



The Corps

Environment

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First ESPC executed for civil works project underway

By Debra Valine

U.S. Army Engineering and Support Center, Huntsville

Mobile District is embarking on the first-ever Energy Savings Performance Contract executed for a USACE Civil Works project that could set the stage for other USACE districts. Mobile District is teaming up with the U.S. Army Engineering and Support Center, Huntsville, to improve the infrastructure along the Tennessee-Tombigbee (Tenn-Tom) Waterway, which the district manages.

The project kicked off July 9. During its 21-year performance period, the Tenn-Tom ESPC is expected to save the Army Corps of Engineers a projected \$5.05 million in energy costs.

Huntsville Center awarded the \$2.8 million ESPC to Siemens Government Technologies Inc., of Arlington, Virginia, May 30. The length of the contract is 21 years, 11 months, which includes the construction phase that is scheduled to start in January and be complete in June 2015. The contractor will install, replace or retrofit elements of the Tenn-Tom's infrastructure — primarily lighting at its 10 locks and dams.

"A lot of time was spent getting it right," said William (Wynn) Fuller, chief of Operations for Mobile District. "Along the Tenn-Tom, our facilities are scattered over 234 miles, so that's a lot of different facilities. It was important to see this as an opportunity to take advantage of ESPC. The measurement and verification are going to be critical.

"It was an education process for both of us," Fuller said. "Mobile District had to understand the proposed methods, outcomes, etc., that Huntsville Center intended to use — particularly third-party financing. Huntsville Center had to learn about the unique aspects of civil works projects, particularly navigation. Civil works is a different animal altogether. I am optimistic that working together we can accomplish our goals in terms of reducing energy consumption."

The Tenn-Tom is a man-made waterway that links the Tennessee River to the Tombigbee and Black Warrior rivers. When USACE completed its construction in 1984, the project offered the nation's midsection an alternate route to the Port of Mobile and the Gulf of Mexico. The Tenn-Tom encompasses 110,000 acres of land that is used by more than 3 million people for recreation annually. The project stimulates economic development, provides outdoor recreational opportunities, supports navigation and enhances wildlife habitat.

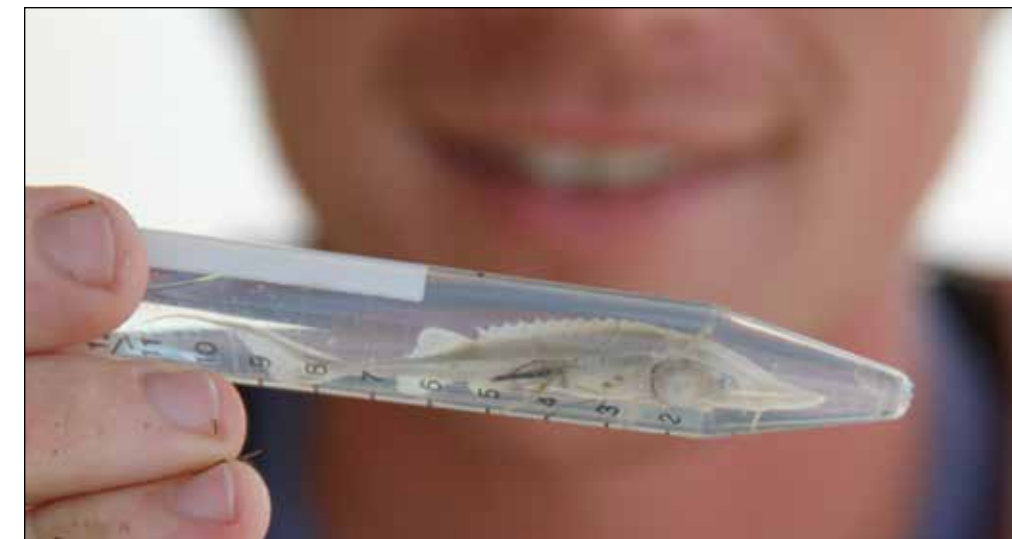


This map shows the Tennessee-Tombigbee (Tenn-Tom) Waterway, managed by the Mobile District. Mobile District is teaming up with Huntsville Center to improve the infrastructure along the waterway through the first-ever Energy Savings Performance Contract executed for a civil works project.

ESPCs leverage industry expertise and private sector financing to make infrastructure upgrades to federal facilities to reduce energy and water consumption, and reduce the waste stream. An energy savings contractor guarantees the improvements will generate sufficient savings to pay for the project during the term of the contract, which cannot exceed 25 years. The ESPC incorporates a process for measurement and verification of the annual savings so that the payment to the Energy Services Contractor never exceeds the actual savings.

"This project award demonstrates that we can use ESPCs to leverage third-party funding at our civil works sites to help us reach our national sustainability goals and energy independence," said John Coho, the Corps of Engineers' Energy Coordinator and Senior Adviser for Environmental Compliance. "It is going to be a model for others down the road, and I fully expect we will be able to use it at sites along other rivers, as well."

Huntsville Center is the Army Corps of Engineers' technical center of expertise for ESPC, and as such, brings years of experience managing ESPCs for military projects, which includes solar and wind turbine projects at Fort Buchanan, Puerto Rico. The three wind turbines will produce an estimated 5 percent of the energy consumed by the installation. A total of 21,824 solar photovoltaic panels will produce about 5.5 megawatts of power, which is at least 60 percent of the installation's current power demand at its peak. ☞



Anthony P. Civiello holds up an age zero sturgeon sampled from the Missouri River near Lexington, Missouri. The sampling is completed through the Army Corps of Engineers' Habitat Assessment and Monitoring Program.

Interns spend summer on river

Story and photos by Diana McCoy

Kansas City District

The Missouri River Recovery Program got some extra help this summer from two interns who assisted a district biologist with sturgeon sampling. Through the Pathways Internship Program, college students Anthony P. Civiello and Justin G. Bounds worked under the direction of Marcus L. Miller.

The Pathways program is for current students and replaces the U.S. Office of Personnel Management (OPM) Student Career Experience and the Student Temporary Employment programs. Participants are referred to as interns and must be enrolled in qualifying institutions, as determined by OPM.

This summer marked Civiello's third summer as an intern for the district. He holds a bachelor's degree in wildlife conservation and attends graduate school at Oklahoma State University for a master's degree in fisheries and aquatic ecology.

"When I finish my degree, I would like to pursue a career as a fisheries biologist," Civiello said. "I was inspired by my dad who works for the Missouri Department of Conservation."

Civiello said being involved in the Pathways program as a biology student trainee has allowed him to get valuable hands-on field and lab experience.

"The knowledge and skills I take away from my work with USACE on the Missouri River Recovery Program will give me an advantage upon graduation when seeking a position as a fisheries biologist," Civiello said.

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The Buffalo District Dive Team dove the Niagara River in support of the National Oceanic and Atmospheric Administration's Great Lakes Mussel Watch project June 18. The diver team's primary role during the first mission is the collection of mussels from the Niagara River area of concern (AOC). Their secondary role in the mission is to assist with the deployment of caged mussels and other indicators, such as passive samplers, at the eight tributaries entering the Niagara River AOC. The NOAA Mussel Watch Program is providing critical information to help inform AOC delisting. Mussels are widely used as sentinel organisms to monitor chemical pollution in the aquatic environment. Mussels are filter feeding, sessile bottom dwellers that bioaccumulate many contaminants and provide time-integrated observations of chemical contamination in the ambient environment. More photos online at <https://www.flickr.com/photos/buffalousace/sets/72157645443473214/>. (Photo by Andrew Kornacki, Buffalo District)

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Lt. Gen. Thomas P. Bostick
Commanding General
Publisher

W. Curry Graham
Director of Public Affairs

Karen Baker
Executive Editor

Candice Walters
Managing Editor

Julia Bobick
Editor

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without using paper.



Energy initiatives promote sustainability

By **Karen J. Baker**

Acting Director, USACE Environmental Division

October is National Energy Awareness Month, a time to take a hard look at how we are managing our energy usage, to focus on reducing our dependence on fossil fuels, and to intensify efforts to identify areas where we can begin using more renewable energy.

The U.S. Army Corps of Engineers views sustainability as an umbrella concept that encompasses the environment, climate change and energy. As the agency strives to make progress on its sustainability metrics and targets, energy-related activities have received special emphasis.

First and foremost, this past summer, the U.S. Army Engineering and Support Center, Huntsville awarded the first Energy Savings Performance Contract (ESPC) for a civil works facility — the 234-mile Tennessee-Tombigbee Waterway, which is managed by Mobile District. ESPCs leverage third-party financing from the private sector to make infrastructure improvements to federal facilities to reduce energy and water consumption. The \$2.8 million ESPC will result in the installation, replacement or retrofitting elements of the Tenn-Tom's infrastructure — primarily lighting at its 10 locks and dams. During its 21-year performance period, the ESPC is expected to save Mobile District and USACE about \$5.05 million in energy costs.

Our districts and divisions have adopted challenging sustainability program goals, most notably the requirement to implement not less than \$10 million in ESPC contracts by the end of fiscal year 2016 to support the President's Performance Contracting Challenge.

The Tenn-Tom contract provides other

USACE districts with lessons learned that will further enable them to take advantage of the ESPC program. We can now continue to accelerate adoption of ESPCs at other sites and move forward on our ESPC and sustainability program goals (see ESPC articles on [page 1](#) and [page 5](#)).

One of the hallmarks of the agency's sustainability efforts has been the ability to establish and use databases and cutting edge data visualization software to provide managers the information they need to make decisions to improve energy and water conservation USACE-wide.

One such example is our Sustainable Recreation Campaign, which encourages those who use our recreation facilities across the country to try to reduce their energy and water usage while camping. The campaign, initiated in the summer of 2013, was developed after it was learned that electrical usage at USACE recreation facilities, primarily in the camping areas, accounts for more than 40

percent of the overall energy usage at our dams, levees, lakes and river facilities — an average cost of about \$12 million annually. If we can get those who camp at our facilities to think about conserving and recycling, we can reduce those costs and use that money to keep the facilities open.

We are involved with energy on another front, as well — the Army Regional Environmental and Energy Offices, which serve to promote greater understanding of the Army's commitment to sustainable practices and energy security. Each regional office director now reports to a USACE division (see the article to the right).



Karen Baker

In the future, USACE can expect to have an increased support role in the newly formed Office of Energy Initiatives. The office is focusing on increasing Army renewable energy activities, such as finding more solar, wind and hydropower opportunities and cutting down acquisition times for projects that have already been identified.

We continue to make strides in becoming more sustainable. Focusing more on renewable energy, reducing our energy usage and our dependence on fossil fuels will help, not just during Energy Awareness Month but throughout the entire year. Saving energy is something that each of us can do — turn off the lights, car pool, use public transportation, unplug electronics when not being used. Simple steps like these are at the heart of reducing demand, and that's the foundation of our sustainability program. It starts with personal accountability and responsibility — standards exemplified by two members of the USACE sustainability team: Rumanda Young, chief of Southwest Division's Regional Planning and Environmental Center Master Planning Section, and Kathleen White, senior lead for global and climate change at the USACE Institute for Water Resources.

Both Young and White were honored at the Strategic Leaders Conference in August. Young, who also serves as the Southwestern Division's regional energy program manager, received the Lt. Gen. John W. Morris Civilian of the Year Award. White received the Lt. Gen. Elvin R. "Vald" Heiberg III Engineer of the Year Award. When it comes to the sustainability arena, these two women can be considered pioneers in that they take initiative and are continually looking to see how to move their programs to the next level. Their initiatives have gone a long way in putting the Army Corps of Engineers on the right path toward sustainability.

Army Strong! — Building Strong! — Essayons! 🌀

Army regional environmental offices transition to Army Corps of Engineers

The Army Regional Environmental and Energy Offices (REEOs) transferred to the U.S. Army Corps of Engineers from the Office of the Assistant Secretary of the Army for Installations, Energy and Environment, effective Oct. 1.

The Army Regional Environmental and Energy Offices, as part of the larger Department of Defense Regional Environmental Coordinator program, were established in 1995 to support Army and Department of Defense readiness, training and testing. The offices engage with state legislators, federal and state regulators, and nongovernmental organizations on behalf of DOD and the Army to enable military installation training, testing, operations and readiness. The offices also conduct strategic communications to promote greater understanding of the Army's commitment to sustainable practices and energy security.

As part of the Department of Defense Regional Environmental Coordinator program of "representatives in the field," the Army REEOs serve as the DOD leads in the U.S. Environmental Protection Agency's Regions 4, 5, 7 and 8. The Air Force serves as the DOD lead in Regions 2, 6 and 10, and the Navy is the DOD lead in Regions 1, 3 and 9.

Katherine Hammack, Assistant Secretary of the Army (Installations, Energy and Environment) [ASA(I&E)], and Lt. Gen. Thomas P. Bostick, USACE Commanding General, signed a Memorandum of Agreement approving the transfer in early June.

Details are still being worked out, but the Headquarters Department of the Army will retain the DOD lead agent function and oversight of the four REEOs. USACE will maintain operational control and program execution. Each regional office director will report to a USACE division — the REEO-Northern to the Great Lakes and Ohio River Division, the REEO-Western and REEO-Central both to the Northwestern Division, and the REEO-Southern to the South Atlantic Division.

The REEOs have five functions that sum up what they do for the Army and DOD: monitor state-level legislation; monitor state and federal regulations; provide outreach; provide information on trends and emerging state legislative and regulatory issues; and fully support ASA (IE&E) as DOD's Regional Environmental Coordinator lead agent.

"These functions will not change as both USACE and the office of the ASA (IE&E) look for synergies with the REEOs as they continue to fully implement their mission and function while focusing on Army energy and environmental priorities. Given that USACE programs also support these priorities, it's a great fit," said Karen Baker, acting chief of the USACE Environmental Division.

For more information about the Army REEOs, visit www.asaie.army.mil/Public/InfraAnalysis/REEO/index.html. 🌀

ENVIROPOINTS

Interns

Continued from Page 1

Bounds finished a four-year enlistment in the Marine Corps and decided to take advantage of his Montgomery GI Bill by enrolling at the University of Central Missouri. He lives in Lexington, Missouri, and is pursuing a biology degree. Bounds plans to continue at UCM for his master's degree. Like Civiello, he also wants to become a fisheries biologist.

"This job helps me gain experience in the field of fisheries while I continue to pursue my degree," Bounds said.

Civiello said he heard about the program through his dad, and Bounds discovered the program through John A. Skelton at the Missouri River Area Office. Opportunities for Pathways internships — one-year appointments — are announced on USAJOBS.gov.

The two spent their summer trawling various stretches of the Missouri River sampling for age zero sturgeon and other native fishes. Collected sturgeon were taken for genetic testing to determine if they are pallids or the closely related shovelnose.

"Part of their job allows them to see some of the Corps' restoration while working to help evaluate our efforts by monitoring the responses from sturgeon and other native fishes," Miller said.

Bounds found the Pathways program to be both beneficial and fulfilling.

"I have enjoyed learning about lesser known aspects of the Missouri River as an ecosystem, which are largely overlooked from a recreational and sport fishing standpoint," Bounds said. "Also, the Pathways Internship Program has provided me with an opportunity to gain valuable experience with various fisheries sampling techniques and has allowed me to become more aware of current Missouri River issues while attending school."

Felicia Harper, the district's chief of Civilian Personnel Advisory Center, said the district has 63 personnel participating in the Pathways Internship Program, as well as three Department of the Army interns. ☺



Marcus Miller, biologist with the Kansas City District's Habitat Assessment and Monitoring Program, studies navigation charts for the Missouri River as he prepares for the day's sampling sites July 8. Click the photo for a link to a video of Miller discussing why these efforts are critical.

Learn more about OPM's Pathways Internship Program online at <http://go.usa.gov/pxUd>.

Find out more about the Missouri River Recovery Program online at www.MoRiverRecovery.org.

Energy and sustainability course coming in 2015

By Capt. Michael Meyer
Sacramento District

The U.S. Army Corps of Engineers' Environmental Community of Practice hosted a pilot offering of a new energy and sustainability course at Sacramento District headquarters Aug. 25 in California. The course is intended to help USACE facility managers better understand the USACE sustainability program and requirements and share best practices to achieve them.

The eight-hour course describes integrating sustainability considerations into all USACE missions, functions and phases of operations, including the life cycle of construction, maintenance and disposal. The point driven home by each of the course instructors is, "Sustainability isn't something you do after your mission — it's how you do your mission."

"People say that the sustainability program is so big, so complex, that it's hard to understand," said John Coho, the senior adviser for environmental compliance at U.S. Army Corps of Engineers headquarters. "We are trying to show people how they can do things at their level to advance the Corps' sustainability goals.

"Many of these goals are interrelated," Coho said. "For instance, if you reduce petroleum use you are also cutting back on carbon emissions. If you have a building that achieves the sustainability requirements of the federal government you will have improved energy efficiency, water use efficiency, indoor environmental quality, and you will have implemented a systematic environmental approach."

USACE and all other federal agencies have annual sustainability requirements that include the conservation of energy, water and fuel while reducing greenhouse gases. One sustainability goal is to reduce energy use by 30.5 percent by 2020.

Coho explained that federal sustainability requirements started in the 1990s with the Energy Policy Acts of 1992, 2005 and 2007.

"The government recognizes the

importance of conserving natural resources because of the implications for energy independence and national security," he said. "Ultimately, all of this is equally conducive to saving money and reducing the operating costs of the federal government.

"We tend to be more budget year focused, instead of lifecycle focused," Coho said. "For example, someone may decide to upgrade to compact fluorescent light bulbs instead of the more expensive light-emitting diode technology, even though you can save an additional 10 percent per year over the next several years with the LED technology. Our investment decisions should be based on the lifecycle cost effectiveness."

"This is all familiar information, but what is significant about this is that it puts it all into context to show how it relates to us at the project level," said Heather Wright, senior park ranger at Sacramento District's Stanislaus River Parks and one of 40 course attendees.

Coho said USACE has made commendable progress toward several goals in the past few years, particularly in decreased fuel-use accomplished primarily through vehicle fleet-size reduction. USACE successfully reduced the size and number of vehicles to maximize efficiency, yet ensured the necessary size and number of vehicles were available to support the diverse needs of employees.

"In addition to the fleet-size reduction, the move toward hybrid and plug-in electric vehicles is showing an amazing level of leadership and engagement and Corps-wide support," Coho said. "It has taken support from commanders as well as people down at the projects to make this much progress towards our fuel reduction goal."

Based on feedback from students and evaluators, the course will be further refined before being more widely offered across USACE. The course may also be modularized and turned into online blocks of instruction, Coho said. Future course offerings will be announced on the ECoP site (authentication required) at: <https://eko.usace.army.mil/usacecop/environmental/>. ☺

ENERGY SAVINGS PERFORMANCE CONTRACTING

Offering districts, installations multitude of intangible benefits

By Will Irby

U.S. Army Engineering and Support Center, Huntsville, Energy Division

In times of fiscal uncertainty and budget shortfalls, energy managers, public works directors and military installations struggle to fund necessary infrastructure upgrades and energy-savings projects that impact their energy-reduction goals.

Energy Savings Performance Contracting offers a tool that allows for those critical upgrades to take place with zero up-front capital cost. Upgrades are installed, and then the capital investment is paid back over a period of up to 25 years. But there is more to the story ...

While the installation enjoys new equipment upgrades that save energy, there are many benefits to an ESPC that are not captured in the project financials — savings are often realized by the installation in ways that do not impact the cash flow of the ESPC project. The additional savings are above and beyond what goes to pay back the initial investment and are seldom considered when contemplating using an ESPC.

A few examples of these types of intangible savings are major reductions in trouble calls, reduced preventive-maintenance costs, expanded technical skill sets of government employees, a quicker path to achieve success versus traditional funding and contracting processes, and end-use customers having more comfortable and productive work environments.

As an example, Space and Naval Warfare Systems Command System Center, Pacific in San Diego, California, has enjoyed many intangible benefits with its ESPC

projects.

“We used to shut down the lab’s programs when equipment went down, but with the new equipment installed by the ESPC projects, we have significantly reduced lost lab work hours,” said Randy Peacock, SPAWAR Pacific head of facilities operations and energy manager.

Peacock also said he has been able to reduce the number of trouble calls after normal work hours, which in turn reduces SPAWAR’s Operations and Maintenance costs. With more efficient equipment, they are able to reduce their charges to the labs on site, which in turn reduces the lab’s costs. They are also able to control space temperature, which in turn makes their lab work more efficient and cost effective.

At Fort Bliss, Texas, Gene Curtiss, the Building Operation Control Center Manager for the U.S. Army Garrison, said he believes that ESPC projects have allowed his staff to gain extensive knowledge about complex systems that they may not have been able to gain if not for the ESPC effort. Curtiss said ESPC contracts “often improve the efficiency of identified needs based upon economics.” This allows for smarter use of limited government funding and allows the government to leverage scarce dollars to the greatest extent possible.

“When you create a pleasant working atmosphere, that is priceless,” Curtiss said.

Garrison Directorate of Public Works customers are the end-users of the systems often touched by an ESPC project. More often than not, DPW resources are consumed with handling trouble calls to support the mission’s facilities. At Aberdeen Proving Ground, Maryland, Devon Rust and Jeff Presgraves have said since ESPC

was implemented, trouble calls have been reduced, thus lowering service technician hours. These types of maintenance savings are not typically captured in ESPC cash flow models — these are savings that stay with the customer, from day one. These benefits are in addition to the fact that a more reliable HVAC system and better-lit working areas are providing their customers a more comfortable and productive working environment.

Rust and Presgraves also pointed out that the ESPC warranty handled by the energy services contractor (ESCO) takes added workload/stress off of their DPW staff, and their work reception/service order desk has a new routing system directly to the ESCO for ESPC service, resulting in quicker response times. These benefits are key to DPWs and help improve overall efficiencies and generate actual savings to the government.

In the environment of limited resources facing DPWs, using new and different ways to tackle problems is a must. With an ESPC project, many benefits are never captured in the proposal or financial schedules of the project, but they are indeed enjoyed by many DPWs across the world.

Fewer maintenance hours, better working environments, opportunities to train and learn on new technology, and reduced funding requirements are a few of the many benefits not commonly touted by the program. Since installations don’t often claim credit in the project financials for many of these ancillary savings, decision makers often don’t realize they exist until after the fact. Once customers realize how much more they can get from an ESPC than just what’s on paper, opportunities abound. ☞

by the **2013**
numbers

\$5,872,628
annual project savings

2,470,795
water savings (thousands of gallons)

455,119
energy savings (MBTUs)

5.9%
average energy reduction

\$38,959,123
total ESPC savings (2009-2013)

Wetland, stream mitigation project a Kentucky partnership

**Story, photo and video report
by Mark Rankin**
Nashville District

Nashville District, Kentucky Department of Fish and Wildlife Resources, U.S. Fish and Wildlife Service, state legislators and Russell County officials conducted a ceremony in August marking the ground breaking for a \$1.8 million Wolf Creek Hatchery Wetland and Stream Mitigation Program project below the Wolf Creek National Fish Hatchery.

District Commander Lt. Col. John L. Hudson spoke during the ceremony and highlighted how this project has been a great partnership between all agencies involved. He said he feels confident this project will benefit the Lake Cumberland region and minimize a very serious erosion problem that threatens several campsites, roadways and a bath house at Kendall Campground.

"We have already spent tens of thousands of dollars in an effort to slow the erosion. The new creek will also improve water quality both in the creek and downstream in the Cumberland River, and provide additional high quality aquatic habitat for various wildlife. This a win-win project for the Lake Cumberland region and we are happy to assist," Hudson said.

Construction is next in line for the planned wetland and stream project. When completed the natural stream will feature riffles, runs, glides and pools that will provide a variety of stream flow velocities, depths, habitat types and temperature gradients for aquatic wildlife.

Don Getty, Nashville District's Wolf Creek Dam Safety Rehabilitation Project manager, said at least six different offices in the district interfaced and coordinated with state offices and federal agencies. These departments include the regulatory office, environmental planning, natural resource management, office of counsel, real estate, and project management for support documents, lease agreements, site

management, environmental planning support and water quality permits.

Getty said as a cost-saving method and agreement, which benefits USACE, soil excavated from the new creek's channel will be used by the contractor in the Wolf Creek Dam safety rehabilitation project. Water flowing from the hatchery has over time eroded a gully that funnels unwanted fine deposits into the Cumberland River. The gully will be partially filled in and water diverted into the stream.

"This is a great day for us and we would like to extend our support and gratitude to the U.S. Army

Corps of Engineers for your support," said Gregory Johnson, commissioner of the Kentucky Department of Fish and Wildlife Resources.

Johnson also thanked state legislators and Russell County officials for their support.

"We are excited to get this restoration underway," Johnson said. "It will more than triple the current length of Hatchery Creek, replace degraded, bare banks with gradual sloping contours and create naturalized pools, riffles and also re-establish and enhance 5.5 acres of forested and emergent wetlands on Lake Cumberland project lands."



Gregory Johnson, commissioner of the Kentucky Department of Fish and Wildlife Resources, James Gray, Wolf Creek Hatchery director, and Lt. Col. John L. Hudson, Nashville District commander, release trout into the stream during a ceremony marking the ground breaking for a \$1.8 million Wolf Creek Hatchery Wetland and Stream Mitigation Program project below the Wolf Creek National Fish Hatchery. Click the photo to watch the video.

Recognizing the importance of soil and water quality, a team of municipal planners and storm water engineers comprised from Ecogro, Ridgewater and Stantec corporations joined forces to design, develop, build and re-direct the existing wetlands for evasive plants, eco system restoration and green infrastructure.

"We are proud to be a part of this project," said Russ Turpin, an environmental specialist with Ecogro. "This will be a great trout fishing stream, with a good ecosystem and we hope it brings a lot of trout fishermen to the Kentucky area."

Andy Mowrey, Wetland and Stream Mitigation Program project manager, said the project should take about six months.

"The end result will be a stable functional stream channel, removal of large amounts of sediment pollution from the Cumberland River, high quality aquatic habitat and a unique fishing opportunity for anglers," he said.

With Lake Cumberland back to normal lake levels, visitation is again increasing in the region. The project provides an ample opportunity to improve the Lake Cumberland project area for the benefit of the Cumberland River and multiple project purposes, such as environmental protection, fish and wildlife habitat, and recreational opportunities such as trout fishing.

"This region will also benefit as a result of the new Hatchery Creek," Hudson said.

"It will provide yet another draw to the area for people to enjoy an outdoor experience."

The hatchery is a federal hatchery and is a part of the U.S. Fish and Wildlife Service. It produces approximately 1 million rainbow, brown and brook trout annually and in collaboration with the Kentucky Department of Fish and Wildlife Resources, fish are stocked into over 100 different public fishing waters throughout the state. Following construction the stream will be open to the public. For project details, visit <http://fw.ky.gov/Fish/Pages/Stream-Team-Program.aspx>.

Former dredged material islands perfect habitat for nesting seabirds

Story and photos by Hank Heusinkveld
Wilmington District

When visitors take the ferry from Kure Beach on Pleasure Island to Southport in June and July, it's hard not to notice a flurry of activity on one particular island located just upriver in the middle of the Cape Fear River. It's called Ferry Slip Island, and it's home to thousands of nesting seabirds and their young. What was once just an uninhabited, typical Army Corps of Engineers dredged material disposal site more than 35 years ago has developed into some of the last nesting habitat for seabirds in southeastern North Carolina.

Recognizing a new role for the uninhabited, elliptical uplands in the Cape Fear River began in the mid-1970s when Dr. James Parnell, an ornithology professor from the University of North Carolina at Wilmington, approached Wilmington District biologists to inform them that seabirds had begun using Ferry Slip Island as suitable nesting habitat. There were few, if any, historic nesting sites left on the beaches in and around Wilmington, so the birds adapted to the alternative man-made site.

The island, which is owned by the state of North Carolina and overseen by Audubon North Carolina, slowly became a bird magnet during nesting season.

"What we did initially when we modified the island and when we knew it was going to become permanent habitat was to design it with sloped edges for a natural look," said Wilmington District biologist Jeff Richter. "The island was built using the 'Design by Nature' approach which imitated a natural island's structure and appearance. Our engineers, biologists and dredging contractors were able to create a perfect formula to use dredged sand beneficially to create the bird habitat."

"We have several different species of water birds

and several species of shore birds that nest here," said Walker Golder, Audubon North Carolina deputy director and director of coasts and marshes. "We have brown pelicans, royal terns and sandwich terns, and laughing gulls which all nest in their habitats on the island. We also have American oyster catchers, which are a large shore bird, and we also have willets that breed here."

Golder said that to give an idea of the importance of this island for the birds, Ferry Slip Island and nearby Pelican Island support about 20 percent of North Carolina's royal tern and sandwich tern breeding populations. He said these two islands are the only suitable nesting sites for those species between Cape

Romaine, South Carolina, and Cape Lookout, North Carolina.

"The islands here in the Lower Cape Fear River also support about 20 to 25 percent of North Carolina's brown pelican population," Golder said. "And both of these islands are absolutely essential to them and essential to their recovery in this state."

The island is divided into two distinct habitats. Golder said pelicans prefer grassy, wooded areas while terns prefer sand.

The island is off limits to the public during the nesting season to lessen stress on the birds. During cooler months, Audubon North Carolina organizes volunteers to rid the island of excess vegetation and for general maintenance. It's a year-round commitment to help preserve the islands as much as possible to keep them habitable for future generations of nesting seabirds. When the Corps dredges the federal navigation channel in the Cape Fear River District, biologists coordinate with North Carolina Audubon to place dredged material near an adjacent island.

"Shore birds are a part of the beach and people just take them for granted," Golder said.

"We live near the ocean, so you see seabirds all of the time. Most people are never really going to see the island, but they can definitely see a reminder of the island when a pelican flies by." 🐦

"Most people are never really going to see the island, but they can definitely see a reminder of the island when a pelican flies by."

Walker Golder
Audubon North Carolina



Walker Golder of Audubon North Carolina explains to Star News photojournalist Matt Born in July how USACE helped design and sculpt Ferry Slip Island with dredged material to resemble a natural island with sloped embankments that allow for drainage and to minimize erosion.



Miami project successfully relocating corals

By Susan Jackson
Jacksonville District

Progress is moving swiftly with the Miami Harbor deepening and widening project, including the successful construction of artificial reefs and relocation of about 1,000 healthy corals.

Jacksonville District and its contractors are now at the 50 percent completion mark, with more than 1 million cubic yards of material removed and the majority of mitigation construction completed.

Operations began in November 2013 to dredge about 2.1 million cubic yards of material from the harbor entrance, relocate coral, create artificial reef and construct sea grass mitigation sites. This outer channel work is scheduled for completion next month. The project also includes deepening and widening the inner channel, with full project completion scheduled for July 2015.

The contractor, Great Lakes Dredge & Dock Company, continues construction of approximately 10 acres of artificial reefs. Divers and scientists have already transplanted healthy corals greater than 25 centimeters and more than 700 healthy corals 10 centimeters or larger from the project area to adjacent natural reef tracts and onto a portion of the newly created artificial reefs. Divers carefully harvested the corals from the channel's edges, as collecting from the channel bottom was too dangerous in the busy port.

Thirty-eight staghorn coral (*Acropora cervicornis*) colonies, a branching coral species listed as threatened and therefore protected under the Endangered Species Act, were relocated outside the project area, to avoid potential impacts. A fragment from each coral was also collected and transported to a permitted Acropora nursery at the University of Miami's Rosenstiel School of Marine and Atmospheric Science. The National Marine Fisheries Service's 2011 Biological Opinion included these and additional measures to minimize impacts to the coral colonies and preserve genetic material to aid in the recovery of the species.

As part of the U.S. Army Corps of Engineers' two-year coral relocation monitoring program, scientists

assessed the staghorn colonies about 40 days post-relocation to evaluate survivorship, health, security of the reattachment bond and any breakage of branches.

"After 40 days, all of the 38 relocated staghorn colonies were alive and in good health, with only minor bleaching and partial mortality," said scientist Anne McCarthy from CSA Ocean Sciences Inc. "Encouragingly, several colonies were also observed as having new tissue growth over the epoxy base, demonstrating the coral's ability to rapidly adapt to its new environment."

McCarthy and her team conducted a comprehensive survey of corals, using a diver-operated underwater navigation system that allowed for the precise location of candidate corals for relocation. Scientific divers also conducted a visual health assessment of each coral colony to document any signs of disease, bleaching, or recent tissue mortality to provide a baseline for later comparison during monitoring.

"I'm very pleased with the overall progress," said Laurel Reichold, Jacksonville District project manager. "The mitigation construction and relocations went exceptionally well, and we anticipate a very good survival and growth rate for the relocated corals."

Once the coral relocation work was completed, the district opened the project area to the Florida Fish and Wildlife Conservation Commission for a limited time, so permit holders could also collect additional marine resources prior to dredging.

District biologist Terri Jordan-Sellers, who works closely with environmental and wildlife agencies and similar parties, said she was pleased the district was able to provide an access window. "Staying on schedule with construction work is extremely important, and I'm very glad we were able to provide an opportunity for recovery of some corals that would have otherwise been lost."

Excavation — or stripping off loose materials — construction started June 7 and lasted several weeks, followed by cutter-suction operations — or digging out the rock in the outer channel area. After this occurs, USACE will have a good idea of areas that might

require underwater confined blasting.

"So far, Great Lakes [Dredge and Dock] has made significant progress dredging the outer channel without the need for blasting," Reichold said. "Confined underwater blasting may occur in the October timeframe if conventional dredging methodologies can't excavate the material, but we won't know where or how much may be required until then."

Used successfully in Miami Harbor in 2005, confined underwater blasting is a method that pre-treats or fractures the top of bedrock prior to dredging. The majority of blast energy is confined in the rock, and studies show that by using this technique there's an up to 90 percent decrease in the strength of the pressure wave, which helps protect the ecosystem. The Corps' detailed plan includes extensive monitoring and protocols to ensure protection of wildlife. These protocols were shown effective during the 2005 job, as there were no reported injuries or deaths of mammals, sea turtles or any other sustained habitat impacts.

CSA scientist and world-renowned expert on sea grass restoration Dr. Mark Fonesca is the senior ecologist implementing the project's ongoing sea grass mitigation plan. Fonesca literally wrote the sea grass restoration book during his 30 years with the National Oceanic and Atmospheric Administration as a research scientist and research branch chief.

"I feel like I'm working with the A Team," Jordan-Sellers said. "I couldn't have selected a better group of scientists — and they bring with them the latest and greatest equipment and technologies. It's wonderful to be a part of this and learn so much from others." 🐠



Healthy corals, like the ones pictured, were selected for relocation. The *Acropora cervicornis* (staghorn coral, an endangered species) pictured at the top was relocated by CSA Ocean Sciences Inc. scientific divers and seems to be adjusting well. GPS coordinates guide monitors directly to the relocation sites. (Photos courtesy CSA Ocean Sciences Inc.)

Want to learn more?

Go to www.youtube.com/watch?v=6hrkttPANMM to watch a 35-minute video in which Jordan-Sellers explains underwater confined blasting, using examples from operations conducted in Miami Harbor and other projects. Jordan-Sellers also teaches environmental science at Jacksonville University and requires her students to view this video.

2014 sustainability awardees making impact across USACE

By Candice Walters

*U.S. Army Corps of Engineers
Headquarters Public Affairs Office*

The U.S. Army Corps of Engineers has honored those who are truly putting the agency on the road to a more sustainable future through its annual Sustainability Awards.

The award winners came from across USACE, reflecting a diverse group of individuals and teams who are committed to sustainability and ensuring that the agency's Environmental Operating Principles are put into practice every day.

"Once again we are recognizing the talented people and teams who make our U.S. Army Corps of Engineers what it is — effective, responsive, innovative, visionary and committed to environmental stewardship and sustainability. Their contributions are deeply appreciated by every person — at home and abroad — who derives benefit from the work of our Corps of Engineers," said USACE Chief of Engineers Lt. Gen. Thomas P. Bostick. "It's one thing to have goals and targets for sustainability, but they are meaningless without the people and teams who figure out how to achieve them. These are the people who are doing that, and I congratulate them."

The following 2014 Chief of Engineers Awards of Excellence Sustainability Category Winners will be recognized during an Oct. 7 video teleconference.

Climate Champion:

★ William D. Goran, former (recently retired) director of the Center for the Advancement of Sustainability Innovations, Construction and Engineering Research Lab, U.S. Army Engineer Research and Development Center

Sustainability Hero (two awards):

★ Richard A. Gifaldi, sustainable engineering program manager, Europe District; and

★ Antonia Giardina, national sustainability

program manager, USACE Headquarters.

Green Dream Team:

★ Elizabeth Mine Superfund Site, New England District

Green Innovation:

★ Engineering with Nature (EWN) for Sustainable Solutions, the EWN Team

Good Neighbor:

★ Army Chesapeake Bay Comprehensive Plan, Baltimore District

Lean, Clean and Green:

★ Army Reserve Center and Organizational Maintenance Shop, Louisville District

Building the Future (two awards):

★ EAB Company Operations Facility PN67137, Omaha District; and

★ Barkley Elementary School, Norfolk District.

All of these winners have been sent forward for consideration in the federal GreenGov awards program.

Climate Champion: Considered by many to be a pioneer in integrating climate change into the plans of multiple military and federal agencies, Goran planned a technical focus area on climate change within the Center for the Advancement of Sustainability Innovations (CASI) in 2007. He purposely developed an interagency team from multiple ERDC research laboratories, the USACE Institute for Water Resources and NASA to support CASI's focus area description that "the impacts and adaptations related to climate change are relevant to all public resource managers."

He co-founded the Interagency Forum on Climate Change Impacts and Adaptations with NASA to provide a federal community of practice for climate change. Goran's leadership has been described as selfless, his efforts vital and his strategic vision as exceptional.

Sustainability Hero: As the Europe District Sustainable Engineering Program manager since January 2010, Gifaldi has provided oversight of 35 district projects

that have met the required Leadership in Energy and Environmental Design (LEED) certification or certifiable status. As a result of his efforts, more than 30 green building projects in Germany, Belgium, England, The Netherlands, Romania and Turkey are on track to become LEED certified, some of them as the first such certified new construction in their country. He has worked across functional boundaries with the Planning Division to initiate and establish the district net zero project delivery team (PDT) to provide Department of Defense (DOD) garrisons and other entities with comprehensive net zero planning and technical support, facility audit performance, energy/water savings and strategy development for net zero implementation. He actively participates in the North Atlantic Regional Sustainable Engineering Center and the USACE Commissioning Center of Expertise Team, providing policy guidance and revision recommendations. He consistently builds and transfers the USACE knowledge base of sustainability.

Sustainability Hero: As the senior national sustainability program manager at USACE Headquarters, Giardina provides exceptional leadership and guidance managing the USACE sustainability program, making significant progress toward meeting federal requirements and advancing USACE's contributions to reductions in the use of water, electricity, petroleum and greenhouse gas emissions. In 2010, under Giardina's leadership, the agency issued its first sustainability operational order that laid the groundwork for how USACE would manage its sustainability program, followed by five subsequent fragmentary orders that fine-tuned the program, and then a subsequent OPORD updating, organizing and consolidating the requirements. She has been a sustainability catalyst, driving change corporately and culturally. Her strong technical background and ability to effectively engage individuals at all levels

ensures the future success of the USACE sustainability and energy program. Giardina continues to mentor individuals throughout Headquarters and the field.

Green Dream Team: Elizabeth Mine Superfund Site, an abandoned copper mine located in the towns of Strafford and Tretford, Vermont, was designated by the Environmental Protection Agency as a Superfund site in 1999. A New England District project delivery team, led by Stephen Dunbar, implemented a comprehensive green remediation strategy that resulted in significant reductions in on-site emissions (through the use of biodiesel), fuel consumption and off-site disposal of materials, and recycled large quantities of consumable waste. At the beginning of the cleanup actions, the team recognized that the remediation of the more than 250-acre site could impact the natural and cultural resources in the immediate area, thus causing the team to identify measures that would minimize the impacts to the local environment. The team completed \$21 million in field work during fiscal years 2011 and 2012 construction seasons, completing a 45-acre engineered cap weeks ahead of schedule and \$654,000 under budget. The tailing pile capping at Elizabeth Mine is the first of several mine-related Superfund sites being addressed by EPA in New England. The work performed at Elizabeth Mine provides numerous design criteria and construction best practices that will be used in future work at these sites to enhance environmental restoration while reducing the overall environmental impact and project costs. PDT members include Dunbar, Scott Accone, David O'Connor, Chris Caisse, Randy Lecuyer, Mark J. Anderson, Jr., Jon Kullberg, Silas Sanderson, Kathy Malinowski, Kate Atwood and Mike Penko.

Nobis Engineering Inc. has been the project contractor since 2011 and received the American Council of Engineering Companies/Vermont Section 2013

Engineering Excellence Award for its work on the project.

Green Innovation: The Engineering with Nature initiative promotes sustainability by advancing technical and communication practices across multiple USACE missions and business lines. Engineering with Nature intentionally aligns natural and engineering processes and uses collaborative efforts to efficiently and sustainably deliver economic, environmental and social benefits.

The innovative tools and projects developed through Engineering with Nature support planning, engineering and operational practices that beneficially integrate engineering and natural systems to produce more socially acceptable, economically viable and environmentally sustainable projects. The EWN team, which includes staff from the U.S. Army Engineer Research and Development Center; USACE Headquarters; Buffalo, Philadelphia and Mobile districts; Decision Partners LLC; and the American Association of Port Authorities, has achieved the following: implemented a strategic communication plan; constructed an innovative environmental breakwater for Cleveland Harbor to support the Great Lakes Restoration Initiative; created new technical and engineering guidance for the DOD, Army, Navy and USACE that will reduce the costs of environmental restoration projects concerned with contaminated sediments; developed a web-based geographic information systems (GIS) database of more than 200 projects illustrating innovative environmental practice for water resources infrastructure; initiated research to support resilient coastal systems in relation to climate change through the use of natural and nature-based features; and initiated seven demonstration projects in collaboration with USACE districts in California, New Mexico, Louisiana, New England, Ohio and Minnesota.

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Harvesting rain, sun at Fort Sill

By Sara Goodeyon
Tulsa District

At Fort Sill, Oklahoma, the Army Corps of Engineers is taking positive steps to increase energy efficiency and preserve resources by harvesting rain and sunlight.

The design and construction of some of the new facilities at the Army post includes innovative systems for collecting rainwater and using sunlight to improve energy efficiency. In a region with little rain and abundant sunshine it makes sense to hoard the one and exploit the other.

“The idea behind it is great,” said Brant Purdum, a Tulsa District mechanical engineer in the Fort Sill Area Office. “You are conserving energy, conserving water and conserving resources.”

The rainwater collection system harvests water from the building’s roof to water the grass. The gutter system feeds into giant fiberglass tanks stored underground preventing evaporation, which happens to be a real threat to water supplies in this region. A first check filter flushes out things like bird waste and sticks, whatever is on the roof, to keep it from getting into the system. Each tank has a pump tied into the irrigation system so that water from the underground tanks serves the sprinkler heads.

“We can capture the rain when we get it and use it when it’s needed,” said Paul Panter, mechanical technician, Fort Sill Area Office. “There is actually a formula to use to calculate the amount of rain that can be harvested. For instance, in a 2-inch rainfall event 6,000 gallons of water runs off of a 4,000-square-foot roof.”

Moreover, Panter said rainwater is

actually better for the landscape than treated water because it is softer water.

The Energy Monitoring and Control System (EMCS) at Fort Sill monitors the collection system. EMCS is a computer software system that monitors water, gas and electricity usage mainly through the management of the HVAC systems. Operators can track tank levels and filter alarms, watch the pump operation and verify that everything is in working order. If something does go wrong, it sends an alarm and operators can check on the problem.

The buildings with the rainwater collection systems are the Thermal High Altitude Air Defense (THAAD) project, Reception Battalion Complex and the Tactical Equipment Maintenance Facility (TEMF). The THAAD has two 50,000-gallon tanks, the Reception Complex has one 30,000-gallon tank and the TEMF has two 25,000-gallon tanks.

Eventually the system could be connected to other buildings.

“The system on the TEMF is designed with this in mind,” Purdum said. “It could pull water from all four buildings around it. It could be the beginnings of a beneficial system.”

In a small way, the rainwater collection system will assist with cooling the building. It ties into the building’s cooling tower water supply so that it would start utilizing rainwater first rather than pulling

from the building’s water supply.

The first rainwater system was scheduled to go online this summer.

At the Mission Training Complex, photovoltaic panels on the roof collect sunlight and turn it into electricity. The solar panels charge batteries in the building’s inverter room and those batteries assist with the building’s power. This helps to shave off the peak demand loads so the Army isn’t paying premium rates.

“You don’t have to burn fossil fuels to use it,” Purdum said. “As the sun moves, the panels track the sun; they are designed to always be in the sun and to catch light from both sides.”

Purdum said even though there is an initial high cost to install both systems, they ultimately pay for themselves. The life cycle for the rainwater system is about 25 to 30 years and about 15 years for the photovoltaic panels. Both systems are an example of how creative thinking about energy efficiency can help conserve energy and financial resources. ☺



ABOVE: The 30,000-gallon rainwater collection tank at the Reception Complex under construction at Fort Sill. **RIGHT:** The first flush filter system in place at the Thermal High Altitude Air Defense project. **BELOW:** A look at the Mission Training Complex where photovoltaic panels are in place on the roof, just visible above the HVAC units. (Photos by Brant Purdum, Tulsa District)



ONLINE RESOURCES

support education, collaboration, compliance

FedCenter logs 10 years supporting environmental managers

By Steve Luzzi

Army Engineer Research and Development Center
Construction Engineering Research Laboratory

Summer 2014 marked the 10th year the Federal Facilities Environmental Stewardship and Compliance Assistance Center (FedCenter) has served as an essential resource for government environmental managers. Released in the fall of 2004 with a mission to assist federal civilian agencies with their efforts to meet environmental compliance needs, www.fedcenter.gov today serves both the public and private sectors, and is visited more than 1,000 times each day by its rapidly growing list of members.

FedCenter is a joint initiative of the Environmental Protection Agency's Office of Enforcement and Compliance Assurance, the Army Engineer Research and Development Center's Construction Engineering Research Laboratory (ERDC-CERL) and the Office of the Federal Environmental Executive. The center provides an all-services technical and compliance assistance tool to help federal environmental officials better address their environmental needs. The site is managed and operated by ERDC-CERL and is governed and supported by a consortium of 15 federal agencies. FedCenter provides a variety of information and services to its members. Included is information on program development (such as green procurement, electronics stewardship or fleet management), policy and guidance, best practices, lessons learned, and, pollution prevention and environmental training opportunities. The center also provides a regulatory watch tool for monitoring and tracking draft and final federal regulatory information, and a facility regulatory tour containing federal and state regulatory requirements for activities common to federal facilities. Members can elect to subscribe to any information area and receive email notification of new information in varying frequency and format.

In addition to providing a one-stop shop for program area and regulatory information, FedCenter also offers collaboration and reporting tools for member workgroups or communities of practice. These tools help agencies manage their program plans and documentation needs, as well as environmental inventories, and meet various upward reporting requirements. Membership to FedCenter is available to all federal employees and their partner organizations.

The center is directed by a board representing 14 federal agencies whose representatives meet quarterly to discuss and prioritize FedCenter activities. These agencies jointly share, govern and support financially the center's wealth of information and services offered to each agency, and as a result of this partnership, FedCenter has become an indispensable environmental information exchange within the federal community who benefit greatly from this unique pooling of government knowledge, expertise and resources. The FedCenter team has earned numerous awards throughout the years, including a White House Closing the Circle Award in 2008, honoring the team's efforts for creation of an online environmental management system reporting tool to help federal agencies meet the Office of Management and Budget's annual reporting requirements. Members of this team were also recipients of the EPA's Exemplary Customer Service Award for outstanding leadership, skill and creativity exhibited in development of an underground storage tank compliance reporting system to help federal agencies meet the reporting requirements of the Energy Policy Act of 2005. The team was most recently recognized by the White House for helping to advance the administration's goals outlined in the latest Executive Order on Federal Sustainability. ☺



Mike Shields, the Environmental Protection Agency FedCenter coordinator, stands in front of the FedCenter exhibit during a conference. October marks the 10th anniversary of the development and deployment of the Federal Facilities Environmental Stewardship and Compliance Assistance Center, a project sponsored by the EPA and 14 other federal agencies, including USACE. (Photo courtesy EPA)

USACE launches new invasive species website

By Davi Michl

The U.S. Army Corps of Engineers Headquarters has launched a new Invasive Species Management website to highlight USACE-wide efforts to manage the introduction and spread of invasive species. Invasive Species management operates under one of the Army Corps of Engineers' main environmental missions: to conserve and manage the nation's natural resources.

The website houses an archive of related invasive species news articles and provides links to other USACE Invasive Species Management sites, which underscores cooperatives to address pest management across the country. The Useful Links section provides additional resources that clarify definitions and policy, and feature research programs and initiatives committed to monitoring and managing the spread of invasive species.

Also notable are the inclusion of several multimedia resources, which can be accessed via a media player displayed in the right-hand column of the website. These educational YouTube video streams provide a sense of the different types of invasive species USACE districts encounter in their respective regions. The USACE Engineer Research and Development Center even provides a link to its Environmental Laboratory YouTube Channel. Each of these short, one- to two-minute clips acts as a virtual field guide, showcasing a different invasive species and providing a description of its native habitat, the history of its spread and key identifying characteristics.

As the challenge of conserving our natural resources in the midst of a globalized marketplace is likely to persist, the USACE Invasive Species Management website proves a valuable resource that can be used by students, educators, policy makers and management teams to share current research and trends and to inform viable management approaches to invasive species. Visit the new invasive species website at www.usace.army.mil/Missions/Environmental/InvasiveSpeciesManagement.aspx. ☺

Huntsville Center helping customers identify measures to reduce energy consumption

By Julia Bobick

U.S. Army Engineering and Support Center, Huntsville

With a proven track record of helping federal agencies and military installations identify successful ways to reduce energy and water consumption and increase efficiency, the Army Corps of Engineers' Energy Engineering Analysis Program (EEAP) has expanded its efforts to ensure USACE-owned civil works facilities are also as efficient as possible. Helping both USACE and external customers comply with federal mandates to reduce energy and water use has both economic and sustainability benefits.

"We are looking at ourselves to set the example," said Raúl E. Alonso, EEAP program manager at the U.S. Army Engineering and Support Center, Huntsville. "Our customers are responding aggressively to identify conservation measures so they can plan and request project funding for implementation."

The EEAP team conducts holistic facility assessments, also referred to as energy audits or surveys, to identify cost-saving energy and water conservation measures that will help achieve near-term federal energy policy goals of a 30 percent reduction in energy consumption and a 16 percent reduction in water usage by 2015.

The U.S. Army Corps of Engineers instructed and funded the Huntsville Center to perform several civil works facility energy audits as a pilot project in fiscal year 2011 starting with its energy hogs — facilities that constitute at least 75 percent of the total Corps civil works facility energy use (defined as "covered facilities" in Section 432 of the Energy Independence and Security Act of 2007).

Taking on the civil works energy survey mission has been somewhat challenging as structures run the gamut from traditional

office and administrative buildings to engineering yards, locks and dams, repair and supply bases, pumping stations and facilities along waterways. The EEAP team physically inspects every facility to assess the energy generation process, distribution systems and controls, building envelope (including windows, walls, roofing and insulation), lighting, internal mechanical/electrical loads, HVAC systems, and any other energy-consuming, energy-generating or energy-interfacing systems, according to Alonso. He said they also review recent utility bills to ensure agencies aren't being overcharged, as well as to identify any possible rate reductions or cost savings that could potentially be achieved through working with the utility company.

Then they develop comprehensive reports for each facility identifying specific conservation measures and they "do the math" so customers can see both the recommended investment and potential cost savings for each conservation measure.

As of June 1, the EEAP team led by project manager Michael Braddock had completed audits at 27 covered USACE facilities yielding 412 energy conservation measures (ECMs), averaging an annual



Underwater structures, known as parasitics, are placed into the Chicago Sanitary and Ship Canal as part of the electric barriers project in October 2010. The electric barriers deter the inter-basin establishment of Asian carp and other fish through an electric field in the water. Huntsville Center helps Army Corps of Engineers facilities like Chicago District's electric fish barriers — which are already using the best technology available for their specific operation — to find alternatives for reducing energy consumption. (Photo by Sarah Gross, Chicago District)

cost savings of \$1.33 million with a capital investment of just under \$9 million. Simple payback equates to 6.6 years, which simply means the projects will pay for themselves within seven years, according to Alonso.

Across the entire program, more than 4,900 ECMs have been identified at Department of Defense installations, Reserve centers and federal agencies with an annual cost-savings of some \$154 million and an average four-year simple payback on the investment. Program-wide estimated annual energy savings is more than 7.3 million MMBtu — enough electricity to power approximately 194,865 houses for a year.

Alonso added that there are unique USACE facilities with process-related energy consumption, such as fish barriers, locks and dams. These facilities are already using the best technology available for their specific operation and the recommended energy conservation measures would yield minor cost savings.

One such example is the Chicago District's Electric Barriers installed in the Chicago Sanitary and Ship Canal to deter the spread of growing invasive Asian carp populations through an electric field in the water. The initial EEAP audit report identified

five ECMs that would reduce the barrier's \$721,000 annual energy bill by only \$17,000 at an implementation cost of \$78,000.

"Although Chicago District's ECMs were not all immediately executable, two of them were: adjusting thermostats to design settings and installing a programmable thermostat in a field office. These two low investment cost recommendations, with paybacks of less than a year, were completed under the operations and maintenance initiative," said Philip Horstman, assistant facility manager for the Aquatic Nuisance Species Dispersal Barrier.

In addition, the annual energy bill will increase significantly once the third barrier — currently under development — goes online, and Chicago District (LRC) has come back to the Huntsville Center's Energy Division for help with exploring alternative methods to reduce costs and consumption.

"Our project delivery team is discussing and re-engaging with the subject matter experts for best utility pricing on the open market and the effort will require contracting support, subject matter experts outside of LRC, and project leads within LRC in order to execute this initiative successfully," said Horstman, who added that the district was

very satisfied with the EEAP field team's effort.

Huntsville Center's Commercial Utilities Program manager Bernard Givan is engaged to review utility rates and billings to ensure the customer obtains fair and reasonable utility prices and Braddock is leading an effort — working closely with the district and the U.S. Army Construction Engineering Research Laboratory — to explore the use of photovoltaic, wind power and energy from waste sources.

Huntsville Center has several sustainability and energy programs with contract vehicles to assist agencies with ECM implementation — such as Energy Savings Performance Contracts, Utility Energy Services Contracts and Power Purchase Agreements — but it's up to the agency being audited to choose the appropriate implementation strategy and follow through with project execution. The center assists in that process, as well.

"The savings won't be immediate in most cases, but conservation measures can deliver a great return on investment when you look beyond the initial investment and calculate the long-term savings," Alonso said. ☛

Headquarters sustainability developmental assignments inspire employees

By Candice Walters
U.S. Army Corps of Engineers
Headquarters Public Affairs Office

When it became apparent the U.S. Army Corps of Engineers was going to need to increase its focus on sustainability to meet the administration's sustainability goals, it didn't take long to tap two people to undertake that mission.

Then it didn't take very long for those two — John Coho and Antonia Giardina — to realize that more help was going to be needed and that developmental opportunities could bring in the needed assistance.

Glenda Ashford, Brian Woodroof and Maleena Lemiere are glad they did — they have served at USACE Headquarters as participants in the Environmental Compliance and Sustainability Career Assignment Program (ECS CAP), and they are now encouraging others, such as Amy Bourne, who is in the midst of her six-month assignment, to participate.

"We're so excited that through this program we can bring in such talented people who have such deep interest in sustainability," said Giardina, USACE sustainability program manager. "They are creative and bring the field perspective that we need when trying to figure out how these goals translate into activities at our districts and divisions."

"It's a wonderful program," said Ashford, who works as the senior regional environmental program manager for the military integration division at South Atlantic Division. "It is one of the few developmental programs that is very well thought out as far as what projects you will be working on. A key element to making this program a successful experience is to listen, look for opportunities and then not be afraid to throw out ideas."

"There were plenty of opportunities to be creative and really do something that made a difference across the organization," she said. "I was encouraged to step up and offer ideas and suggestions. I listened to what was being discussed as sustainability and programmatic challenges and worked on things that I thought could address those challenges."

During her six-month assignment at Headquarters, Ashford helped create the USACE Sustainable Recreation Campaign, which focused on being more sustainable at USACE recreation facilities by reducing energy usage and water consumption, recycling and reducing waste. The ongoing campaign was developed

after it was learned that electrical usage at USACE recreation facilities, primarily in the camping areas, accounts for more than 40 percent of the overall energy use at our dams, levees, lakes and river facilities — an average cost of about \$12 million annually. Saving money and reducing costs to keep the facilities open benefit the public and the taxpayers.

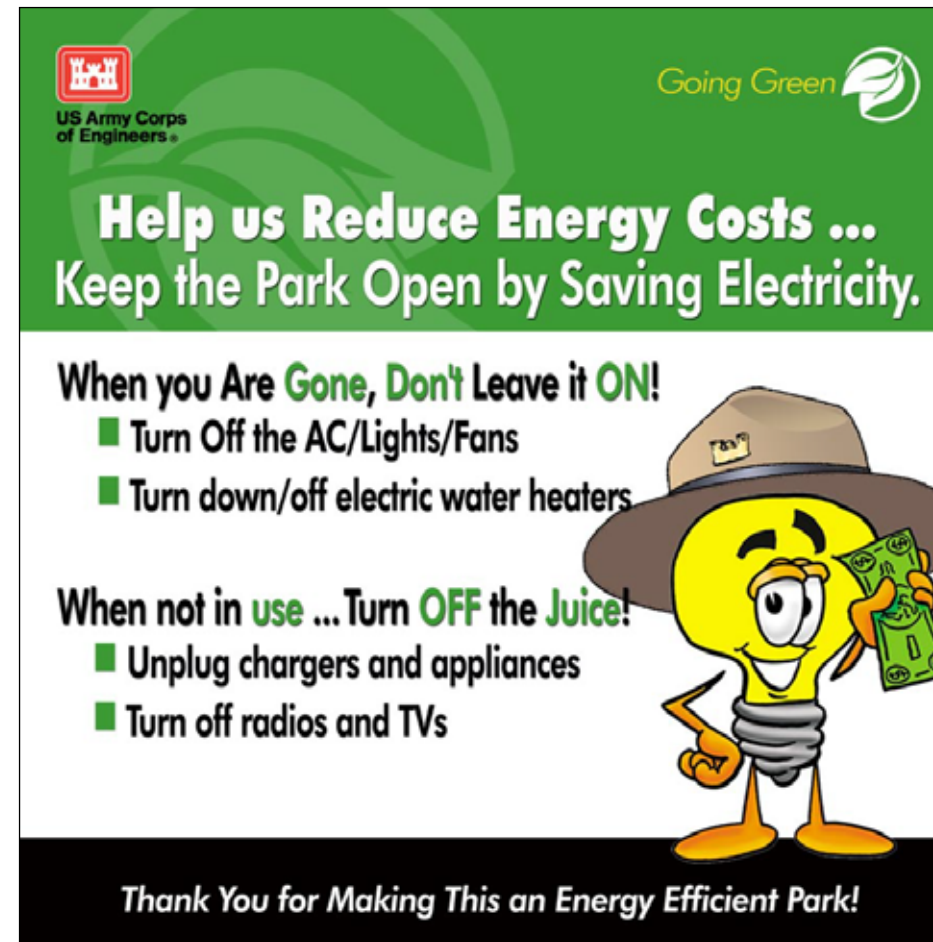
"A great team of folks discussed the energy usage and developed ideas and a plan for how we could best impact visitors' behavior at our parks," Ashford said.

Lemiere, an environmental engineer in the environmental engineering and technology section at Seattle District, agreed that opportunities are plentiful and that fresh ideas and new perspective are appreciated.

Having come into the program from a district, Lemiere said she didn't appreciate how programs such as sustainability have to be synchronized throughout all the agency's levels.

"It was inspiring to see how we can make progress in this area by using each other's passion, connectivity and professionalism," Lemiere said. "It was a unique opportunity to see how the Corps of Engineers, as a large organization, can move as a unit to meet the requirements and work with people all over the country. That's not something that you normally see at the district level. I didn't have perspective for all the moving parts, to understand how all the elements come together, sometimes creating roadblocks, but really moving the program forward."

As a result of her participation in the program, Lemiere said she is now finding ways to link what she learned into other work that she is doing at the district. "People are asking for my advice, and I'm volunteering with our campus 'Green Team' as we interact with GSA (Government Services Administration, which owns the Seattle District building) to see how we can learn



During a six-month developmental opportunity at USACE Headquarters with the Environmental Compliance and Sustainability Career Assignment Program, Glenda Ashford helped create materials like this campsite decal for the Sustainable Recreation Campaign, which focuses on improving sustainability at USACE recreation facilities by reducing energy usage and water consumption, recycling and reducing waste.

from their initiatives. We're trying to find ways to make connections and bring in their knowledge. I'm really excited about seeing what our two organizations can learn from each other's programs."

Woodroof, an architect and now the civil works liaison to USACE Headquarters for U.S. Army Engineering and Support Center, Huntsville, said the program helped him "better understand how Headquarters operates, ... what drives the requirements, and then figure out how to get those requirements met. You need to be able to develop new ideas and then see if there is a way to make the ideas work." He is continuing to help develop and support energy and sustainability efforts on the enterprise level by working with USACE-owned and civil works facilities. He has been working with Energy Savings Performance Contracts and energy metering initiatives.

"It was inspiring to see how we can make progress in this area by using each other's passion, connectivity and professionalism. It was a unique opportunity to see how the Corps of Engineers, as a large organization, can move as a unit to meet the requirements and work with people all over the country."

Maleena Lemiere
Seattle District

Woodroof is also one of the instructors for the new USACE energy and sustainability course and is continuing to work with divisions as they develop sustainability budget packages that are viable and fundable.

The newest program participant, Bourne, the sustainability program manager at New England District, said she is encouraged that others within USACE are recognizing the importance of sustainability. "There's

a need to invest our resources as smartly as possible in sustainability, and if done correctly, not only will the environment be improved, we will save money.

"Sustainability is a natural extension of our environmental programs — it should be at the base of everything we do," Bourne said. "And through this program, I'm getting to see how this all works. At Headquarters, I'm seeing the intention of policy rather than the interpretation of it that you see at the district. I'm getting a different view. I can't wait to meet myself in six months after this experience!"

It's that kind of attitude that Giardina and Coho, USACE energy coordinator and senior adviser for environmental compliance, expect from all those who apply for the program. Nominations for two fiscal year 2015 positions (February to July 2015 and August 2015 to January 2016) at the GS-11 through GS-14 level are open through Oct. 10, with selections expected to be announced by Nov. 21. ☞

New Savannah bird island home to hundreds of nests this season

Story and photo by Tracy Robillard
Savannah District

To some people, a dredge disposal area might not seem very exciting, but to thousands of shorebirds it's a safe haven providing beneficial habitat and protected nesting sites. The District completed construction of a new eight-acre bird island in March at the Savannah Harbor Dredged Material Containment Area (DMCA) 12A, one of seven areas that stores sediment dredged from the Savannah River federal shipping channel.

"This year is the first nesting season since we completed the island, so we are excited to see how birds will use it," said Ellie Covington, a Savannah District biologist.

Covington said the island provides valuable bare ground nesting habitat for many species of colonial water birds such as the least tern, gull-billed tern, black-necked stilt and black skimmer.

During nesting season (April through August), Covington and her team visit the Savannah Harbor DMCA's once a week.

"We make sure the ongoing sediment disposal operations are not interfering with nesting of migratory birds," said Mary Richards, a USACE biologist who accompanies Covington on her bird-spotting missions. "As part of that work, we count birds and nests to estimate how many birds and how many different species are using these areas. We also look for signs of predators and take corrective actions to reduce predation."

So far Richards and Covington have counted more than 300 nests at the new island. Nests include black skimmer, black-necked stilt, gull-billed tern and least tern — the latter of which is listed as a threatened species in South Carolina.

"We typically do our counts from inside a vehicle using a spotting scope, so we are less likely to scare up the birds," Covington said. "Each day is different, but it's not unusual to spot several species in flocks of more than 1,000 birds.

"It's hot, buggy, exhausting ... and amazing," she added.

The bird island was part of a \$5.3 million dike raising and improvement contract, awarded to prime contractor Edgefield

Construction based in Edgefield, South Carolina. Construction began in September 2012 and finished in October 2013. Impoundment of the bird island began soon after, as water was pumped into the disposal area to surround the island.

"Because the island is surrounded by water, it is less likely that predators such as feral hogs, coyotes and raccoons will be able to access it," Covington said.

The 12A project used 877,000 cubic yards of previously deposited dredged sediment from inside the DMCA to raise the dike and another 160,000 cubic yards to create the bird island.

The island was topped with an additional 36,000 cubic yards of coarse sand relocated from nearby disposal area 14B. The sand forms a 2-foot layer that provides better nesting habitat for shorebirds and slows the growth of plants that interfere with the shorebird nesting.

The district built the bird island as environmental mitigation for routine operations and maintenance of the Savannah Harbor Navigation Project. To document the project's compliance with the mitigation requirements, the district produces an annual report on bird populations and habitat in these areas.

"So much historic bare ground nesting habitat has been lost worldwide due to human development that many bird species have become extinct or endangered," Covington said. "By providing this rare habitat, the Corps is helping to restore hope for several species' recovery."

Savannah District operates five interior bird islands with two more in the design phase and two near-shore islands. Wetted areas within the DMCA's provide thousands of acres of feeding habitat for waterfowl and shorebirds; and the exterior woods around the Savannah Harbor DMCA's provide hundreds of acres of feeding, roosting and nesting habitat for other bird species.

"We routinely coordinate with the Georgia and South Carolina Departments of Natural Resources, Georgia Department of Transportation and U.S. Fish and Wildlife Service to ensure these areas meet state and federal requirements," Richards said. "It's definitely a collaborative effort." ☺



Savannah District biologist Ellie Covington monitors bird nests at the newly-constructed 12A bird island May 30.

Environmental monitoring underway for harbor deepening

Story and photo by Billy Birdwell
Savannah District

With the signing of the Water Resources Reform and Development Act of 2014 earlier this year, many people expected construction of the Savannah Harbor Expansion Project (SHEP) to start immediately. However, several actions need to take place before construction can occur.

“Environmental monitoring ranks high in the hierarchy of actions that must take place before construction begins,” said Jason O’Kane, Savannah District’s SHEP senior project manager. “Some of the pre-construction environmental monitoring takes a year or longer to accomplish before we can begin any work.”

Several pre-construction monitoring efforts began in 2013, others in 2014. Workers have completed some of the monitoring while other studies will occur periodically throughout the entire project, O’Kane explained.

“We conduct pre-construction monitoring for two main reasons,” said William Bailey, chief of planning for the Savannah District. “We want to make sure the environmental mitigation performs as we designed. We also want to ensure the impacts that we predicted are not exceeded.”

The district prepared a robust monitoring program for the project, O’Kane said. Those efforts will cost only about \$3 million per year, compared with the project’s overall cost authorized by Congress at \$706 million.

Of the 14 environmental monitoring studies, eight of them start before construction begins. Some of those will continue throughout construction. The studies include determining distribution of the endangered shortnose sturgeon in the lower Savannah River, as well as the concentrations of salinity and dissolved oxygen in the harbor’s water. The district will also continue its ongoing monitoring of the Floridan aquifer, which supplies Savannah much of its drinking water.

“Monitoring will provide the public assurance that the Corps protects the environment and local drinking water,” Bailey said.

The American public and state and federal resource agencies have expressed concerns about environmental impacts throughout the 15 years the district has worked on the SHEP, according to Bailey. As workers collect environmental data, the district will post



Shown here is an aerial view of the Savannah River in Savannah, Georgia. As part of the Savannah Harbor Expansion Project, the U.S. Army Corps of Engineers is leading a robust environmental monitoring effort to ensure mitigation for the harbor deepening performs as intended.

results online for all to review.

“We intend to live up to our commitments to protect the environment as we improve the harbor, and we will show the results as they become available,” Bailey said.

The Army Corps of Engineers and the State of Georgia must deepen the Savannah harbor and shipping channel to accommodate much larger ships, many of which will soon be able to pass through the Panama Canal. The SHEP will deepen the harbor and shipping channel from its current 42 feet below mean low water to 47 feet. This will allow the new, larger ships with deeper drafts to enter and leave the harbor with heavier loads than is currently possible. It will also allow the ships greater time to “ride the tide” into and out of the harbor.

By gathering data on the harbor as it exists before

construction, USACE experts can identify when changes occur during and after construction.

“We will add this data to the vast volume of human knowledge so other proposed deepening projects elsewhere in the world can draw on our results,” O’Kane said.

“It’s a very comprehensive monitoring program that will provide a lot of information about the [Savannah River] estuary,” Bailey said. “Resource agencies and the public will be able to review the data as construction occurs to ensure the environment is protected.”

Most of the monitoring will occur in or near the Savannah harbor, including measuring chlorides in Abercorn Creek in Effingham County, where the City of Savannah draws water from the river for industrial and household use. Another study will determine the

Pre-Construction Monitoring Actions

Note: Some actions continue beyond pre-construction and some may extend beyond construction completion.

- Sturgeon Distribution — Estuary
- Sturgeon Distribution — New Savannah Bluff Lock and Dam
- Water Quality and Chloride Platform
- Intensive Water Quality/Hydrology Event
- Bathymetric Surveys
- 12 Marsh Sites — Vegetation and Salinity
- Fish, Crab and Shrimp Distribution
- Continuous Water Quality Monitoring
- Chlorides in Abercorn Creek
- Floridan Aquifer
- Base Data and GIS Web Portal
- Update Water Quality/Hydrology Models
- Bird Monitoring
- Downstream Dissolved Oxygen Plant Testing

distribution of shortnose and Atlantic sturgeon in the Savannah River, from the harbor up to Augusta. Plans for the deepening include building a fish bypass around the lock and dam to reopen traditional spawning areas at the Augusta Shoals to sturgeon and other native fish.

In addition, the district built adaptive management into environmental mitigation plans for the SHEP. Adaptive management allows managers to adjust mitigation features to react to real-world changes as the deepening progresses. With the baselines provided by the pre-construction monitoring, operational managers will have the knowledge and ability to protect aquatic life and live up the pledge to protect the environment. Harbor environmental data and additional information on the monitoring effort can be found on the SHEP Monitoring Program website: www.shep.uga.edu. ☞

Floodplain forests provide habitat, recreation, mitigation

By Patrick Moes
St. Paul District

The St. Paul District environmental stewardship section has been busy planting trees. The reforestation project near Bay City, Wisconsin, began as a way to mitigate floodplain forest and wetlands that were lost due to the nearly \$70 million in renovations to Lock and Dam 3, near Red Wing, Minnesota. The project greatly improved navigation safety, but the construction forced the district to remove about 70 acres of wetlands, said Tom Novak, Lock and Dam 3 project manager.

Ray Marinan, St. Paul District natural resources specialist, said the forest mitigation project is all about providing a diverse floodplain forest that will benefit both society and the environment. He said the land where trees are now growing was used for agriculture just a few years ago. The young forest was planted in two phases and he said there are already signs of progress.

“We’re interested not only in producing trees and making a forest here, but we’re looking at the benefits of that for wildlife so we also try to plant a food source,” Marinan said.

In another area of the reforestation project, Marinan pointed out and cleared debris from a bird’s nest located within a red oak tree.

“That’s proof that our work is having a positive benefit already,” he said.

While the forest is well on its way to becoming suitable habitat for a variety of trees and animals, as well as providing outdoor recreation opportunities to the public, Marinan said many people were involved in making the project possible. From Army Corps of Engineers navigation specialists, planners, project managers, environmental and regulatory specialists to partner agencies such as the U.S. Fish and Wildlife Service and the Wisconsin Department of Natural Resources, everyone has been focused on helping the forest mature into its own ecosystem.

The district manages about 25,000 acres of land along the Mississippi River. ☞



USACE Galveston District Commander Col. Richard Pannell testifies during the Texas Legislature’s Joint Interim Committee on Coastal Barrier Systems Public Hearing Aug. 4 at the Texas A&M University Galveston Campus to discuss the district’s efforts along the Texas coast. Texas State Senator Larry Taylor and State Representative Joe Deshotel, who are co-chairs of the Joint Interim Committee to Study a Coastal Barrier System, hosted the public hearing to discuss the feasibility and desirability of creating and maintaining a coastal barrier system. The committee encouraged public attendance and public testimony. The committee was created by the Legislature in 2013 and is made up of members from the House Committee on Land and Resource Management, the Senate Committee on Natural Resources and two additional coastal members from each chamber. To learn more about the district’s coastal efforts, visit www.swg.usace.army.mil/Missions/TexasCoastValuetheNation.aspx. ☞



The Lower Chain of Wetlands, looking northwest toward downtown Dallas, during construction in 2008. The wetlands were then at flood stage; the adjacent Trinity River is at the lower right. (Courtesy photo)

Protecting new wildlife habitat in Dallas

By James Frisinger
Fort Worth District

In the past decade the Fort Worth District has transformed a dump and an old golf course in the Trinity River bottomland into new wildlife habitat within eyeshot of downtown Dallas skyscrapers. Now it’s time to protect this urban jewel, which has attracted a diverse population of resident and migratory birds.

In August the district awarded a \$159,000 contract to TTG Utilities of Gatesville, Texas, to help enclose the parking area and protect this habitat in the Lower Chain of Wetlands natural area in southeastern Dallas.

The contractor will erect a pipe-rail fence around a parking lot on the site of the former Sleepy Hollow Golf Course clubhouse at Great Trinity Forest Way (Loop 12) just west of the Trinity River Bridge. It provides access for hikers, bikers, birders and fishermen. Six ponds in the chain extend northeast from Great Trinity Forest Way to the Interstate 45 Bridge.

Audubon’s Trinity Bird Count has officially tallied 129 species at this spot since it began in 2011. (Other birders have

identified 10 others, according to the eBird database, a joint project of the National Audubon Society and the Cornell University Lab of Ornithology.) The Trinity Bird Count recorded 45 species during its July 26 visit, including Baltimore orioles not commonly seen south of the Red River during the summer breeding season.

“It’s one of my favorite birding locations in Dallas, a truly peaceful and picturesque oasis just minutes from downtown,” said Caroline Humphries, a regular bird count participant.

Informal trails in the Lower Chain of Wetlands are open to the public along existing maintenance roads, but vehicular traffic is prohibited. New gates under the contract will hinder illegal dumping and keep unauthorized vehicular traffic from damaging the grassland habitat.

Formal hike-bike trails through the Lower Chain are planned in the future by the city of Dallas as it builds out the Trinity Forest Trails network. The city also plans to add park benches and an information kiosk to explain the local wildlife and plants.

The new wetlands are part of the district’s ongoing Dallas Floodway Extension Project. It was conceived through years of

collaborative planning between the city of Dallas and the district to more efficiently convey floodwaters through the Dallas Floodway System and thereby reduce flood elevations in the Trinity River corridor. It combines flood risk management with ecosystem restoration and recreation.

When not serving as an alternate river channel during flood stage, the chain of wetland ponds and surrounding prairie provide quality wildlife habitat designed to support birds.

Plants were selected that are a valuable source of food and cover, but which can also survive temperature and moisture extremes. The Texas Parks and Wildlife Department and U.S. Fish and Wildlife Service collaborated with the district on the re-vegetation plan. All of the plants were raised and planted by the nearby USACE Lewisville Aquatic Ecosystem Research Facility.

A second section of the federal project, the Upper Chain of Wetlands, is now under development just upstream. When complete, the two wetland chains will comprise 123 acres of emergent wetlands, 45 acres of open water and 102 acres of grasslands — just a few miles from downtown. ☞

District quickly removes mortar found along popular hiking trails

By Katie Newton
Louisville District

During Memorial Day Weekend unexploded ordnance (UXO) — a 4.2-inch mortar containing white phosphorous — was found in the Dolly Sods Wilderness Area (DSWA) of West Virginia by Boy Scouts who were backpacking and camping in the area.

Dolly Sods, a popular area for outdoor activities and viewing wildlife, plants and birds native to the area, is part of the West Virginia Maneuver Area (WVMA), a Formerly Used Defense Site (FUDS) used by the Army for live-fire training and maneuvers during World War II. Huntington District has performed two removal actions along the trails and campsites in the past and immediately began coordinating for a safe removal of the UXO.

“Janet Wolfe in our Environmental Remediation Section was instrumental in coordinating the response actions to ensure safe disposal of the ordnance,” said Rick Meadows, project manager.

Boy Scout Troop 1997, visiting from Ellicott City, Maryland, ran across the UXO May 25 near the intersection of two trails. The Boy Scouts photographed the UXO, sketched its location and called the U.S. Forest Service hotline number.

“They followed the process outlined in our program to avoid the

hazard and properly report it,” Meadows said.

The U.S. Forest Service then notified the U.S. Army Corps of Engineers’ Huntington District. After coordination with the Baltimore District and the U.S. Army Engineering and Support Center, Huntsville, and personnel at Aberdeen Proving Ground, Maryland, the district Environmental and Remediation Section contacted the Army 52nd Ordnance Command of Fort Campbell, Kentucky, which is the Army Explosive Ordnance Disposal (EOD) command center for this part of the country. The EOD Group quickly responded and expeditiously disposed of the UXO in place on May 27.

Historically, UXO removal was performed at WVMA immediately after World War II and again in 1997-1998. The 1997-1998 removal focused on the existing trails and campsites of DSWA. Subsequently, warning signs were posted at the trail heads to warn the public of UXO dangers outside the cleared areas. Outdoor activities at DSWA outside of the cleared areas include an increased level of risk of encountering UXO.

Additionally, safety sessions are conducted as part of the Long-Term Monitoring for the Dolly Sods Wilderness Area to raise public awareness about UXO. Huntington District conducted a safety session June 7 at the Seneca Rocks Discovery Center in conjunction with National Trails Day to help alert the public about the possibility of encountering UXO during their visit.

The Army Corps of Engineers emphasizes the 3 R’s of munitions safety: Recognize, Retreat and Report:

Recognize

There is no way to describe UXO. UXO can come in many shapes and sizes. It can be rusty or look like new. It can be out in the open, hidden in bushes or partially buried. The important thing to remember is that if you see what you think is UXO, then you should retreat from the area and report it to authorities.

Retreat

Make sure to never touch UXO, as they can be extremely dangerous. If you see UXO, immediately leave the area and do not disturb the item.

Report

If you come across what might be UXO, you should leave it be and report it to your local law enforcement by calling 911. They will be able to take care of the item. Do not use your cell phone near the item. Call 911 after retreating from the UXO.

Editor’s Note: The Formerly Used Defense Sites program for the Great Lakes and Ohio River Division is managed by the Louisville District, which is responsible for all projects within Kentucky, Indiana, Illinois, Ohio, West Virginia and Michigan. Huntington District serves as the project manager for the West Virginia Maneuver Area project. ☺



Rick Meadows, Huntington District FUDS project manager, and Janet Wolfe, district environmental and remediation section, discuss the safety handouts on display at the public safety session conducted June 7. (Courtesy photo)

Shenango Lake salutes partnership

By Richard Egger and Carol Davis
Pittsburgh District

Pittsburgh District Commander Col. Bernard Lindstrom saluted the efforts of Shenango River Watchers and other organizations during a recent trail dedication ceremony at the New Hamburg River Access Point at Shenango Lake.

Lindstrom commended the devotion of the river watchers and area partners who raised more than \$140,000 to repair a deteriorated access road, improve parking and enhance the loading and unloading area at the access point.

“This is a micro-example of public-private partnerships where federal, state and local partners came together to provide a recreation benefit to a region that was previously unusable,” Lindstrom said. “None of us could have done this individually, but we got together and we got it done.”

The dedication represented the culmination of seven years of hard work, dedication and perseverance of the Shenango River Watchers. Members of the river watchers raised the renovation money through grants and donations. They conducted public meetings, met with 80 landowners along the river and obtained permits from state and federal agencies. As a result, the 22-mile section is now officially designated as the Upper Shenango River Water Trail, and meets the requirements as part of the Pennsylvania Water Trail System. One of the requirements of the water trail system is to have launch sites at reasonable distances to one another, with safe, accessible put-in and take-out options.

In 2007, the Shenango River Watchers began the process of clearing the Shenango River of snags and blockages between Pymatuning State Park and the Big Bend Access Area of Shenango Lake. Then in 2012, they set their sights on developing an access point at New Hamburg, halfway between Shenango’s Kids Mill Park and the Big Bend Access Area. After leasing the property from the district, through the use of in-kind services, river watchers raised \$25,000 to complete the project. Improvements included repairs to a deteriorated gravel access road, improved parking and loading-unloading areas and signage.

Hugh Clark, a Shenango River Watchers board member, said it was worth the effort.

“It is not a linear process,” Clark said. “You’ll circle back on yourself, run furiously in place at times, experience setbacks, and have the rules change while you’re playing the game. Take no notice of total elapsed time, just persevere. This is a game that goes to the steady, not to the swift.”

Lindstrom said this type of partnership should be emulated across the country.

“Could you imagine what we could accomplish using this partnership as a model,” he said. ☺

A living laboratory along the shores of Lake Michigan

Story and photos by Sarah Gross
Chicago District

Nature, set in motion. That's how Chicago District ecosystem planner Frank Veraldi describes Chicago's Northerly Island — the unique, man-made metropolitan peninsula, envisioned by famed architect Daniel Burnham.

The Chicago Park District, the district's non-federal partner, developed the Northerly Island Framework Plan in 2010, which entails coastal islands in Lake Michigan, recreational park activities on the northern portion of the peninsula and restoration of the southern portion of the peninsula.

Under the Great Lakes Fishery and Ecosystem Restoration Authority — and with the help of federal funding from the Army Corps of Engineers and the Environmental Protection Agency's Great Lakes Restoration Initiative — the district leads the 40-acre habitat restoration project on land home to Chicago's second World's Fair, but more recently used for an airport.

"This is a premiere spot," said Gene Fleming, chief of Chicago District's Environmental Formulation and

Analysis Section. "Where else do you get 40 acres of land in downtown Chicago to recreate six habitats? The things kids learn in school, they can apply in this outdoor laboratory."

Northerly Island will act as a living educational spot as part of the world-renowned Museum Campus — also home to attractions like the Field Museum and the Shedd Aquarium.

"The close proximity to Navy Pier and other popular tourist sites will make Northerly Island a place for visitors to be able to enjoy the solitude of Lake Michigan, whether it be through walking, biking, camping or fishing," said Kirston Buczak, Chicago District project manager. "It will also provide an everlasting ecological oasis for migratory birds and for the people who love to watch them."

Through the planting of 347 pounds of seed, 250,000 plugs, 10,300 shrubs and 431 trees, this project will create six habitat types that existed before the metropolitan area was developed: lake, dunal pond, emergent marsh, wet prairie, mesic prairie and savanna.

"All habitats will seamlessly meld into one another, ebbing and waning with Lake Michigan," Veraldi said.

With a variety of habitat comes an abundance of



Mayor Rahm Emanuel speaks at a press conference at Chicago District's Northerly Island Ecosystem Restoration Project site June 17, 2014 (shown in an aerial view below left). At his right are Gina McCarthy, Environmental Protection Agency administrator, Jo-Ellen Darcy, Assistant Secretary of the Army (Civil Works) and Michael Kelly, Chicago Park District.

wildlife. The site will be a short-term host for hundreds of species of migratory birds twice a year, along with a variety of resident birds, fish, reptiles and amphibians, including the state-threatened mudpuppy.

The oak savanna and mesic prairie hillsides are a typical habitat where large female snapping turtles may dig nests and lay eggs. Small mud chimneys or prairie crayfish may be seen in the wet prairie habitat. The emergent marsh habitat is one of the most productive habitats in North America and the critical crossover home to dragonflies, butterflies, salamanders, frogs, snakes, turtles, lizards, herons, ducks, raptors, nighthawks, wrens, mice, raccoon, beaver, deer and coyotes.

Among many interesting project features, a lake bed will be created by placing mixed soil along the western side of the peninsula on the Burnham Harbor revetment, and then sinking root stock of native pondweeds and eel grass weighted with stones into the soils. Another feature of the project includes excavating a 4-foot-deep pond, uncovering the sand to be used to create the rolling hills of the black and scarlet oak savanna habitat.

The sand mounts at Northerly Island will rise 34 feet above the Lake Michigan waves — providing a beautiful aesthetic to the once-flat parkland and also enabling wind gusts to be broken.

This project has garnered great publicity since construction began on the southern part of Northerly

Island in spring 2013.

This June, Jo-Ellen Darcy, Assistant Secretary of the Army (Civil Works), joined Mayor Rahm Emanuel; Gina McCarthy, Environmental Protection Agency administrator; Rep. Danny Davis; and Michael Kelly, Chicago Park District superintendent; for a tour and press conference at the project site.

"When this is done, there is no museum park in the nation — even some national ones — that will compare to the museum campus that we have here in the city of Chicago," Emanuel said.

A five-year contract was awarded in September 2012. As of spring 2014, the contractor has moved all of the material and installed approximately 30,000 of the 250,000 native plugs and more than half of the shrubs and trees.

By fall 2014, visitors will be able to use a pathway that will traverse a wetland area, though some areas will be fenced off to protect the newly planted vegetation. As plant establishment progresses, more of the site will open to the public.

"Through this project, we are empowering ourselves with future gains by keeping water clean, food abundant, and holding sanctuary the mysterious gift of nature," Veraldi said.

For project details, visit <http://1.usa.gov/Uf29ts>.

To view more photos from the press conference, visit <http://bit.ly/Nlpressconf>. ☞



Lake, community organizations develop public garden to support local food pantries

By Ann Marie R. Harvie
New England District

Something beautiful is happening at Hopkinton-Everett Lake. Amid the lush greenery and beautiful postcard perfect scenes, a community garden is growing — a garden blooming with seasonal vegetables tended by the Henniker and Hopkinton Lions Clubs of New Hampshire. The true beauty of this garden isn't the array of colors of the vegetables, but the fact that the garden provides food for many local disadvantaged people.

Three years ago, Dr. Bruce Trivellini, Henniker Lions Club member, came up with the idea of a community garden. He and other members heard that land was available for lease at Hopkinton-Everett and, after going through the process of obtaining a license, the community garden was born.

"Planting this year began about early May," said Jerry Eisen, Henniker Lions Club member currently in charge of the garden. "We practice succession planting so that new crops are ready for harvest throughout the season."

Recognizing the garden to be a sustainable and worthwhile initiative, the New England District Team granted the Lions a four-year license to use the land at no cost. In addition, the district



Henniker Tiger Cubs plant potatoes in the community garden. (Photo by Jerry Eisner)

waived license processing fees. Having a garden at a Flood Risk Management Project that also serves the community is a good fit, according to Hopkinton-Everett Lake Project Manager Steve Dermody.

"It's utilizing Corps land when we don't use it for Flood Risk Management," Dermody said. "The garden is a beneficial use and is definitely a worthwhile project."

Tending a garden such as this one requires a great deal of work, which Eisen said includes soil preparation and maintenance — soil testing, fertilization and annual lime distribution — removing rocks in the spring and fall, planting, cultivating, harvesting and watering. Although the Lions Clubs are the primary care takers, other community volunteers roll up their sleeves and pitch in.

"We've had New England College students and the Henniker Tiger Cubs participate," Eisen said. "Anyone is welcome to help."

Volunteers delivered the vegetables to the Henniker and Hopkinton food pantries beginning in July. "The garden also benefits 15 Henniker seniors with disabilities that prevent them from leaving their homes," Eisen said. ☺



LEFT: Kevin Stubbs and Tonya Dunn capture Interior Least Tern populations and locations while travelling the Arkansas River in August. ABOVE: The odds of this 3-day-old hatching's survival are greatly reduced because it was hatched so late in the season.

2014 Interior Least Tern surveys complete

Story and photos
by Brannen Parrish
Tulsa District

Tulsa District, in cooperation with the U.S. Fish and Wildlife Service, completed its annual survey of an endangered bird on Oklahoma and Texas rivers in August.

Tonya Dunn, a Tulsa District biologist, and Kevin Stubbs, a biologist from the U.S. Fish and Wildlife Service, completed a count of Interior Least Tern fledglings on the Arkansas River Aug. 13.

Dunn is in the process of tallying the final figures for the nesting season. Dunn has been counting the fledgling population on the Oklahoma portion of the Arkansas River and the Red River from July to August since 2006.

"We are still waiting for some numbers to come in but based upon our counts this was a really good year for the Interior Least Tern," Dunn said. "On the Oklahoma portion of the Arkansas River, it looks like the number of fledglings will be higher than last year."

In 2013, the Tulsa District reported 223 fledglings on its portion of the Arkansas River. Dunn estimates the final totals for the Arkansas River in Oklahoma to be above 360 fledglings for this season.

Along the Red River, Dunn estimates about 80 fledglings for the season, which is down from the 2013 total of 110.

A number of factors affect successful nesting. Interior Least Terns prefer to nest in the center of sand bars and islands with little to no vegetation. If the river levels are low when the terns are searching for nesting grounds, what appears to be a safe nesting site may become hazardous if rainfall increases.

"If you get a flood event, what looked like an island will become a sand bar and destroy the nests," Stubbs said. "If it's early in the season they will re-nest but around late August, the majority will want to leave."

Dunn said the Tulsa District works with various stakeholders to ensure river flows are at sufficient levels for the terns to find safe nesting grounds.

"Ideally you want to have big flows before the terns get here to scour the

vegetation and so they don't select an island that will be covered during a flood," Dunn said. "Every year it's a balancing act with hydropower, navigation, flood-risk management and recreation."

When water levels are too low, mammals pose a greater risk.

"If coyotes or dogs know there is a food source on an island or sandbar, they will go after them," Stubbs said. "When people walk out onto the sandbars or ride their four wheelers and all-terrain vehicles on the sandbars, they run over the nests."

After courting, female terns lay one to three eggs, which require about three weeks for incubation. Hatchlings require another three weeks to fledge but are poor hunters, and will rely on adults to provide small fish for up to three weeks after gaining their flight feathers.

The smallest of the tern species, interior least terns migrate from as far south as Brazil to court and nest on islands and sand bars in U.S. waterways and tributaries from Montana to Texas and New Mexico to Louisiana. The birds were added to the list of endangered species in 1985. ☺

Awards

Continued from Page 9

Good Neighbor: At the request of the Army Office of the Assistant Chief of Staff for Installation Management, Baltimore District's Planning Division prepared the Army Chesapeake Bay Comprehensive Plan. The plan is specific to Army installations and facilities within the Chesapeake Bay watershed and strategically analyzes management and resource opportunities for key watershed priorities including ecosystem restoration, storm water best management practices and habitat improvement. The plan's purpose was to identify critical scientific and programmatic vulnerabilities across the watershed to develop a strategic methodology for justifying and maximizing the allocation of constrained resources across the Army.

The plan resulted in an Army Chesapeake Bay planning tool the Army can use to prioritize resources and funding for watershed improvement projects at installations that contribute to impairment of the Chesapeake Bay watershed. Additionally, any federal, state or local government or non-profit organization can use the tool to prioritize their efforts in sub-watersheds toward the greater restoration of the bay. The GIS tool generated from this effort serves as an example for prioritization of watershed restoration efforts that can be implemented for other watersheds throughout the country. The district's PDT includes Michael Schuster, Angie Sowers, Heather Cisar, Sharon Sartor, Anthony Clark, David Robbins and Marco Ciarla.

Lean, Clean and Green: The Army Reserve Center and Organizational Maintenance Shop in Denton, Texas, received the Lean, Clean and Green Award as a result of the inclusion of a number of sustainable strategies such as a rainwater harvesting and reservoir system, photovoltaic solar panels, a solar heating system for showers, and reflective roof surfaces to reduce heat gain and associated cooling costs. The reserve center and maintenance shop were designed by GLMV Architects Inc., working under contract with a Louisville District team led by Joni Hibbard. Pioneering leadership from Louisville District has emphasized use of energy charrettes to establish building-performance goals and sustainable-design strategies. Strategies used at Denton, such as daylighting to reduce artificial lighting costs, rooftop solar energy systems to offset building energy use requirements, and air barrier systems to effectively control energy lost through infiltration, are being found to be cost effective and key to creating high-performance buildings that consume less energy.

Building the Future (one of two awards): The Echelons Above Brigade Company Operations Facility at Fort Carson, Colorado, is a 46,608 square-foot facility accommodating three Army companies and serving approximately 500 Soldiers. This facility is a good example of the dedication and commitment of Fort Carson and the Omaha District-led PDT to build upon the installation's sustainability legacy, which includes more than 51 LEED certified projects. Using current energy and light modeling systems, and incorporating life cycle cost analysis, the team was able to construct a realistically functional and sustainable facility that resulted in attaining LEED Platinum certification. With that certification, this industrial structure became the second LEED Platinum facility at Fort Carson, an exceptional achievement considering most LEED Gold and Platinum facilities are primarily administratively focused.

Building the Future (second of two awards): As one of the first schools designed under the new 21st Century Education Initiative for Department of Defense Education Activities (DODEA), Barkley Elementary School at Fort Campbell will enable a modern school environment, equipped with technology to aid in the results-oriented learning process. The Norfolk and Louisville districts' team followed its fundamental strategy of integrating 21st century education and green school concepts to produce a design that met budget and quality mandates while applying best practices from net zero schools and resulted in a prototype for DODEA schools. With the expectation that this school must function for more than 50 years, all of the major systems, as well as the building itself, were planned for accordingly. From the insulated concrete form construction to standing metal seam roofs and geothermal HVAC systems, all of the components of the school possess the ability to endure and operate effectively well into the future. The school is expected to be complete in June 2016. ☞



Silvery Minnow Project Video Update

An Albuquerque District team, with other members of the Middle Rio Grande Endangered Species Collaborative Program (MRGESCP), trekked down the Rio Grande in July in search of Rio Grande Silvery Minnow — an endangered species. USACE team members include Michael Porter, fishery biologist; Justin Reale, aquatic ecologist; Dana Price, botanist; and Ondrea Hummel, ecologist. They were joined by Brooke Wyman, biologist, Middle Rio Grande Conservancy District (MRGCD), and Eric Gonzales, biologist, SWCA Environmental Consultants. The team was looking for young Silvery Minnows to verify a spring river water release of minnow eggs; they found 122 silvery minnows, confirming observations by the U.S. Fish and Wildlife Service. "By finding these minnows, we have determined that our work is relatively successful," Porter said. "Gathering information this week has been critical to us in planning and our future habitat restoration projects in order to secure the silvery minnows' place in the ecosystem." Click the photo to watch Porter and Gonzales explain their most recent trip down the river. Find more district videos at www.spa.usace.army.mil/Media/Videos.aspx. ☞



Save the Date: PIANC USA and the Coasts, Oceans, Ports and Rivers Institute (COPRI/ASCE), along with the U.S. Army Corps of Engineers Savannah District, announced the Dredging 2015 Conference is scheduled Oct. 19-22, 2015, in Savannah, Georgia. Organizers expect more than 600 dredging experts from around the world to gather at this fifth technical specialty conference. The event will include plenary sessions, concurrent technical sessions, short courses, tours and an industry exhibit hall.

"More than 200 of the top dredging experts in the world will be presenting technical talks at the conference on more than a dozen major topics ranging from dredged materials management to regulatory challenges to working with nature," said Robert Engler, conference organizing committee member.

Participants should plan to submit an abstract by January 2015. Find more about the Dredging 2015 Conference online at www.pianc.us/. ☞