

Summer 2016

The

# Chesapeake Engineer

Magazine

*Engineering solutions for the mid-Atlantic & around the world*

## **Saving history by building a more resilient Annapolis**

**Cleanup operations completed  
in DC at former WWI research,  
testing site**

### Plus

Construction manager leads international team for large-scale missile defense project

Military Construction helps to increase student capacity and put essential military vehicles back on the road

Keeping Bay pollution at bay

New online flood maps for DC show when flood will hit and how hard

Comprehensive plan signed for Bay restoration

and more...



U.S. Army Corps of Engineers, Baltimore District

# The Chesapeake Engineer Magazine

Summer 2016

**On the Cover:** Crew on board the REYNOLDS, the Corps' steel debris vessel, approaches Mr. Trash Wheel, in Baltimore's Inner Harbor, April 4, 2016. Col. Ed Chamberlayne, commander, Baltimore District, visited Mr. Trash Wheel's team to discuss similarities in their respective missions toward creating a cleaner Baltimore Harbor. (U.S. Army photo by Cynthia Mitchell)

## Features

- 1 Commander's Message**  
Col. Ed Chamberlayne
- 2 Construction manager leads international team for large-scale missile defense project**  
By Clem Gaines  
Denis duBreuil receives national military engineering award for Aegis Ashore project in Romania
- 4 Increasing students' interest in STEM**  
By Cynthia Mitchell  
Photo collage of how the District is promoting careers in Science, Technology, Engineering and Mathematics
- 6 Dredging the Harbor**  
By Chris Gardner and Becca Nappi  
Infographic on dredging the Baltimore Harbor in fiscal 2016
- 8 Cleanup operations completed six months ahead of schedule at former WWI research, testing site in DC**  
By Chris Gardner  
High-probability operations completed at Spring Valley former munitions site
- 10 New facility puts military vehicles back on the road**  
By Clem Gaines  
Mission-essential vehicles reassembled in secured, modernized building to be built by Corps on Letterkenny Army Depot



- 11 \$16.8 million renovation ensures clean drinking water**  
By Clem Gaines  
Fort Detrick water treatment plant upgrades
- 12 No man is an island, but an island is this man**  
By Erica Janocha and Becca Nappi  
Doug Deeter to retire after 13 years working on Poplar Island
- 14 Volunteer fire department receives national award**  
By Cynthia Mitchell  
Marklesburg Volunteer Fire Department receives 2015 Excellence in Partnership Award for work at Raystown Lake
- 15 New wing and renovations completed at Defense Information School on Fort Meade**  
By Clem Gaines
- 16 Saving history by building a more resilient Annapolis**  
By Becca Nappi  
Flood risk management study in Annapolis, Maryland
- 18 Keeping Bay pollution at bay**  
By Sarah Gross  
Steps to reduce pollution from entering Chesapeake Bay
- 20 World's largest engineering provider, conservation grant-maker team up to restore nation's largest estuary**  
By Sarah Gross  
Corps, National Fish and Wildlife Foundation sign Chesapeake Bay Comprehensive Plan agreement
- 21 New online maps for DC show when flood will hit and how hard**  
By Sarah Gross

The mission of the U.S. Army Corps of Engineers, Baltimore District is to deliver vital public and military engineering services; partnering in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters.

## DoD Disclaimer

"The Chesapeake Engineer" is an official, authorized biannual publication of the Department of Defense that highlights the programs, projects and people of the Baltimore District. Contents of the magazine are not necessarily the official views of, or endorsed by, the U.S. Government, the DoD, or the U.S. Army. The editorial content of this publication is the responsibility of the U.S. Army Corps of Engineers, Baltimore District, Corporate Communication Office. Opinions expressed are not considered an official expression of the DoD or the U.S. Army. Any questions or ideas for content submissions can be directed to U.S. Army Corps of Engineers, Corporate Communication Office: CENAB-CC@usace.army.mil or 410-962-2809.

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Baltimore District Commander Col. Ed Chamberlayne (left) observes as John Kellett, designer and inventor of the Inner Harbor Water Wheel, demonstrates his ability to adapt the speed of the wheel in Baltimore, April 4, 2016. (U.S. Army photo by Cynthia Mitchell)

**W**e are all about people.

During my first year as the 67th commander of the Baltimore District, I've been amazed not just by the impact our projects have on communities and customers throughout the mid-Atlantic region, but also with the technical accomplishments, capabilities, and professionalism of our PEOPLE.

As you flip through the pages of this edition of the "The Chesapeake Engineer," I invite you to join Team Baltimore as we recognize the Marklesburg Volunteer Fire Department in Pennsylvania for their efforts to bring life-saving capabilities to Raystown Lake. Get to know Doug Deeter, who has dedicated the last 13 years of his life to the continued efforts of restoring Poplar Island, all after an already-stellar career in the U.S. Air Force. Walk with our geographers as they investigate ways to protect the people and infrastructure of Maryland's historic state capital from rising seas. See how we're supporting our military by providing a modern facility to help put critical military vehicles back on the road, and learn more about how we're helping to provide clean drinking water to our service members and their families at Fort Detrick, Maryland, among other projects!

# Commander's Message

While these stories represent merely a snapshot of what our team has accomplished, I would be remiss if I didn't highlight other significant achievements this year:

**Recruiting Facilities Upgrade Program:** Our Real Estate Team is making significant force protection improvements to DoD Recruiting Stations to protect our men and women in uniform.

**Intelligence and Security Command Secure Administrative and Operations Facility:** \$150 million award of a new facility in support of the U.S. Army Intelligence & Security Command at Fort Belvoir.

**Pennsylvania State Programmatic General Permit – 5:** Our Regulatory team has improved our general permit that supports activities in Pennsylvania, to include those associated with the natural gas industry.


**Lean, Clean and Green Sustainability Award:** Our Washington Aqueduct Team was highlighted for their recent sustainability improvements they have made and will make in the near future as they provide safe drinking water to the National Capital Region.

Very proud of our Office of Counsel team for being selected for the **Ramon J. Powell Award for Legal Scholarship** (Patricia Ryan, assistant district counsel) and for the **E. Manning Seltzer Award** (Michael Shields, attorney).

**American Recreation Coalition Beacon Award:** David Gray, visual information specialist, was recognized for his photography and videography of Baltimore District projects, especially for his coverage of nature and wildlife.

Lastly, I am enormously proud of our Corporate Communication team (who put this magazine together) for receiving some well-deserved accolades. Chris Augsburger, chief of our Corporate Communication Office, received the **Maj. Gen. Keith L. Ware Public Affairs Award** and **Thomas Jefferson DoD Award** for the **Best News Article**. Cynthia Mitchell and Sarah Gross were awarded in the annual **Herbert A. Kassner Journalism Contest** in the **Best Feature Photo** category.

Essayons!



COL Edward P. Chamberlayne, P.E.  
Commander and District Engineer

# Construction manager leads international team for large-scale missile defense project

## - honored with national military engineering award

By Clem Gaines

Aegis Ashore Missile Defense Complex, Romania.

**D**enis duBreuil, Baltimore District, deputy chief of Construction Division – North, has worked on numerous civil, military and interagency projects in his more than 40-year career with the Corps.

He relied on that breadth of experience to meet intense, complicated and high-profile demands for a significant Missile Defense Agency (MDA) project in Europe that resulted in the receipt of the 2015 Lt. Gen. Raymond A. Wheeler military engineering award from the Society of American Military Engineers.

DuBreuil led and mentored a 200-person interagency and international team in Deveselu, Romania, providing construction oversight and stakeholder coordination for the \$220-million Aegis Ashore project - the world's first fully-functional land-based version of the Aegis Ballistic Missile Defense System.

In 2015, the project to counter ballistic missile threats was one of the most complex and highly-visible projects within the entire Department of Defense.

DuBreuil worked on the MDA project from March 2015 to February 2016 – a position that was originally scheduled to last 120 days.

His decades of experience gave him the necessary skills to persevere through a 24/7 work schedule to overcome multiple obstacles ranging from technical challenges to personnel issues.

DuBreuil also provided the oversight and leadership to build a U.S. naval base at the project site – the first to be constructed in decades.

These two separate, but closely interrelated and interdependent, projects were constructed in open country, located several hours west of Bucharest, the capital of Romania.

The naval base was built on the remainder of the former Soviet Bloc air base that spreads across 430 acres and is now known as Naval Support Facility-Deveselu. Supporting more than 200 military members, government employees and specialized contractors, the facilities include a two-story combined barracks/dining facility

with morale welfare space; administration space and recreation functions; a public works facility, a general purpose warehouse; a medical facility; a lift station and a personnel and vehicle access control facility. Furthermore, the barracks/dining facility incorporates sustainable design principles and is planned to achieve Leadership in Energy and Environmental Design Gold certification.

Due to the remote location of Deveselu, temporary facilities, including a containerized housing area for approximately 100 Corps, Missile Defense Agency and Navy personnel, supported oversight and equipment installation during construction.

The entire project was daunting, according to duBreuil.

“We took an old Russian MIG fighter base, ripped it up and built a Navy base from scratch, including a water treatment plant and power generators for the radar system,” duBreuil said.

All of the materials had to come from the U.S., so the logistical “tail”

was lengthy, and it took weeks for materials to arrive. Also, while the prime contractor was a U.S. company, most of the workers were local.

“There was a lot of on-the-job training to ensure that the project was constructed to standards,” he said.

Both projects met the customer’s requirement for operational capability Dec. 18, 2015 – 13 days ahead of the American project deadline set by President Obama.



DuBreuil accepted the Wheeler medal for his achievements from Lt. Gen. Todd T. Semonite, chief of engineers and commanding general of the U.S. Army Corps of Engineers, May 26, 2016, at a ceremony in Phoenix, Arizona.

“Denis was incredible,” said Col. Matthew Tyler, commander, U.S. Army Corps of Engineers, Europe District. “He was able to manage the project under a grueling timeline, while keeping the team’s morale intact. Denis, without a doubt, earned this prominent honor.”

DuBreuil is no stranger to projects that are both large and critical to the customer. From his Harrisburg, Pennsylvania Area Office, he has supported flood risk management projects like the 16-mile-long Wyoming Valley levee project; the U.S. Army Medical Research Institute of Infectious Diseases replacement project on Fort Detrick, Maryland; and the Harpers Ferry Customs and Border Patrol Advanced Training Center, a \$53 million project. ■

## By the Numbers

# \$220-million

missile-defense project

# 200

-person interagency and international project team

# 13

days ahead of schedule the project was completed

# 900 tons

of steel used to assemble Aegis Ashore’s deckhouse structure

# 60 hertz

military specification power from **50 hertz** commercial Romanian power provided through construction of complex power plant

# 5,400

signals from hundreds of sensors, cameras, card readers, etc. through integrated security system

# 5,100

signals for building automation systems to reduce personnel needed on site

Photo: At left, Lt. Gen. Todd T. Semonite, chief of engineers and commanding general of the U.S. Army Corps of Engineers, stands alongside Denis duBreuil, deputy chief of Construction Division - North, Baltimore District, at a Society of American Military Engineers ceremony in Phoenix, May, 26, 2016. (Courtesy photo)

# Increasing students' interest in STEM

By Cynthia Mitchell



Pictured: Jeanne Judd, Baltimore District, chief, technical support group. At right, survey equipment used for demonstration. (U.S. Army photos by Alfredo Barraza)

More than 100 middle school students from across Maryland learned about blocking cell phone signals, surveying downtown city streets, and using science to pinpoint the origins of an epidemic as part of the annual "Easy as Pi" event hosted by the Baltimore Chapter of the Society of American Military Engineers, March 30, 2016, in Baltimore. The Corps participated in the outreach event designed to encourage students to pursue careers in STEM fields.



Lt. Col. Michael Ruppert, Baltimore District, deputy commander (seated, at right), and Dr. David Wilson, president, Morgan State University, participated in a ceremonial signing during the 4th annual Patuxent Environment and Aquatic Research Laboratory (PEARL) Open House in St. Leonard, Maryland, June 17, 2016. The newly-signed education partnering agreement will include cooperative research programs; mentorship and career advice; and the development of a program in which MSU students can obtain academic credit for work on Corps projects. (U.S. Army photo by Alfredo Barraza)



Baltimore District engineers Erin Cox and Marco Ciarla (front, center) worked closely with students enrolled in Johns Hopkins University's 2015/2016 Senior Design Capstone Course, in collaboration with Fort Meade Department of Public Works, to develop a problem statement, build a class curriculum, and provide technical resources for the students' final semesters. As part of this course, four sites were selected within the Burba Lake watershed at Fort Meade, Maryland to design best management practices to manage runoff into the Chesapeake Bay. (U.S. Army photo by Cynthia Mitchell)

## ■ Science, Technology, Engineering, Mathematics



The Corps welcomed more than 600 fourth-grade students to several of their recreation projects for a day of outdoor education and fun as part of Every Kid in a Park (EKIP), which is a White House initiative aimed at getting children to visit and enjoy America's public lands and waters. Pennsylvania-based Raystown, Tioga-Hammond and Cowanesque lakes each received a 2015 field trip grant from the National Park Foundation (NPF) that helped facilitate the children's visit. As part of NPF's Open Outdoors for Kids program, the EKIP transportation grant seeks to remove barriers to accessing America's federal public lands and waters, with special focus on underserved or urban communities. Pictured: Park Ranger Alicia Palmer. (U.S. Army photo by David Gray)

Children from Hillsmere Elementary in Annapolis, Maryland, prepare to release "Simba" into a wetland habitat on Poplar Island, May 5, 2016. The children participated in Terrapin Connection, a supplemental classroom program offered as part of Anne Arundel County Public Schools and Arlington Echo's Chesapeake Connections. Operating under a Maryland Department of Natural Resources Scientific Collection Permit, pairs of Northern Diamondback Terrapins are placed in classrooms in October and released in May or June of the following year at Poplar Island. During the project, students collect growth data, observe behaviors, learn care and husbandry protocols, and research the natural history of the Maryland state reptile. (U.S. Army photo by Cynthia Mitchell)



3

2

1

# Dredging the Harbor

By Chris Gardner

Infographic By Becca Nappi

## Fast Facts

### Where We Dredged

The U.S. Army Corps of Engineers conducted maintenance dredging in fiscal 2016 on four channels that are part of the larger Baltimore Harbor and Channels project.

### Why We Dredge

The Corps, in coordination with the Maryland Port Administration, conducts maintenance dredging of channels to ensure the continued viability of the Port of Baltimore and its facilities.

### What We Dredged

Substances found in dredge material include silt, mud, gravel, sand, clay and shell.







1

**Cox Creek Dredged Material Containment Facility**

This facility is managed by the Maryland Port Administration and is often used as a placement site for material dredged from navigation channels above the Key Bridge. Material dredged from navigation channels within the Baltimore Inner Harbor was placed here in fiscal 2016.



2

**Fort McHenry Channel**

~ 448,000 cubic yards dredged

3

**Seagirt Channel West**

~ 29,000 cubic yards dredged

4

**Brewerton Channel Eastern Extension**

~ 1.9 million cubic yards dredged

5

**Craighill Entrance Channel**

~ 631,000 cubic yards dredged

6

**Poplar Island**

For years, the Corps, in partnership with the Maryland Port Administration, has built up Poplar Island by beneficially reusing approximately 30 million cubic yards of dredged material (to date) from the Maryland Chesapeake Bay Approach Channels and the C&D Canal Approach Channels. Poplar Island, formally known as the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island, provides habitats for aquatic and wildlife species as well a much-needed site for the placement of material dredged to keep shipping lanes open in and out of the Port of Baltimore. Material dredged from Brewerton Channel Eastern Extension and Craighill Entrance Channel was placed at Poplar Island in fiscal 2016.



**By The Numbers**

~ = Approximately

= Federal Channels Dredged in Fiscal 2016

# Cleanup operations completed six months ahead of schedule at former WWI research, testing site in DC

By Chris Gardner

The large tan tent at 4825 Glenbrook Road in the Spring Valley neighborhood of the District of Columbia came down this May, approximately six months ahead of schedule, signifying the end of high-probability operations at the U.S. Army Corps of Engineers' cleanup site at this prestigious property.

This tent has become a regular site in the neighborhood during the past three years while expert teams dug up and removed items associated with the former American University Experiment Station (AUES), where the Army researched and tested chemical weapons during World War I.

The disassembling of the tent for the third and final time since it was first erected in early 2013 will be the most noticeable symbol of the beginning of the end to what has been a complex effort to remediate contamination associated with a former burial pit for both munitions and laboratory items from roughly 100 years ago.

"We were very excited to be able to tell the surrounding neighbors

that these operations were ahead of schedule," said Brenda Barber, Corps, Baltimore District, project manager. "Safety was always our top priority on this project; we employed a multi-layered approach to public safety and worked to keep the community constantly informed of our activities and all relevant safety protocols."

Excavations for this project took place within the tent, operating under negative pressure with three Chemical Agent Filtration Systems to reduce the risk of any chemicals escaping the tent and reaching the neighboring properties.

A Shelter-in-Place system was also designed as an additional safety precaution in case a chemical release had occurred at the same

time engineering controls failed. As part of the Shelter-in-Place system, nearby residents were trained to stay in their homes in case of emergency until the team provided an all clear. Notifications as part of the training were provided to the residents through various communication forms, including text messages, emails and phone calls. The system was tested monthly but never had to be activated.

***The most noticeable symbol of the beginning of the end to what has been a complex effort to remediate contamination associated with a former burial pit for both munitions and laboratory items from roughly 100 years ago.***

Crews first tore down the house that stood at 4825 Glenbrook Road in November 2012. Since then, the tent was disassembled and reassembled twice, covering three different footprints on the lot where high-probability operations took place.

When work began at the third and final tent location in February 2016, the Corps estimated it would

continue through the following winter; however, as crews excavated, they did not encounter nearly as much AUES-related material as they had under previous tents. While they removed concrete from the former structure's basement floor and house footings and more than 300 additional cubic yards of soil, only 9 pounds of glass debris was removed and no munitions-related debris or metal scrap related to AUES was encountered.

The next stages of the project are the careful decontamination and disassembly of the engineering controls and equipment used during the operations. Then the site will be readied for the completion of low-probability soil removal in the backyard area and in the footprint of the former driveway area of the residence.

The Corps estimates the entire 4825 Glenbrook Road Project will be completed in summer 2017. At completion, the lot will meet residential cleanup standards and be returned to the property owner. ■



Above: Engineering Control Structure, tan tent, and other aspects of the multi-layered approach to public safety at the 4825 Glenbrook Road cleanup site are visible among the homes in the Spring Valley neighborhood in the District of Columbia, Feb. 4, 2016. (Courtesy photo)

Below: Soil is excavated and sifted for debris as part of the cleanup efforts at 4825 Glenbrook Road in the District of Columbia, April 25, 2016. (Courtesy photo)

## By the Numbers

Crews have removed:

**600 pounds** of glass

**151 pounds** of

metal debris

**10** 75mm munitions

debris items

**39** intact glass containers

**2,000 cubic yards** of soil

Crews begin demolishing the house at 4825 Glenbrook Road in the District of Columbia, Nov. 29, 2012. (U.S. Army photo by Chris Augsburger)



# New facility puts military vehicles back on the road

By Clem Gaines

Officials from the U.S. Army Corps of Engineers, Baltimore District, and Letterkenny Army Depot celebrated

starting construction on a 45,000-square-foot, \$14-million maintenance facility addition in Chambersburg, Pennsylvania, March 16.

The future Component Rebuild Facility annex is an extension of Building 350, where a variety of heavy-duty military vehicles will be disassembled, put through a rigorous corrosion-control and painting processes and then reassembled to return to active service.

Baltimore District is providing key project support in contracting, construction management and project management. The District's Military Design Branch worked closely with Letterkenny officials on all of the design elements for this unique government production facility.

"Baltimore District in-house design team used a wide variety of disciplines, tackled complex site challenges and unique industrial requirements, assisted by the Clark Nexsen architectural and engineering firm for specific design elements," said Fran Young, Baltimore District architect.

The new annex will be attached to Building 350 with a permanent canopy and will physically spread out the industrial maintenance process by adding space and capabilities.

Mission-essential vehicles and equipment will be taken apart and reassembled in a secured, modernized building and not outside when construction is completed during summer 2017.

"The new annex will house the early steps in the industrial treatment process and allow the entire

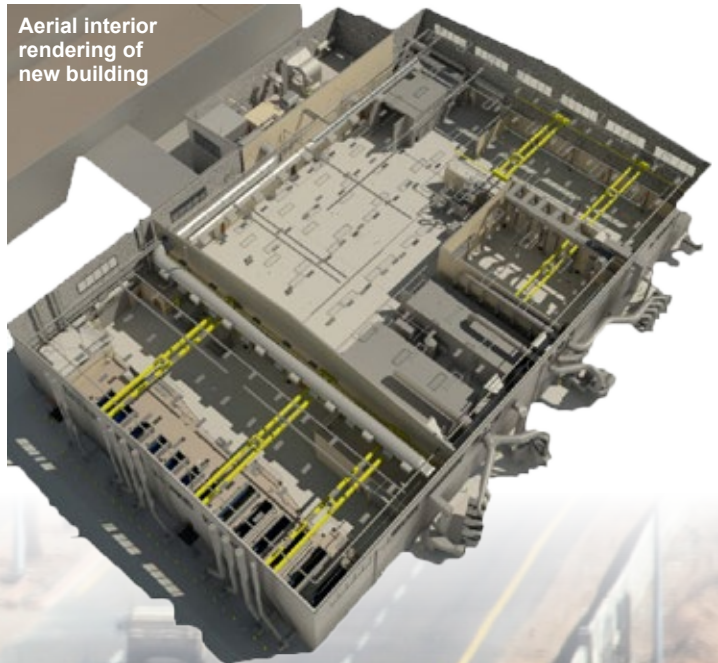
process to expand in both floor space and volume due to increased efficiency," said Carrie Ouellette, Baltimore District project manager. "It will house industrial dip tanks, bridge cranes, media blast booths for removing finishes, parts washers, sanding area, thermal spray booth and a shelter-construction area."

"The equipment serviced at Letterkenny includes Patriot missile shelters and launchers, all Army route-clearance vehicles including the HUMVEE, and Sentinel radar systems, and mobile-artillery rocket systems," said Steve Dale, Letterkenny Army Depot director for industrial operations.

Additional assets processed through Building 350 include forklifts, cranes and Patriot missile generators.

"For every project, large or small, the Corps is a team of teams, and this project is a superb example of that reality," said Maj. Dana Savage, Baltimore District deputy chief of staff. "I am confident that excellent coordination between the project stakeholders, including the leadership here at Letterkenny, the Baltimore District, and Odyssey International will make this project a success."

Originally established as an ammunition depot, Letterkenny Army Depot is known as the center of industrial and technical excellence for air defense and tactical missile systems. The increased efficiencies this expansion project will provide helps ensure the continued mission-essential execution at the Depot. ■



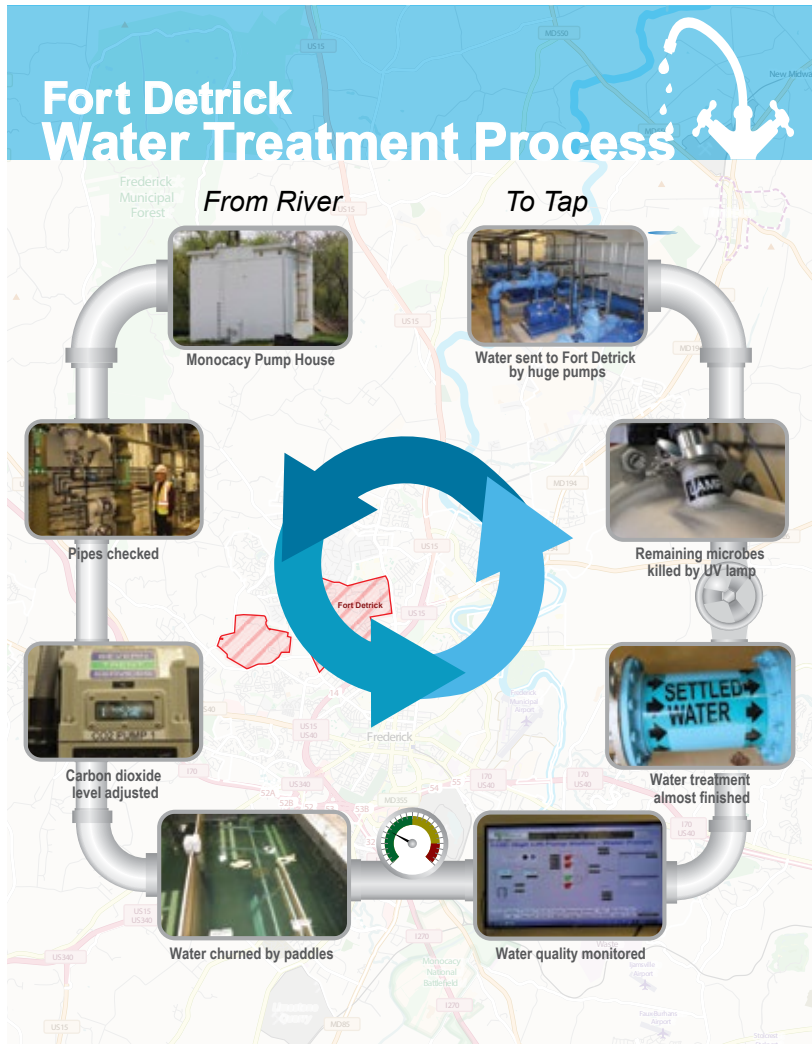
Marines and sailors with the 24th Marine Expeditionary Unit drive Humvees toward the border of the Kingdom of Jordan during an exercise, May 7, 2012. (U.S. Marine Corps photo by Cpl. Michael Petersheim)



# \$16.8 million renovation ensures clean drinking water

By Clem Gaines

Infographic By Alfredo Barraza



## Water Treatment Glossary

- **Flocculation** - To add chemicals to the untreated water to cause particles to join together to allow them to settle more rapidly
- **pH** - The level of acidity in the water
- **Sedimentation** - Particles being settled out in suspension
- **Turbidity** - The cloudiness or haziness of water caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is a key test of water quality.

## Q&As

- 1) How many upgrades has the Fort Detrick water treatment plant had since the early 1940s?**  
About 10.
- 2) What is the biggest operating change with the 2016 renovation?**  
It went from a fully-manual operation (technicians turning valves, adding chemicals, pulling samples from various locations) to network-controlled, with delivery volume based on usage and demand.
- 3) What is unique about this water treatment plant?**  
It is the first water treatment plant in Maryland to use a stand-alone UV system for disinfection.
- 4) Can the plant respond to changing requirements?**  
Yes, the plant output can be increased from minimum to maximum outputs in minutes versus hours, while still maintaining water quality.
- 5) How does the plant adapt to changing river conditions?**  
New plant operations can account for any river water condition and apply the necessary chemicals to efficiently treat river water to water that meets or exceeds Maryland and EPA-mandated levels for clarity, taste, and drinkability.
- 6) What do you do with the sediment and particles that drop out during the process?**  
All sediment is treated and dewatered on site and is environmentally safe for disposal.

# No man is an island but an island is this man

By Erica Janocha and Becca Nappi



The time has come for one of Poplar Island's most popular inhabitants to set sail for the mainland one last time.

While the island has seen its fair share of Corps employees and visitors from around the world, a mere few can call the engineering and environmental marvel their second home.

Construction Representative Doug Deeter will retire from the U.S. Army Corps of Engineers, Baltimore District, after 13 years of service - all of which were spent entirely on the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island.

"Everybody comes out here for two hours and goes 'Woah, how great is this?' And then go back on the boat and get out of here. But I'm here for 10 to 12 hours a day, almost every day," Deeter said.

Rain or shine, winter or summer, weekday or weekend, you'll find Deeter stoically dressed in his weathered hard hat, glowing safety vest, and muddy work boots, fully prepared for whatever Poplar Island has in store for him that day.

"You always know Doug is in control of a situation," said Justin Callahan, Baltimore District, Poplar Island project manager.

Callahan has been with Deeter since the beginning, observing an unflappable man that radiates endless commitment and heart to a

project that has become much more than just a project to him.

"Doug is the eyes and ears of Poplar," Callahan said.

A typical workday for Deeter is a far cry from a typical employee's office setting in a cubical farm. He starts his day at 3:45 a.m. with his early morning workout, and makes it out the door by 5:00 a.m. for his hour-and-a-half trek to Tilghman Island, Maryland. From there, he still has a 30-minute boat ride until he arrives at his home away from home.

Once on Poplar, Deeter observes and monitors the various agencies and contractors that operate on the island.

In Deeter's eyes, working on Poplar Island is about as good as it gets.

"Every day is different," Deeter said. "Every day even the island looks different."

## How it all began

Before his time as Poplar's resident expert, Deeter served active duty in

the U.S. Air Force and retired as a senior master sergeant. Following his enlistment, he served for seven years as a facility manager for an England hospital.

After marrying a fellow airman, Deeter was brought back to the states when his wife was stationed at Dover Air Force Base.

He began his journey at Poplar in 2003, though it did not start off in the simplest of ways.

***"His boundless dedication and unique talents are seen in every crevice of Poplar Island. When stepping foot into his Island trailer, it's easy to see how Deeter has integrated Poplar into every facet of himself as well."***

When he first arrived, Poplar had just been hit by Hurricane Isabel, which had breached two dykes. Emergency dyke repairs, inflow, and scheduled dyke raising were a lot to take in at once for the average employee. But for Deeter, after only two weeks with an engineer to familiarize him with the project, he hit the ground running.

## A man takes on an island and an island takes on a man

Overseeing the construction of an island isn't a typical résumé bullet, but, then again, not much about Deeter is typical.

Deeter's boundless dedication and unique talents are seen in every crevice of Poplar Island. When stepping foot into his Island trailer, it's easy to see how Deeter has

integrated Poplar into every facet of himself, as well.

From Deeter's hand-made, recycled shelving units composed of drift wood and leftover construction cinderblocks to his desk lamp made of driftwood, old rope and washed up fishing lures; he's seen the beauty and opportunity in even the smallest pieces of Poplar. If you look closely at his office collection of ukulele's, three string guitars and cigar boxes, you'll see that at the base of his craftsmanship are turtle shells that he has discovered on Poplar throughout the years.

Deeter's thrifty and creative spirit will never be lost on the Island. At the entrance of Poplar sits a massive anchor that greets visitors and workers alike to the unique environmental treasure that is Poplar. This has become Deeter's most cherished project.

In 2008, one of the restoration cells was undergoing water pumping to recover sand in the dredge material. While the cell was draining, Doug noticed something protruding from the ground in the middle of the cell. Deeter snagged his kayak and paddled out to investigate the mystery object. Turns out he had discovered a barge anchor. It took a dozer and a crane to successfully retrieve the anchor from the cell. Deeter thought it would look "cool" as the centerpiece of the Poplar entrance docks.

"...Nobody knew I did it," Deeter said. "Everybody was really excited, because now it's a focal point when people arrive. So that was my project."

### **Weathering the storm**

While visitors experience Poplar and its anchored entrance at its best, Deeter knows all the quirks of island life all too well - with plenty of nail-biting stories to share.

Being on an island, it's only natural that things wash up on Poplar's shores. Deeter has witnessed a massive deceased sea turtle, an unmanned naval submarine the size of a pickup truck, and even a human corpse.

He also knows what comes when the first frost hits ashore.

In the winter, the wildlife leaves, and the weather can be brutal, and he's experienced his fair share of inclement weather on Poplar.

"If you're on the island," Deeter said, "you're not going anywhere."

From high winds to freezing temperatures, not much has rattled Deeter's unyielding persona. He did recall, however, one nerve-racking situation when dangerous weather forced him to leave Poplar in four to five foot swells and 50 mph winds.

### **What's next?**

Deeter leaves Poplar in September 2016.

His unwavering composure and no-nonsense approach coupled with his dry sense of humor has made him an excellent source for resolving conflicts amongst agencies that might not have always seen eye-to-eye on unpopular Poplar matters. Those who have had the opportunity to work with him say he is the glue that holds everything together on Poplar.

When asked what he will miss most, Deeter gleamed with his love for everything Poplar Island.

"Just the whole thing... the whole project. And the people, the team," he said. "Everyone from the different agencies I've had the opportunity to work with over the years have been fantastic. It's always been a complete team effort, that's what I've always liked about it from the start."

Deeter will retire to a life filled with plenty of hiking adventures with his new Pembroke Welsh Corgi puppy and his wife. He's looking forward to having more time to spend on his unique crafting hobbies and seeing his daughter, who coincidentally also works on an island - Hawaii.

Deeter will undoubtedly be missed by anyone who has had the pleasure to work with and learn from him.

"He's a huge part of the success of the project, no doubt about it," Callahan said. "I'm not exactly sure how we are going to replace him. Doug is one of a kind."

But Deeter finally thinks "it's time" to start his new chapter. And it's not likely to begin behind a desk. ■



Top - U.S. Army photo by Cynthia Mitchell; Below four photos - U.S. Army photos by Becca Nappi

# Volunteer Fire Department receives national award

By Cynthia Mitchell

The U.S. Army Corps of Engineers, along with the Corps Foundation—the official non-profit for America’s lakes and waterways—awarded the Marklesburg Volunteer Fire Department (MVFD) the 2015 Excellence in Partnership Award during a ceremony in Marklesburg, Pennsylvania, April 6, 2016. The national award, now in its 15th year, recognizes exceptional contributions by a partner to the Corps’ many recreational and environmental stewardship programs.

MVFD was nominated by staff at Raystown Lake, a Corps flood risk management and recreation project in central Pennsylvania. The volunteer company has served the Raystown community with first responder services since 1950, covering an expansive area including Marklesburg Borough, as well as Penn, Lincoln, Hopewell, Todd, and Juniata townships.

Award-winning efforts include marking, mapping, and accessibility to the nationally-recognized Allegrippis Bike Trail System. These methods drastically improve the volunteers’ ability to swiftly locate victims of biking injuries throughout the 3,000-acre remote area. MVFD also successfully fundraised more than \$100,000 to secure from the U.S. Coast Guard a 25-foot Aluminum Safe V-Hull Fire and Rescue boat that is fully equipped with remote-operated underwater camera vehicle and SCUBA team recovery equipment.

MVFD has also worked alongside the Corps during water safety awareness programs, such as the annual Glow Swim, a nighttime swimming event that teaches children to swim with a buddy and to wear their life jackets; Critter Night, a program that uses mascots from other agencies and partners to promote water safety; and Smokey Bear’s Birthday Party, which introduces young park visitors to fire safety.

The award ceremony was held in MVFD’s fire hall and was attended by MVFD, Corps, and Corps Foundation staff, as well as family members and friends, including several Huntingdon County commissioners.

Edward Belk Jr., chief of the Operations and Regulatory Community of Practice within the Directorate of Civil Works at the U.S. Army Corps Headquarters, extended praise on behalf of Lt. Gen. Thomas P. Bostick, commanding general at the time for the U.S. Army Corps, before presenting the award. He also stressed the importance of partnerships not only at Raystown Lake, but nationwide.

“The Corps of Engineers doesn’t do anything by itself. Volunteers have provided over \$56 million worth of value in both people and financial resources in making our recreation sites great,” said Belk. “MVFD has been an extraordinary partner at Raystown, and their tremendous efforts have made them the right choice for this award.”

Project Manager Capt. Kelly Giraud provided remarks during the awards

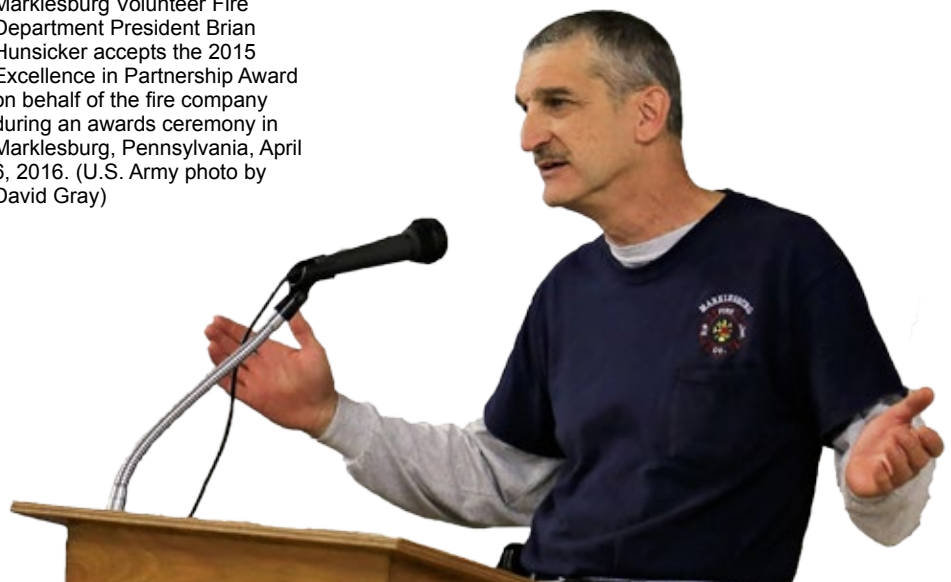
ceremony on behalf of the U.S. Army Corps of Engineers, Baltimore District.

“Our partnership with the MVFD has resulted in improved emergency response and better service to Raystown Lake visitors. Whether it be on a mountain biking trail or on this beautiful lake enjoying the natural resources that surround us, we can all feel safer knowing that emergency services can get to us quickly, if needed,” said Giraud.

The award was accepted by MVFD President Brian Hunsicker, who stressed the importance of cooperation among many groups in the area, including the Friends of Raystown Lake and the Raystown Mountain Bicycling Association.

“The community around here overwhelms us with support,” said Hunsicker. “I hope we can continue our partnerships, and continue to move forward, as we always have.” ■

Marklesburg Volunteer Fire Department President Brian Hunsicker accepts the 2015 Excellence in Partnership Award on behalf of the fire company during an awards ceremony in Marklesburg, Pennsylvania, April 6, 2016. (U.S. Army photo by David Gray)





# New wing and renovations completed at Defense Information School – will increase student capacity by 30

**percent** By Clem Gaines

Col. Ed Chamberlayne, U.S. Army Corps of Engineers, Baltimore District, commander, joined senior public affairs officials, faculty and students to open the new wing at the Defense Information School (DINFOS) on Fort Meade in Maryland, March 11, 2016.

Baltimore District designed and constructed the \$35-million project that includes 62,000 square feet of renovations in the existing facility and an 88,000-square-foot new wing that is expected to increase student capacity by 30 percent.

DINFOS offers accredited courses to U.S. military, Department of Defense civilians and international military personnel in broadcasting, journalism, maintenance, multi-media communication, photography, public affairs and videography. The school has graduated more than 100,000 students – both domestic and international - during its 50-year history.

“DINFOS provides an active learning environment that strives to keep current in each of its mission areas,” said Col. Martin Downie, DINFOS commandant.

In 2008, Defense officials recognized the advancing needs in visual and written communication capabilities. A multi-disciplinary team from the Baltimore District’s Military Design Branch designed the facility by taking into account both the anticipated student and staff growth and the evolving visual, print and broadcasting technologies.

Larry Young, Baltimore District registered architect, led the design on the renovations in the existing building as well as the entire new wing. Young designed the existing DINFOS building when it moved to Fort Meade in the 1990s, which made him uniquely qualified for the job.

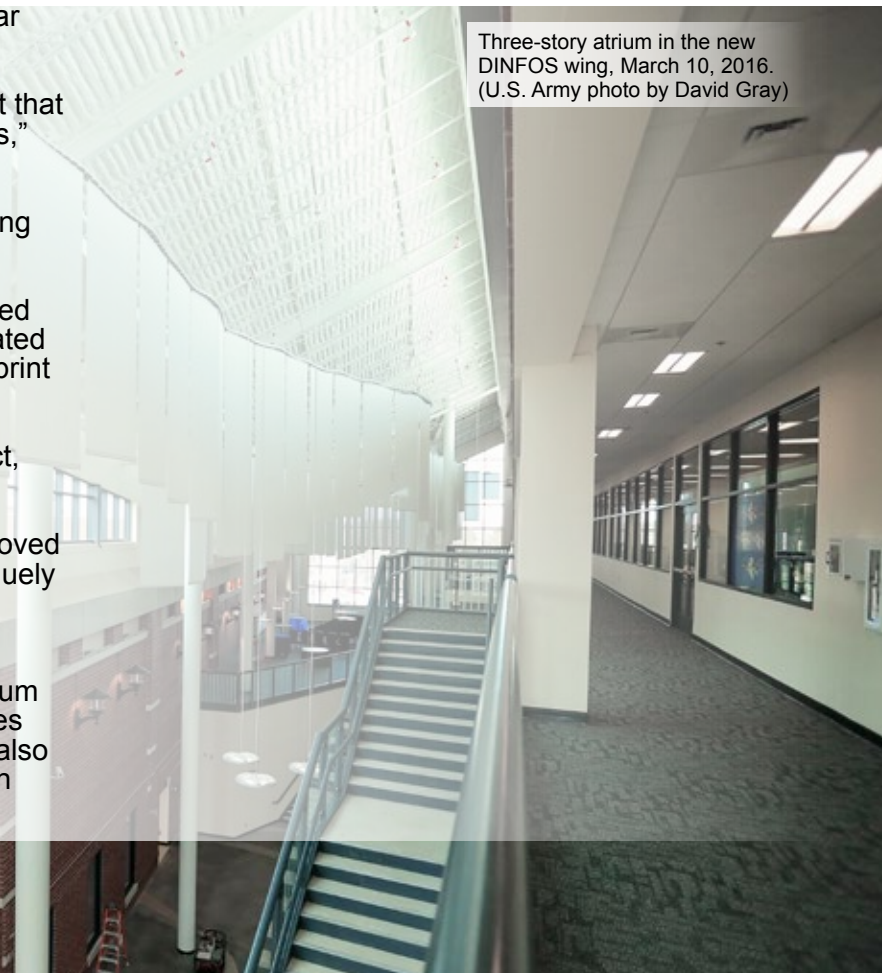
The new wing includes a three-story atrium that joins the existing facility to the new wing. This atrium increases natural light into the interior and provides extra space for class graduations. The new wing also includes a training facility for Military Operations in Urban Terrain and two parking lots.

The District design team worked in environmental sustainability components. Therefore, the materials, systems and landscaping were all selected to ensure the new wing meets Leadership in Energy and Environmental Design (LEED) Silver criteria.

During construction, the Corps leased 82,000 square feet of trailer space to allow for continued training.

“We are glad to be reunited now with our students and staff from the south,” Downie said at the ribbon cutting ceremony.

Downie was referring to the Department of Defense communicators who will move from their temporary trailers into classrooms that feature expanded size, capabilities and encourage an open-learning environment. ■



Three-story atrium in the new DINFOS wing, March 10, 2016. (U.S. Army photo by David Gray)



Jason Stick, U.S. Army Corps of Engineers, Baltimore District, geographer, performs a stormwater management survey in Annapolis, Maryland, April 27, 2016. (U.S. Army photo by Becca Nappi)

# Saving history by building a more resilient Annapolis

By Becca Nappi

**T**he U.S. Army Corps of Engineers, Baltimore District, began an important step in a multi-phased collaborative effort aimed at addressing flooding in historic downtown Annapolis, Maryland.

From Hurricane Sandy to Tropical Storm Joaquin, the mid-Atlantic region has experienced a spate of extreme flooding in recent years, and historic cities like Annapolis have not been spared. The city of Annapolis is prone to flooding from both tropical storms and rising sea levels — during 2014 alone they experienced 41 days of tidal flooding, according to the National Oceanic and Atmospheric Administration (NOAA).

To better understand the flooding problem and investigate ways to reduce the flood risk, all while preserving the city's historic integrity, leaders from the city of Annapolis joined with the U.S. Naval Academy and numerous state and federal agencies to find answers. As part of this work, they turned to the Corps for technical assistance.

Using the Corps' Floodplain Management Services (FPMS) program, which provides municipalities with technical services that help characterize flood risk and evaluate flood risk management alternatives, Corps experts began supporting the multi-agency effort in 2014.

During an early step in this effort, the Corps conducted surveys of historic buildings in the downtown area and in Eastport. As a result, the city is now more prepared for future floods by knowing which historic buildings will flood at which elevation. In addition, Corps floodproofing experts evaluated various historic buildings and made recommendations on how each could be modified to reduce the flood risk.

"One of the great privileges we have is to partner with local governments to find solutions to improve the safety and quality of life of our neighbors," said Stacey Underwood, the Corps' FPMS program manager. "And to perform this work in such an historic city

adds an even more critical element to our mission."

During spring 2016, the Corps began the next task to support the city. Where did the Corps look next? The city's storm drain system. This is the city's top priority, according to Underwood. "Annapolis' storm drain system uses inlets to collect water off of the streets that then drain to the outfalls at the city dock, and ultimately into the Chesapeake Bay," said Underwood. "However, when the tides are high, water is being pushed back onto the streets."

Experts from the Corps began this phase of the effort by mapping Annapolis' existing storm water system. Specifically, Corps officials used GPS technology to take record data such as the location, size and condition of storm water features including inlets, manholes, weirs, and pipes. They will combine this data with information provided by the city, such as drawings and maps, to develop a model and get a detailed picture of how stormwater behaves

during storm events.

The next phase of the study is scheduled to begin in the fall 2016, during which the Corps will work with the city to identify, model and evaluate solutions to improve the storm drain system. Possible solutions could include installing flap gates on the outfalls to keep the water from backing up or building a pump station.

The final phase will look beyond the storm drains. The Corps will work with the city and others to identify and evaluate other solutions to reduce the future flood risk from storms and sea level rise. Solutions likely to be considered include raising roads and sidewalks, building floodwalls/seawalls, flood proofing individual buildings, and more, according to Underwood.

"We hope that we can positively contribute to Annapolis' important goal of reducing the risk of flooding throughout this historic city," said Underwood. "It's a responsibility that all of the local, state and federal agencies share." ■



Karl Kerr, U.S. Army Corps of Engineers, Baltimore District, geographer, inspects a storm drain in Annapolis, Maryland, April 27, 2016. (U.S. Army photo by Becca Nappi)

## ***T*o restore the Chesapeake Bay it is not only about what we put in the water, but also what we keep out that matters.**

While the U.S. Army Corps of Engineers, state and local partners have worked to restore hundreds of acres of oyster reefs throughout the Chesapeake Bay during the last 10 years, seeding each new bar with billions of the little water-filter machines, this success story begs an equally important question. What are we doing to reduce pollution from travelling along the 51 billion gallons of water that the Chesapeake Bay Program estimates flows into the Bay each day?

Certain pollutants like nitrogen and phosphorous can lead to algal blooms that in high enough concentrations can create dead zones in the water and even toxins at dangerous enough levels to kill animals and people, according to the Environmental Protection Agency (EPA).

The six states and the District of Columbia that comprise the Bay watershed, as well as federal agencies, are working on activities to reduce pollution from reaching the Bay as part of EPA's Total Maximum Daily Load (TMDL) program. This program, established by the EPA in 2010, has been compared to a pollution diet for impaired waterways.

To support this diet, the Baltimore District has engaged in several critical initiatives aimed at reducing pollution from reaching the vast 64,000-square-mile Chesapeake Bay watershed. These initiatives include conducting sediment transfer studies; processing applications for TMDL-related projects proposed by other agencies and organizations; taking inventories of stormwater best management practices; and helping military installations design projects to reduce their pollution runoff.

### **Studying sediment**

During spring 2016, American Rivers again placed the Susquehanna River on its list of the most endangered waterways.

Just months prior, the Baltimore District, in partnership with the state of Maryland, released a final report entitled the Lower Susquehanna River Watershed Assessment (LSRWA). This report revealed that a majority of the pollution to the Chesapeake Bay is a result of runoff from urban and agricultural sources upstream. The intent of this two-year study was to analyze the movement of sediment and associated nutrients and their impacts within the lower Susquehanna River watershed to the upper Chesapeake Bay. The report includes consideration of strategies for sediment management, and recommendations for future opportunities.

The LSRWA report concluded that following through on the blueprint to clean up the Chesapeake Bay and its

tributaries and combatting nutrients at their source will have a much greater and longer-lasting effect on water quality than other strategies to reduce pollution to the Bay, such as dredging behind the Conowingo Dam.

### **Regulating TMDL projects**

The EPA's Chesapeake Bay Office requested the Baltimore District's Regulatory Branch investigate ways to help efficiently process 2,800 anticipated TMDL-related permit applications from agencies to help meet their jurisdictions' TMDL Watershed Implementation Plans (WIPs).

In summer 2015, the Baltimore District issued a new five-year Regional General Permit to authorize activities related to TMDL within Maryland, the District of Columbia, and military installations in northern Virginia to include Fort Belvoir, Joint Base Myer-Henderson Hall and the Pentagon.

"To aid in the timely processing of applications, we developed a permit specifically for certain TMDL-related activities," said Jack Dinne, Baltimore District biologist and permit evaluator. "The projects we are primarily seeing are stream and wetland enhancement and restoration and retrofits of storm-water management facilities and outfalls with the purpose of improving aquatic functioning and reducing the amount of pollutants from reaching the Bay."

Since the approval of this permit, the Baltimore District has approved more than 30 projects designed to help reduce harmful pollutants from reaching the Bay.

Projects authorized include nearly 350 linear feet of regenerative stormwater conveyance stream work for Prince George's County; the retrofit of a stormwater management pond and stabilization of approximately 150 linear feet of stream at the outfall for Montgomery County; and stream restoration projects for Harford County at Fosters Branch and the Maryland

State Highway Administration at Broad Creek in Annapolis.

### **Assisting military installations and designing TMDL projects**

District engineers are also helping military installations like Aberdeen Proving Ground, Maryland; Carlisle Barracks, Pennsylvania; and Fort Belvoir, Virginia execute projects to reduce their pollution load to local waterways.

As part of this initiative and to develop a baseline, the Baltimore District inspected and inventoried all stormwater devices and systems in its jurisdiction. A database was developed that includes tracking nutrient loads. Data are incorporated into the Chesapeake Bay Model that ultimately sets the TMDL goals for the Bay. This task was completed in 2012.

# Keeping Bay pollution at bay

By Sarah Gross



From left, Kyle Edmonds and Ray Tracy, civil engineers, plot elevation and location coordinates to aid in designing a coastal erosion project for our customer Aberdeen Test Center at Aberdeen Proving Ground, April 4, 2016. (U.S. Army photo by Sarah Gross)

The Baltimore District is also assisting with designing solutions to coastal erosion issues, devising stream restoration alternatives and solving infrastructure problems like pollution from eroding roads and bridges.

A team surveys the site and collects information, assesses the information, and designs a project, along with best management practices, that is turned over to the customer to construct.

“We work with the customer to come to an optimal design plan within their available funding range that weighs the project’s benefits and drawbacks,” said Alex Baldowski, Baltimore District, civil engineer.

The projects are designed to protect existing resources from further degradation and restore unstable stream areas to natural stable conditions that improves water quality and enhances habitat for aquatic resources, amphibians and reptiles.

“The team strives to create a plan to the greatest extent possible that employs a natural approach, which means using natural materials for construction like rocks and re-used trees to accomplish the project’s goal,” said Baldowski.

Though structural solutions like revetments are necessary for more aggressive cases of erosion at project sites, the team is also a proponent for living shorelines.

“Living shorelines serve a dual benefit,” said Ray Tracy, Baltimore District, civil engineer. “They help reduce erosion by slowing down water that washes over the bank, and they also filter the sediment that goes back into the water.”

## The end game

By 2017, EPA is aiming to have controls in place that would achieve 60 percent of the necessary pollutant reductions with the ultimate goal of having all reduction measures in place by 2025.

All of these efforts will aid in improving the health of the Chesapeake Bay in support of the 2,700 plants and animals and 17 million people that call this treasure their home. ■

# World's largest engineering provider, conservation grant-maker team up to restore nation's largest estuary

By Sarah Gross



Col. Ed Chamberlayne signs (symbolic) a cost-sharing agreement co-signed by the National Fish and Wildlife Foundation to begin work on the Chesapeake Bay Comprehensive Plan during a Principals' Staff Committee meeting at the U.S. Environmental Protection Agency Headquarters in Washington, May 26, 2016. Pictured at back, from left, Ben Grumbles, secretary of the Maryland Department of the Environment; Dana Aunkst, deputy secretary for the Pennsylvania Department of Environmental Protection, Water Programs; and Ann Swanson, executive director for the Chesapeake Bay Commission. (U.S. Army photo by Sarah Gross)

**A** unique two-year study is set in motion that will tackle the best path forward to achieve overall restoration goals in the nation's largest estuary – the Chesapeake Bay.

The U.S. Army Corps of Engineers, Baltimore District, has signed a Watershed Assessment Cost-Sharing Agreement with the National Fish and Wildlife Foundation (NFWF) to begin work on the Chesapeake Bay Comprehensive Water Resources and Restoration Plan.

"This study will result in a plan that provides a single, comprehensive, and integrated restoration guide to achieve meaningful environmental benefits to the Chesapeake Bay," said Dave Robbins, project manager, Baltimore District.

The Chesapeake Bay watershed spans 64,000 square miles and encompasses portions of New York, Maryland, West Virginia, Delaware; the Commonwealths of Pennsylvania and Virginia; and the District of Columbia.

Through the Chesapeake Bay Program, a variety of local, state and

The Chesapeake Engineer - 20

as new digital land-cover data provided through the NFWF partnership.

According to NFWF's web site, they are one of the world's largest conservation grant-makers.

The Corps will contribute 75 percent of the approximate \$2.8 million cost share for the comprehensive plan, while NFWF will leverage in-kind services (non-monetary contributions) from partners in the Bay watershed to account for the remaining 25 percent of the cost.

"The National Fish and Wildlife Foundation has been an advocate and catalyst for restoration actions in the Bay," said Dan Bierly, chief, Civil Project Development Branch, Baltimore District. "This effort allows for a federal agency like the Corps to partner with a non-governmental organization, as well as other Chesapeake Bay partners, to leverage resources and identify opportunities for continued Bay restoration."

NFWF will work with other organizations to obtain data and other relevant information to be included in the technical analyses needed for the plan. High-resolution land-cover data generated by the Virginia Department of Environmental Quality and the nonprofit Chesapeake Conservancy will serve as a foundation for the plan, supporting geospatial analyses that will help to identify problem areas and evaluate restoration opportunities across the region.

"The National Fish and Wildlife Foundation is pleased to expand our growing partnerships with the Corps into the Chesapeake Bay region," said Dr. Holly Bamford, chief conservation officer, NFWF. "This collaborative planning process will yield important additional insights into where restoration funding from NFWF and its federal, state, and local partners can have the greatest impact on water quality, habitats, and resiliency in the region."

The end product of the comprehensive plan will be a report submitted to Congress that documents analyses completed and also makes recommendations for actions that the Corps or other federal, state, and local jurisdictions can undertake. At least one project will be established for each of the states, commonwealths and the District of Columbia. ■

federal agencies, as well as public and private organizations across the watershed have committed resources through programs and projects to help restore the Bay.

"The purpose of this plan is to identify viable restoration actions across the watershed using resources from multiple partners," said Col. Ed Chamberlayne, commander, Baltimore District. "We want to reduce and streamline similar efforts already taking place across the region and implement projects that are needed in problem areas where none currently exist."

Due to a variety of factors, significant environmental problems have developed in the watershed to include impaired stream health, fish-passage blockages, loss of critical habitat for threatened and endangered species, and shoreline erosion.

The comprehensive plan will outline ecological needs, problems, and opportunities in the watershed, while relying heavily on existing information such as the 2014 Chesapeake Bay Agreement work plans, state-based watershed improvement plans, as well

# New online maps for DC show when flood will hit and how hard

By Sarah Gross



Potomac River flooding in Alexandria, Virginia

**N**ew digital maps allow government leaders, emergency managers, and the public to view potential flood impacts during high-water events along the Potomac and Anacostia rivers throughout the District of Columbia, northern Virginia and nearby communities.

This project represents the first interactive flood inundation mapping tool for this region using U.S. Army Corps of Engineers' (Corps) modeling and mapping, and tied directly to U.S. Geological Survey (USGS) and National Oceanic & Atmospheric Administration (NOAA) water gauges, making it a more accurate and reliable tool for emergency-response decisions.

"The release of this tool is exceptionally timely, as this year, we marked the 80th anniversary of the devastating Potomac River flooding of 1936, which is one of the worst on record in the District," said James E. Lee, National Weather Service (NWS), Baltimore/Washington meteorologist-in-charge. "These maps paint a picture of what our forecast means in the event of an expected flood."



Washington Navy Yard, Potomac River flood, 1936 (Courtesy photo)

NWS uses USGS and NOAA water gauge data to continuously monitor water levels and uses the Corps' hydrologic and hydraulic models and corresponding maps to project when and where flooding could occur and how severe it may be. NWS is also using the Corps' models

as a basis for forecast-improvement opportunities for the region - influenced by riverine flows, tides and storm surge. The District of Columbia has a long history of flooding, dating back to the 19th century. The worst tidal flood in recent history was caused by Hurricane Isabel in 2003, in which the peak storm surge was around 8 feet above normal tide at the southwest waterfront.

"With these new maps, we can determine where the greatest impacts will likely be during the next major storm," said Tommy Wells, Washington D.C. Department of Energy and the Environment, director. "We will also use this tool to educate District residents and businesses about flood risks and steps to prepare for or reduce these risks."

The data will be further leveraged by the District of Columbia as part of a comprehensive risk analysis initiative to inform preparedness, flood mitigation strategy and emergency management plans and operations. Flood depths will be used to estimate physical, economic and social impacts, including future risk attributed to sea-level rise.

"This tool will prove invaluable for predicting and displaying the extent and depth of flooding for impending storms, so we can better protect human lives and the critical infrastructure in this unique area," said Stacey Underwood, Corps, Baltimore District, Silver Jackets program coordinator.

The District of Columbia Silver Jackets is an interagency team that leverages resources to identify and implement comprehensive, resilient, and sustainable solutions to reduce flood risk around the district and to assist local communities.

Other D.C. Silver Jackets contributing agencies as part of this project include National Park Service; Federal Emergency Management Agency; District of Columbia Homeland Security and Emergency Management Agency; and National Capital Planning Commission.

"As someone who spent many childhood weekends playing along these river banks, I've looked forward to the day when residents could have a sense of what areas will flood when the river overflows its banks," said Peter Ahnert, NWS Middle Atlantic River Forecast Center, hydrologist in charge. "Thanks to the excellent modeling and mapping work by the Corps of Engineers and the efforts of the interagency Silver Jackets team, this day has arrived." ■

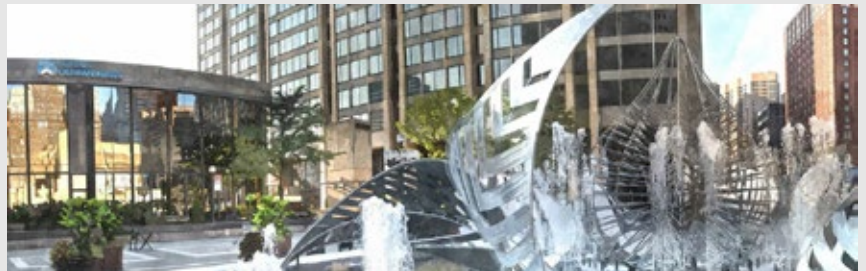
U.S. Army Corps of Engineers,  
Baltimore District

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10 S. Howard St.  
Baltimore, MD 21201

## Looking Back...and Forward



In early 2018, the Baltimore District Headquarters will be moving from 10 S. Howard Street (at left) to 2 Hopkins Plaza (at right) in Baltimore. The relocation will represent a 20-percent space reduction, so the District can operate more efficiently within a smaller footprint. The new space will also feature more collaborative workspaces and access to natural light.