PALMETTO CASTLE

Volume 11/Issue 4
Charleston District

SPECIAL EDITION:
Hurricane Florence

On the cover: An aerial photo shows U.S. Highway 501 being utilized despite the Waccamaw River reaching historic flood levels from Hurricane Florence. The U.S. Army Corps of Engineers, Charleston District and the South Carolina Army National Guard installed Hesco barriers to keep two lanes of U.S. Highway 501 operational.

This special edition of the Palmetto Castle is dedicated to all those who have been impacted during this unprecedented storm season. Whether it was by Hurricane Florence or Michael you are in our thoughts and prayers. The U.S. Army Corps of Engineers is proud to be able support our communities in need.

Commander:
Lt. Col. Jeffrey Palazzini
843-329-8000

Deputy, PPM:
Lisa Metheney

Corporate Communications Chief:
Glenn Jeffries

Editor:
Sara Corbett

Writer:
Sean McBride

Guest Writer:
Edward N. Johnson
Tulsa District

News Magazine of the
U.S. Army Corps of Engineers
Charleston District
Circulation: 1,100
www.sac.usace.army.mil

@CharlestonCorps

The Palmetto Castle is a quarterly unofficial publication authorized under the provisions of AR 360-1 under supervision of the Corporate Communications Office. Editorial views and opinions expressed are not necessarily those of the Corps of Engineers or the Department of Defense. Inquiries, comments and requests for electronic copies can be forwarded to the editor of the Palmetto Castle by e-mail to: PalmettoCastle@usace.army.mil

From the Commander

Hurricane Florence impacted the northern part of our state with torrential flooding, closing businesses, damaging homes and making many roads impassable. The Charleston District was honored to be able to serve South Carolinians in the largest flood fight the District has fought in over a decade. The District's employees worked tirelessly in partnership with many local, county, state and federal agencies to protect the people and property most severely impacted in Horry, Georgetown, Florence and Marion Counties.

Over 20 inches of rainfall flooded several rivers in South Carolina, including the Waccamaw, the Black, the Lumber, the Lynches, the Pee Dee and the Little Pee Dee. The District sent seven liaison officers to various state and county emergency operation centers to ensure they received the support and supplies they needed. USACE Flood Fighting subject matter experts were also called in from around the country to provide technical assistance to our state and local partners.

The District used Hesco barriers for the first time as we fought to keep U.S. Highway 501 in Conway open for emergency vehicles and to prevent Myrtle Beach residents from becoming isolated by area flooding. The military has long used Hesco barriers for force protection, but this was the first time the Charleston District used them for flood protection. They were tested for this use by USACE's Engineer Research and Development Center and our technical experts used them in previous years for flood fights all around the country. With a request from Horry County, help from the South Carolina Department of Transportation and the South Carolina Army National Guard, and technical knowledge from USACE, the team placed 10,105 linear feet of Hesco barriers and over 1,000 supersack giant sandbags on this critical highway. I am proud to report the hard work by this great team resulted in the highway remaining open.

The Town of Pawleys Island and City of Georgetown also asked the state for help. You will see our efforts in those communities highlighted as well. We partnered with state and county organizations to protect a vital pump station, a hospital and a stretch of U.S. Highway 17 as dangerously high flood waters flowed toward Winyah Bay.

I have never been prouder to be part of the USACE team than during this time. Our employees didn't hesitate to set aside their personal and professional commitments to selflessly serve their fellow South Carolinians in a time of need. They are a true asset to the people and resources of our region. The Charleston District is absolutely one of the most professional and dedicated teams I have worked with!

Brig. Gen. Diana Holland, South Atlantic Division Commander, and Lt. Col. Jeff Palazzini, Charleston District Commander, walk along U.S. Highway 501 to inspect the Hesco barriers being installed.

A big THANK YOU to the South Carolina Army National Guard, the South Carolina Department of Transportation and the numerous organizations from Horry, Georgetown, Florence and Marion Counties who came together to fight this flood. It was extremely rewarding and something I will never forget.

Although hurricane season ends November 30th, the Charleston District stands ready to assist the state in the future. We are so proud of the articles and photos showing the team in action in this *Palmetto Castle Special Edition*. However, we humbly keep all those impacted by this storm season in our thoughts as they move closer to a full recovery.

Jeffrey Palazzini, PMP
Lieutenant Colonel, U.S. Army
Commander and District Engineer

Hurricane Florence Special Edition

By Sean McBride

Hurricane Florence barreled toward the east coast of the United States at a historically slow pace for weeks before making landfall on Wrightsville Beach, N.C. on September 14, 2018. The coastline of South Carolina was spared the direct force of Hurricane Florence, however impacts were felt throughout the state for weeks after due to extreme flooding.

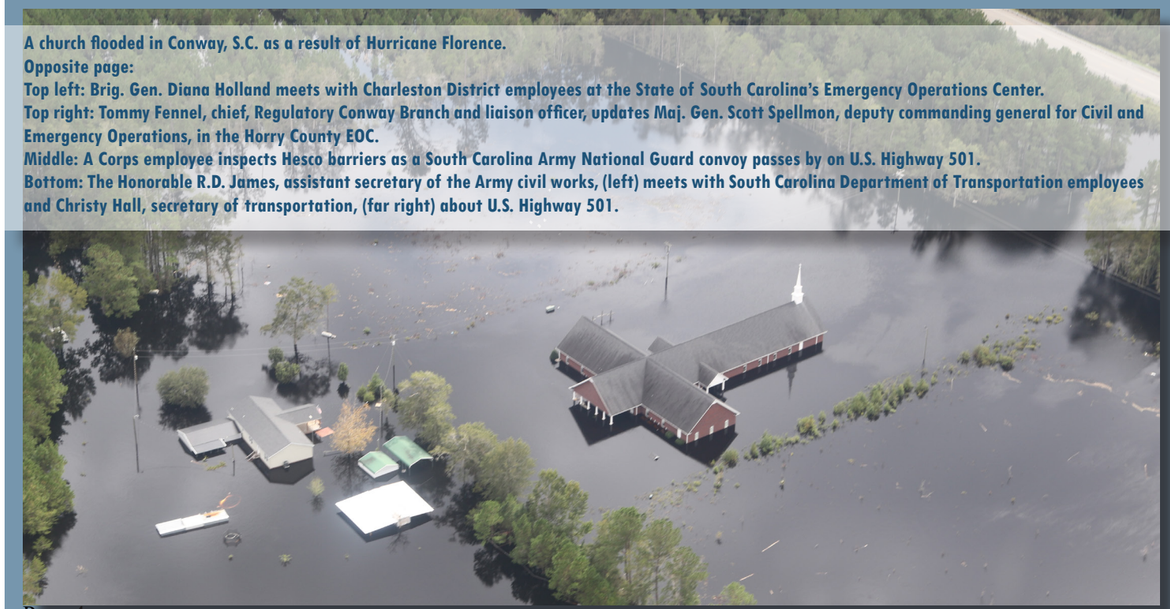
The path of Hurricane Florence was unprecedented. The storm collided with the coast in North Carolina and stalled against a high pressure front that caused Florence to come to a standstill over Wilmington. Once Hurricane Florence did move, it dropped southwest after having travelled northwest for weeks. This took the path of the storm down into South Carolina, where it crawled along at less than five miles per hour for its duration in the state.

While the storm stalled, the rain did not. Hurricane Florence dumped more than 20 inches of rain in many parts of upper South Carolina and lower North Carolina over several days. Many homes were destroyed from the effects of wind and downed trees and more than 50 people were killed. In South Carolina, the biggest impacts came in the weeks after Hurricane Florence had inched out of the state.

The historic rain bested the previous rain levels that had occurred during the 1,000 Year Flood just two years prior. Rain inundation throughout the state caused river levels to rise to heights never before seen and that water had to work its way to the coast. As tributaries rushed water to the Waccamaw, the Black, the Lumber, the Lynches, the Pee Dee and the Little Pee Dee Rivers levels slowly rose and the U.S. Army Corps of Engineers was there to help.

Throughout this issue, you will learn all about the missions that the Charleston District undertook and about the partnerships that made them work. The Charleston District Emergency Management Division coordinated efforts throughout the state with the help of volunteers and successfully handled all the issues that were presented to them. We've structured this issue of the Palmetto Castle to tell you about the various post-hurricane response activities that the Charleston District undertook and the partnerships that were utilized.

Hurricane Florence response was a joint effort throughout the state and could not have been successful without the help the Charleston District received from other Corps districts, the South Carolina Army National Guard, the South Carolina Department of Transportation, FEMA and state and local agencies. Team South Carolina was on full display after Hurricane Florence and provides lessons for the future.



A church flooded in Conway, S.C. as a result of Hurricane Florence.
Opposite page:
Top left: Brig. Gen. Diana Holland meets with Charleston District employees at the State of South Carolina's Emergency Operations Center.
Top right: Tommy Fennel, chief, Regulatory Conway Branch and liaison officer, updates Maj. Gen. Scott Spellmon, deputy commanding general for Civil and Emergency Operations, in the Horry County EOC.
Middle: A Corps employee inspects Hesco barriers as a South Carolina Army National Guard convoy passes by on U.S. Highway 501.
Bottom: The Honorable R.D. James, assistant secretary of the Army civil works, (left) meets with South Carolina Department of Transportation employees and Christy Hall, secretary of transportation, (far right) about U.S. Highway 501.

Quotes from the Ground

Lt. Gen. Todd Semonite

USACE Headquarters
Chief of Engineers

"Our teams have put in a heroic performance, and some are still working around the clock to save lives, boost safety, assess damage and restore critical infrastructure. Professionals engaged, anticipating what will be needed where, and ready to deliver: this is what world-class disaster response looks like! I am honored to be leading such a dedicated team of professionals committed to making a positive difference in the lives of the most vulnerable. I could not be prouder of you— leaders of superior integrity and technical competence who have stepped up and answered the call to serve.

Michael Hind

Charleston District
Chief, Emergency Management Branch

"Every event is different and brings a variety of challenges and situations that need to be addressed, you work with partners that were established with the local communities and across the State. Everyone has a job to do and everyone pulls together to meet the challenges to save lives and to do as much as possible to save property. It's a team effort and when one part of the team needs help, others spring forward to assist. It's all about the working relationships with local and state partners. I strongly believe local and state partnerships are crucial to expand on current capabilities which will go a long way for future event response operations.

"Pre-emergency planning and preparation is crucial. Every community should conduct what is called, in the emergency management community, a THIRA (Threat & Hazard Identification and Risk Assessment) to identify potential risk areas depending upon the threat. Based on those assessments, identified pre-emergency preparations can be implemented, as was the case in the Conway and Georgetown areas.

Peter Navesky

USACE Headquarters
Senior Liaison to FEMA

Tommy Fennel

Charleston District
Regulatory Branch Chief
Hurricane Florence Liaison Officer

"Being located physically in the Emergency Operations Center during the event gave people confidence that the Corps was 100% available and engaged. My role consisted of ensuring the right people were in place to make an impact based on needs, knowledge, and skill. In addition, as questions or needs arose, I was readily available to initiate actions and provide feedback. "Real time" accessibility was a key to the effectiveness of the mission.

"My primary take away from the Florence flood response effort was that by working together, the Corps of Engineers, National Guard, State DOT, and Horry County were able to quickly and effectively plan and execute flood fight measures. The close communication and coordination between these agencies was definitely a key to the success.

For the Highway 501 flood fight, USACE was engaged in the early planning and provided input on which flood fight products would be most effective. We also provided Hescos, Supersacks, plastic sheeting, and sandbags delivered directly to the flood fight location. It was challenging to have the flood fight materials delivered on time so that the State and National Guard's progress on installing the materials was not impacted. When the forecasted inundation levels changed, USACE assisted DOT and the National Guard with adjusting the plan to increase the flood protection height.

Douglas Weber

Seattle District
Chief, Emergency Management Branch
Hurricane Florence Flood Fight SME

Joining Forces with the National Guard

By Edward N. Johnson

U.S. Army Corps of Engineers logistics and technical advisors joined forces with South Carolina Army National Guard engineering battalions as part of Hurricane Florence response and recovery operations in Horry County, S.C.

“I just want to say what an honor it is for the Corps of Engineers to support our FEMA, local, and state partners in this post-storm period,” said the USACE South Atlantic Division Commander, Brig. Gen. Diana M. Holland. “One of the ways we helped here is with flood mitigation efforts along U.S. Highway 501.”

Philip Bethea, a construction engineer with the South Carolina Department of Transportation underscored the importance of keeping the 501 corridor open as long as possible.

“Our goal was to keep at least one lane open in each direction of the highway to ensure local residents had access to medical services, food and supplies,” said Bethea. “Fortunately, the Army Corps and National Guard helped make that happen.”

Lt. Col. William A. Matheny, commander, 122 Engineering Battalion, was the South Carolina Army National Guard’s senior engineer on the ground and at the center of efforts to mitigate the risk of flooding in the area.

“This actually wasn’t the first time I’d had the privilege of serving with Brig. Gen. Holland,” said Matheny. “She was my commander during a 2013 deployment to Afghanistan and we really appreciated the resources she and her personnel were able to provide in support of our operations on the ground in Horry County.”

With that in mind, USACE personnel worked around the clock to support the effort.

According to Tommy Fennel, USACE’s on-site liaison officer assigned to the Horry County Emergency Operations Center, there were USACE personnel from across the country integrated into state and local efforts to provide logistics and technical advice regarding Hurricane Florence flood response efforts.

“We supplied more than 10,000 linear feet of wire mesh barrier material and 5,000 sandbags to this site alone,” said Fennel. “These mission critical supplies were deployed at the direction of the South Carolina Department of Transportation to help protect areas impacted by flooding.”

This page: Members of the South Carolina Army National Guard install wire mesh Hesco barriers provided by the U.S. Army Corps of Engineers along the U.S. Highway 501 corridor in Horry Country, S.C., to help mitigate the risk of flooding and keep the route open for emergency responders and food deliveries.
Opposite top: SCANG fill Hesco barriers with sand along U.S. Highway 501.
Opposite middle: Charleston District employee Tommy Fennel (center) provides logistical update and technical advice during flood risk management operations to Lt. Col. William A. Matheny, Jr., SCANG, and Phillip Bethea (second from left), SCDOT.
Opposite bottom: Cpt. Joseph Varin (right), commander, 125th Engineer Multi-Role Bridge Company, SCANG, discusses bridging operations with South Atlantic Division Commander, Brig. Gen. Diana M. Holland.
Opposite left: Chief of Engineers, Lt. Gen. Todd Semonite, measures the height of the flooding along the Hesco barriers on U.S. Highway 501.

Hydraulic Sandbag Machine Helps Fill the Gap

By Edward N. Johnson

When it comes to disaster response, one of the U.S. Army Corps of Engineers' top priorities is supporting immediate life-saving and public safety efforts in partnership with FEMA, state and local emergency management officials.

Meeting this priority often includes providing sandbags and other resources to protect vital roadways and critical infrastructure during a flood event.

Following the impact of Hurricane Florence, this priority was met, in part, by rapidly deploying the latest emergency management equipment on-hand in the USACE inventory.

This piece of equipment, known as a hydraulic sandbag filler, made its way here from the USACE Louisville District while the storm was still raging across the region.

"Once called upon to deploy, we literally packed our bags and hit the road with the sandbag filler in tow," said Louisville District's Emergency Operations Manager George Minges. "Once we arrived, we began helping produce sandbags around-the-clock at multiple locations."

Between their work supporting the coastal counties of Horry and Georgetown, Minges' team filled more than 25,000 bags working hand-in-hand with members of the South Carolina Army National Guard, as well as state, county and municipal personnel.

Under normal conditions the machine can fill up to 500 bags per hour, but during this mission the sandbagging machine crew often exceeded that capacity.

"Our goal was to fill more than 6,000 sandbags for the Georgetown municipality," said Minges. "We were getting really good numbers there and at one point were filling just under 700 sandbags per hour with the help of our local and state partners."

Minges went on to say he was happy to a part of this flood mitigation effort and was proud of the work he and his team did to help local municipalities impacted by flooding.

Jud Kneuvean, Kansas District readiness contingency operations chief, deployed to Horry County and echoes that sentiment.

"The hydraulic sandbag filling machine greatly increased our ability to serve the public," said Kneuvean. "With this capability, we can reduce the need for personnel on the front end, which is the most labor intensive, and focus on getting sandbags to where they are needed as quickly as possible."

This page: Emergency Operations Manager George Minges and Maintenance Mechanic Andrew Fleming, from the Louisville District, operate a hydraulic sandbag filling machine in Georgetown County, S.C., in support of Hurricane Florence flood risk management efforts.
Opposite top: Fleming operates a hydraulic sandbag filler in Horry County, S.C.
Opposite bottom: The county distributed sandbags to the citizens that were filled by the sandbag filling machine in Georgetown County, S.C.

Post-Florence Beach Assessments

By Sean McBride

The coastline of South Carolina was spared the direct force of Hurricane Florence, however the exact extent of any impacts still needed to be determined by the U.S. Army Corps of Engineers, Charleston District.

The Charleston District has been working on coastal storm damage reduction projects at both Myrtle Beach and Folly Beach for several months in an effort to put sand back on the beach and reduce the risk of damage to infrastructure behind the dunes from storms like Hurricane Florence. With word that the storm may make a direct strike on either of these beaches, the projects were halted and all equipment removed from the beach.

The Charleston District's survey team was then tasked to conduct pre-storm assessments of each beach to determine location of the sand and how much sand was on the beach in each place. This data would then be used in comparison to post-storm assessments.

After Hurricane Florence crawled out of the Carolinas, the survey team quickly mobilized to conduct post-storm surveys. Surveys at Folly Beach were conducted with a real-time kinematic GPS receiver, which is rolled along the ground at 1,000 foot increments and uses GPS technology to collect data to determine the elevation and quantity of the sand every three feet.

At the much longer Myrtle Beach project, the survey team used the RAMbLr, or Rapid Assessment Mobile LiDAR, an ATV outfitted with the same detection equipment used at Folly Beach. This method allowed the survey team to conduct their assessment quicker over the longer span of beach.

"It's critical to conduct these assessments so that we can determine if there was any impact to the projects from Hurricane Florence," said Lt. Col. Jeff Palazzini, Charleston District commander. "It's also important to get the projects started again as quickly as possible so that they can finish on schedule. The contractor began remobilization as soon it was safe and are hoping to get started pumping sand again within a week."

The engineering team compared the post-storm data with the pre-storm data to determine if there was any sand loss or relocation from Hurricane Florence. During storm events such as these, sand isn't always washed away, just sometimes displaced to other areas. The team was able to quickly determine that Folly Beach and Myrtle Beach Reach 2 suffered losses of 200,000 cubic yards and 300,000 cubic yards, respectively. As a result of the quick response, both projects quickly received contract modifications to replace the sand that was lost. The results of Myrtle Beach Reaches 1 and 3 have not yet been determined.

The Folly Beach coastal storm damage reduction project is scheduled for completion in November, while the Myrtle Beach project is scheduled for completion in December. Even though the projects were not yet complete at the time Hurricane Florence made an impact, every cubic yard of sand that was placed on the beach as a result of these projects helped to reduce the risk of damage from the storm to the infrastructure behind the dunes.

Below: Matt Boles, engineering technician, uses the RAMbLr at Myrtle Beach to assess sand loss after Hurricane Florence.
Opposite page: Chris Wright, engineering technician, uses a real-time kinematic GPS receiver to conduct a post-storm survey at Folly Beach.

Resuming the Renourishment at Myrtle Beach

By Edward N. Johnson

South Carolina is no stranger to hurricanes and each one takes its toll on shorelines and beach communities located here and across the Atlantic coastal region.

After each significant storm, U.S. Army Corps of Engineers personnel assess erosion impacts, work hand-in-hand with state and local partners to determine mitigation measures for erosion damage to shoreline projects and take authorized measures to rehabilitate affected areas.

According to USACE Deputy Commanding General for Civil and Emergency Operations, Maj. Gen. Scott A. Spellmon, these efforts are extremely beneficial to both local communities and nationwide efforts to protect the environment and foster economic growth.

“Our scientists venture out and measure where shoreline erosion has occurred,” said Spellmon. “At Myrtle Beach, it appears the impacts of Hurricane Florence were enough that we’re adding additional quantities of sand to an existing contract that was underway to address damages from Hurricanes Matthew and Irma.”

Work was paused here because dredging vessels and equipment were moved to safe harbor during the storm. Work was able to resume a little more than a week later.

“We deployed high-tech equipment to quantify the losses and then utilizing dredging vessels and ship-to-shore pipelines to rehabilitate the federal project, thus ensuring beaches and dunes are ready to provide their full benefits whenever the next storm may impact the area,” added Spellmon.

Brian Williams, Charleston District chief of programs and civil project management, says this project covers more than 25 miles of beach shoreline.

“Under normal conditions, we cost-share 65 percent of this work at the federal level,” said Williams. “But in emergency situations like the one following Hurricane Florence, we fully fund all rehabilitation operations, subject to Congressional appropriations, in support of our state and municipal partners.”

Great Lakes Dredge & Dock LLC, contracted to complete this project, utilizes hopper dredges to pump sand from the sea floor through drag arms from a location approximately three miles from the impacted shoreline.

The sand being pumped to the beach comes from an underwater area about 30 feet below the Atlantic Ocean’s surface.

The re-nourished shoreline beaches and dunes serve to reduce the impacts of future hurricanes and other coastal storms to communities and infrastructure. With that in mind, USACE partners with state and municipal officials on shoreline restoration initiatives like the one in Myrtle Beach.

Maj. Gen. Scott Spellmon visits Myrtle Beach post-Hurricane Florence.

Spellmon and Brian Williams, chief, Programs and Project Management, inspect the construction on Myrtle Beach.

Crisis Communications

By Edward N. Johnson

In a disaster event, one group that is often overlooked is the communicators on the ground. In the Army, they are called public affairs specialists, who worked quickly to begin communicating storm related information according to pre-established guidance and plans.

One focus of the Charleston District's Florence communication plan was to leverage the power and reach of social media platforms to keep key audiences informed of the actions being taken by USACE to help mitigate the risk of flooding during and after the storm made landfall. At the same time, significant effort was made to actively engage traditional media outlets, like radio, television and newspapers, in order to keep the general public informed of potential hazards and real-time, or near real-time, actions being taken by USACE, in coordination with FEMA, state and local partners to mitigate the risk of flooding.

"During a flood event like the one brought on by Hurricane Florence, it's critically important for leaders at all levels to engage the media early and often," said Lt. Col. Jeffrey S. Palazzini, Charleston District commander. "Doing so helps provide those impacted by a storm a better understanding of what steps are being taken to help their communities and what they should do individually to remain safe during an emergency."

To that end, USACE officials on the ground in the South Carolina counties of Horry and Georgetown took part in 44 media engagements in three weeks. Of that number, Palazzini was personally involved in 26 interviews with local, state and national media outlets.

"Our public affairs professionals were standing ready to help subject matter experts and emergency management leaders prepare for media engagement opportunities throughout the crisis," said Palazzini. "Of course, like other key competencies, media relations preparation is something that should always be included in pre-emergency exercises and training so that we are ready to effectively engage the media when the need occurs."

The District's Public Affairs Office, augmented by a PAO brought in from another district to assist during the crisis, took a deliberate and aggressive approach to social media communications.

"Today, social media is the main way we tell the District's story, especially during an emergency situation," said Sean McBride, Charleston District's social media specialist. "It's important to show our audience the work we're doing in their area to minimize risk to their community and keep them informed. Allowing our audience to see what we're doing is part of our mission to be a transparent organization. Social media lets people interact with us and ask questions about critical issues in real time, giving them immediate answers and results."

By any measure, that is precisely what happened throughout the flood, as the District set all-time viewership records across numerous social media platforms, including gaining 902 followers on Facebook during the flood event, a 33 percent increase.

One post, using Facebook's live video feature to broadcast an aerial reconnaissance of areas impacted by the flood from a UH-60 Blackhawk helicopter, reached more 127,000 people with 38,000 views, 377 shares, 1,392 likes and 430 comments. The most viewed storm-related message consisted of an aerial photo of U.S. Highway 501, depicting measures being taken to keep the highway clear of flood water and open to traffic. That post alone reached 119,553 people, garnering 2,839 likes, 438 comments and 1,558 shares.

"Twitter was our best resource for sharing information from partner agencies during Florence," added McBride. "We were able to retweet their messages and add information specific to our mission.

McBride added that partner agencies were able to reciprocate by retweeting USACE messaging as well.

"We have such impactful stories to tell and it was an honor to be able to share what our leadership, the flood fighting subject matter experts and the many other partner emergency management staff were contributing to aid the city, counties and state," said Glenn Jeffries, Charleston District's public affairs chief. "Our partnership with communication offices from other responding agencies was key to successfully reaching the public and we could not have done it without their support."

This page: Lt. Col. Jeff Palazzini conducts interviews about the Charleston District's response to Hurricane Florence. Opposite page: Brig. Gen. Diana Holland is interviewed at Myrtle Beach about the post-storm survey assessments.

Assisting Georgetown and Pawleys Island

By Glenn Jeffries

Georgetown County had an agonizing wait for the flood waters headed their way after Hurricane Florence.

"A lot of the country thinks Florence came and went," said FEMA Administrator Brock Long. "But unfortunately for this much water, it will take weeks for it to process down."

Eleven trillion gallons of water were dumped on the Carolinas, much of which drained down six major rivers in South Carolina over the course of two weeks, so Georgetown County needed to prepare for the aftermath of this terrible storm.

The state's third-oldest city, Georgetown, along with nearby Pawleys Island, requested the state's aid to help prepare. The state asked the Charleston District to help come up with a plan, after Gov. Henry McMaster called the situation "unprecedented."

The South Carolina Department of Transportation, the South Carolina Army National Guard and the Corps partnered together to help keep a portion of U.S. Highway 17 from becoming inundated and cutting off yet another major road near the Grand Strand and to protect a critical pump station and a hospital.

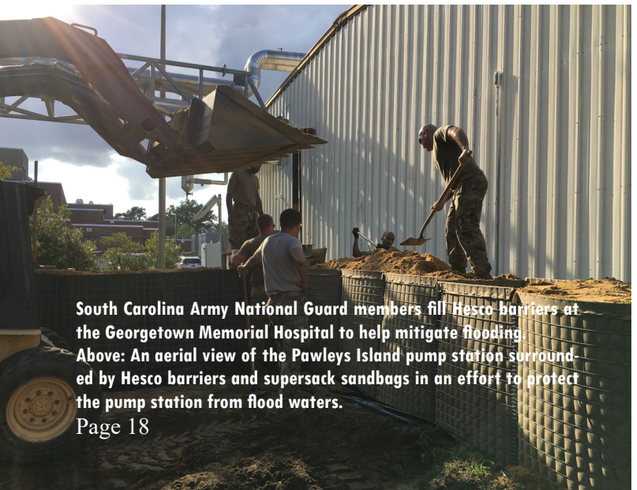
It was decided that SCDOT's water filled barriers, also known as aqua dams, would be used on U.S. Highway 17 along the low lying section of the road near the Georgetown Marina since they were readily available. Sandbags provided by the Corps were strategically positioned with the aqua dams as an extra layer of protection.

The District provided 300 linear feet of Hesco barriers that was used around the Pawleys Island pump station that supplies island residents with clean water. If the pump station became disabled, residents could potentially have run out of clean water within one to two days.

Another critical asset to the area was the Georgetown Memorial Hospital. If the data center and HVAC plant were impacted by flood waters, the hospital could have been in danger of closing, leaving no major medical center for residents. Hesco barriers and sandbags were used and the SCANG worked around the clock to get them in place.

Additionally, the Louisville District's hydraulic sandbag machine filled countless sandbags for the state and county officials to use. They in turn distributed them to residents and business to use to protect their property.

The District was honored to be able to help Georgetown County respond to this natural disaster. Flood fighting subject matter experts from around the country, plus relationships with the local, county and state agencies enabled the District to successfully deliver the response mission to the citizens of this area.



South Carolina Army National Guard members fill Hesco barriers at the Georgetown Memorial Hospital to help mitigate flooding. Above: An aerial view of the Pawleys Island pump station surrounded by Hesco barriers and supersack sandbags in an effort to protect the pump station from flood waters.

Using the DTOS to Mitigate Flooding

By Sara Corbett

During a disaster, communication is vital to response and recovery efforts, but it's often impossible due to power outages. This is where the U.S. Army Corps of Engineers' Deployable Tactical Operations System truck comes into play.

"The DTOS is completely self-sufficient, which is crucial during a crisis," said Michael Hind, chief, Charleston District emergency management.

During Hurricane Florence response efforts, the Charleston District used a DTOS to position and track flood fighting materials, as well as personnel, in an effort to mitigate the rising floodwater in Horry and Georgetown Counties.

The DTOS provides the ability to quickly set-up a mobile operation and communication platform, which enabled the District to provide the necessary support to Georgetown County's and Horry County's Emergency Operation Centers, South Carolina Army National Guard and South Carolina Department of Transportation. It also gave the Corps the ability to reach-back to the Charleston District's EOC to align communication and coordinate mission efforts.

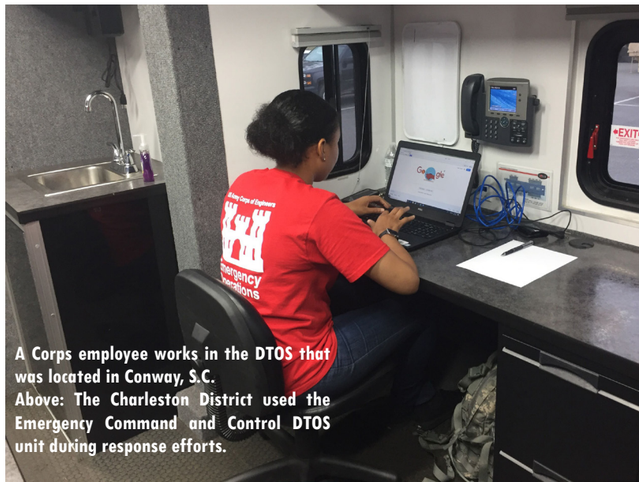
"We used the Emergency Command and Control Vehicle DTOS unit for this particular mission," said Hind. "The ECCV is a state-of-the-art communications systems that can be up and running in less than 15 minutes from its arrival."

The ECCV is 40,000 lbs., 47-feet-long, 13.5-feet-high and 9.5-feet-wide. It has 11 workspaces, can go 500 miles on a single tank of fuel and run for 72 hours straight with an onboard generator and full tank of fuel. The available technology includes access to radios with interoperability, TVs with VTC options, and satellite and cellular capabilities that can deliver both voice and data communications.

Since the flood fighting efforts were in Horry and Georgetown Counties, the DTOS was situated in Conway, S.C., making it central to the impacted areas.

"We were fortunate that we had the DTOS during our response efforts," said Hind. "Having a team that was completely self-sustaining on the ground tracking materials and personnel helped make this mission a success."

In addition to the ECCV, the Corps has other several types of DTOS, including the Emergency Support Unit, Mobile Communications Vehicle and Containerized Tactical Operations Center, for a total of 23 vehicles. While each DTOS has a specific function, they all provide lifesaving and vital support during a crisis.



A Corps employee works in the DTOS that was located in Conway, S.C. Above: The Charleston District used the Emergency Command and Control DTOS unit during response efforts.

U.S. Army Corps of Engineers
Charleston District
Corporate Communications Office
69A Hagood Avenue
Charleston, S.C. 29403

USACE Charleston Hurricane Florence Response

Hurricane Florence made landfall on September 14th in North Carolina, then made its way through upper South Carolina very slowly, causing tremendous rain and flooding. The U.S. Army Corps of Engineers, Charleston District responded with various missions.

6
Missions undertaken by the Charleston District

40
Private dams assessed throughout South Carolina

63
Corps subject matter experts deployed to help respond

10,105
Linear feet of flood barriers installed to protect Highway 501

30,000
Sandbags created by the hydraulic sandbagger

20
Miles of beach surveyed for sand loss or movement