US Army Corps of Engineers ®

The Corps Environment

July 2012 Vol. 13, No. 3

Corps designates new centers of expertise

By Candice Walters
Headquarters USACE

The U.S. Army Corps of Engineers has stood up nine new centers of expertise encompassing 20 competency assignments to build competency in energy and sustainability across the Corps of Engineers initially and eventually with all its military customers.

The new Regional Energy, Sustainable Design and Life Cycle Cost Analysis Centers of Expertise have been established across Corps of Engineers divisions as well as the U.S. Army Engineering and Support Center Huntsville, each with a program manager, a division technical lead, a headquarters proponent and a U.S. Army Engineering Research and Development Center liaison.

"We wanted to take the technical experience in energy and sustainability across the Corps of Engineers and develop a strategy to share that technical knowledge," said Kenneth Simmons, an architect from Kansas City District working with the Energy and Sustainability section at Headquarters.

The 20 centers of expertise represent areas where the Corps has acquired technical expertise throughout the years, Simmons said. "These areas are fairly common to the construction industry and the expertise we've gained can be easily incorporated into the design process."

They are also areas that can help the Corps of Engineers and its customers achieve some of their sustainability goals as the Corps of Engineers and other federal entities look to reduce energy costs and put measures in place that will decrease their environmental footprint.

With many Corps of Engineers professionals involved in the Base Realignment and Closure program and the resulting spike in new construction the past few years, they saw requirements for energy efficiency and sustainability become the norm. As they gained the on-the-job experience of instituting these requirements into the planning and design process, they realized they had expertise to share with others, Simmons said.

The regional centers cover competency assignments running the gamut from ones devoted to wind, contract methods, solar thermal energy, converting waste to energy to hydrology/low impact development and everything in between. Simmons said that while it would be difficult for one facility to incorporate recommendations from each of the 20 technical competencies reflected in the centers, planners and designers can benefit from incorporating the knowledge and techniques that make sense.

Jerry Zekert, chief of the Corps' Master Planning Team, discusses sustainable design practices used at Fort Belvoir, Va. Leaders in the new Regional Energy, Sustainable Design and Life Cycle Cost Analysis Centers of Expertise will draw from lessons learned planning and executing this and other Base Realignment and Closure projects. *(Photo by Mary Cochran)*

"With a new wave of professionals coming into the Corps of Engineers, this is what they are looking for," Simmons said. "We don't have to train them to be conscious of energy and sustainability requirements, they come in expecting them to already be there."

The new centers are in the process of identifying subject matter experts across the Corps of Engineers and bringing them into the fold as they begin to develop training and

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Vice President visits Everglades

By Jenn Domashevich
Jacksonville District

Vice President Joe Biden discussed the administration's efforts to restore the Everglades at the S-356 pump station, a component of the Modified Water Deliveries to Everglades National Park project in Miami-Dade County, Fla., April 23.

"About a mile from here, we're building a bridge to raise up the Tamiami Trail so there can be a natural flow of water," Biden said.

Construction of the $81 million Tamiami Trail project, a key component of the MWD, began in 2010 by the U.S. Army Corps of Engineers Jacksonville District. The project includes constructing a one-mile bridge and raising and reinforcing an additional 9.7 miles of road, allowing increased water flows that are essential to the health and viability of the Everglades.

"Last year, the Corps of Engineers' construction project generated 6,600 good paying jobs for Floridians and their families – and thousands of indirect jobs," Biden said. Restoration projects currently under way will garner "$46.5 billion net additional revenue to the state of Florida – just as a consequence of this restoration."

Biden was accompanied by his 18-year-old granddaughter, Naomi, who he pulled out of school to see the Everglades for herself.

"The truth of the matter is, people around the country, you know, they know the Everglades," Biden said. "But they just, they have no comprehension, no comprehension of what a federal and national treasure it is. It supports some of the greatest biodiversity on the planet – including 68 threatened and endangered species, 350 species of birds and it's the only place on earth where the Florida panther lives."

Maj. Gen. Todd Semonite, then U.S. Army Corps of Engineers South Atlantic Division commander and Jo-Ellen Darcy, assistant secretary of the Army for civil works, talk with Vice President Joe Biden April 23 at a Modified Water Deliveries sytem site in Miami-Dade County, Fla. Semonite is now Deputy Commanding General and Deputy Chief of Engineers. *(Photo by Jenn Domashevich)*

Corps Environment goes online-only

Plans are in the works to cease the quarterly printing of *The Corps Environment* in order to better serve the Environmental Community of Practice and our readers.

Current plans are to launch the new edition in October at http://www.usace.army.mil/Missions/Environmental.aspx

Contact the editor with any questions.

US Army Corps of Engineers ®

The Corps Environment

is printed quarterly by the U.S. Army Corps of Engineers as an unofficial newsletter published under the provisions of AR 360-1. The purpose of this newsletter is to provide information about Corps environmental actions, issues, policies and technologies. Opinions expressed are not necessarily those of the U.S. Army. Inquiries can be addressed to U.S. Army Corps of Engineers, Attn: CEHNC-PA, P.O. Box 1600, Huntsville, AL 35807-4301. Phone: 256-895-1809 or fax 256-895-1689.

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Deadline for submissions:
Nov. 15 (January issue)
Feb. 15 (April issue)
May 15 (July issue)
Aug. 15 (October issue)

All submissions are subject to editing. *The Corps Environment* is available on the World Wide Web at: http://www.usace.army.mil/Missions/Environmental.aspx

Printed on recycled paper
30 percent post-consumer

EnviroPoints:

We have work to do

By Christine T. Altendorf
Environmental Division Chief

Last month the White House Council on Environmental Quality released federal agency Sustainability and Energy Scorecards, reporting on agency performance through Fiscal Year 2011. Bottom line, the U.S. Army Corps of Engineers was red in all seven categories. It looks like we have a lot of work to do. Much of it is catch-up work, because we didn't formally establish a Sustainability Program until FY10, several years after many of the federal sustainability requirements came into existence.

That's the bad news. Now here's the good news.

We have established the Strategic Sustainability Committee, chaired by the Deputy Commanding General; published two annual sustainability plans and an operations order; integrated metrics into the Civil Works Directorate Management Review; and initiated a Sustainability Awards Program. We have integrated sustainability and energy efficiency requirements into the FY12 and FY13 Civil Works budgets and we are working to do the same in the FY14 budget. We have the Assistant Secretary of the Army for Civil Works and the Corps of Engineers leadership engaged in our Sustainability Program. We established a Sustainability Management System to target, execute and track our efforts to meet the federal goals described in Executive Order 13514: Federal Leadership in Environment, Energy and Economic Performance.

As with any new program, employees need time to build an understanding of the requirements in the context of their mission before they can effectively plan, budget and implement. And by taking the time to learn and educate and put the Sustainability Management System in place, we have positioned ourselves for more rapid and effective progress in the future.

OK, what does that all mean? In spite of all the red ink on our scorecard, it means we are making progress. It means we have significant opportunity for improvement. And it also means that it's time to roll up our sleeves and get to work to produce measurable, positive results.

The Corps of Engineers needs to employ a systems approach, seek programmatic solutions and evaluate performance within each level of command. While systems analysis and programmatic solutions are important, our key to changing the "reds" on the scorecard to "green" will be the assignment and acceptance of personal responsibility for achieving a sustainable future by every single employee.

Christine Altendorf, Chief, Environmental Division

We recently submitted our third annual Sustainability Plan to Office of Management and Budget and Council on Environmental Quality. In it, we lay out our plan, current performance, challenges and strategies for improvement. Our priority areas this year and next include the following:

Implement the Corps of Engineers Non-tactical Vehicle Fleet Management Plan

USACE will right-size its fleet, employing the most fuel-efficient vehicle for the required task and having the appropriate number of vehicles relative to need. The USACE Logistics Agency and the District Transportation Specialists will collaborate with their customers – the owners/operators of the fleet at Civil Works, Military Programs and laboratory facilities – as well as the General Services Administration to assist in acquiring the "right" non-tactical vehicles. USACE plans to continue decreasing the fleet size by 5 percent (434 vehicles) through FY15. At the same time, USACE plans to aggressively increase the alternative fuel vehicle (AFV) inventory from 39 percent to 69 percent through FY15. It is important to not only purchase AFVs

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A helicopter sprays an approved herbicide over an interior least tern island along the McClellan-Kerr Arkansas River Navigation System in Oklahoma. *(Photo by Nathan Herring)*

District uses helicopter to prepare habitat

By Nathan Herring
Tulsa District

It is quite common to hear the chirp of birds along the McClellan-Kerr Arkansas River Navigation System. Recently, however, another type of bird, a helicopter, could be heard whirring over the water.

For the first time, the U.S. Army Corps of Engineers Tulsa District used a helicopter to spray herbicide on four interior least tern *(Sterna antillarum)* islands along the navigation system.

The interior least tern is an endangered migratory bird that comes from Central and northern South America to use barren or sparsely vegetated sandbars along the Arkansas River, among other river systems, as nesting grounds during the summer months.

Since most of the sandbars along the navigation system are lush with vegetation, they must be sprayed with herbicide to make them suitable habitat. In the past, the Corps has sprayed by boat and this process could be very time consuming and expensive. Using a helicopter was a significant savings of both time and money.

"Spraying by helicopter gave us a 45 percent cost savings in labor and material," said Stacy Dunkin, biologist with the Tulsa District. "We also were able to do in one day what normally takes us at least three weeks."

Compared to spraying by boat, applying the herbicide by air was also much more effective and required less herbicide to be used.

"The efficiency at which the helicopter applies the herbicide allows us to cover more area and use two thirds less than we would by boat," he said.

The Corps used a special type of herbicide called Imazapyr Salt that is approved by the U.S. Environmental Protection Agency to be used in and around water, Dunkin said.

Though the actual application of the herbicide by helicopter only took a few hours, the planning and logistics took several weeks.

The contractor, AirPro, Inc., of Sallisaw, Okla., made arrangements for landing zones near each island, which included getting permission to access private property. The Corps of Engineers provided traffic control and security during times the helicopter needed to refuel and reload.

One of the greatest logistical challenges was coordinating safety. In addition to having a Tulsa District boat and personnel onsite in the event of an emergency, the contrac-

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Corps, partners test for Asian carp DNA

By Sarah Gross
Chicago District

Environmental DNA (eDNA) is a monitoring tool being used by the U.S. Army Corps of Engineers Chicago District and the Asian Carp Regional Coordinating Committee to aid in decisions related to preventing aquatic nuisance species from transferring from the Mississippi River Basin to the Great Lakes Basin through the Chicago Area Waterway System, the only known open, continuous path to the Great Lakes.

Matthew Shanks, Chicago District fish biologist, filters water samples for Asian carp environmental DNA.
(Photo by Jessica Vandrick)

eDNA is a process whereby genetic material, cells containing DNA from mucus, feces or urine, is extracted from water samples to detect the possible presence of invasive Asian carp.

"At present, eDNA evidence cannot verify whether live Asian carp are present, whether the DNA may have come from a dead fish or whether water containing Asian carp DNA may have been transported from other sources such as bilge water, storm sewers or fish-eating birds," said Kelly Baerwaldt, ACRCC eDNA program manager.

In the fall of 2011, the Environmental DNA Independent External Peer Review, conducted by objective panelists with technical expertise in genetics and population ecology, confirmed eDNA sampling and testing methodology is sound for detecting silver and bighead carp DNA but cannot indicate the source of Asian carp DNA. Information on the size, gender, number and age of individuals present can't distinguish between pure silver or bighead carp and their hybrids.

The Corps is leading an interagency eDNA Calibration Study with the U.S. Geological Survey and U.S. Fish and Wildlife Service to reduce the uncertainty surrounding eDNA results and refine the eDNA method.

The study will investigate alternative sources and pathways for eDNA detections beyond a live fish. The study will also examine how environmental variables such as light, temperature and water velocity impact eDNA detections; explore the correlation between the number of positive samples and the strength of the DNA source; develop more efficient eDNA markers to cut the sampling processing time in half; and model eDNA transport specific to the Chicago Area Water System.

The first interim report, released March 15, provides results to date from the study, including storm sewer experiments, fertilization analysis and alternative sampling trials to make the sampling process more efficient. For example, an initial trial on Chicago Chinatown storm sewers demonstrates that ice contaminated with Asian carp DNA and deposited into storm drains may serve as a source of eDNA, and testing on two brands of fertilizer, as Asian carp are used as ingredients in some, failed to detect bighead or silver carp DNA. Moreover, the differences in sampling at different depths were investigated, and it was found that surface sampling was the most successful in detecting eDNA.

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Penny Coulon, an Afghan Engineer District - South contracting officer representative, checks for wilting leaves on a recently sown patch of lettuce. She combined hydroponic gardening and aquaculture, raising of aquatic animals, to create the district's first-ever aquaponics garden. *(Photo by Dave Melancon)*

Bunker side garden serves as test bed

By Karla Marshall
Afghan Engineer District - South

It is not the biggest farm in Afghanistan but it is one of the newest and perhaps, one of the more experimental.

Tucked away next to a shaded break area and concrete bunker on the east side of the U.S. Army Corps of Engineers Afghanistan Engineer District - South compound on Kandahar Airfield, half of a 300-gallon plastic water tank sits on a shipping pallet. Mounted on another pallet, about a foot above the, tank is the other half filled with golf ball-sized gravel. The lower tank is about 80 percent filled with water, and a system of recycled garden hoses and household plumbing keeps the water flowing from the lower tank onto the rocks in the upper.

Sticking through the stones are plants - lettuce, peppers, broccoli and rebar-staked tomato plants. A couple dozen tadpoles graze on the algae growing in the lower tank's sides and bottom.

Penny Coulon, a district contracting officer representative, combined hydroponics and aquaculture to create the South District's first-ever aquaponics garden.

Coulon, who deployed to Afghanistan from Sacramento District, said she stumbled upon the idea for an aquaponics garden in Afghanistan while researching different gardening systems for her home garden. Aquaponics seemed ideal because of its simplicity, chemical-free fertilization, fewer weeds and insects, and no bending requirement.

"I figured I could kill two birds with one stone," she said. "I can have the fish and I could have vegetables as well. Then, I thought, this could work here."

Aquaponics is an entire food production system combining aquaculture — raising of aquatic animals such as snails, frogs, fish, crayfish or prawns in tanks — with hydroponics, a water-based plant cultivation method. The animals, in this case native Afghan tadpoles, live in the water; food plants grow in the rock.

"The fish produce waste. You then pump that water to the plants," Coulon said. "The plants clean the water because they use the fish waste as their fertilizer. The clean water is then returned to the fish."

The system also conserves water, which is especially vital in Afghanistan, she added.

"It's a closed-loop system so once you fill the tank you are truly not using any water except for evaporation because it keeps circulating through," she said.

The fish will come from a nearby lake later. Until they arrive, Coulon is using tadpoles and vitamin B-12 as a plant fertilizer as a stop-gap measure. She said she will feed the fish with duckweed.

"The fish will make a whole system," she said. "Wouldn't a nice fish dinner be good?"

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Aquaponics

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The fish, depending upon the species, will be ready to eat in about six months, so it may be a bit premature to start bringing out the recipes and spices, she warned.

The garden has been going for only a few days but the plants are looking strong with little evidence of wilting, Coulon said.

"So far it's looking pretty good. I think the plants are taking. If they weren't they would begin to wilt," she said. "I'm feeling pretty positive that it will take off."

Store-bought aquaponic systems can range in price from about $200 for a complete starter kit to several thousand dollars for larger, more elaborate systems, she said.

Many parts for Coulon's two systems were donated by Backyard Aquaponics, Inc. of Australia, she said. The Yenigun Construction Co., a Turkish building contractor with several projects under way on KAF, provided the rock and the tanks. Coulon brought the old garden hose and PVC pipes and hardware from home.

John Caudill, of Watkinsville, Ga., Operations and Maintenance Section office engineer, helped build the systems, Coulon said. He will ensure the pumps keep running and the plants and tadpoles are thriving while she is on off-site assignments and leave.

If successful, one unit will remain on the USACE compound and a second will be taken to the Afghan bazaar school on KAF, Coulon said.

"I'm excited about it. I hope it produces nice organic vegetables and will be easy to maintain," Coulon said.

Aquaponics garden units sit next to a break area and bunker on the east side of the headquarters compound on Kandahar Airfield. Parts for the self-contained system came from a company that specializes in aquaponics, a construction contractor and a home gardening store. *(Photo by Dave Melancon)*

Carp

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In April, the team began a telemetry study on cormorants in the Illinois Waterway down to Peoria to document migratory and foraging behavior, as well as testing the feces for Asian carp DNA.

Lab studies will also be conducted to determine the detectable amounts of Asian carp DNA in cormorant and bald eagle feces when they are fed these fish, and also feathers will be sampled to determine if DNA can be carried on the bodies of these birds.

Of the 2,584 water samples collected and processed in 2011, from May to October, in the upper Illinois Waterway System and Chicago Area Water System, 34 samples were found positive for silver carp DNA and no samples were found positive for bighead carp DNA above the electric dispersal barriers built by the to prevent Asian carp establishment in the Great Lakes through an electric field in the Chicago Sanitary and Ship Canal.

In cooperation with the University of Notre Dame, USACE began using the eDNA method in August 2009 to determine the location of the leading edge of the Asian carp population. More than 6,000 water samples have been collected and processed since 2009.

Work continues to find and refine Asian carp detection technologies to monitor the threat and to deploy necessary prevention efforts to keep Asian carp out of the Great Lakes.

Experts work to tame radiation risks

By James Campbell
U.S. Army Engineering and Support Center, Huntsville

In March 2011, the Tohuku earthquake and tsunami led to a catastrophe at the Fukushima Daiichi nuclear power plant in Japan, and during the resulting recovery assistance provided by the U.S., two scientists from the U.S. Army Engineering and Support Center, Huntsville got involved.

Protecting people and the environment from existing and potential radiation hazards is the mission of Health Physicists Julie Clements and Brian Hearty, from the Center's Environmental and Munitions Center of Expertise in Omaha, Neb.

Having the capability to advise senior leaders on radiation issues became important immediately after the Fukushima Daiichi disaster.

"We had to be in a position to respond if asked. We were preparing health physics fact sheets, providing any assistance we could and answering lots of phone calls," said Clements, the U.S. Army Corps of Engineers appointed Radiation Safety Staff Officer.

Clements also traveled to California at the request of Omaha District to assist with the decontamination of two U.S. Navy ships that had been deployed to assist Japan during the disaster.

"I went out to get the contractor up and running. We had to make sure they had appropriate survey equipment, record keeping and instruments," she said. "We also checked to ensure the cleanup criteria were adequate, and measures were in place to prevent inadvertent spreading of any contamination discovered."

Radiation Safety Support Team members survey a training area at Eglin Air Force Base, Fla. *(Photo by Brian Hearty)*

The power of the atom is spectacular, but along with the benefit of its use, there is the inherent risk of radiation. Radiation has existed everywhere in the environment since the Earth's formation. It is in rocks, soil, water and plants. Human mining and processing of naturally-occurring radioactive materials for use in power generation, medicine, industry and even consumer products generates emissions and waste.

Three deactivated Army nuclear power plants also are part of the EM CX health physicists' work.

The deactivated plants are permitted to the U.S. Army Corps of Engineers, two at military installations and one on a barge, were used to generate electricity and have been deactivated since the 1970s, with all the fuel and a majority of the other radioactive waste properly removed, Hearty said.

What remains are the primary components of the various nuclear power generation systems, things the Corps has wanted to safely dismantle and dispose of in an appropriate low-level radiation waste site for nearly four decades.

"When we're helping with this process, providing research and advice, we're keeping track of changes in radioactive waste disposal options, licenses and sites that are still accepting waste," Hearty said.

The questions of how much it will cost, when is the best time to move forward with dismantling and where the remnants of the three reactors can be safely stored are questions Hearty said take up much of his time.

Mitigating the risk of radiation hazards, sometimes buried in the past, also is a major part of the mission for Clements and Hearty.

The Formerly Utilized Sites Remedial Action Program,

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Hazard

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commonly abbreviated FUSRAP, was initiated by the Department of Energy in 1974 to identify, investigate and clean up sites throughout the U.S. that became contaminated as a result of the early U.S. atomic energy program starting in the 1940s. The Corps has been responsible for executing FUSRAP cleanup missions since October 1997.

"Much of what we do with FUSRAP is ensuring safe practices and techniques and providing radiation safety support to districts and contract companies doing the remediation work," Hearty said.

That work is complex and involves radioactive waste. An ongoing project example is the Shallow Land Disposal Area FUSRAP site in Parks Township, Penn., where the Pittsburgh and Buffalo districts, contract firms and Huntsville Center are working through processes in the Comprehensive Environmental Response, Compensation and Liability Act to carefully exhume, package and dispose of buried radioactive waste at offsite facilities, Hearty said.

Julie Clements, health physicist with the Environmental and Munitions Center of Expertise, tests soil samples at a training range on Eglin Air Force Base, Fla.
(Photo by Brian Hearty)

In addition to supporting FUSRAP, routine work involves monitoring the condition of density gauges on dredges that use low-level radiation to monitor material flowing through large pipes or investigating radon levels and radon protection measures as workers tunnel through rock at a dam project, Clements said.

Clements' work as RSSO also involves a myriad of compliance issues, coordinating with other federal agencies and performing Radiation Protection Audits at locations holding a U.S. Nuclear Regulatory Commission licenses or U.S. Army Radiation Authorizations.

From Fukushima to FUSRAP to forms and permits, Clements and Hearty are among a group of health physicists numbering fewer than 20 in the U.S. Army Corps of Engineers. Working together as group across the Corps, and individually, they're guiding the plans and processes for dealing with radiation— its benefits and its dangers.

Habitat

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tor arranged to have the Sequoyah County Sheriff's Office and a swift water rescue team on standby.

"Safety was a huge aspect of this project," Dunkin said. "A lot of careful thought and preparation went into making sure that contingencies were in place in case of an accident. We wanted to make sure that we were prepared."

It will take a few weeks for the herbicide to work, but Dunkin said it will provide excellent results, and he plans to continue using herbicide and helicopters in the future.

"My goal is to keep the islands clear of vegetation, but I know from previous experience the vegetation will be back next year," he said. "We have considered other options, but using herbicide by helicopter is the most effective method for long-term control of vegetation and it's also the most efficient and cost-effective method."

Three of the four islands sprayed were built by the Corps of Engineers using dredge material and the fourth was an existing sandbar that was enhanced by the Corps to make it a more suitable habitat for the birds. The Corps is involved in creating the habitat because dams, reservoirs and other changes to river systems in Oklahoma have eliminated most historic habitat for this endangered bird.

"Maintenance and creation of nesting habitat for the interior least terns is mitigation for the operations of our flood risk management projects," Dunkin said. "Through consultation with the U.S. Fish and Wildlife Service, we are required to maintain the nesting habitats for the birds."

The Corps works to maintain these islands, so the use of a helicopter by the Corps seems fitting— a bird helping birds.

District site attracts birds, birders

By Stephen Sheedy
Galveston District

Every April, the sky above the Gulf Coast becomes alive as millions of birds wintering in Latin America take a temporary respite before resuming their long journeys home. Depending on the weather, the 18-hour flight can be arduous and many of the birds need time to recuperate before continuing to their breeding grounds further north, which makes the Corps Woods on Galveston Island, situated along a major migratory route, an ideal rest stop after crossing the Gulf of Mexico.

The heavily wooded strip of land on the island's East End is part of the U.S. Army Corps of Engineers Galveston District beneficial use site that was developed using dredged material extracted from the Houston Ship Channel and quickly became a pristine habitat for wildlife and a favorite destination for migratory birds.

Each year, the U.S. Army Corps of Engineers Galveston District dredges approximately 30 to 40 million cubic yards of material from Texas channels to fulfill its mission of keeping waterways open for navigation and commerce. The material collected is often used for ecosystem restoration projects.

Wildlife gathers in the Corps Woods because it provides relatively safe cover to rest, feed and drink, said Mort Voller, bird enthusiast and an organizer of FeatherFest, an annual Galveston birding event in April that attracts thousands of birders from around the nation.

"From the air, after a very long and tiring Gulf flight, the Corps Woods is an inviting place to land," Voller said. "There is plenty of dense vegetation, fruiting trees, grasses and seeds, and fresh water. The Corps Woods is special because it is a little oasis before the birds continue their long journeys."

District Commander Col. Christopher Sallese, U.S. Army Corps of Engineers Galveston District, welcomes birders to the Corps Woods on the first day of FeatherFest 2012. The Corps Woods, part of the beneficial use site developed using dredged materials, has become a pristine habitat for wildlife and a favorite destination for both migratory birds and birders. *(Photo by Stephen Sheedy)*

Once the Corps Woods was identified as a prime habitat for wildlife to flourish, Fred Anthamatten district Regulatory chief, partnered with the City of Galveston, Galveston Parks Board, Galveston Chapter of the Houston Audubon Society, Texas Parks and Wildlife Department and Texas Department of Transportation to protect and preserve the property.

The Corps Woods preservation efforts have paid off and continue to provide birders with exceptional opportunities to sight many species in one visit, said Ted Eubanks, cocreator of the Great Texas Coastal Birding Trail.

"There are a number of red mulberry trees along the trail, and when fruiting there is no better place to see migrants in all of their glory," Eubanks said.

"There are times when hundreds of tanagers, orioles and buntings can be seen crowded into these trees."

Recognized by officials as an important birding site in the state and listed on the Great Texas Coastal Birding Trail's list of places to bird watch, this beneficial use site serves as a model for responsible ways to use dredge materials to benefit local communities and improve eroded coastlines through marsh restoration.

Corps tapped to assist

Renewable energy push

By Amaani Lyle
American Forces Press Service

The Army and Air Force are committed to developing 1billion watts of renewable energy on their installations by 2025, senior leaders from both services announced May 22.

The plan marks the latest milestone in a multi-year endeavor to find ways to make the military more energy efficient, said Katherine Hammack, assistant secretary of the Army for installations, energy and environment, and Terry Yonkers, assistant secretary of the Air Force for installations, environment and logistics.

One gigawatt, a unit of power equal to 1 billion watts, can power about 250,000 homes, Hammack explained.

Energy security drives the initiatives, Hammack said, adding that increased usage of renewable energy — such as solar power — on military installations would enable them to operate even if local power grids go down.

"Right now, the bases operate off of a nationwide electric grid, which, as populations grow, is getting aged and vulnerable," Hammack said. "This is a move toward distributed energy where you're generating [it] at the point of use."

The U.S. Army Corps of Engineers will work with the two services to assess land and resources and to determine energy transmission capabilities, Hammack said.

As the technology develops, she said, renewable energy steps will include the installation of solar paneling on military base buildings and vehicle garages and dual-usage of the panels as land buffers.

Biofuels will be a behind-the-scenes game changer for the Air Force, according to Yonkers, who lauded the seminal research of alternative fuels at Wright-Patterson Air Force Base, Ohio.

"These biofuels don't produce the kind of soot that conventional crude oil-derived fuels produce," Yonkers said, adding that this results in a cooler-running engine, which reduces metal fatigue and increases engine life.

"If you can reduce the temperature in the combustion chamber of an engine by as little as a hundred degrees, you can get 10,000 hours or more on those parts that compose that engine," Yonkers said.

Terry Yonkers, assistant secretary of the Air Force for installations, environment and logistics and Katherine Hammack, assistant secretary of the Army for installations, energy and environment, review a future construction site at Joint Base San Antonio May 21-22. They toured area facilities and discussed future energy and environmental initiatives of their respective services. *(Photo by L.A. Shivley)*

As the U. S. continues to seek ways to reduce dependency on imported oil, biofuels could play a large part in the transition while reducing the cost to taxpayers, he said.

"Maintenance costs will go down substantially. We can keep those engines on[-line] much longer and the overall cost of doing business with the Air Force goes down," Yonkers said.

Private sector financing will be the linchpin of the services' energy endeavors through power purchase agreements, enhanced use leasing, energy savings performance contracts and utility energy savings contracts, Yonkers explained.

New sources of clean energy will vary among installations, he said, and will include solar, wind, biomass and geothermal developments.

The desired end result of these advances, Yonkers said, is to "reduce demand, increase supply and change the culture of how Airmen and Soldiers consider energy."

The Army will host the Army-Air Force Energy Forum July 12 in Arlington, Va.

Partnership preserves Florida panther habitat

By Jenn Domashevich
Jacksonville District

A male Florida panther kitten, named K352, at about 12 days old, is handled by the Florida Fish and Wildlife Commission panther team. The kittens mother denned at the Picayune Strand Restoration Project, another effort where U.S. Army Corps of Engineers Jacksonville District is working with multiple agencies to protect habitat of Florida panthers and other wide-ranging species. *(Photo by Marc Criffield, Florida Fish and Wildlife Commission)*

After the U.S. Fish and Wildlife Service determined that Florida panthers *(Puma concolor coryi)* wearing radio collars had crossed the Caloosahatchee River near a disposal easement owned by the U.S. Army Corps of Engineers, a request was made for the Corps to relocate its easements, which would allow the property to be purchased and preserved as a panther crossing habitat.

Through the collaborative efforts of numerous federal, state and private organizations, the 1,278-acre American Prime property in Glades County, a property described as a "keystone tract" in the single most important area in the state for ensuring the natural recovery of Florida panthers, was purchased by The Nature Conservancy May 16.

"By relocating the U.S. Army Corps of Engineers easements, we will preserve this critical panther habitat crossing and allow the current population to expand up into the Kissimmee River watershed," said Col. Alfred Pantano, commander of the Corps Jacksonville District. "I'd like to applaud The Nature Conservancy, Natural Resources Conservation Service, National Wildlife Refuge Association, U.S. Fish and Wildlife Service, notably Paul Souza, and the Corps' Karl Nixon, for making this dream a reality. We look forward to continuing this collaborative effort to conserve property that is critical for providing Florida panther crossing habitat."

The Corps had two 50-acre disposal easements along the waterfront of the American Prime property and was asked by the USFWS to relocate the easements to the western boundary of the property so that the Natural Resources Conservation Service (NRSC) could encumber the property with a Wetlands Restoration Program (WRP) easement, purchasing the development rights to the property and saving the land from any future urban development.

The Corps prepared all the necessary documents to facilitate the easement exchange that would allow for the creation of the proposed "panther corridor," which will enable panthers to disperse from habitats restricted to south Florida.

Without the combined coordinated efforts of all the agencies, the land was scheduled to be sold on the steps of the court house the following day, May 17.

"The successful completion of this land acquisition effort makes me very proud to be part of the multi-agency team, our organization and our mission," said Karl Nixon, deputy chief of Jacksonville District's Real Estate Division. "It reaffirms to me that, when people unite for a common goal of protecting valuable habitat, we can make a difference."

This acquisition will encourage the natural recovery of the Florida panther population by providing habitat where animals can den and stalk prey and migrate from southern Florida to areas north of the river.

See Cats, page 14

Fish passage nets results

By Stephen Rochette
Philadelphia District

Four years ago, the U.S. Army Corps of Engineers Philadelphia District completed construction on a rebuilt fish ladder at the Fairmount Dam in Philadelphia. The project was designed to help migratory fish travel farther up the Schuylkill River to spawn.

Today, the project has proven to be an overwhelming success.

The Philadelphia Water Department, the project's non-federal sponsor, recently posted data on the number of migratory fish species that have passed through the fish ladder. In 2011, more than 3,000 American shad *(Alosa sapidissima)* traveled through the passage. Before the project was completed, the number rarely reached 100 in a year. Other species of migratory fish, including the striped bass *(Morone saxatilis)* and blueback herring *(Alosa aestivalis)*, have increased in numbers as well.

"The data shows the project has been an incredible success," said Project Manager Terry Fowler, a planner with the Philadelphia District. "Certainly the fish have voted and we're happy with the result."

Fowler said the functionality of the rebuilt ladder was a vast improvement over what existed previously. The district rebuilt the entrance and exit gates, chamber pools and a structure to help fish find the entrance to the passage.

Joe Perillo of the Philadelphia Water Department displays an American shad. More than 3,000 of the migratory fish species passed through the Fairmount Dam Fish Ladder last year. *(Photo courtesy of the Philadelphia Water Department)*

Project Biologist Mark Eberle said the features help simulate the natural experience a migratory fish would have when traveling upstream.

The Fairmount Dam is the first impediment for fish on the Schuylkill River. The next dam (with a fishway already installed) is six miles upstream. With four recently constructed fishways and a series of completed dam removals, migratory fish are now able to travel approximately 100 miles up the Schuylkill River.

The fish ladder project has also provided an educational tool for the area. The site includes an outdoor classroom and video camera that streams a real-time feed of the fish passage. Students can view the stream and learn about the fish ladder at the Fairmount Water Works Interpretive Center and on the Philadelphia Water Department website.

Desert Water

Construction of a second water tank is under way May 11 at Vandenberg Air Force Base, Calif. The new water tanks support a population of more than 18,000 military, family members, contractors and civilian employees at the base.

The U.S. Army Corps of Engineers Los Angeles District is building two efficient, 4-million-gallon reservoir tanks to replace leaking units from the 1940s. *(Photo by Dave Palmer)*

Centers

Continued from page 1

reference manuals and guides specific to each center's area of proficiency.

"They are knowledge hubs and they want to share that knowledge. We anticipate that they will be hosting web-based or video-taped classes and offering on-demand training," Simmons said.

The centers are in the process of developing a web site to be hosted on the Military Construction Requirements and Standardization Integration SharePoint site. Simmons said he anticipates instances where one center may work with one of the other centers to address a specific issue or to develop joint training.

List of new Regional Energy, Sustainable Design and Life Cycle Cost Analysis Centers of Expertise

North Atlantic Division
- Commissioning
- Hydrology and Low Impact Development
- Solar Thermal

Great Lakes and Ohio River Division
- Charrettes and Conceptual Modeling
- Ground Source Heat Pumps

Northwestern Division
- Building Envelop, Air Tightness and Passive House
- Waste
- Hydropower and Micro hydropower

Pacific Ocean Division
- Energy Modeling
- Lighting (Daylighting and Electrical)

South Atlantic Division
- District Energy
- Water and Black Water

South Pacific Division
- Life Cycle Cost Analysis
- Operations and Mantenance, Renovations and Historic Building Integration
- Solar Photovoltaics
- Wind

Southwestern Division
- Waste to Energy

Transatlantic Division
- Contingency Design

U.S. Army Engineering and Support Center, Huntsville
- Metering
- Related Contract Vehicles

Cats

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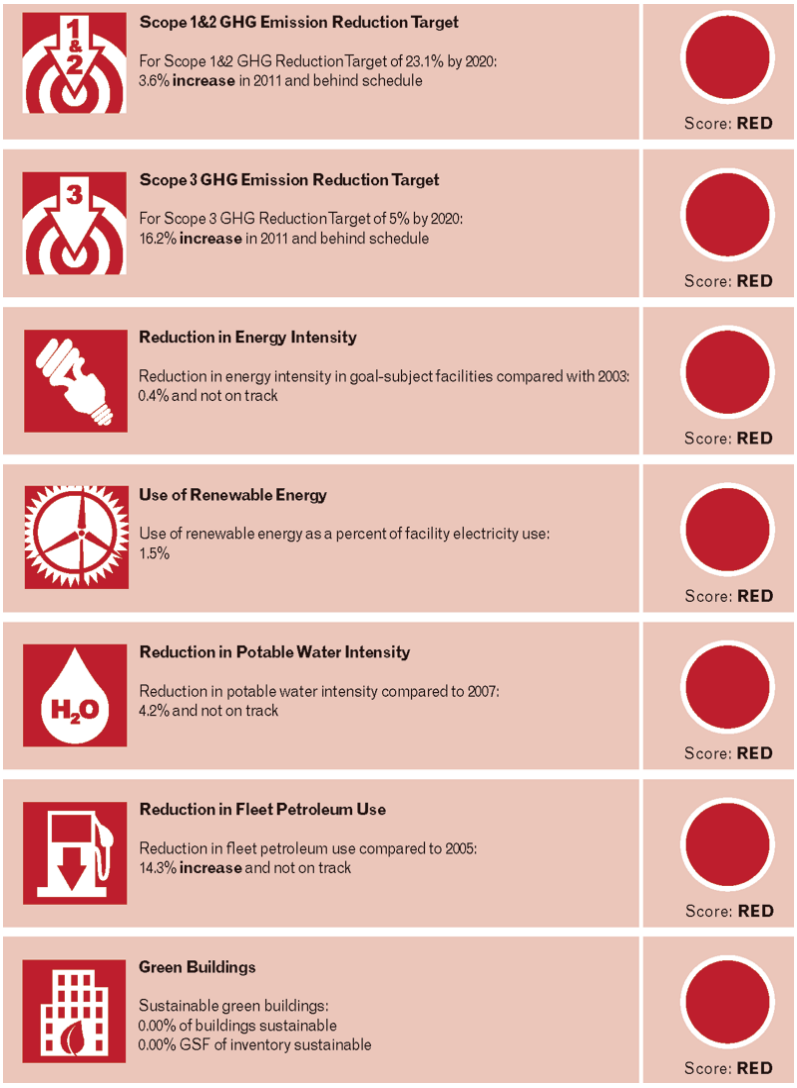
"To prevent extinction the panther population must grow, yet the current habitat south of the Caloosahatchee River is at maximum capacity," said Shelly Lakly, Executive Director of The Nature Conservancy in Florida in a May 22 press release. "That's why buying this land — the land known to be the route out of south Florida — was so critical. It opens up a future. The most at-risk property in a dwindling panther corridor was purchased right before foreclosure. It would have been extremely difficult to protect this critical panther corridor if this property was lost."

The purchase was covered by approximately $2 million from TNC in private philanthropy, and $1.5 million each from the USFWS and the private entity that purchased the property encumbered by conservation easements. Additionally, NRCS provided $1.5 million to purchase a conservation easement on 718 acres of the property, and $200,000 was provided through Acres for America, a partnership between the National Fish and Wildlife Foundation and Wal-Mart Stores, Inc., of Bentonville, Ark.

Continued from page 3



but they must actually be fueled with alternative fuels if we are going to meet our goals. The USACE Logistics Activity plans to use GSA and Department of Energy technology to identify AF refueling stations near our locations and to re-route AFVs as close to AFV refueling stations as appropriate.

Leverage $2.5 million in performance-based contracts for energy and water efficiency in our facilities

In the current constrained fiscal environment, it is clear we will not meet our sustainability goals if we focus solely on the use of appropriated funds. Thus, it is critical that we leverage alternative financing mechanisms such as energy savings performance contracts and utility energy services contracts. As the Senior Sustainability Officer for USACE, the Assistant Secretary of the Army for Civil Works committed us to $2.5 million in third party investment in our facilities by the end of December 2013. This will only be our starting point as plenty of opportunities exist to leverage these tools into the future.

Implement a Corps of Engineers Sustainable Acquisition Program

Within the Army, USACE is second only to Army Contracting Command in the number of contracting actions it processes. It is critical we conduct our acquisitions, to include services and small buys on purchase cards, in the most sustainable manner possible. For example, when buying janitorial services, we need to specify that the products used by the contractors have the appropriate amount of bio-based material as defined by the Department of Agriculture. We will be developing policy, training and reporting procedures for sustainable acquisition with the goal of 95 percent of applicable contracts, task orders comply with the federal sustainable acquisition requirements.

Expand the Corps of Engineers High Performance Sustainable Buildings program to encompass Civil Works and Corps-owned buildings

Engineering and Construction has developed a strong team supporting the Army on sustainable design and construction of buildings. We must leverage this expertise, particularly the newly established Energy, Sustainable Design and Life-Cycle Cost Analysis Centers of Expertise, to fully implement the Guiding Principles for High Performance Sustainable Buildings in all USACE owned and leased facilities. We are putting the final touches on a policy that will address and track these requirements.

Complete energy and water evaluations at 50 percent of our Covered Facilities

Energy and water evaluations are a critical first step in reducing energy and water consumption as they inform facility managers about the best opportunities from a return-on-investment perspective. Armed with this information, we will be better able to articulate an enterprise energy and water efficiency strategy integrating both appropriated funds and alternative financing. We intend to centrally fund as many of these evaluations as possible in FY13, but our divisions will need to program for this requirement in future years. The U.S. Army Engineering and Support Center, Huntsville is establishing a contract vehicle available to divisions that will ensure standardized evaluations.

It is a big challenge. We know this, especially in a fiscally constrained environment. But the ASA(CW) and the Corps of Engineers have made the public commitment to do this, and to do it now, by leveraging our people, our talents and our resources to make sustainability a reality in our missions, facilities, vehicles and vessels. We're rolling up our sleeves and getting busy!

Green Notes:

Meter systems earn network OK

By James Campbell
U.S. Army Engineering and Support Center, Huntsville

Centralized reporting of energy and water consumption is critical to executing energy-savings plans around the Army, and recent developments that authorize meter data transmission over the service's enterprise network hold promise for energy managers at facilities, installations and up to the Department level.

The U.S. Army Engineering and Support Center, Hunstville has four configurations of advanced power meters approved for use by the U.S. Army Network Command Enterprise Technology Command as of June 1.

The Enterprise Energy Data Reporting System received notice May 23 that systems from Honeywell Inc., of Morristown, N.J., and Tridium Inc., of Richmond, Va., were approved as network- worthy, joining configurations from Johnson Controls Inc., of Huntsville, Ala., and Quark Communications, Inc., of Cardiff, Calif., said John Trudell, Huntsville Center Meter Data Management Systems program manager.

The certification allows energy managers, Departments of Public Works and other facility managers to continue toward their mandate to record and report energy use, Trudell said.

Thousands of advanced metering systems have been installed across the Army since 2008, and many are reporting locally. The more complex task of certifying these systems to work across the service's enterprise network will eventually allow for Army-wide reporting and diagnostics, Trudell said.

Recent developments include an urgent push for network certification from an Army Executive Order in 2011 that directs existing, Army-wide metering efforts to earn network certification and identifies U.S. Army Corps of Engineers as the program manager.

The Army Central Metering Program aims to meet requirements of the Energy Policy Act of 2005 and Energy Independence and Security Act of 2007 by providing customers with a centralized view of energy and water consumption and energy efficiency and management.

Testing of two other configurations is expected to be complete by October.

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