ISSUE 1, VOLUME 3

USACE

WILMINGTON DISTRICT NEWS

FEBRUARY 2019

# Corps regulatory helps preserve and protect "Living Shorelines"

INSIDE THIS ISSUE:



Rock structures help reduce wave action that cause erosion and threaten coastal wetlands.

Coastal wetlands along North Carolina provide more than 3000 square miles of aesthetically pleasing vegetation. They provide food and habitat for several species of animals, and are critical as nurseries for a variety of marine species. These wetlands help filter pollutants from storm water runoff, and protect or reduce inland damage from constant wave action, storm surges and tides.

Coastal wetlands face natural and man-made threats. Tidal action, waves, boat wakes and inclement weather all take their toll on them. The tidal marshes respond to these stressors by migrating. The waterfront side erodes and the marsh builds up on the opposite, landward side. To add additional problems, people who build close to the marshes are also affected by erosion. However, instead of moving back, they respond by building wooden or concrete walls or place piles of rock to protect their property. Locked in place in front of the wall or rocks, the marsh can't retreat and will eventually disappear. According to the North Carolina Coastal Federation, as many as 20 miles of the state's estuarine shoreline are walled or rocked each year.

Coastal Federation officials maintain that the best way to deal with erosion is to plan for it, and to build as far as possible

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# We're geared up for another great year, and let's help promote our profession during Engineers Week

Team Wilmington,

We are well into another fantastic year of doing great things for the Nation and the state of North Carolina. We have a full plate ahead of us this year, and we're already making headway.

We've been in the news recently as we help the residents of Carolina Beach and Kure Beach prepare for another Coastal Storm Risk Management project. It still amazes me about the number of SAW people it takes to nourish a beach, and the amount of coordination that is involved. You make it look effortless. The towns and their people are in very good hands.

At Fort Bragg, our project managers and quality assurance folks are keeping the U.S. Army Special Operations Command on schedule and on budget with great projects with the U.S. Army John F. Kennedy Special Warfare Center and School (SWCS). The Special Warfare Training Group command and staff will have a great new facility that will also serve as the primary training classroom location for Special Forces Officers and Warrant Officer courses that also include administrative space for instructors.

After a very long time out of the water and in for major repairs, the sidecast vessel *MERRITT* has been maintaining the federal channel at Carolina Beach Inlet and at the Lockwood Folly Inlet. I'm sure that mariners who rely on safe passage welcome the *MERRITT*'s return. Our entire Navigation fleet of dredges, survey vessels and multi-purpose vessel *SNELL* will be busy throughout the year logging thousands of nautical miles to keep channels free from obstructions, and maintaining and surveying channel depths.

South Atlantic Division Commander Brig. Gen. Diana Holland has given District commanders some solid command priorities to follow this year. We will ensure a professional culture and productive practices, strengthen our safety program, build enduring relationships and communicate our regional story, hire, develop and retain exceptional talent, and, most importantly, prepare for tomorrow. When we all pull together we make an exceptional team that can provide nothing but timely, professional and quality work.

Col. Robert Clark

Finally, I'd like to send a special message to my fellow engineers. The week that recognizes us and what we do for society is coming up Feb. 17-23. It's called Engineers Week and it's time set aside for us to tell the public what we actually do. I'll help promote our profession on Feb. 19 when I'll be a guest on television station WWAY's "Good Morning Carolina" talk show. If you're asked to volunteer your time during this week to visit a school to help promote Science, Technology, Engineering and Mathematics (STEM) activities please do so. We have a rewarding and exciting profession, and we need to tell our stories about why we became engineers. Who knows how many future engineers you'll inspire?

Very respectfully,
Col. Robert Clark

***Wilmington District News Online*** is an unofficial publication authorized under provisions of AR 360-1 published bimonthly by the Wilmington District Public Affairs Office to keep District employees informed of current District news, activities and achievements. Send your comments or suggestions to **lisa.a.parker@usace.army.mil**

***This is an online publication and open to the public.***

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U.S. Army Corps of Engineers
Wilmington District

# Shoreline Con't

from the water's edge and to retreat when the time comes. When that's not possible, it recommends using stabilization methods that maintain the natural integrity of the marsh with the least amount of damage. Living shorelines are one method of doing that.

The U.S. Army Corps of Engineers Wilmington District Regulatory Branch is doing its part to keep coastal wetlands from disappearing permanently.

"Living shoreline projects generally involve the discharge of fill material such as rock material into coastal wetlands and usually require a permit under Section 10 of the River and Harbors Act and Section 404 of the Clean Water Act," said Regulatory Project Manager Ronnie Smith. "Regulatory project managers conduct site visits and assessments if necessary and on a case-by-case basis. Generally, we rely on information provided by the North Carolina Division of Coastal Management."

Smith said the Wilmington District authorizes these types of projects with Nationwide Permit (NWP) 54 and Programmatic General Permit 291. The NWPs were coordinated with federal and state agencies during the NWP renewal process, so the Corps generally does not coordinate with agencies prior to authorizing the NWP.

This marsh sill made up of oyster shells makes a good barrier by reducing erosion caused by wakes from passing boaters.

"If we are processing a permit under the PGP 291 process, we coordinate with and request comments from the U.S. Coast Guard, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, and any other federal agencies that would have interest in the project area," Smith explained. "We are in the process of developing a Regional General Permit (RGP) to authorize the construction of marsh sill structures such as oyster reefs or rock formations. The use of this RGP will usually not require notification to the Corps prior to the construction of a marsh sill. During the development and approval process of RGP, we coordinated with, consulted with and/or met with representatives of the various agencies."

# New kennel facility will support Military Working Dogs at Fort Bragg

***Soldier, take me from this shelter's cage.***
***Give me back my life. In return, I'll cover your back.***
***I'll be your canine warrior, your sixth sense.***
***I'll stand guard into the night and chase the demons away, the uninvited, cloaked in night sweats and darkness.***

***I will help you open your cage of solitude***
***then walk tall by your side into the light of day.***
***Together, our faith will rise as tall as your soldier's pride.***
***We are now family in this post-911 world.***
***Because together, we stand.***

**-Bridget Cassidy**

Dog handlers take a breather with a sentry dog in Afghanistan.

Military working dogs continue to be a vital part of a military team on the battlefield and on U.S. military installations at home and overseas. They're used for detecting explosives, finding lost or missing military members or casualties, or patrolling perimeters with their handlers to keep intruders away. In addition to all of the fine qualities that dogs have as team members, dogs can do even more. They have highly refined visual and olfactory sensory abilities, can go where a soldier cannot, and can often subdue or intimidate an enemy more quickly with non-lethal force. Because of these traits, they have been successfully trained for many military duties and roles by modern armies for a century.

At Fort Bragg, the Wilmington District is supporting the Defense Department's Military Working Dogs (MWD) of the U.S. Army Special Operations Command (USASOC) by building kennels that are expected to provide a comfortable working and living environment for the hard working dogs and their handlers.

"The Corps of Engineers is supporting USASOC through the design and construction of a new facility to serve the needs to a military working dog unit," said Wilmington District Project Manager James Griffith. "The new facility will allow special operations to fulfill the operational

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# Kennel Con't

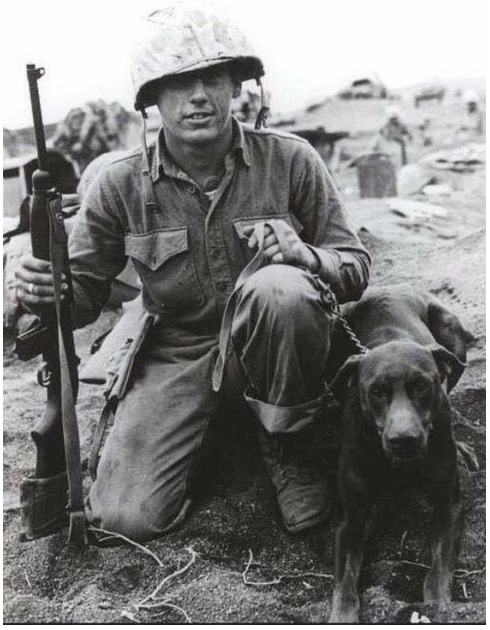
and medical needs of the MWD and their handlers by providing new climate controlled kennels, dedicated planning and training space, and a veterinary clinic."

The vast majority of U.S. military working dogs in recent times are German and Dutch Shepherds, breeds chosen because they are very aggressive, smart, loyal and athletic.

Every military working dog is a noncommissioned officer – in tradition at least. Some say the custom was to prevent handlers from mistreating their dogs; hence, a dog is always one rank higher than its handler.

German Shepherd dogs are preferred as the standard breed because of their unique combination of traits. Shepherds are intelligent, dependable, predictable, easily trained, usually moderately aggressive, and can adapt readily to almost any climatic conditions. While many dog breeds exhibit some or most of these traits, the Shepherd more than any other breed, most consistently exhibits all of these traits.

For specialized roles, detector dogs in particular, other breeds are used. Retrievers (Labrador, Golden or Chesapeake Bay) are the preferred breeds for One Odor Detector dogs. All dogs trained and used by the U.S. military are procured and trained by the 341st Military Working Dog Training Squadron at Lackland Air Force Base, Texas.



A Military Working Dog poses with his U.S. Marine handler.

Military Working Dogs are considered a valuable part of a combat team.

# Roots of U.S. Army Corps of Engineers Safety and Occupational Health Program began by ambitious Army captain in 1933

The mission of the U.S. Army Corps of Engineers (USACE) Safety and Occupational Health is to provide policy, programs, technical services, oversight and outreach related to safety and occupational health matters in support of USACE missions worldwide.

The Corps' safety bible, EM 385-1-1, states: "The provisions of this manual implement and supplement the safety and health standards and requirements referenced above. Where more stringent safety and occupational health standards are set forth in these requirements and regulations, the more stringent standards shall apply.

Captain Lucius D. Clay

The roots of USACE safety dates back to July 3, 1933 when an ambitious Army captain named Lucius Clay, by direction from the Chief of Engineers, wrote a circular letter stressing the need for a safety program within the Corps. In his report he used a quotation from the Sixteenth Annual report of the U.S. Employees' Compensation Commission of 1932:

*"During 1931 the War Department reported the largest number of approved fatal cases, namely 71, and the Engineer Office of that department alone reported 55 of these cases."*

Clay went on to write that "in the entire government service there were 210 approved fatal cases in 1931 so that the Engineer Department was responsible for about 26 percent of all fatalities." He stated that the average cost of each Engineer case to the government was estimated at $7,500 ($124,000 in todays dollars*), making the estimated cost of fatalities charged against the Engineer department, $412,500 ($6.8 million*). Adding to this 38 permanently partial disability cases, at an estimated cost of

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# Safety Con't

$30,400 ($502,000*) and 1130 temporary total disability cases at an estimated cost of $146,400 $30,400 ($2.4 million*) the total cost of compensation for the calendar year 1931 was $599,300 ($9.9 million*).

According to Clay, a table in the circular showed the injury record for the U.S. Navy, total War and Engineer Departments for the calendar years 1928-1929 and 1930. It showed a slight increase in deaths in the Engineer Department for 1931 over 1930, "a decided decrease in permanent partial disabilities, but a large increase in temporary disability cases, and a slight increase in total awards."

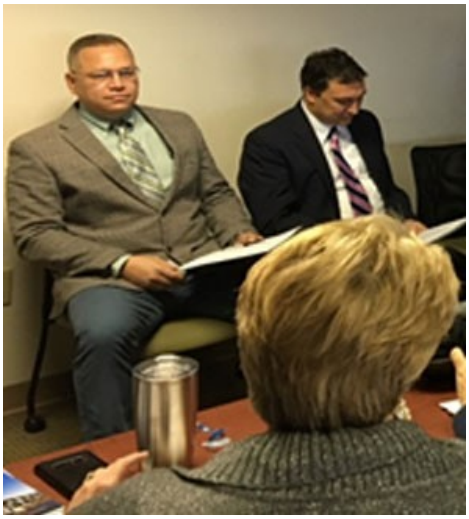
The proposed solutions to decreasing accidents and fatalities and increasing "safety engineering" was to be directed by a responsible officer or employee, who supervised and coordinated work, and who was responsible for results to the District Engineer. Safety matters were to be handled by the Safety Section through the Area Chiefs or Division heads, who in turn worked through their subordinates. All officers and employees were charged with advising the Safety Section of any hazards or unsafe practices which may have come to their attention. Clay stressed that under the duties of Safety Section officers or employees were responsible for the successful conduct of all safety work in the district. He wrote that "the impetus must come from it. It should be charged, he wrote, that there should be "stimulating interest among and supervising the education of all employees, supervising the preparation and collection of accident reports, compiling and analyzing safety data, detection of hazards and unsafe practices and determination of methods to correct them."

Lucius Clay graduated from the U.S. Military Academy at West Point in 1918 and held various civil and military engineering posts during the 1920s and 1930s, including teaching at West Point, and directing the construction of dams and civilian airports. By 1942 he rose to the position of the youngest brigadier general in the Army. He acquired a reputation for bringing order and operational efficiency out of chaos, and for being an exceptionally hard and disciplined worker, going long hours and refusing to even stop to eat during his workdays. Clay did not see actual combat but was awarded the Legion of Merit in 1942, the Distinguished Service Medal in 1944, and received the Bronze Star for his action in stabilizing the French harbor of Cherbourg that was critical to the flow of war material. In 1945 he served as deputy to General Dwight Eisenhower. The following year, he was made Deputy Governor of Germany during the Allied Military Government. Lucius D. Clay Kaserne, a U.S. Army installation located within Wiesbaden-Erbenheim, Germany is named for him. It's the headquarters of the U.S. Army Europe (USAREUR).

# Wilmington District project manager participates in Chamber of Commerce leadership program

On January 15, Deep Draft Navigation Project Manager Tim Jones represented the Wilmington District as a member of the City of Wilmington Chamber of Commerce's Leadership Wilmington 2019 Transportation Infrastructure Panel. Panelist's provided responses to questions on the topics of current projects, future projects, and leadership.

The Leadership Wilmington class consists of 36 members that are employed by local, state, and federal government agencies as well as local companies in the Greater Wilmington Area. As a panelist, Jones said that the public is very interested in the proposed developments in Wilmington. He received general and specific questions about the U.S. Army Corps of Engineers and its projects and role in the greater Wilmington area.



Tim Jones, left, listens in as a panel member in the program.

"They asked us such questions as past storms that impacted our infrastructure and what have we learned from those experiences that helps us today," he said. "Hurricane Florence hit Wilmington as a Category 1 storm with 90 mph winds. The water flooded the area and after the storm passed Wilmington worked closely with the National Oceanic and Atmospheric Administration (NOAA), the U.S. Coast Guard, and the U.S. Naval Sea System Command, Supervisor of Salvage and Diving (SUPSALV), to identify and remove obstructions in the Wilmington Harbor. Coordination with the U.S. Navy in this manner was a first for the District, but now we have the experience on how to respond to getting obstructions removed in the harbor."

Jones also explained that the Wilmington District is reviewing the North Carolina State Ports Authority's Wilmington Harbor Turning Basin Expansion 408 submittals. Alterations to USACE-constructed Civil Works projects by another party, he explained, requires the party to submit documents in accordance with 33 USC 408, and that USACE will provide a determination that the proposed project will not be detrimental to the public interest and will not impair the usefulness of the Civil Works project. He added that determinations on this and other projects are shared in a public forum.

The objective of Leadership Wilmington is to educate, challenge and motivate leaders and future leaders to utilize their leadership skills to work for the betterment of our community. There are five components that will be stressed throughout the program. They are:

- Leadership skills/styles
- Community issues and challenges
- Diversity class project
- Dynamics of regional social & economic change

Jones said the ten-month program consists of eight all-day sessions, an orientation social, a two-day retreat to begin the program, and a graduation ceremony. The all-day sessions occur once a month from September through April. To complete the program successfully, each class member is expected to participate in the orientation/ social, retreat, all monthly program sessions, and graduation. Participants must make a serious commitment to the program and employers must agree in advance to grant participants time off from their duties to attend all scheduled activities.

# Regional leadership team develops social media strategy to tell USACE story

Wilmington District Budget Analyst Lisa James was selected to participate in the South Atlantic Division's (SAD) Regional Leadership Development Program (RLDP) in 2018. The RLDP provided an opportunity for her to develop and improve her leadership skills, emotional intelligence, public speaking, and to learn about strategic regional complexities and similarities within the SAD Region.

While in the RLDP, she gained valuable knowledge of a variety of leadership styles such as soft skill training, mentorship, and regional experiences. She also had the opportunity to form enduring relationships with her RLDP Team, called Team Dispatch.

"As part of the RLDP, we were assigned a project by SAD Commander Brig Gen. Diana Holland regarding social outreach and using social media to tell our regional story," James said. "Team Dispatch developed a Regional Social Media Strategy for the South Atlantic Division. We also developed two tools to be used to assist our Public Affairs Office in telling our regional story."

James said the tools the team developed are called the Social Media Activity Reporting Tool or SMART form, and the Social Media Workforce Training Guide. When used with Command Priorities, she said they are excellent sources to assist in telling the regional story. The SMART form can be used to submit stories to Public Affairs for posting to Social Media. In addition, the Social Media Workforce Training Guide is a great tool to assist with identifying appropriate material to be posted.

"The RLDP is an excellent venue for participation in premier learning and development opportunities. I strongly recommend participating for the RLDP," said James.

NOTE: When the SMART tool is established in the Wilmington District Sharepoint site the form below is what you can use to send information to the Wilmington District PAO.

**SOCIAL MEDIA ACTIVITY REPORTING TOOL (SMART)**

This form is to be used when reporting District activities for submission to the Public Affairs Office (PAO)/Corporate Communications Office (CCO) for potential social media content.

Please complete all fields related to the activity, point of contact information, and attach appropriate photos or other necessary documentation. All forms should be submitted to the designated POC.

**POST TYPE:** ☐ New Post ☐ Re-Post **POST PRIORITY:** ☐ High ☐ Medium ☐ Low

| **1. POINT OF CONTACT INFORMATION** | |
|---|---|
| POC Name: | Alt. POC Name: |
| POC Division/Office: | Alt. POC Office: |
| POC Phone Number: | Alt. POC Phone Number: |
| POC Email: | Alt. POC Email: |
| **2. ACTIVITY DETAILS** | |
| Activity Start Date: | Activity End Date: |
| Activity Location: | |
| Project/Program Name: | |

| **3. ACTIVITY TYPE (CHECK ALL THAT APPLY)** | | | |
|---|---|---|---|
| | Awards | | Project Highlight/Site Visit |
| | Community Outreach | | Public/Partnering Meeting |
| | Disaster Recovery | | Recruitment Event |
| | Key Leader Engagement | | Training/Exercises |
| | Media Engagement | | Other: |

| **4. ADDITIONAL AGENCY ATTENDEES** | |
|---|---|
| | |
| | |
| | |
| | |

**5. ACTIVITY SUMMARY (max 100 words)**

*Include purpose, location, key agency staff involvement, stakeholder involvement, other Federal agency involvement*

# Historic Fort Fisher won the war over Mother Nature with help from District

Every year during the second week of January, Civil War reenactors gather near the southern end of Pleasure Island to commemorate the anniversary of the Second Battle of Fort Fisher. Authenticity is a must, and reenactors travel from as far away as upstate New York to attend either as Confederate or Union soldiers.

The state of North Carolina prides itself in preserving its history. The museum at Fort Fisher is filled with numerous artifacts from the battles, and explains in detail the day-to-day life before the battles and during them. The Fort Fisher site, located just offshore of Kure Beach, almost lost a battle with Mother Nature. It was losing ground to erosion more than two decades ago and could have eroded away. A grassroots effort between the state of North Carolina and the U.S. Army Corps of Engineers Wilmington District recognized the historic and cultural value of the fort which sparked efforts to reduce further erosion. According to Wilmington District civil engineer Ed Dunlop, the solution was a rock revetment that was strategically built near the main part of the fort.

Confederate troops fire at Union Soldiers during the Second Battle of Fort Fisher.

"The year the fort was completed we had hurricanes Fran and Bertha back to back," said Dunlop. "We were fortunate to have completed the project because it would have meant a significant loss of the fort, especially from Fran which made a direct hit in the area."

Fort Fisher was the largest earthen fortification in the world when the Civil War ended in 1865. It was built in the spring of 1861 by Confederate soldiers to defend the New Inlet that flowed into the Cape Fear River. Work continued under Col. William Lamb for several years. By 1865 Fort Fisher extended across Federal Point, facing north, then turned south 1,900 yards along the Atlantic Ocean. Both faces of the fort consisted of sod-covered mounds of sand, inside each of which was a bombproof shelter. Between these were platforms with 44 guns, most of which were smoothbore Columbiads. Three mortars and

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# Fort Fisher con't

three Napoleon smoothbores augmented the larger pieces. A sally port midway in the landface allowed access to a palisade of sharpened logs nine feet in height. Two dozen mines outside this could be detonated from inside the fort.

Colonel Lamb tried without success until his death in 1909 to have the fort made into a national military park. The New Hanover County Historical Commission placed a marker there in 1921. Ten years later, the Fort Fisher Preservation Society was formed to try to prevent further beach erosion and to foster public interest but had little to show for its efforts. In World War II, a new military post was constructed over part of the old fort and erosion continued at the sea face.

The rock revetment at Fort Fisher helped the fort withstand Hurricanes Fran and Bertha.

The approach of the centennial of the Civil War aroused interest in Fort Fisher, and in 1958 the state leased 189 acres of federal land. Two years later the North Carolina Department of Archives and History began to develop Fort Fisher as a North Carolina State Historic Site. Work progressed with the assistance of local organizations and individual citizens, and in 1962 the remains of the fort became a National Historic Landmark. The General Assembly appropriated funds for a visitor's center, and a local restoration committee raised funds for the purchase of additional land. Before the end of the decade, further land and buildings were added to the site, and steps were taken, insofar as possible, to control erosion. Archaeological research and an underwater archaeology laboratory contributed to the understanding of the site, while exhibits at the visitor's center and conducted tours brought more visitors.

An aerial view of the revetment at Fort Fisher designed and constructed by the Wilmington District.

# Teamwork and Technology: Game changers for the U.S. Army Corps of Engineers

Mississippi Valley Division Story by Sabrina Dalton

Navigation, flood risk management, recreation, hydropower, environmental stewardship, and emergency response are facets of what we do at the U.S. Army Corps of Engineers (USACE), Mississippi Valley Division (MVD), headquartered in Vicksburg, Mississippi. Within each of the overarching mission sets, are people in various career fields such as engineering, biology, geology, hydrology, legal, archeology, real estate, finance, business, emergency management, meteorology, technology, and the list could go on.

These professionals all work together on the same team to engineer solutions, produce energy, reduce flood risks, support outdoor recreation, and protect commerce, energy, agriculture, natural resources, and critical infrastructure such as schools, airports and hospitals. One could venture to say that if there's a college degree that exists, then it probably exists under the USACE umbrella.

Including MVD, there are nine total divisions within the entire USACE spread across the world with their own missions. Ultimately, we're all part of the same team comprised of approximately 34,000 civilians and 800 military members.

Teamwork is the cohesive bond which unites the Corps. Whether it be engineering solutions or disaster response, all across the enterprise – we communicate and assist one another.

This year's hurricane season tested the USACE's mission set of supporting the Department of Homeland Security and FEMA. The Corps assists FEMA's emergency support function #3 (ESF-3) mission by providing services, technical assistance, engineering expertise, construction management and other support functions to prepare for, respond to and recover from disasters or incidents.

The USACE enterprise from across the country is leveraged during disasters as part of the National Response Framework (NRF). The NRF details guidelines that interface partners to include the Corps, communities, tribes, states, the federal government, and the private-sector in order to prepare for and respond to emergencies and disasters. When called upon, the Corps provides specific services during disasters such as critical public facility restoration, debris management, and temporary power, temporary housing and temporary roofing.

Hurricane Florence in early September provided the conduit for the Corps to come together and

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# Teamwork and Technology Con't

provide not only boots-on-the-ground assistance, but to offer their technological expertise. Geographic information systems (GIS) and the USACE's Modeling, Mapping and Consequences Production Center (MMC) were two entities that the Corps utilized during this year's hurricane season.

Depending on one's need for geographic information, GIS allows users to see layers of information and data such as maps, roads, levees, and inundation or water levels all within a user-friendly web application.

Similarly, the MMC production center, a USACE virtual team working all across the U.S., produces hydrologic and hydraulic models, economic consequences models, flood inundation mapping, and data management to support emergency operations on request from USACE districts, divisions and USACE Headquarters (HQ), located in Washington D.C.

The MMC develops models that show inundations based on National Weather Service (NWS) precipitation forecasts at different times. Some of the models are unique to the Corps in that they simulate operational releases of water from USACE dams and show the impact on levee infrastructure. The model outputs then are converted to maps that run in web applications that are used by decision makers during disasters and catastrophes. These maps can be meshed with key transportation routes and other elements in order for trafficability on roadways to be viewed and flooded structures to be estimated. This is crucial in maintaining safety during disasters. Together, GIS and the MMC were synced this hurricane season to create a reporting tool bag of sorts.

As the threat of Hurricane Florence became a reality, the wheels were already turning within the USACE. Divisions and districts began talking to one another offering assistance and coordinating resources. The ultimate goal during any disaster is to save lives, protect critical infrastructure and assist in the recovery process.

There were many operating parts as emergency operating centers (EOC) activated in light of the impending hurricane. One of the "technical experts" at the Mississippi Valley Division is Jack Smith. Smith, MVD's GIS coordinator, has been a part of the Corps family for more than 30 years. His technical expertise grew as his career field evolved. He started out in land surveying, then cartography which morphed into the geo-spatial realm of GIS. Not only is GIS a one-stop shop for data, the technology allows users to communicate "virtually" which is invaluable during disasters.

In preparation of Hurricane Florence, Smith and Matthew Parrish, a civil engineer, water

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# Teamwork and Technology Con't

manager, and GIS coordinator for the South Atlantic Division (SAD) headquartered in Atlanta, began coordinating GIS services as soon as they received confirmation that the hurricane would make landfall.

As the SAD water manager, Parrish coordinated modeling and mapping efforts with the MMC in Wilmington, Charleston, Savannah, Mobile and Jacksonville Districts, HQ USACE and the NWS, FEMA, and US Geological Service (USGS).

"I helped facilitate the transfer of data and information between the groups," Parrish said. "This ensured that critical areas were modeled and mapped. I also performed quality reviews on subsequent mapping products to make sure those products looked appropriate for the scenarios that were being modeled by the MMC and Wilmington District."

In his role as GIS Coordinator, Parrish ensured that the information shared with all involved had a single source so that senior leaders and responders could see the exact same information. The benefits of the authoritative data set was two-fold.

"This prevented other GIS specialists from having to recreate a file for their own maps, dashboards and storymaps," Parrish said. "And more importantly, confusion among senior leaders and responders was greatly minimized."

In advance of the storm, Smith developed a GIS web portal to house critical data from partnering organizations such as the NWS, National Hurricane Center, and USGS. The GIS data hub was crucial for not only Hurricane Florence, but for Hurricane Michael as well. It allowed key players and leaders to stay abreast of the situation in SAD and to coordinate response efforts in the safest way possible.

The server for the GIS portal is housed at MVD's Vicksburg District. The Corps' use of this current technology is around three years old. Before, data coming from the field and from different districts was fragmented and inefficient.

"The great thing we're doing with GIS is utilizing technology to have a central interface where data can flow faster and with fewer people," Smith said. "In past events and especially in ESF-3 missions, you'd have multiple sets of reports coming in daily, not knowing which was most current. It was hard to find information. It might be at different websites or in a PowerPoint."

With the GIS portal that Smith created, the data reported to division commanders came in from partners like the NWS and other USACE districts. The data was fed all the way up the chain to Lt. Gen. Todd T. Semonite, U.S. Army Chief of Engineers and Commanding General of the USACE.

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# Teamwork and Technology Con't

"The biggest advantage that I've seen using GIS is sometimes you'd have multiple mission managers on the same mission with different sets of numbers like for blue roof. Numbers were all over the place. This could be because of time differences," Smith said. "The GIS portal has added the capability to provide a central site where we can collaborate together. I can set something up for someone to put data in, and we have one set of numbers. It's a very powerful collaboration tool."

While Smith and Parish were working on GIS, the MMC received a request from SAD to produce inundation products for seven river systems across two USACE districts, Charleston and Wilmington. The Yadkin River, Tar River, Roanoke River, Neuse River, Catawba River, Pee Dee River, and Cape Fear River basins in North and South Carolina were areas covered in the request.

Multiple entities across the Corps were meeting, talking, and planning to support SAD. The MMC participated in daily morning calls led by SAD to discuss inundation products with South Carolina's Department of Natural Resources, Southeast River Forecast Center, USGS, NWS, FEMA, North Carolina's Emergency Management, and the Corps' Charleston and Wilmington Districts. Current and future weather conditions, current modeling assignments, additional areas of concern from personnel in the field, and any changes or additions to the current modeling assignments were topics covered during the coordination calls.

In addition, the MMC coordinated with the Engineering Research and Development Center, headquartered in Vicksburg, to share current maps and models and to plan for future taskings.

Not only were USACE divisions and districts implementing technologies ahead of the storm, but USACE HQ was heavily engaged as well. Headquarters used data from the GIS portal and from the MMC production center in order to make critical decisions.

Headquarters requested that the MMC develop trafficability information, a new application of the hydraulic model output. The MMC trafficability dashboard went live to the public shortly after the request. This dashboard showed peak water depth and daily depth maps for each river basin to portray water impacts to various types of vehicles. The general public and FEMA also began using the trafficability dashboard. The dashboard was updated daily until the end of the flood events.

FEMA used the depth grids and trafficability grid within the MMC's trafficability dashboard. The value of the MMC's products were unmatched as FEMA, U.S. Army field units, and states requested the data and created other products to support response and recovery planning operations.

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# Teamwork and Technology Con't

North Carolina's Department of Transportation requested to use the inundation tools to be able to better assess state bridges and roads.

The GIS portal, which Smith developed, is still actively used today. Just recently, the SAD storyboard's metrics showed well over 45,000 hits. Partnerships are powerful in the Corps and are game changers during disasters.

"This year's hurricane season brought together the exceptional skills of so many in the Corps," said Maj. Gen. Richard Kaiser, commander of the Mississippi Valley Division. "The geo-spatial team along with our people in the field were invaluable in providing assistance for Hurricanes Florence and Michael. Any opportunity that our people within the Mississippi valley have to assist is a source of pride for the entire U.S. Army Corps of Engineers."

The Mississippi Valley Division's Readiness and Contingency Operations office manages the Corps' ESF-3 mission which is part of the NSF. Within that mission, MVD has five planning and response teams that can be enacted during a disaster. Starting at the headwaters of the Mississippi River, the St. Paul District has the temporary housing mission. St. Louis District's mission is temporary roofing. Vicksburg and New Orleans Districts share the debris mission. Memphis District has the temporary power mission. And, Rock Island District houses the National Flood Fight Materials Center.

Mississippi Valley Division's six districts provided disaster response to a total of 19 events during 2018. More than 2,000 volunteers deployed and/or supported events to include floods, hurricanes, typhoons and the California wildfires. Even now during the holiday season, MVD has more than 100 team members deployed for response and recovery due to disasters.

Members of the Corps family support disasters at home station and others volunteer to deploy within the U.S. and as far away as the Middle East. They are members of your communities as well as civil servants, who take the Oath of Enlistment upon their assumption as a federal employee. With that comes commitment to the nation to "support and defend the Constitution" which entails "promoting the general welfare" of the publics for whom they serve. During disasters, this commitment becomes apparent as the Corps performs its duties to provide assistance and support to communities, states and our nation.

The U.S. Army Corps of Engineers, Mississippi Valley Division provides on-going vital public engineering services at home and abroad during peace and war to strengthen our nation's security, energize the economy, and reduce risks from disasters.

# Why we celebrate Presidents Day

The Commander in Chief's Guard, composed of Soldiers from Company A, 4th Battalion and 3rd U.S. Infantry (The Old Guard) demonstrate military tactics during the era of Gen. George Washington's Continental Army on the bowling green at Washington's Mount Vernon Estate on Presidents Day.

Presidents Day is celebrated on the third Monday in February. Originally established in 1885 in recognition of President George Washington, the holiday became popularly known as Presidents Day after it was moved as part of 1971's Uniform Monday Holiday Act that was an attempt to create more three-day weekends for the nation's workers. While several states still have individual holidays honoring the birthdays of Washington, Abraham Lincoln and other figures, Presidents' Day is now popularly viewed as a day to celebrate all U.S. presidents, past and present.

Presidents Day began in 1800 following the death of President George Washington in 1799. At the time, Washington was the most important figure in American history. Events like the 1832 centennial of his birth and the start of construction of the Washington Monument in 1848 were cause for national celebration. While Washington's Birthday was an unofficial observance for most of the 1800s, it was not until the late 1870s that it became a federal holiday. Arkansas Senator Steven Wallace Dorsey first proposed the measure, and in 1879 President Rutherford B. Hayes signed it into law.

At first, Presidents Day only applied to the District of Columbia. In 1885 it was expanded to the whole country. Washington's Birthday joined four other nationally recognized federal bank holidays; Christmas Day, New Year's Day, the Fourth of July and Thanksgiving. It was the first holiday to celebrate the life of an individual American. Martin Luther King Jr. Day, signed into law in 1983, was the second.

# DISTRICT OBSERVES DR. MARTIN LUTHER KING JR. AND BLACK HISTORY MONTH


Pastor Robert L. Campbell , left, was the keynote speaker at the Wilmington District's annual observation of Dr. Martin Luther King Jr. and Black History Month organized by the Black Employment Program (BEP) team. Campbell, a retired U.S. Marine Corps officer, is a community leader and motivational speaker. His message was taken from one of Dr. King's numerous and inspirational quotes: "Life's most persistent and urgent question is, 'What are you doing for others?'" Campbell currently serves as president of the Wilmington Interdenominational Ministerial Alliance, and is Chairman of the Board for East Carolina Community Development Incorporation.

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Col. Robert Clark welcomes guests to the event with EEO Chief Renita McNeill. At right, he mingles with honored guests.

# MLK Con't


Clockwise from left: Campbell delivers his speech with the theme from Dr. Martin Luther King Jr.'s quote, "What are you doing for others?"; Col. Clark presents a Certificate of Appreciation to Cape Fear Academy sophomore Shamiya Robinson; retired Wilmington District civil engineer Tony Carter chats with Betty Brown of Operations; Black Employment Program Manager Gloristine Price introduces keynote speaker Campbell.

**New York District ACE-IT**

**Photos by Ildiko Reisenbigler**


# District's Internal Review recalls time during U.S. Virgin Islands recovery

When Trish Glover of the Wilmington District's Internal Review Office deployed to the U.S. Virgin Islands (USVI) during hurricane recovery after Hurricanes Irma and Maria she faced a few challenges common to others who deployed. She was working in a location that she had never been to before with people that she had never worked with before.

"Driving on the left hand side of the road was a bit scary and to top that off some of the roads were not much wider than what we would normally call an unpaved bike trail that wound around a mountain with no guard rails to keep you from driving off the side of a mountain," she said.

Despite the unfamiliarity's she had a vital role providing audit support and advisory services to assist the U.S. Army Corps of Engineers emergency response mission with command and control issues and in strengthening internal controls. Glover said Internal Review services focus on:

- Maximizing effectiveness of resources expended during USACE's response and recovery
- Identifying internal controls in place and verifying whether they are operating as intended
- Working with management to make processes more efficient and effective
- Reduce the opportunity for fraud, waste and abuse

Trish Glover inspects an area during hurricane recovery on the U.S. Virgin islands.

Glover said that the work she did during the USVI mission was very rewarding. However, she said that her biggest challenge she had in her job was making some people understand that she was a team player to provide audit support to USACE.

"This was a bit more challenging in the USVI mission because I had never worked with the majority of the people that were working the mission, so they had their own ideas of what Internal Review was there to do," she recalled. "Most of the people working the USVI mission came from other districts. Therefore, I had never worked with them before and I didn't really have time to build relationships with everyone like I would working back at the District in Wilmington. In my job I like to establish a positive rapport with people."

Glover's time on the ground during the hurricane recovery mission was well spent. She covered a lot of territory, and diligently used her skills and expertise for the overall mission.

"I tell people all the time that I know I was born to be an auditor. I can't imagine doing anything else. I have the opportunity to help people and help reduce risk all at the same time."

# WHAT YOU CAN DO TO SUPPORT ENGINEERS WEEK

**By Hank Heusinkveld**

My neighbor, Jackie, and her husband, Willy, have an extraordinarily bright and inquisitive grandson who occasionally comes over to my house on the weekend to play catch, kick a ball or bombard me with questions about my gardening tools in my garage. He's fascinated with my riding lawnmower, and always asks to see the engine. He'll run his fingers along the various wires to see where they connect, and he likes to look at each wheel to examine how it's connected to the steering wheel. He's 10 years old, but when he's in his study mode he seems like he's about ready to enter high school.

I told Jackie about his fascination with my lawnmower. She seemed a little non-plussed since she and Willy were also asked dozens of questions about their household appliances. They both know he's very intelligent and takes after his father, their son, who's a computer systems analyst. I asked them if they knew about an interactive website for children who have an aptitude for math and science, and who might show signs of being a future engineer. I told them about the website Discover E. They said that they had never heard of it. Intrigued, they both agreed that it might be useful for their grandson. They later explained what happened when they showed the site to him. He went to a page where he could download various projects via PDF. He found one particular project very interesting: "Build a Sorting Machine." He could build a gravity-powered machine that automatically sorts two different sizes of beads. The instructions read, "Manufacturers use machines that can sort objects that would take way too long for humans to do it by hand. Sifting through sand to find gold, separating dimes from pennies, and sorting rocks from gems are examples of why sorting machines are needed. In this activity, students use the power of gravity to design, build, and test their own method of sorting "gems" from "rocks." He then had to define the problem:

- Show students images of sorting machines such as a coin sorter, a pan for panning gold, and a winnower for separating wheat from chaff. Ask what these machines have in common. Discuss the role of gravity in each.
- Tell students they will design a machine that separates "rocks" from "gems" into separate cups, represented by two different sizes of plastic or wooden beads. Their machine will be powered by gravity. Hint: beads may be sorted by size or weight.

Jackie and Willy told me that he spent a few hours on the site without their guidance, and was mesmerized.

During Engineers Week, you can introduce a gifted child to the world of engineering through this invaluable website. Simply go to:

www.discovere.org

# NEW EMPLOYEE HIGHLIGHTS

Stephen Fabian

Geologist

Surfing, rocks, weather forecasting

"When you're on a great, cohesive team the work always gets done efficiently & effectively.

## Sand HUNTER

As a geologist I focus mostly on beach nourishment projects and help locate sand resources in the nearshore and offshore environment. Based on the location of sand resources I then create target areas to be dredged for beach placement. Additionally, I analyze bathymetric surveys and nearshore geologic structures to determine where additional vibracores are needed to find other sand resources.

Ana Karina Feliciano

General Engineer

Family, traveling

"The most resounding values that I bring to my job are respect, love, and integrity.

## Ensuring Compliance

As a general engineer it is my duty to maintain and improve competencies relevant to the design and construction disciplines. I'm responsible for overseeing the preparation of project specifications and coordination of the specifications with other construction documents to ensure their compliance. I also focus on creating business processes that focus on workload management such as scheduling milestones tracking, resource usage and developing standard operating procedures.

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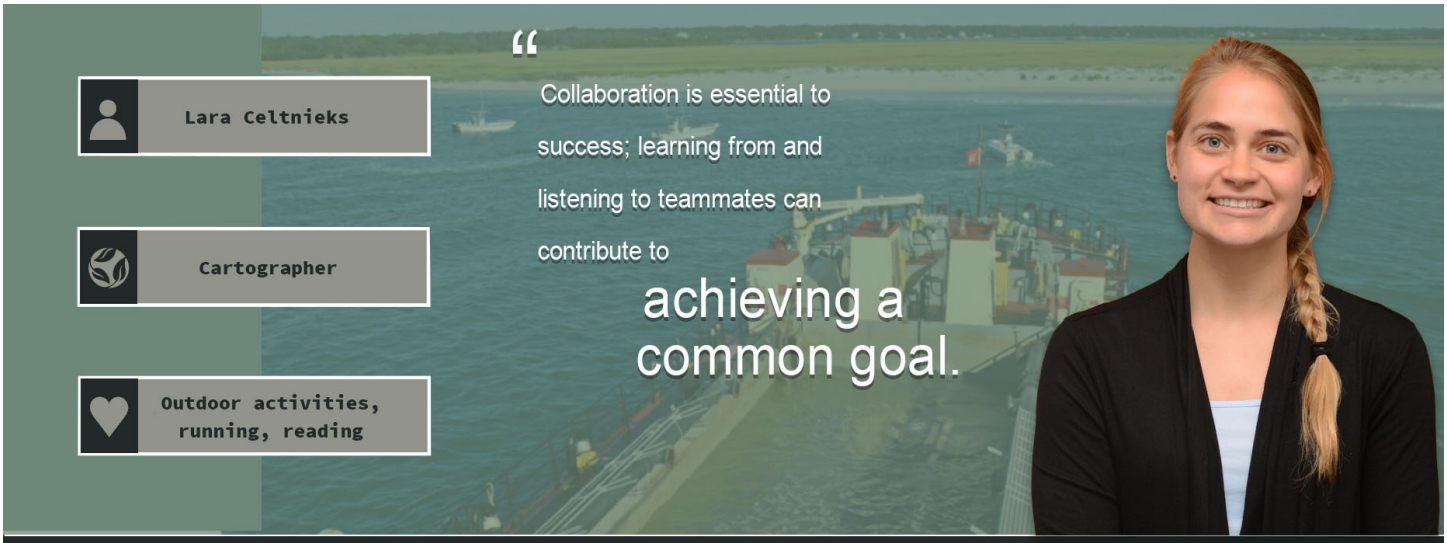
# NEW EMPLOYEE HIGHLIGHTS




## Loyal TEAM PLAYER

As a cartographer with the U.S. Army Corps of Engineers I work primarily analyzing, interpreting, and visualizing spatial data to support the various missions of the Wilmington District's Navigation Branch. I enjoy contributing to and being part of a professional team that helps provide safe passage in the federal channels of North Carolina.


## PM ORGANIZER

As a project management analyst with the Wilmington District's Civil Works Project Management section I keep track of budget items in CEFMS and I work extensively in P2. I track obligations and expenditures as well as assisting project managers and Project Delivery Team members to stay within budget and resourcing in P2.