

THE CHESAPEAKE ENGINEER

SUMMER 2022



**RESTORING
MID-BAY**

**INSTALLATION
SUPPORT PROGRAM**

**REMEMBERING
HURRICANE AGNES**

**RECOVERING THE
EVER FORWARD**

ENGINEERING SOLUTIONS FOR OUR
NATION'S TOUGHEST CHALLENGES



The mission of the U.S. Army Corps of Engineers, Baltimore District, is to deliver vital engineering solutions in collaboration with our partners to serve and strengthen the Nation, energize the economy and reduce disaster risks.

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Brandon Dubble, a U.S. Army Corps of Engineers park ranger at Tioga-Hammond & Cowanesque Lakes in north-central Pennsylvania, walks along an access road. (U.S. Army photo by Christopher Fincham)



THE
DISTRICT ENGINEER



Baltimore District teammates, partners and stakeholders,

I'm excited to share with you another edition of the Chesapeake Engineer showcasing the versatility and diversity of Baltimore District's projects.

This year marks the Clean Water Act's 50th anniversary - a huge milestone in our government's commitment to ensuring the longevity of natural resources for generations to come. Within this edition, we touch on the importance of our regulatory program and the efforts we are making to protect our Nations' aquatic resources. Our regulators are some of our district's unsung heroes - working day in and day out to fairly evaluate permit applications and interface with the public.

We also highlight snapshots of our 175 years of service to the region and Nation through a historical timeline. We are very proud to have learned so much from our past to create a more sustainable future. This is exemplified in our flood risk management efforts following the recent major anniversary of Tropical Storm Agnes. We are also working to protect Tribal resources through regionalizing curation centers. This will provide greater oversight of artifacts and enable better care and access. We are proud to support these critical initiatives, which align with the national emphasis on Tribal relations and environmental justice over the last few years.

The impacts of our district's projects are invaluable to the region and have been successful due to our strong relationships and partnerships. We were very excited to join MDOT and MPA leadership in signing a \$4 billion project

partnership agreement to officially commence a major ecosystem restoration project for two eroding Chesapeake Bay islands. More on this incredible work and partnership is inside!

Thank you for all you do to build our country every single day! It is an honor to serve alongside such dedicated professionals. ■

BUILDING STRONG!

Col. Estee S. Pinchasin
 Commander and District Engineer
 USACE, Baltimore District



Col. Estee Pinchasin stands alongside members of the District's team out at East Sidney Dam - Dam Operator Scott Ryan, Assistant Dam Operator Ryan Tuttle, and Seasonal Operator Thomas Harrington. (Courtesy photo)

PROTECTING AQUATIC RESOURCES

Baltimore District Regulatory Branch works through challenges to solve complex problems, continue mission

BY THOMAS DEATON

The mission of the U.S. Army Corps of Engineers Regulatory Program is to protect the Nation's aquatic resources while allowing reasonable development through fair, flexible and balanced permit decisions. USACE has been regulating activities in the nation's waters since 1890. The program was initially created solely to prevent obstructions to navigation. The passage of the Clean Water Act in 1972 greatly broadened this role by giving USACE authority over dredging and filling in the "Waters of the United States," including many wetlands.

"These are good projects, but if you're impacting aquatic resources to create a beneficial project, you still have to weigh and balance the detriment versus the positive impacts," says Amy Elliott, a project manager with the Regulatory Branch at USACE, Baltimore District. Elliott works from the State College Field Office in Pennsylvania, part of the team that oversees the review of project applications and issuance of USACE permits throughout the Pennsylvania portion of Baltimore District's regulatory boundary that also covers all of Maryland, our nation's capital and military installations in northern Virginia.

For the last two years, Elliott and her Baltimore District Regulatory Branch colleagues have been working toward a recently issued permit for the city of Havre De Grace, Maryland. In 2020, the city applied for a permit to construct a living shoreline along several previously industrial waterfront lots. Like any project that interacts with "Waters of the United States" or adjacent wetlands, the living shoreline required clearance from USACE to assess environmental impacts.

Due to the volume of projects faced by the Maryland regulatory staff as well as budget limitations, Elliott and other Pennsylvania regulatory project managers are stepping up to assist.

Wade Chandler, chief of Baltimore District's Regulatory Branch and 30-year USACE employee,

explains funding constraints have led to unfilled vacancies and a decrease over the past few years from a staffing level of more than 40 down to 30 personnel.

"With an increase in the fiscal 2022 budget and funding provided under the Bipartisan Infrastructure Law (BIL), Regulatory Branch is currently looking to fill vacancies to better meet workload and mission requirements," Chandler says.

USACE regulatory teams work against time and interagency regulations to deliver permit decisions that are fair, balanced and protect the nation's aquatic resources while allowing economic development.

"In conducting our permit reviews," Chandler explains, "we ensure that our permit decisions comply with various regulations, including the Endangered Species Act, Section 106 of the National Historic Preservation Act, and Clean Water Act guidelines. These reviews ensure minimization of impacts to the aquatic environment and potential need for compensatory mitigation from the project applicant to make up for those impacts."

The 2008 compensatory mitigation rule added to the Clean Water Act was a result of interagency work between the Environmental Protection Agency and USACE. It standardized the mitigation process and charged USACE with the review and approval of relevant mitigation and 'in-lieu of' projects.

"The review process for approval of a mitigation bank or in-lieu fee program requires a considerable amount of time and effort by staff," Chandler says, "with the goal of completing the process within 550 days of issuance of the public notice."

While permit applications waned during the height of the pandemic, the team is now looking ahead to the increased workload required of the BIL funding. The budget constraints of previous years combined with the varied regulation changes that accompany new presidential administrations or court rulings mean the workforce needs to adapt



Jason Peters, U.S. Army Corps of Engineers, Baltimore District, Regulatory Senior Project Manager (front), and Scott Hardaway, Coastline Design and Construction, Inc., first mate, navigate shoreline protection structures engineered to protect areas of low-lying marsh and dune habitats during a tour of coastal resiliency projects near Rhodes Point, Smith Island, Somerset County. (U.S. Army photo by Greg Nash)

frequently to new processes that may alter the time required to issue a permit.

Certain efforts are already in place or undergoing updates to better streamline regulatory efforts and improve efficiencies.

For instance, smaller, less complex projects are reviewed by State regulatory agencies through programmatic general permits without requiring USACE approval. This accounts for roughly 75 percent of applications. Agreements are also being updated with the Departments of Transportation for both Maryland and Pennsylvania to streamline Department of the Army application reviews for major transportation projects in those states.

Additionally, Chandler says USACE is weighing the options to create a "Regulators Without Borders" program.

"The concept is viewed as a model for the future workforce and will allow the national Regulatory Program to better meet mission requirements by aligning the workforce to handle regional and national fluctuations in workload."

With new territory comes a learning curve, and Amy Elliott's living shoreline permit process is a good example. Elliott, who was very familiar with the requirements of Pennsylvania projects after more than 20 years in the region, found herself asking new questions to tackle the project in Havre De Grace.

"Who do I talk to? What permits are needed other than from USACE? Who are the players in the game?" Elliott said. "This project had a lot of twists and turns, and I definitely learned a lot."

When needed, she leaned on her fellow project managers in Maryland, who were often able to point her in the right direction.

"There's a lot of knowledge at 2HP," Elliot says, referring to the Maryland team based at the USACE, Baltimore District, Headquarters in Baltimore. "We're all a team and all able to handle projects whether they're in Pennsylvania, Maryland or elsewhere."

This problem-solving approach is paramount to working through the multidisciplinary and often months- or even years-long timelines demanded by the permitting process.

Despite recent challenges, the team continues to meet established goals, including finalizing permit decisions within 7 days of issuance more than 90 percent of the time, and resolving non-compliance and enforcement actions in a timely manner.

Like the living shoreline project, Regulatory Branch continues to navigate the varied structural and budgetary constraints of the last few years to ensure that the work of a project, even if restorative in nature, doesn't damage or take away more than it will return — the core of the USACE Regulatory mission. ■

ARMY OPENS FIRST ADVOCACY CENTER

CONSTRUCTION BEGAN LAST FALL ON THE \$7 MILLION, NEARLY 9,300 SQUARE-FOOT FACILITY ON FORT BELVOIR

BY MARGARET STEELE, FORT BELVOIR PUBLIC AFFAIRS

In an effort to consolidate advocacy training for the Army's legal professionals, the first Advocacy Center in the Department of Defense opened on Fort Belvoir in early May.

According to Lt. Col. Theo Voudouris, the center's operations officer, the advocacy center is a new initiative, started by the previous Judge Advocate General of the Army.

The facility, across Belvoir's Gunston Road from Bldg. 1450, the U.S. Army Legal Services Agency, is housed in what used to be Belvoir's Kawamura Human Performance Center.

"The advocacy center will synchronize all advocacy training, within one facility on Belvoir," Voudouris said. "This will serve as a centralized location for members of the Army JAG Corps, worldwide, to attend training courses in civil and military justice litigation. The center will also have seven, state-of-the-art courtrooms for training and mock trials.

"This new facility is in line with the Secretary of the Army's priorities to combat sexual assault and enhance military justice capabilities, merging all advocacy training into one facility," he said.

The U.S. Army Corps of Engineers, Baltimore District worked on the design-build project, in partnership with a local, small-business contractor. Together, they converted an existing gym into a modern training space.

"Our installation support team did an incredible job on this," said Col. Estee Pinchasin, district commander. "Our team members worked through

complex challenges to modify the mechanical, electrical and plumbing systems; and install audio-visual equipment. We are so proud to deliver such facilities and perform this type of work for our military partners, which helps ensure their continued readiness."

JAG Corps Soldiers and civilians have their initial training in Charlottesville, Va., and other locations, with follow-on advocacy training conducted in a variety of worldwide locations.

"Having one location makes it easier for experts in the National Capital Region to come together, join forces and learn and train together," Voudouris said, adding it will be the only advocacy center in the Defense Department. The Advocacy Center is modeled after the Justice Department's National Advocacy Center in Columbia, S.C.

"This is truly a major development for the Army and for the DoD," he said. "No facilities outside of the Justice Department have this."

Also, the new facility will offer new, civil litigation courses such as deposition training,

which allows for more intensive training, when legal professionals can learn the intricacies of the military justice system, all in coordination with the JAG.

"This will provide the next level of training, after the JAG School. They can come here, learn in state-of-the-art courtrooms, with judges and experts in the legal field, as teachers," Voudouris said.

He also said the center will offer an electronic evidence course, which is a new focus over the last decade in both military and civilian legal fields.

"There are millions of electronic documents in many of our cases, and the center will bring in guest speakers and civil litigators to train the JAG Corps on electronic evidence. The intent is to have everyone come in for hands-on, state-of-the-art training, from a group of experts," Voudouris said.

Michael Mulligan, a prosecutor and former judge on the Army Court of Criminal Appeals, the advocacy center's first civilian director, was excited for the opening of the center.

"This center will increase our proficiency and our practice," Mulligan said. "It's more than just criminal law, but environmental law, housing law, safe water laws ... topics military lawyers are working on, now."

Brig. Gen. George Smawley, commander, U.S. Army Legal Services Agency and chief judge, Army

Court of Criminal Appeals, said, "This will certainly have long-term, positive benefits for all the personnel in the Army JAG Corps. We expect the advocacy center will also be a focal point for advanced-trial advocacy across the military justice and civil law disciplines and community of practice."

Lt. Gen. Stuart W. Risch, the Army's Judge Advocate General, said he knows the center will be successful. "The sheer volume of collaboration and learning, at the center, will be incredibly powerful. Also, with the mock courtrooms, Army JAG Corps personnel will become even better in the work they do," Risch said. "And, it'll be a superb facility for everyone to learn from experts in their field. This center is just what the Army needs, at the perfect time." ■



The first Advocacy Center in the DOD opened on Fort Belvoir in early May 2022. The facility, across Belvoir's Gunston Road from Bldg. 1450, the U.S. Army Legal Services Agency, is housed in what used to be Belvoir's Kawamura Human Performance Center. (U.S. Army photo by Margaret Steele)

WASHINGTON AQUEDUCT MODERNIZATION

CRITICAL MAINTENANCE EFFORTS BEGIN ON ORIGINAL 'OLD CONDUIT' AT WASHINGTON AQUEDUCT

BY CYNTHIA MITCHELL

A multidisciplinary team of professionals at the Washington Aqueduct is leading an effort to revitalize the Aqueduct's Old Conduit, which is a nearly 12-mile-long structure that traverses down MacArthur Blvd. in the District of Columbia, carrying water from Great Falls to the Dalecarlia Reservoir. It is a critical component in maintaining the utility's ability to provide potable water to our Nation's capital, as well as portions of Northern Virginia.

The team began work at sunrise March 21, 2022, kicking off a two-day visual inspection that would lay the groundwork for future design and construction efforts required to properly maintain the Old Conduit. After undergoing rigorous confined space entry training, engineering staff walked the entire length of the conduit, photographing root intrusions or cracks and documenting their findings. Meanwhile, maintenance staff upheld confined space safety measures and provided traffic control for entry and exit points.

"Because the Old Conduit is critical to our mission, the Washington Aqueduct must know its condition so we can address any potential concerns before they become problems. Cracks and root intrusion indicate areas that are structurally compromised and may require repair,"

said Project Manager Nina Hallissy. "It took an incredible amount of dedicated people to ensure the safety of our staff while maintaining a focus on continued water service to our customers."

Prior to the visual inspection, draining of the conduit required staff members to man and operate the Little Falls pumping station around the clock for several days to ensure there were no disruptions to water supply. The project also required collaboration with state and local traffic management authorities, as well as the Aqueduct's wholesale customers: DC Water, Arlington County, and Fairfax Water.

Originally appropriated by Congress in 1853, the conduit was the largest single structure involved in the construction of the Washington Aqueduct, as

directed by Corps of Engineers Lieutenant Montgomery C. Meigs. Conduit design was based upon the early New York and Boston aqueducts, completed a decade prior in the 1840s.

Construction on the conduit broke ground in November 1853, with a force of 300 to 400 men at any given time. Labor was intensive. The only machine available for construction purposes during that time was the steam-driven hoist.

Water from the Potomac River was first introduced into the conduit in December 1863, and the conduit was placed in regular service in July 1864. Thanks to the qualified professionals who have overseen its operations and maintenance throughout the past 159 years, it has remained a vital component of ensuring

approximately one million citizens living in, working in, or visiting the Nation's capital can access safe water.

The rehabilitation project is currently near the end of its design phase, and construction to maintain the old conduit is expected to begin in fiscal 2023. Repair methods for areas of concern documented during the inspection will primarily be shotcrete with a section of carbon fiber wrap to structural integrity of this nearly 160-year-old asset. ■



The team of professionals that lead an effort to revitalize the Aqueduct's Old Conduit stands at the Washington Aqueduct. (Courtesy photo)



Rehabilitation of masonry and stucco is part of the Georgetown Reservoir Building Improvements Project. (U.S. Army photos by Cynthia Mitchell)

GEORGETOWN RESERVOIR BUILDING IMPROVEMENTS

The Castle Gatehouse was constructed between 1899 and 1901 as an expansion of the Washington Aqueduct's Georgetown Reservoir.

Modeled after the Army Corps of Engineers' insignia, original construction consisted of a face brick exterior surface that was covered with Portland cement plaster modeled to resemble stonework. The original stucco was removed and replaced in 1958 and, now, nearly 65 years later, the gatehouse is undergoing another major renovation that will ensure it remains a symbol of USACE's contribution to provide the Capital Region with safe and

clean drinking water.

Rehabilitation of the structure's weathered masonry and stucco is only one part of the Georgetown Reservoir Building Improvements Project, which consists of rehabilitation of various other building structures including the Influent and West Shaft Gatehouses, as well as the Meigs Vault. As with the Castle Gatehouse, which is designated as a National Historic Landmark and on the National Register of Historic Places, rehabilitation of most structures has required immense coordination with various historic preservation agencies throughout the span of the project, which began in 2015.



Other items for the project include repair of a circular platform adjacent to the Castle Gatehouse as well as replacement of the existing perimeter fence to meet upgraded security standards. ■

RESTORING MID-BAY ISLAND

BY GREG NASH

The Mid-Chesapeake Bay Island Ecosystem Restoration project, often referred to as Mid-Bay Island, is an island habitat restoration and expansion effort using dredged material. It will soon replace the 24-year-old near-capacity Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island.

Like its predecessor, Mid-Bay Island will mutually maximize navigational, economic and environmental benefits for the Chesapeake Bay region.

The U.S. Army Corps of Engineers (USACE), Baltimore District, and the Maryland Department of Transportation Maryland Port Administration jointly manage Mid-Bay Island, which occupies two eroding Chesapeake Bay islands – James and Barren islands – located in western Dorchester County, Maryland. The two agencies signed a significant \$4 billion project partnership agreement in August 2022.

In addition to the evident

habitat restoration and expansion, the project will also increase the Port of Baltimore's business opportunities and potential tourism prospects.

The Port of Baltimore is one of the nation's top ports for total cargo tonnage and overall dollar value of cargo. Sediment must be dredged to maintain enough navigational clearance for large vessels transiting the federal channels, especially post-Panamax vessels.

Every year, USACE dredges

nearly 5 million cubic yards of material from the channels and anchorages serving the Port of Baltimore just to maintain their current depths and widths. Once the material is removed, it must be re-used or disposed of with an environmentally conscious approach.

"We are so excited to continue our successful partnership with the Maryland Port Administration on another massive, multifaceted project that is essential to keeping the Port open and safe for business, the regional and national

economy, and the health of the Chesapeake Bay," said Col. Estee Pinchasin, Baltimore District commander. "Reinforcing this habitat by beneficially using dredged material will help protect it from erosion and future impacts of climate change and sea-level rise, so it can continue to serve as a necessary home for Bay wildlife and help protect neighboring waterfront communities."

USACE received upwards of \$80 million in funding from the Bipartisan Infrastructure Law and supplemental funding

to progress on the design and preconstruction activities for this massive undertaking.

James Island will use sediment dredged from the Chesapeake Bay approach channels serving the Port of Baltimore to restore 2,072 acres of lost remote island habitat. In comparison, Barren Island will use dredged material from the Honga River to restore a minimum of 72 acres of remote island habitat.

The conceptual plan from the feasibility study proposes 55 percent wetland and 45 percent upland habitats. Habitat may include submerged aquatic habitat, mudflat, low marsh, high marsh, islands, ponds, channels, and upland areas.

With necessary funding, Barren Island may start accepting dredged material as early as 2024 and James in 2028, after essential sill and dike construction efforts to hold the material are completed.

Expansion efforts on Poplar Island, a now thriving ecosystem, wrapped up in January 2021, providing additional capacity to accept dredged material from the Baltimore Harbor and approach channels until around 2032.

"I can't say enough about the incredible working relationship we have with the Army Corps of Engineers," said MDOT MPA Executive Director William P. Doyle. "Maryland is an international leader in the beneficial use of dredged material for coastal and island restoration. We are thinking ahead and planning for anticipated climate changes by strengthening our barrier islands."

The Mid-Bay project, including ongoing maintenance, is anticipated to be completed in 2067 – providing more than 30 years of capacity to place almost 100 million cubic yards of dredged material, with restoration benefits that will last generations. ■



The Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island undergoes island habitat restoration and expansion efforts in 2018. The deliberate planning and timing of the Mid-Bay project will allow for overlap in the final phases of the Poplar Island project. (Courtesy photo)



Poplar Island, close to vanishing due to climate change and sea-level rise, is now a national model for habitat restoration and the beneficial use of dredged material. (Courtesy photo by Jane Thomas)



The Citadel Army ROTC Cadet Ethan Jackson participates in a U.S. Army Corps of Engineers, Baltimore District, immersion tour while overlooking the Chesapeake Bay during dredged material inflow operations at Poplar Island in Talbot County, Md., Aug. 3, 2021. (U.S. Army photo by Greg Nash)

ARCHEOLOGICAL COLLECTIONS

REGIONAL CURATION CENTERS

Baltimore District is participating in a nationwide effort to properly care for U.S. Army Corps of Engineers' archeological collections through establishing regional curation centers.

BY: EVA FALLS AND BRITTANY CRISSMAN

Over the past several years, Eva Falls, Baltimore District archeologist, and other archeologists from across USACE's North Atlantic Division have been working diligently to compile all known data on USACE artifact collections from Virginia to Maine.

All current collections totaling nearly 50,000 cubic feet will coalesce into regional centers, reducing repositories from more than 150 to under 25 nationwide or approximately three to four regional repositories per USACE division. The number of regional repositories established will be based on several factors, including geography, cultural areas and volume of collections.

For Baltimore District, this program will improve

transparency and accessibility of archaeological collections throughout the mid-Atlantic region.

"By ensuring all our collections are in federally compliant facilities, we can be better stewards of our Nation's heritage," said Falls.

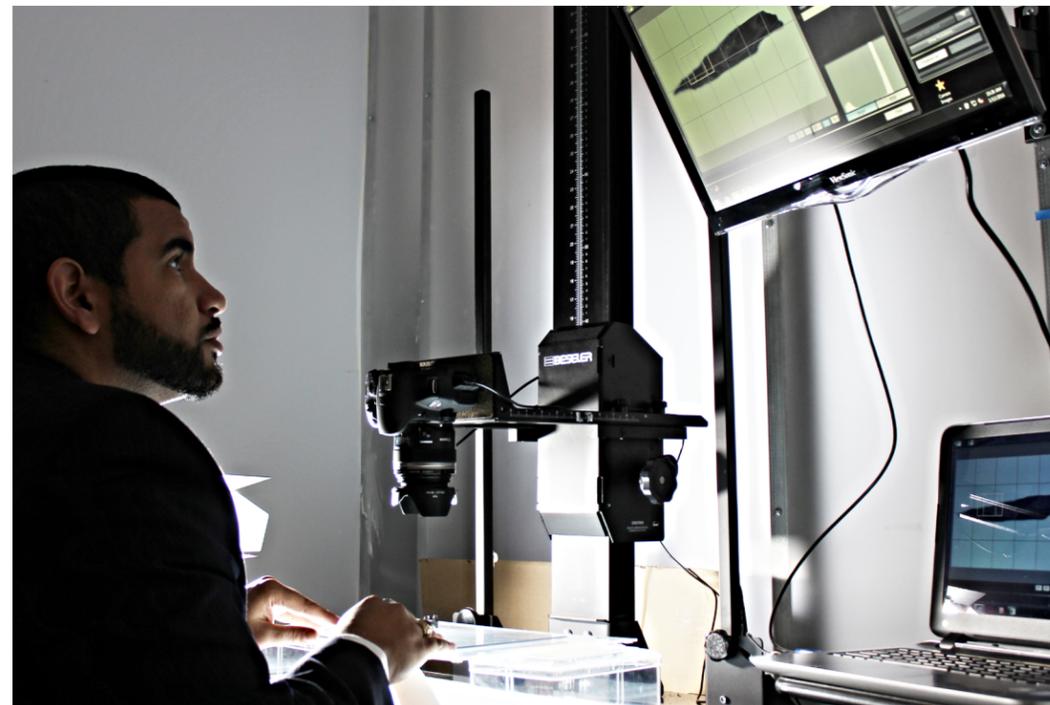
This enterprise effort is being led through the USACE Mandatory Center of Expertise for the Curation and Management of Archaeological Collections (MCX CMAC) located within the St. Louis District.

ENSURING ACCESS

"The issue we're facing right now is most USACE collections cannot be easily accessed by researchers since the collections are scattered throughout a variety



Eva Falls, Baltimore District archeologist, inspects an item while in the field. (U.S. Army photo by Brittany Crissman)



Ignacio Reyes, archaeological laboratory technician, works on photographing artifacts at the Veterans Curation Program open house in Alexandria, Virginia, Jan. 12, 2016. (U.S. Army photo by Sarah Lazo)

of facilities," Falls explained. "Through Baltimore District's regionalization efforts, we hope to safely relocate collections to fewer facilities within our area to make it easier for Tribal representatives, specifically, to visit collections."

Another mission of the regionalization effort is to increase digitalization of collections to enhance accessibility through technology. To accomplish this, USACE uses the Digital Archaeological Record (tDAR), an international digital repository for records of archaeological investigations worldwide.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT

Some of these archeological collections include human skeletal remains and cultural items that are subject to the identification and repatriation requirements contained in the Native American Graves Protection and Repatriation Act (NAGPRA).

The MCX CMAC delivers centralized management, administration, and policy development for USACE-wide compliance with archaeological collections management and regulatory requirements associated with NAGPRA.

Movement of NAGPRA collections from current repositories to regional centers will be reviewed on a case-by-case basis. Baltimore District hopes the regionalization process will lead to the repatriation of its current NAGPRA inventory.

"This process can be very emotional and challenging for Tribal Nations," said Falls. "Just over 30 years ago, in 1990, federally recognized Tribes were finally given rights to the remains of their ancestors and sacred artifacts, which is also why this program is so important."

VETERANS CURATION PROGRAM

USACE established the Veterans Curation Program (VCP) in 2009. It employs and provides training to Veterans and members of the Armed Forces to assist in the curation of USACE-owned collections.

There are currently five VCP locations that support 12 USACE districts. More than 400 Veterans have participated in the program with 90 percent of graduates finding permanent employment and/or continued education.

Through VCP, archeological digital content is generated and made available on tDAR to be accessed and used by Tribal members, educators, researchers and the public. More 44,000 photographs and scans have been created through this program to provide greater access to collections.

Once regional curation centers are established, additional VCP laboratories may be stood up nearby based on the need for collections rehabilitation and an available Veteran population in the area.

Baltimore District currently has collections being processed at the VCP in Alexandria, Virginia, and will be moving another collection to the VCP in San Mateo, California, in fiscal 2023.

LOOKING TO THE FUTURE

An important component of this regionalization effort is meaningful consultation about the disposition of these collections with Tribal Nations who have ancestral ties to them.

"We are committed to this regionalization process, so we can better support Tribal Nations access to archaeological collections, and, most importantly, reconnect them with their heritage," said Falls.

As this process moves forward, Baltimore District will continue to make every effort to address Tribal concerns and be better partners. ■

PERRYMAN WATER TREATMENT PLANT

Installation Support Program delivers project to ensure clean drinking water for Maryland county, Army installation

BY SARAH LAZO

More than a quarter million people call Hartford County, Maryland, their home, including military and federal civilians working at the Army Installation at Aberdeen Proving Ground, commonly referred to as APG. APG, just like their civilian neighbors, relies on the Perryman Well Field for most of its water needs.

APG has a long-term standing agreement with the county to maintain the Perryman Water Treatment Plant to meet U.S. Environmental Protection Agency (EPA) water treatment and quality requirements. The Perryman Well Field is the largest source of groundwater for Harford County.

The U.S. Army Corps of Engineers, Baltimore District, recently teamed up with APG on an

approximately \$1.9 million restoration project for the Perryman treatment plant. This effort will ensure optimal filtration of potentially harmful drinking water contaminants and entailed installation of new interior liners and a new internal pipe system with water sampling access points on five water storage tanks. While the tanks were offline to replace the aging liners, the team was also able to perform additional necessary maintenance.

This collaboration is just one example of Baltimore District's successful Installation Support Program.

"Through our Installation Support Program, we are able to provide our military partners with

engineering, construction, environmental and real estate expertise and services," said Sarah Doerfler, Baltimore District Installation Support program manager. "Many of the efforts we assist with are smaller public works projects."

The Perryman plant is a groundwater pre-treatment plant. Common concerns with groundwater include bacteriological contamination, hydrogen sulfide odors, nitrates, hard water, corrosive water, commercial runoff, and iron and manganese. Pre-treatment is necessary to filter out harmful and burdensome materials before the water goes through its main water treatment process, in this case at Abingdon, Maryland, prior to distribution

to the customer.

Contractor Jade Creek LLC, out of Prince William County, Virginia, performed the work. They are a small business with special designation as being owned and operated by citizens who are socially and economically disadvantaged.

"This contractor has an outstanding track record for work on APG," said Christopher Woodward, Baltimore District, Military Branch project manager. "They have extensive knowledge of water treatment plants and expertise in working with the EPA. Our contractors truly are an extension of us, and we couldn't perform our mission critical work without them."

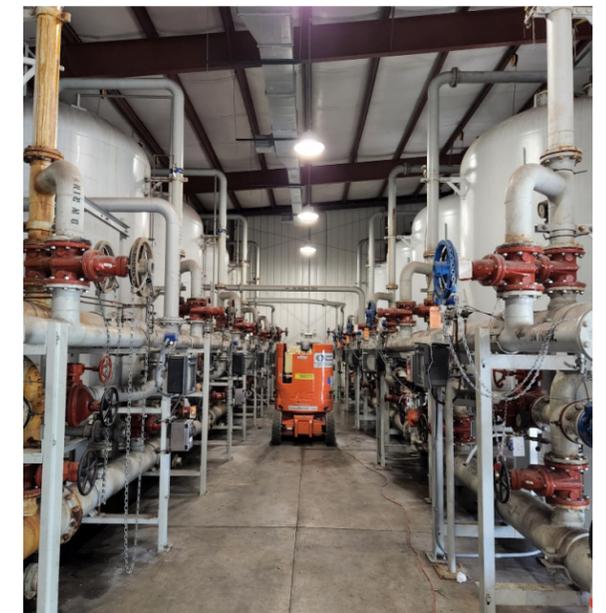
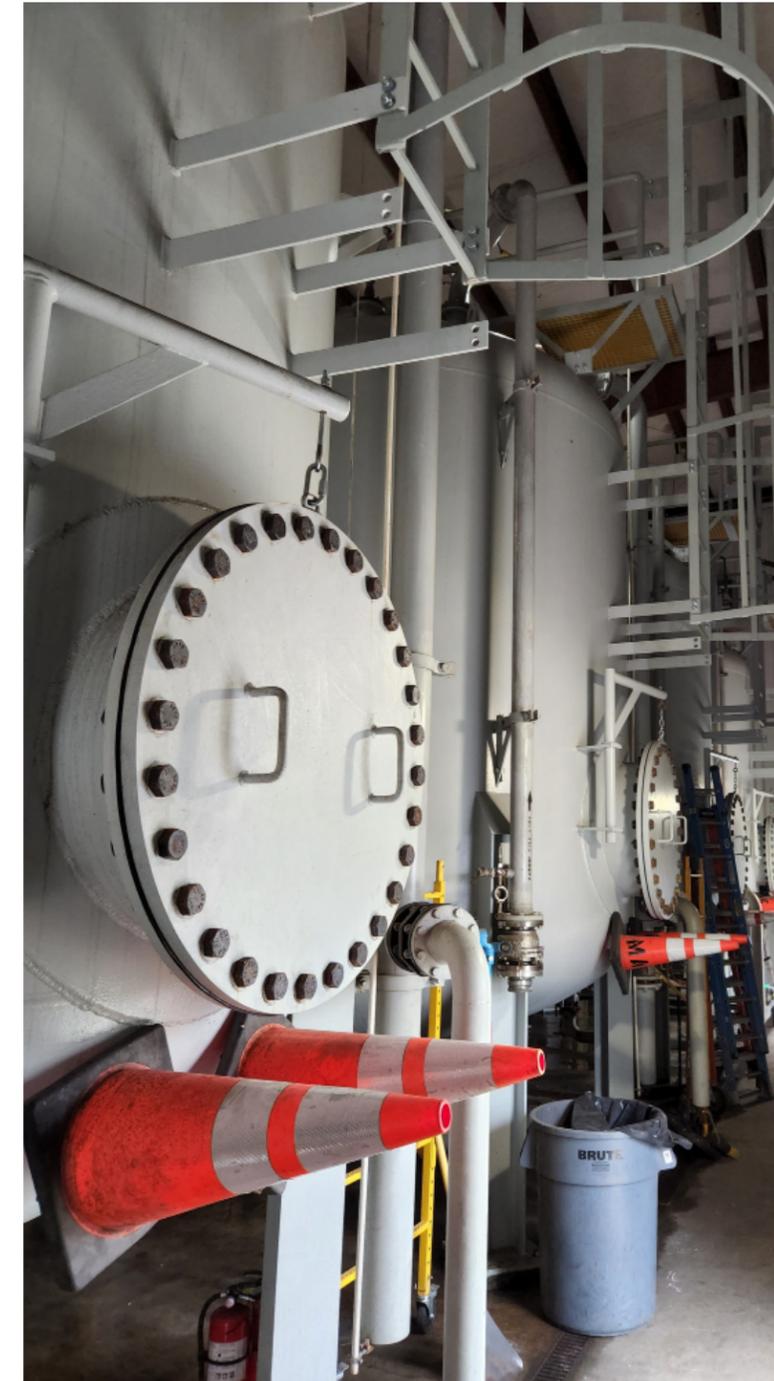
The team worked effectively through COVID delays and several project modifications to complete the work.

"This project will ensure potable drinking water for APG and all of Harford County well into the future," said Doerfler. "It also goes to show the breadth of work we accomplish at Baltimore District in tandem with our partners."

The U.S. Army Corps of Engineers, Baltimore District, manages a more than \$2 billion military program that includes multi-million-dollar projects to construct and renovate an array of facilities for military installations and partners across several states. Within this program, USACE also works on smaller-scale projects like the Perryman treatment plant that have far less visibility, but still far-reaching impacts. ■



Carbon helps filter contaminants from water being pumped into the last vessel. (Courtesy Photo)

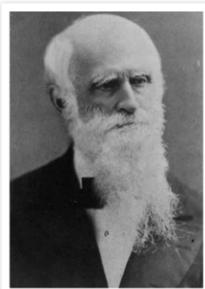


LEFT: Finished tanks before ladder installation. ABOVE: Old vessels are on the left side of the facility, with newly renovated vessels on the right, which ensure EPA compliance. (Courtesy Photos)

175 YEARS OF SERVICE

Since the Nation's fight for independence, the U.S. Army Corps of Engineers has played a vital role in developing our Nation.

Army Engineers have a long and storied history in the Baltimore area that extends as far back as the early 1800s when USACE constructed Fort McHenry, successfully shielding Baltimore against British attacks in the War of 1812. When the threat of coastal attack diminished in the 1820s, engineers turned their attention to developing roadways, railways, canals, and more, marking the beginning of the district's civil works mission.



Captain Henry Brewerton

Cabin John Bridge over Cabin John Creek, originally known as the Washington Aqueduct Bridge No. 4.



The U.S. Army Corps of Engineers establishes permanent roots in Baltimore.

Major Cornelius A. Ogden assigned as project engineer for the construction of Fort Carroll on the Patapsco river, just south of Baltimore.

Captain Henry Brewerton appointed as first District Engineer.

Fort McHenry Channel created at a depth of 22 feet and width of 150 feet.

The Washington Aqueduct was completed. Since then, USACE has substantially expanded and improved the capacity and function of the Aqueduct, producing an average of 135 million gallons of safe and clean water per day for Washington D.C., Arlington County and Fairfax County, VA.

Rivers and Harbors Appropriation Act authorized USACE to regulate all development of navigable waters. Passage of the Clean Water Act in 1972 greatly broadened this role giving authority over dredging and filling in the "Waters of the United States."

1847 | 1852 | 1862 | 1899

1900s | 1925 | 1930s | 1940s

On Feb. 7 1904, the City of Baltimore was almost completely destroyed by the great Baltimore Fire. The fire destroyed 1,500 buildings and caused roughly \$150 million in damages. The Baltimore District offices were housed in the General Post Office at the time. District employees sprayed water on the sides and roof of the building and were able to save the 1889 Italian Renaissance building.

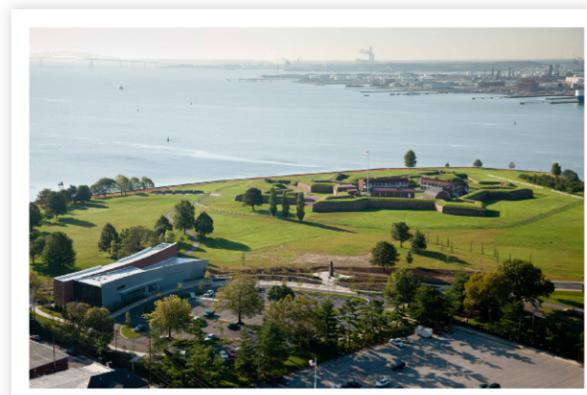
In 1925, a portion of land on Fort McHenry officially transferred to USACE. Fort McHenry now home to Baltimore District's fleet of debris and survey vessels that support the Port of Baltimore and the Chesapeake Bay and is also home to our lab that tests and identifies soil.

In 1936, the Flood Control Act passed, authorizing USACE to construct flood control measures along major riverways. The Baltimore District established a variety of flood risk management measures throughout its area of operations including dams, levees, and reservoirs.

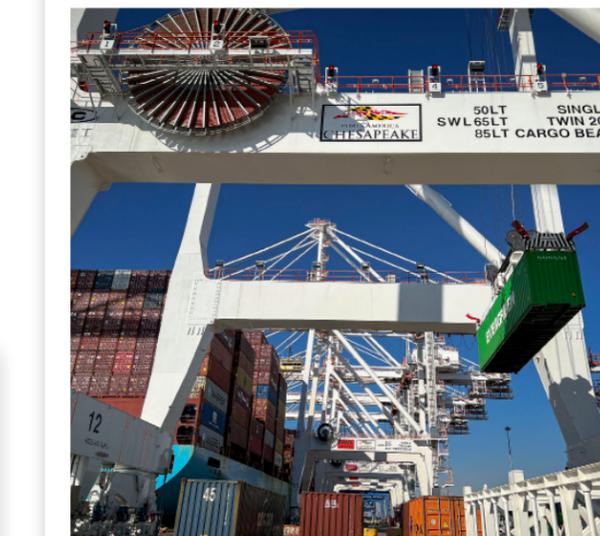
During WWII, the war effort led to the cessation of major civil works projects. However, maintenance dredging in the Baltimore Harbor was considered crucial to keep iron and oil flowing.

The Corps of Engineers was given the military construction mission for the War Department as a new mission area in 1941, thus beginning USACE's support to military installations in the region.

The District of Columbia Levee System was completed in 1939. It is currently undergoing design efforts to improve the system and ensure continued risk reduction from Potomac River flooding.



An aerial view of Fort McHenry. (Photo by Ken Stanek)



Ongoing Chesapeake Bay freight transportation operations occur on a container ship at the Port of Baltimore's Dundalk and Seagirt Marine Terminals in Maryland, Jan. 27, 2022.

The Arkport Dam near Hornell, NY, was completed in 1939 as the first dam built by the Baltimore District.

1950s

The construction of the SM-1 at Fort Belvoir was completed in 1957, and it achieved its first criticality in April 1957. The SM-1 was a single-loop 10 megawatt-thermal (MWT) pressurized water reactor delivering a net 1,750 kilowatts of electrical power. It was the first nuclear power reactor to provide electricity to a commercial power grid in the United States, and operated from April 1957 to March 1973. Fort Belvoir was home to the U.S. Army Engineer Reactors Group (USAERG), and the SM-1 was used for training the multi-service crews that would operate the various plants in the program.

1960s

In 1961, the Washington District was disbanded and all military construction in the region was given to Baltimore District.

Today, the Baltimore District has a robust, multi-state, and multi-installation military construction program that supports operations and service members in Maryland, Virginia, Washington, D.C., Pennsylvania, and West Virginia.



An aerial view of the former SM-1 nuclear power plant on Fort Belvoir in the 1960s.

1970s

In 1970, the Rivers and Harbors Act authorized a uniform main channel of 50 feet deep through the Chesapeake Bay from the Virginia Capes to Fort McHenry in the Port of Baltimore, a distance of 175 miles. This guides our dredging operations to support the Ports of Baltimore and Virginia.

Clean Water Act passed in 1972, establishing USACE's regulatory permitting authority.

Also, in 1972, Baltimore District provided emergency response to Tropical Storm Agnes. In 1973, Raystown Lake was completed, and in 1978, Tioga-Hammond Lake was completed. The district is home to two of the top-earning campgrounds in USACE.

EARLY 1990s

Throughout the 1990s, Baltimore District played a key initial role in designing the renovation of the Pentagon. Real Estate also got involved by leasing swing space for Pentagon employees to work during construction.

Military construction was revitalized in the 1990s under the Base Realignment and Closure program. Within the Baltimore District's boundaries, numerous facilities were closed or converted to different functions-Fort Meade, for example, was converted from a training facility to an administrative center. Such projects often required extensive renovations and environmental remediation. The Baltimore District sometimes partnered with other USACE districts to share the workload.

In 1993, the Spring Valley Formerly Used Defense Site cleanup was initiated. Work continues, but the Glenbrook Road part of the project was completed in 2021.

1994 Ocean City Coastal Storm Risk Management Project is completed.



(LEFT) The Korean War Veterans Memorial in Washington, D.C. (BELOW) A rendering of the main entrance to the replacement facility for the Bureau of Engraving and Printing.



The District created a master plan for Arlington National Cemetery that provides the cemetery with a plan to address expansion of burial space, new facilities and the renovation of existing facilities until 2030.

The Korean War Veterans Memorial in DC was dedicated July 27, 1995, by President Bill Clinton and South Korean President Kim Young Sam. Baltimore District provided assistance with the design competition, and management of the Architect-Engineer and construction contracts.

In 1997, Baltimore District signed an interagency agreement to start major oyster restoration efforts in Maryland's Chesapeake Bay tributaries.

Walter Reed Expansion design and construction. Dedicated in 1999, the Forest Glen Annex Medical Center was the Department of Defense's largest medical research complex and the ninth largest biomedical research facility in the country.

Sept. 11, 2001, Emergency Management team members and volunteers provided around-the-clock support in response to the terrorist attacks, including search and rescue and debris removal.

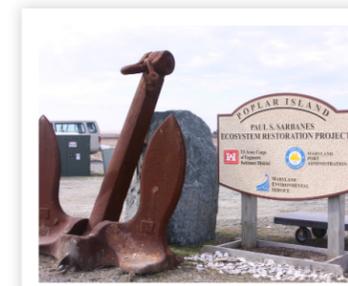
2002 Beginning of Hart-Miller Island wildlife habitation project.

Restoration of Assateague Island begins.

In 2003, the Wyoming Valley (Pennsylvania) Levee Raising project was completed.

Work begins on biodefense campus at Fort Detrick, MD.

Completion of an \$800 million construction program supporting D.C. schools, including construction of nearly 150 schools.



Poplar Island.

Baltimore District headquarters relocated to 2 Hopkins Plaza in 2016.

Marcellus Shale natural gas development projects increase Regulatory Program review workload.

USACE completes a \$5 billion+ construction projects for intelligence community partners, including data centers for the National Security Agency (NSA), and new headquarters for the National Geospatial-Intelligence Agency (NGA) and the U. S. Army Intelligence and Security Command (INSCOM).

Initiated the design of the \$1 billion currency production replacement facility for the Bureau of Engraving and Printing.

In 2021, Poplar Island expansion was completed after 20 years for placing dredged material in place. Baltimore District dredges the federal channels in the Chesapeake Bay and Baltimore Harbor to maintain channel depth of 50 feet. Clean dredged material is used to restore 1,715 acres of remote island habitat on Poplar Island, which was recently on the verge of disappearing. It is now a national model for habitat restoration and the beneficial use of dredged material.

Initiated design and construction efforts on the Mid-Chesapeake Bay islands restoration project, which will replace Poplar Island once at capacity.

LATE 1990s

2000s

2010s

2020s



A timeline of the cleanup at Glenbrook Road, part of the Spring Valley FUDS.

LEARN FROM THE PAST

BY NICOLE STRONG

In June 1972, Hurricane Agnes wreaked havoc on the East Coast of the United States, mainly in Maryland, Pennsylvania, New York and Virginia. The storm caused an estimated \$3.1 billion in damages and 128 deaths.

Agnes originally made its landfall in Florida as a Category 1 storm and downgraded as it travelled north. The now tropical storm merged with a non-tropical storm system over Pennsylvania, where it went on to cause catastrophic inland flooding and significant damages throughout the region.

This storm established new records of rainfall that caused several of the levees and floodwalls to overtop. At the time, Hurricane Agnes was the nation's costliest natural disaster.

While Agnes was a devastating flood, projects implemented before the storm arrived significantly reduced its damage and impacts. The Army Corps Baltimore District's flood risk management projects prevented an estimated \$480 million in damages throughout the region.

Congress authorized construction of local protective works through the landmark Flood Control Act of 1936, in which 46 local projects and 13 dams were operable when Agnes hit. This includes five Army-Corps dams constructed along the Susquehanna River and its tributaries.

Massive assistance was provided by the Army Corps of Engineers, along with other agencies and organizations to alleviate the hardship and rebuild the affected areas. Following the storm, Baltimore District was responsible for assessing damages within the Susquehanna River Basin – a massive undertaking due to the scope of the damage.

To aid in response and recovery, Baltimore District also stood up the Susquehanna Engineer District, which supported debris removal, temporary housing, critical bridge replacement, water supply and sewage facility repairs.

Fifty years down the road, there have

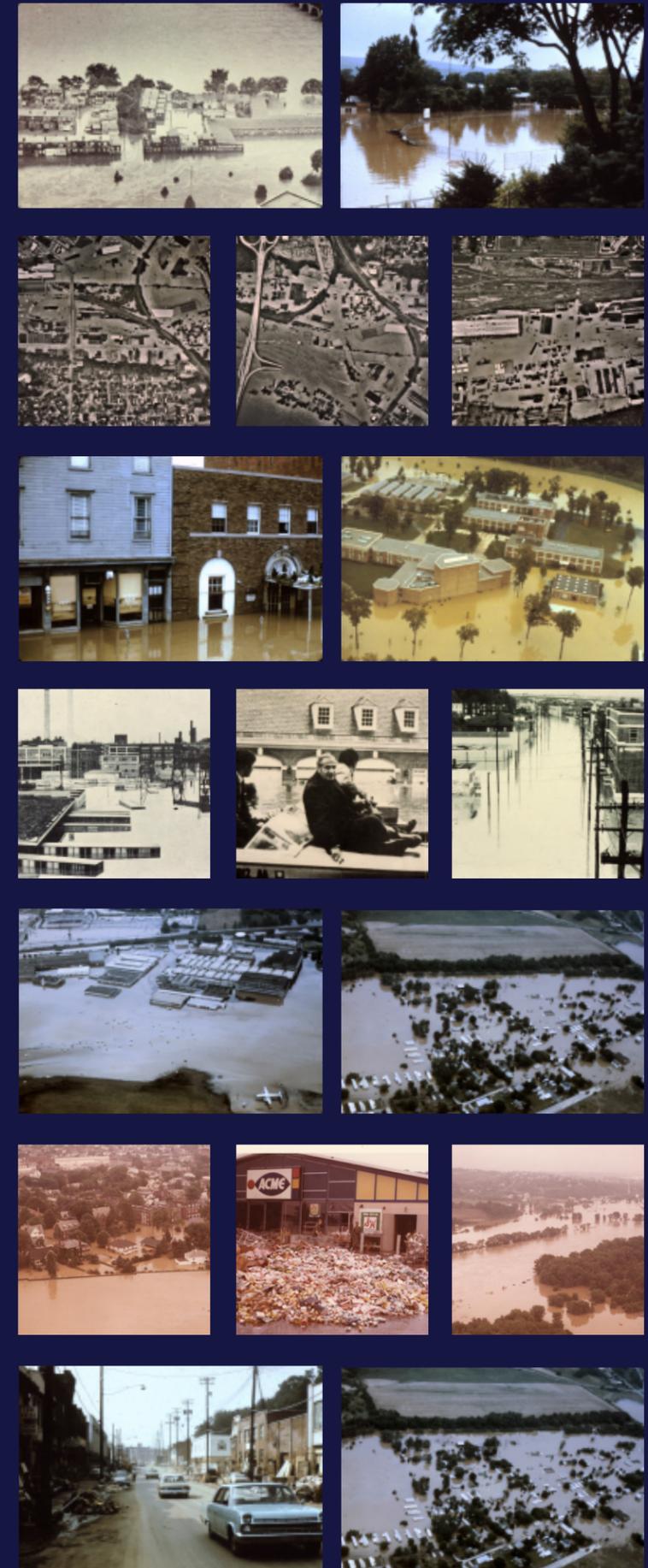
been great strides in flood mitigation efforts.

Flood mitigation is the action taken to reduce or eliminate the long-term risk from floods, including loss of life and property. Mitigation can include both structural and non-structural actions such as building levees, dams, and floodwalls; improving stormwater infrastructure; elevating and floodproofing buildings; acquisition and floodplain restoration; floodplain management; flood warning systems and more. Often, communities incorporate a combination of these measures to reduce their flood risk.

Many communities impacted by Agnes removed or relocated their most at-risk properties.

Today, the U.S. Army Corps of Engineers, Baltimore District, manages 15 dams and oversees nearly 150 miles of levees, which have prevented over \$16 billion in flood damage to date. As stewards of the environment, Baltimore District actively engages in a variety of sustainable engineering, design, and construction practices.

"We are proud of the many partnerships we have across the mid-Atlantic region with agencies who also have a vested interest in reducing flood risk to help protect people and property," said Col. Estee Pinchasin, U.S. Army Corps of Engineers, Baltimore District commander. "We will press hard to ensure our flood risk management projects are funded and resourced to monitor conditions and make continual necessary improvements. We will also continue to support and partner with our local communities to provide technical assistance and data to help them make informed decisions to best prepare them for flood risk - both now and into the future." ■



PREPARE FOR THE FUTURE

Decades after Hurricane Agnes, we continue to learn better to prepare for the threats of the future.

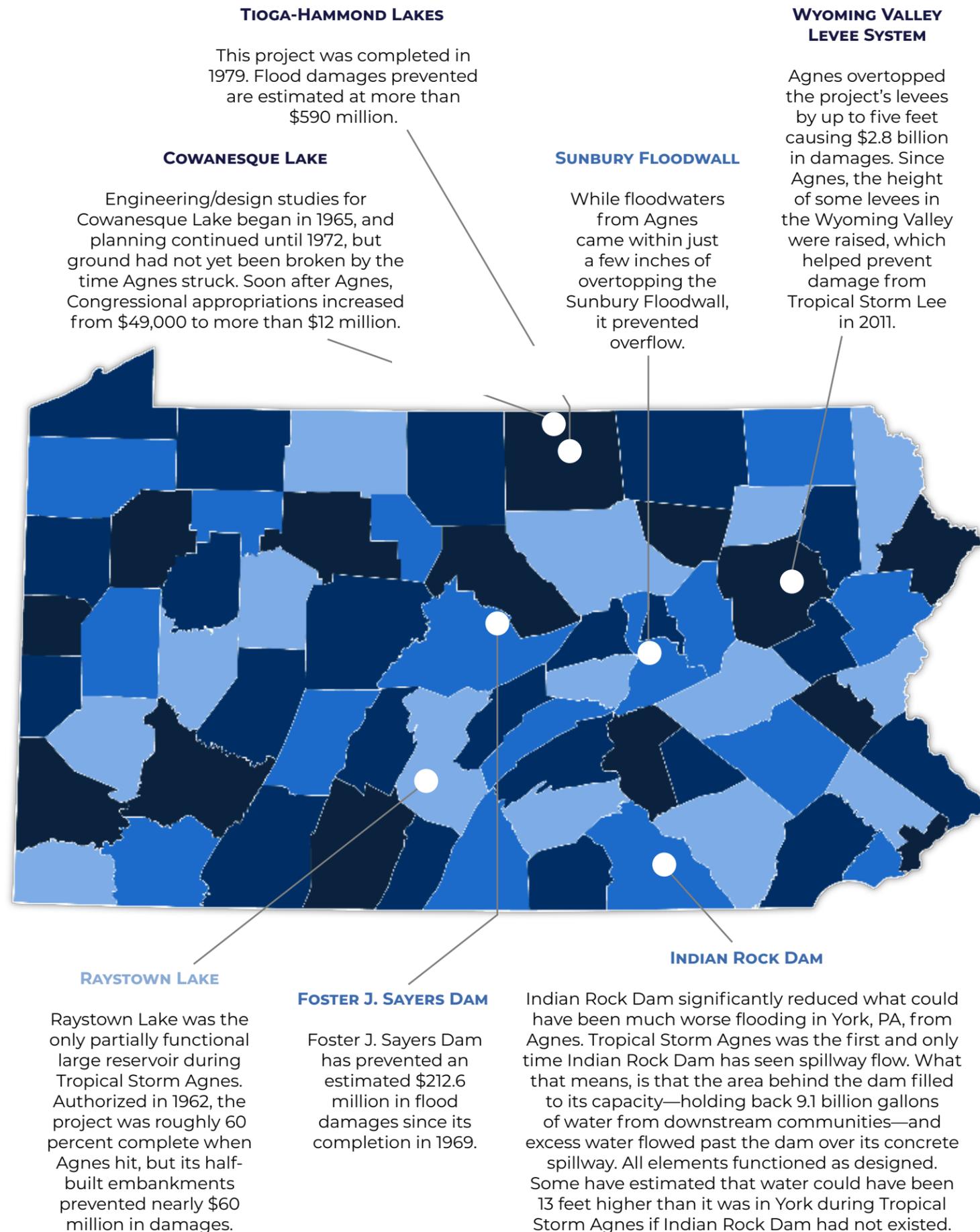
To recognize the 50th anniversary of this significant storm, the Silver Jackets of Maryland, New York, Pennsylvania, and Virginia, collaborated with local, state, and federal partners to participate in live anniversary events throughout the summer and created an interactive and comprehensive 50th Anniversary of Hurricane Agnes website: Learn from the Past and Prepare for the Future.

The website includes information about flood mitigation efforts in the northeast since Hurricane Agnes, including an interactive map from FEMA Region 3 showing the storm track of Agnes and the location and type of various mitigation projects, as well as locations of USACE-owned flood risk management projects.

Silver Jackets are state-led flood risk management teams. They exist in all states and several territories, bringing together multiple state, federal, and sometimes tribal and local agencies to coordinate and collaborate to reduce flood risk. By applying their shared knowledge, the teams enhance preparedness, mitigation, and response and recovery efforts.

Baltimore District is the federal lead for the Maryland and Pennsylvania Silver Jackets teams and coordinates with other teams in the mid-Atlantic region.

Although the devastation of Hurricane Agnes remains, we are thankful the storm spurred mitigation efforts for the next 50 years. ■



- Technology has improved dramatically
- Internet and satellite communications allow for rapid public dissemination of flood warnings
- More accurate flood modeling and mapping and flood warning
- More flood outreach and awareness
- USACE no longer building large-scale dams.
- Working towards engineering with nature, not against it.
- Incorporating future impacts for sea level rise and climate change

OVER THE LAST 50 YEARS

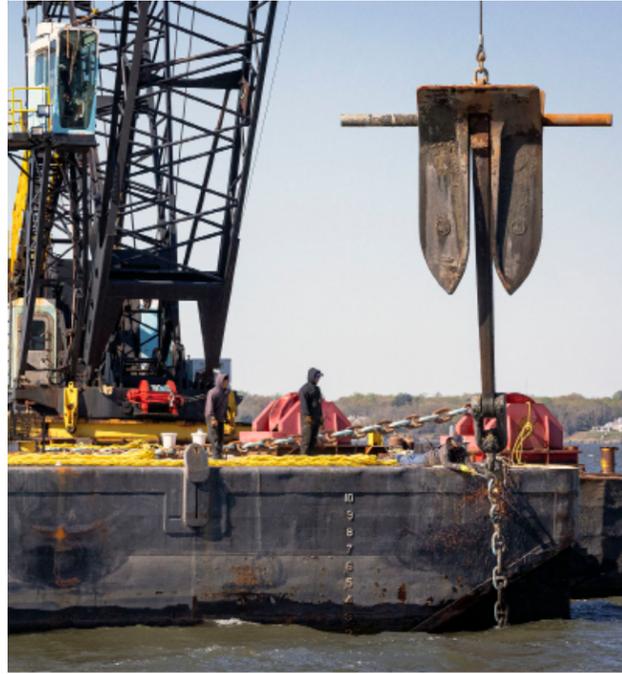
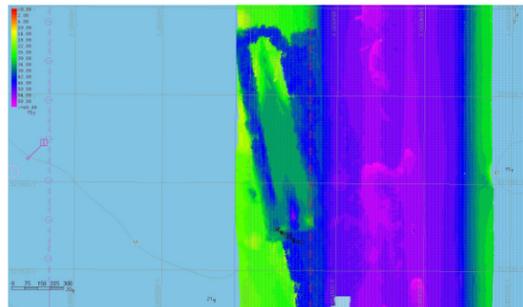
EVER FORWARD

EAST COAST MARITIME RESPONSE ASSETS REMOBILIZE SHIP

The Taiwanese vessel operator Evergreen's box ship EVER FORWARD ran aground in the Chesapeake Bay outside the Craighill Federal Channel near Annapolis, Md., April 20, 2022. The U.S. Army Corps of Engineers, Baltimore District, manages the federal channel and is responsible for providing timely hydrographic surveys concerning changes in conditions that affect safe vessel traffic. The U.S. Coast Guard, Maryland Department of the Environment and shipowner Evergreen Marine Corporation, in partnership with multiple state and local responders, oversaw the effort to remobilize the 1,095-foot containership following a comprehensive salvage plan that included dredging and tugboat operations.



The U.S. Army Corps of Engineers, Baltimore District's CATLETT navigates past the Francis Scott Key Bridge to perform a hydrographic survey at the Craighill Channel near Annapolis, Md.



The Taiwanese vessel operator Evergreen's box ship EVER FORWARD sits grounded in the Chesapeake Bay outside the Craighill Channel near Annapolis, Md., April 20, 2022. Following underwater inspections at nearby anchorage, EVER FORWARD most recently returned to the Port of Baltimore to reload the cargo that had been discharged and then will continue on its previously scheduled voyage, which begins at Norfolk, Va.

AROUND THE DISTRICT

NEW MEXICO DEBRIS

Several members of Baltimore District's Debris Response Team deployed to New Mexico in August to provide emergency debris removal oversight in support of FEMA and the USACE Albuquerque District. Devastating wildfires — the largest in New Mexico's history — swept through the northern part of the state during spring and early summer 2022. Teams are working every day of the week after receiving a mission assignment from FEMA for private property debris removal in San Miguel and Mora counties. (U.S. Army photo by Justin Graff)



FLEET WEEK & FLYOVER

Trevor Carver, party chief, on board the CATLETT at Port Covington during Maryland Fleet Week & Flyover Baltimore in early September. Both the CATLETT and the REYNOLDS were anchored and available for tours throughout the event. (U.S. Army photo by Sarah Lazo)



SM-1 DEMOLITION

Demolition activities at the SM-1 Deactivated Nuclear Power Plant site commenced in July 2022 at Fort Belvoir. Team members and partners, including the Army Reactor Office, Fort Belvoir Garrison staff and other distinguished guests, gathered at the site to mark the start of the demolition of the building. (U.S. Army photo by David Gray)

DAMBOT

A team from the U.S. Army Engineer Research and Development Center (ERDC) recently visited Curwensville Dam to assist with inspecting the project's tunnel using a DamBot™. The DamBot™, a robotic platform carrying a variety of sensors such as high-resolution cameras and Lidar, can create an extremely detailed model. Typically, an inspection involves a human physically entering the tunnel to take photographs of concerning spots and document anomalies by hand. Utilizing robotics and other technology helps keep USACE's team members out of harm's way and enable successful completion of the Corps' vital civil works mission. (Courtesy photo)



MID-BAY ECOSYSTEM RESTORATION

USACE Baltimore District and the Maryland Department of Transportation (MDOT) signed a Project Partnership Agreement (PPA) for the \$4 billion Mid-Chesapeake Bay ecosystem restoration project at MDOT Headquarters, Aug. 23, 2022. The PPA – signed by Col. Estee Pinchasin, Baltimore District commander, and MDOT Secretary James F. Ports, Jr. – outlines the roles, responsibilities, and financial obligations for both partners for the restoration of both James and Barren islands in Dorchester County, beneficially re-using material dredged from the Port of Baltimore approach channels and the Honga River, respectively. (U.S. Army photo by Nicole Strong)

U.S. Army Corps of Engineers,
Baltimore District



2 Hopkins Plaza
Baltimore, MD 21201



A Northern Map Turtle considers making her way to nesting mounds constructed by the team at Raystown Lake as part of the Natural Resource Management mission. Mounds made of sand and shale provide nesting habitat for turtles, especially northern map turtles, a species of conservation concern in Pennsylvania. Although eggs hatch in late summer, most hatchlings stay in the nest through fall, winter, and early spring. This year the site has protected more than 40 nests. (U.S. Army photo by Christopher Fincham)



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