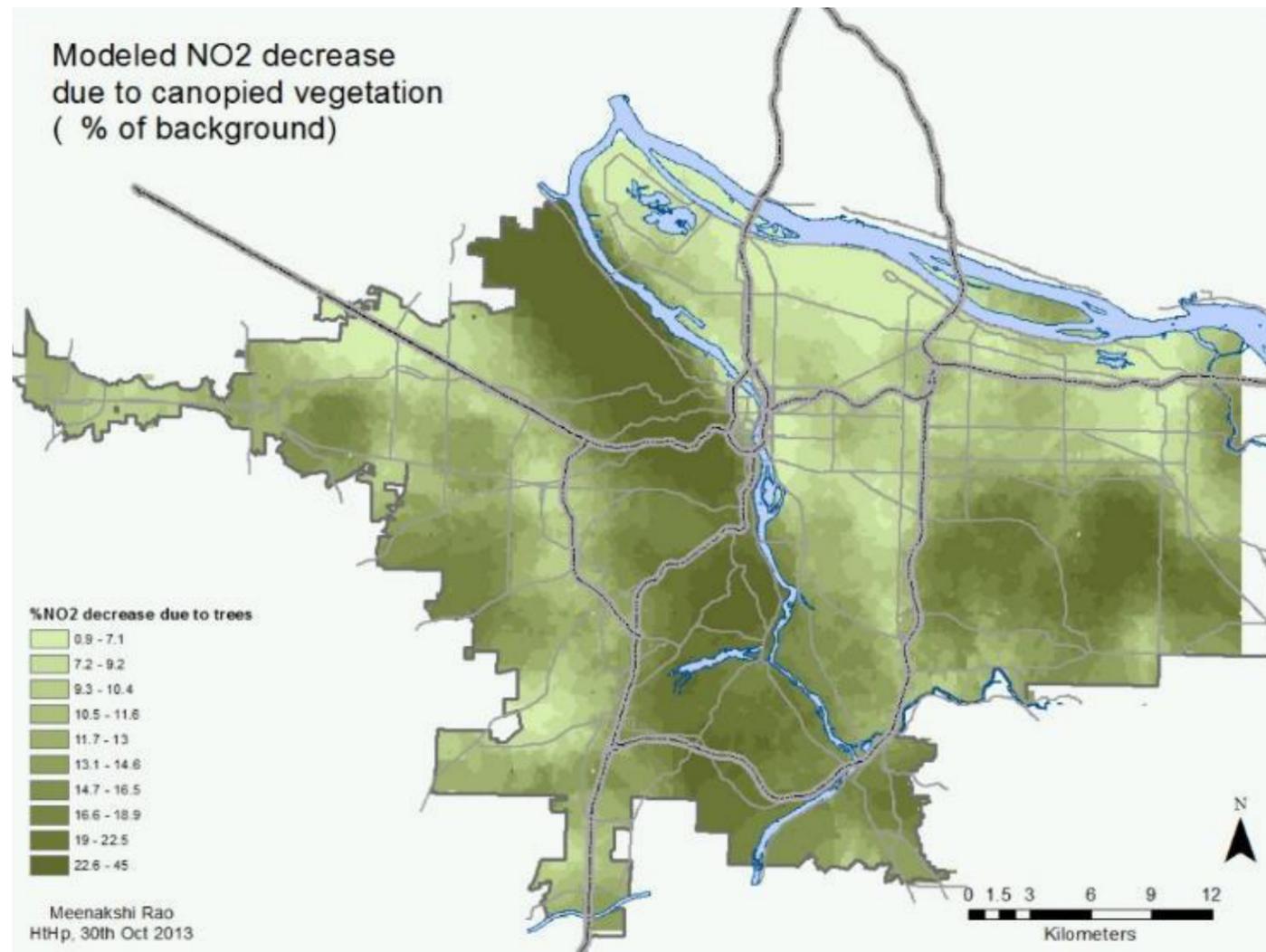


Understanding the Benefits of Urban Tree Canopy, continued

Portland also sought to quantify current benefits and estimate additional benefits from the planned increase of trees by studying modeled impacts to air quality and the urban heat index—factors that directly impact human health. Quantifying direct human health benefits may help provide additional justification for funding UTC programs.

The study measured NO₂ concentration and urban heat index values, and modeled expected NO₂ removal rates based on the number of trees. Portland developed several illustrations showing expected health benefits from NO₂ removal provided by the UTC and the locations most vulnerable to urban heat.

Communities within the Chesapeake Bay watershed have goals to increase UTC as part of the multi-state effort to clean up the Chesapeake Bay. Though many studies have already been performed in the Chesapeake Bay region, Portland's approach using local community volunteers and connecting UTC back to the health of its citizens is a good example on how efforts can be expanded. For more information about Portland's tree canopy programs, visit <https://www.portlandoregon.gov/parks/53181> or view the U.S. Department of Agriculture Forest Service's January 2017 webinar at <https://www.fs.fed.us/research/urban-webinars/integrating-experts/>.



Illustrations showing areas of highest NO₂ decreases correlate with increases in canopied vegetation are helping Portland educate its citizens about the benefits of increasing UTC.

Chesapeake Bay Action Team Updates

By Hee Jea Hall, Brown and Caldwell

Members of the Chesapeake Bay Action Team (CBAT) convened for their quarterly meeting on Thursday, January 26, 2017, to review progress on restoration and protection efforts around the watershed.

FY16 Phase I and II Datacall Process and Progress

Both phases of the FY16 Datacall are complete. In Phase I of the datacall, 63 installations responded from Maryland, New York, Pennsylvania, Virginia, and Washington D.C. Approximately 3,630 historical best management practices (BMPs) and 190 progress BMPs were submitted by installations to jurisdictions and then to the Environmental Protection Agency (EPA) for credit. In Phase II of the datacall, 53 installations responded, reporting 838 projects in FY16 to meet CBP and regulatory goals. Projects implemented or underway at installations throughout the watershed involve maintaining compliance, increasing tree canopy, encouraging citizen stewardship, protecting conserved lands, and increasing public access areas. Information captured in both phases of the datacall will be used to meet reporting requirements and communicated through various channels, including the DoD CBP's FY16 Annual Progress Report. These efforts demonstrate progress toward the restoration of the Chesapeake Bay and provide a strong foundation for future years of reporting.

FY2016 Datacall

96%	3,630	190	838
Participation	Historical BMPs Reported	Progress BMPs Reported	Projects Supporting CBP Goals

Federal and DoD BMP Reporting Results in the Chesapeake Bay Watershed Model

EPA representative Jeff Sweeney discussed how DoD's implementation of BMPs are distinguished in the Phase 5.3.2 and 6 models. The current Chesapeake Bay Watershed model evaluates pollutant load reductions from BMPs implemented between 2010 and 2016. The Phase 6 model, which will eventually replace the current Phase 5.3.2 model, will evaluate BMPs implemented as early as 1985. In addition to the model having the ability to tag BMPs implemented by DoD, by expanding the BMP reporting time frame and improving the BMP data collection process, model results from Phase

6 indicate a significant increase in the treated acres on DoD lands. For example, the Phase 5.3.2 model indicates that DoD maintained BMPs treat approximately 120 acres in Maryland, while the Phase 6 model includes approximately 6,500 acres. In Virginia, the Phase 5.3.2 model includes approximately 210 acres, while Phase 6 has over 7,500 acres of treated lands. The Phase 6 model will continue to be refined with data beyond 2017 so that model predictions align with actual data collected in the watershed. The Phase 6 Chesapeake Bay Watershed model is expected to be finalized in the summer. Preliminary Phase 6 land use datasets can be viewed at <http://chesapeake.usgs.gov/phase6/map>.

Next steps for individual jurisdictions include the development of Phase III Watershed Implementation Plans (WIPs) to meet 2025 goals and continuing to report through the annual datacalls. Nutrient reduction targets can be developed for each installation, using planning tools such as BayFAST (www.bayfast.org) and CAST (www.casttool.org), to establish the contribution that each installation will make toward meeting the CB TMDL.

Determining Submerged Aquatic Vegetation Coverage around DoD Installations

Submerged aquatic vegetation (SAV) is a critical habitat for many Bay fish species and a key contributor to enhancing water quality in the Bay. Through the CBP Partnership's SAV Workgroup and Aberdeen Proving Grounds' SAV Program, SAV data is being collected in and around DoD installations through aerial imagery and an ArcMap geographic information system. The DoD CBP plans to begin using this aerial imagery to estimate SAV acreages in addition to the SAV data collected from DoD installations through the annual datacalls.

Urban Tree Expansion Fact Sheet

The DoD CBP developed a fact sheet to help Bay jurisdictions understand recommended BMPs for urban tree canopy expansion. The fact sheet is based on the Chesapeake Bay Program Expert Panel report, "Recommendations of the Expert Panel to Define BMP Effectiveness for Urban Tree Canopy Expansion." The fact sheet is available for download at <http://www.chesapeakenetwork.org/resources/2017/01/23/urban-tree-canopy-expansion-fact-sheet>.



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

Check it Out

Naval Facilities Engineering Command Installation Adaptation & Resilience Climate Change Planning Handbook

The document, prepared for NAVFAC, is a desktop workbook to assist installation planners analyze and develop viable action alternative strategies to address challenges they face due to climate change. For more information: https://www.fedcenter.gov/_kd/go.cfm?destination=ShowItem&item_id=31041

April 20, 2017: Chesapeake Stormwater Network Webcast - Fall Leaf Collection and Street Nutrient Loads

This webcast will discuss an ongoing study measuring the reduction of phosphorus and other nutrients in stormwater through municipal leaf collection practices. For more information: <http://chesapeakestormwater.net/events/webcast-fall-leaf-collection>.

June 3, 2017: Chesapeake Bay Foundation 29th Annual Clean the Bay Day

Held Saturday between 9:00 a.m. and noon at sites all over Virginia. Some locations have different clean-up days or times. For more information: <http://www.cbf.org/events/clean-the-bay-day> or NAVFACML_EV-dodrecregion3@navy.mil (DoD information).

Through June 9, 2017: The Alliance for the Chesapeake Bay's Project Clean Stream Day

Cleanups will take place all Spring, from March 1 to June 9. DoD installations to contribute by hosting their own Clean the Base Day anytime between March 1 and June 9. Report your installations support to NAVFACML_EV-dodrecregion3@navy.mil. For more information: <https://www.allianceforthebay.org/our-work/key-program-focuses/building-stewardship/project-clean-stream>.

2017 REPI Webinar Series

This series showcases best practices, tutorials, and knowledge sharing on REPI partnerships that support military missions and accelerate the pace and rate of conservation. The complete REPI Webinar Series 2017 schedule is available at <http://www.repi.mil/Resources/Webinars>.

- April 12 - Conservation Finance Tools and Strategies
- May 3 - Annual REPI Help Session for FY18
- June 28 - The Gopher Tortoise Conservation Strategy as a Model to Protect At-Risk Species

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>.

