The Corps
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Corps aims to restore, protect Great Lakes

By Sarah Gross
Chicago District

Thanks to special Great Lakes funding sources and programs, the U.S. Army Corps of Engineers, Chicago District will continue to protect and restore essential habitat – from our wetlands to our Great Lakes – for fish and wildlife and to enhance the value of this habitat to the public.

"The benefits of these programs and funding sources are numerous," said Gene Fleming, chief, Chicago District Environmental Formulation and Analysis section. "They have made a significant contribution to the restoration of the Great Lakes Basin and the migratory bird flyway."

The Chicago District has restored and protects more than 2,600 acres of streams, lakes and wetlands and has opened more than 58 miles of free-flowing river. Three projects were awarded in fiscal year 2013 to restore 58 more acres of land to include restoring 39 acres at Burnham Prairie Annex, south of Chicago; 14 acres in Horner Park, along the Chicago River's North Branch; and 5 acres in Rosewood Park Beach in a northern Chicago suburb.

Additionally, 20 studies are underway to research further ecological integrity. Authorized by different authorities within the Energy and Water Appropriations Act or the Water Resources and Development Act, such as the Great Lakes Fishery and Ecosystem Restoration (GLFER) program, the studies are federally funded primarily through the Corps' Energy and Water appropriations or through U.S. Environmental Protection Agency Great Lakes Restoration Initiative (GLRI) appropriations.

The restoration program goal is to restore the fishery, ecosystem and beneficial uses of the Great Lakes by removing a variety of invasive species; restore rare dune and swale habitat; increase species richness of numerous habitat types; remove unnecessary barriers in tributaries; create fish-passage facilities; and provide migratory bird resting and feeding areas.

Red Mill Pond was the first project authorized through GLFER and has been widely recognized as a success story for the program. The project team received the EPA and Chicago Wilderness 2012 Conservation and Native Landscaping Award and the Daniel Flaherty Park Excellence Award for innovation, cost-effective design, the use of community input and resources, and providing a significant impact on the community.

With construction completed in the fall of 2011 – in cooperation with local sponsor LaPorte County Parks and Recreation Board – Red Mill Pond protects and has restored 160 acres of wetlands, including the 108-acre Indiana State Nature Preserve. A section of earthen dam at an emergency spillway was removed to restore natural stream flow and create a new channel from the pond to the Little Calumet River. The area ecosystem relied on this deteriorating dam since its construction in 1833. Dam failure would have disrupted the site's ecology, welcoming invasive species and threatening seven native endangered plant species.

Thirty new species of birds have been observed since wetland re-establishment began on the 275-acre, GLRI-funded Orland Perimeter construction project currently underway. Adjacent to the district's Orland Tract project – a combined 950 acres of land in Orland Park, Ill. – 50 acres of seasonal and year-round wetlands have been restored after disabling more than 62,000 feet of agricultural drainage tile, removing invasive species and planting native species. The Forest Preserve District of Cook County supported and sponsored both projects.

"This project offers substantial benefits to local wildlife," said Kirston Buczak, project manager, Chicago District. "Twenty-one species of butterflies, which is the highest number ever seen in a similar grassland habitat, and native species of a globally rare plant community will thrive after restoration."

Another significant factor in ecosystem work for Great Lakes fisheries is the prevention of invasive Asian carp.

To date, the Corps has received approximately $31 million in GLRI funds to support the interagency Asian Carp Regional Coordinating Committee, whose mission is to prevent the establishment of Asian carp in the Great Lakes.

In July, the committee released its 2013 Asian carp control strategy framework. The Corps is involved in 26 action items with the assistance of about $3.5 million in GLRI funding. One of the items is the Great Lakes and Mississippi River Interbasin Study. A report outlining controls available to prevent the inter-basin transfer of aquatic nuisance species of concern between the Great Lakes and Mississippi River basins via the continuous Chicago Area Waterway System connection is due to Congress this December.

"Without authority and funding, we can't perform our missions, including sustaining our water resources," said Col. Frederic A. Drummond Jr., commander, Chicago District. "Resources like the Great Lakes Fishery and Ecosystem Restoration program and Great Lakes Restoration Initiative funding allow us to protect and restore our natural treasures, from the smallest wetlands to our Great Lakes."

Dave Derrick, Research Hydraulic Engineer (left), explains how the Army Corps of Engineers restored the functionality of a section of the Tacony Creek in Philadelphia during a workshop July 23. *(Photo by Steve Rochette)*

Multi-agency stream workshop held

By Steve Rochette
Philadelphia District

The U.S. Army Corps of Engineers partnered with the Environmental Protection Agency and the Philadelphia Water Department to host a stream restoration workshop July 22-24.

The multi-agency and disciplinary group included staff from the U.S. Army Corps of Engineers, Environmental Protection Agency, New Jersey Department of Environmental Protection, Pennsylvania Department of Environmental Protection, New Jersey Water Supply Authority, the Philadelphia Water Department, Philadelphia Parks and Recreation and The Nature Conservancy.

"Our philosophy is that no one person has all of the knowledge and experience to solve the problems we encounter with rivers, creeks and streams," said Erik Haniman, manager of the Ecological Restoration Group for the Philadelphia Water Department. "When we come together for these types of events, there's a valuable exchange of ideas."

The workshop was taught by Dave Derrick, Research Hydraulic Engineer and Dr. Rich Fischer, Research Wildlife Biologist, both of USACE's Engineer Research and Development Center.

Participants learned about the many different aspects of restoring a stream, including stream bank stabilization techniques and working with riparian ecosystems and vegetation.

The workshop included site visits to two projects built by the U.S. Army Corps of Engineers Philadelphia District and the Philadelphia Water Department: the Tacony Creek Ecological Improvement Project and the Cobbs Creek (Indian Creek) Habitat Restoration.

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Construction workers for the U.S. Army Corps of Engineers Sacramento District remove decomposed straw-netting April 19 along the American River in Sacramento, Calif. The rolls of straw, called wattles, were put in place to help native grasses take hold on the newly refurbished levee during the winter rains. Their removal is one of the final steps in restoring this reach to its pre-construction condition. More than 4,000 feet of this levee was reinforced and raised an average of 1 foot to safely pass more water coming from Folsom Dam and its auxiliary spillway, currently under construction and slated for completion in October 2017. *(U.S. Army photo by Todd Plain)*

The Corps Environment

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Whenever possible, please enjoy *The Corps Environment* without using paper.

Planning, policy vital components of everything

By Theodore (Tab) Brown
Chief, Planning and Policy Division

For the U.S. Army Corps of Engineers Civil Works Program, Planning is where it all begins. Our planners, coupled with the hard work of the other professionals from various disciplines within the agency, plan, design, implement and maintain projects within all of our missions, including ecosystem restoration, environmental analysis, and compliance and environmental stewardship.

Our planners play a vital role in supporting the USACE water resources development mission by providing a structured, rational approach to problem solving, utilizing creativity and incorporating experience, analysis, intuition and inspiration. Our team of professionals has expertise in water resources planning, including plan formulation, environmental analysis and compliance, cultural resources analysis, Civil Works policy, and public involvement.

As a result of our planning capability coupled with other Corps of Engineers assets, we have more than $60 billion worth of construction on the docket that will result in hundreds of billions of dollars when it comes to economic benefits and restored acres and environmental habitats across the country.

Our Job Number One is to develop sound, quality, credible investment decision recommendations that contribute to value to the nation through our decision documents. Our planning activities include Feasibility Studies, General and Limited Reevaluation Studies, Continuing Authorities Program studies, and Post Authorization Changes studies. As part of the Civil Works Transformation and our Planning Modernization programs, we are focused on delivering these investment recommendations through a transition to Specific, Measurable, Attainable, Risk Informed and Timely (SMART) Planning processes and approaches designed to improve the efficiency and delivery.

We also are continuing with the implementation of the 3x3x3 rule for the conduct of feasibility studies – not more than $3 million, completed in three years and involving the three levels of the Corps of Engineers. We're focusing on "minding our P's and Q's" – Projects, Programs, Processes, People and Quality. All of this is designed to lead us to better outcomes as evidenced by the 28 Chief of Engineers Reports we have completed since the Water Resources Development Act of 2007. We are now targeting another additional 40 or so Chief's Reports by the end of December of 2014.


Theodore A. (Tab) Brown

And while there are several smaller scale ecosystem restoration projects we are working with, we also are focused on several high profile and highly complex large-scale ecosystem restoration projects and programs: the Florida Everglades, the Gulf Coast Restoration, Chesapeake Bay, Great Lakes, California Bay Delta, Mississippi and Missouri Rivers, and Puget Sound. Five of them – Everglades, Chesapeake Bay, Gulf Coast, California Bay Delta and the Great Lakes – have been identified by this administration as high-priority ecosystem restoration areas. These projects not only restore degraded ecosystems but also can provide economic benefits through construction of these projects and by improving the quality of life within their watersheds.

Within the Civil Works Planning and Policy Division, this involvement in the environment is not a recent phenomenon – it goes back to before the enactment of the National Environmental Policy Act in 1970 with mitigation for water and fish/game. As NEPA and other environmental laws were enacted, we continued our push to become better stewards of the environment, and with the establishment of the Continuing Authorities Program and its focus on restoration, taking care of the environment became an official high priority USACE mission.

Chief of Engineers Lt. Gen. Frederick J. Clarke created the Chief of Engineers' Environmental Advisory Board in 1970, as a way for the Chief to gain outside, expert and independent advice on environmental issues facing the Corps of Engineers. Throughout the years, this board has served the Corps of Engineers well, not only bringing environmental issues to the agency's attention, but providing a way for the Corps of Engineers to communicate outside the agency and to build partnerships, understanding and cooperation with the environmental community and public at large. In fact, the current Chief of Engineers Lt. Gen. Thomas Bostick met with the board in September to continue getting insight and perspective on key environmental issues from outside experts. The Planning and Policy Division provides the board a Designated Federal Officer and Executive Secretary.

Environmental concerns have never been more important than they are today. We see the Environmental Advisory Board playing a key role in contributing to enhanced mutual understanding and confidence between the Corps of Engineers and both the general public and the conservation community.

It was at the behest of the Environmental Advisory Board that we worked with others within the USACE environmental community to refresh the 10-year-old USACE Environmental Operating Principles, which the Chief of Engineers released in August 2012. The board wanted to see the Corps of Engineers update the seven principles, or green ethics, to refocus our efforts on being sustainable and ensuring that taking care of the environment is part of everything we do.

The reinvigorated EOPs are:

• Foster Sustainability as a way of life throughout the organization.

• Proactively consider environmental consequences of all Corps activities and act accordingly.

• Create mutually supporting economic and environmentally sustainable solutions.

• Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the Corps which may impact human and natural environments.

• Consider the environment in employing a risk management and systems approach throughout life cycles of projects and programs.

• Leverage scientific, economic and social knowledge to understand the environmental context and effects of Corps actions in a collaborative manner.

• Employ an open, transparent process that respects views of individuals and groups interested in Corps activities.

As our focus on taking care of the environment has grown, we also have seen that same interest within our Planning Associates. The Planning Associates Program is an advance training opportunity in water resources planning, targeted to journeyman-level professionals. Throughout its history, which goes back to the first graduating class in 1962, we have seen a growing number of the associates coming in from the ecological disciplines with the expressed interest of integrating their environmental and ecological backgrounds into their work.

It's quite apparent that our planners have a direct impact on how the Corps of Engineers does its environmental work – work that we see evolving as the nation's priorities change. That is not different, in fact, it's a reflection of how the Corps of Engineers operates – adapting to meet the nation's needs.

Essayons!

Planning SMART and Building Strong!

ENVIROPOINTS

Building: Function, Furniture and the Future

By Jordan Powell
Louisville District

Military clients' needs are no longer static, and military construction remains lasting. The combination of these constants requires the building interior be flexible and acceptable to change. The design solution is an interior function created by furniture and built for the future.

Sustainability and life cycle costs have created a greater need to achieve flexibility while maintaining function for current and future needs of new and renovated construction. Furniture manufacturers remain on the forefront of sustainable design solutions. It has been more than a decade since recyclable materials, furniture take-back-programs and cradle-to-cradle textiles were incorporated to become the new standard for competitive furniture programs. "Re-purposed" has become the new recycled, and users no longer want to update or renovate an interior using wall demolition or furniture procurement. Moveable walls and workplace benching solutions contribute to the new sustainable interior. Not only are U.S. Army Corps of Engineers designers exploring these new solutions, but clients are requesting the flexibility of these technologies as well. Client requests, new construction and renovation projects have created a basis for Corps interior designers to become experts at incorporating these sustainable solutions into military design.

In military construction, the lifetime of a building can be up to 50 years. The first 25 years are to accommodate the original design use, and an additional 25 years for sustainment, renovation and modernization. During the first 25 years of occupation, the occupant may change multiple times creating the need for interior revisions. The ideal is to design an interior built environment to last the lifetime of the building. Sustainable and cost-effective objectives allow furniture and fixtures to become the innovative design solution.

The Wall:

New technologies allow interiors to be transformed by reconfiguring existing walls and reorganizing interior spatial systems. Modular walls are an excellent resource for a variety of interior solutions: private offices, meeting rooms, reception areas, open plan, data rooms, document rooms, teaming areas and break rooms. Select wall systems allow for the furniture, millwork, electric and data systems to be incorporated as one functioning unit. These walls are environmentally sustainable, flexible and productive solutions for military construction. The concept of reconfigurable wall solutions is partnered with manufacturer's Leadership in Energy and Environmental Design-certifiable manufacturing programs to create a growing demand in the military industry.

Consideration for these modular spaces should be established in the early stages of design and coordinated with architectural, electrical and mechanical disciplines. The moveable wall system is a fixture to be included in the furniture, fixtures and equipment portion of the Comprehensive Interior Design Package. Installation shall be performed by the wall-system manufacturer, or a trained professional approved by the manufacturer. The installation of moveable wall systems should take place in the final stages of interior construction to coordinate with electric, data and communication requirements. All interior finishes should be installed and finished prior to the installation of the wall system. The moveable wall system may be installed, reconfigured and deconstructed without damaging or disrupting the permanent structural qualities of the building interior. However, moveable wall systems cannot replace structural walls with load-bearing qualities required by the overall building system.

Moveable Wall Interior, DIRTT Design Solutions demonstrates use of movable walls as a conference room, office and general space delineator. *(Photo by Jordan Powell)*

The Desk:

In collaboration with stationary wall alternatives are workspace solutions for multipurpose scenarios. To maintain flexibility and conserve life cycle costs, the standard solution for open office workspace is panel-based systems. It has been decades since the concept of a cubical was introduced into the commercial design industry as a maintainable solution.

Similar to the changing needs of the building user, the number of white collar workers has grown over time as well. The military and civilian workforce continues to grow, forcing the workplace to accommodate a range of generational, personality and work-type differences. Now, more than ever, it is important to achieve individual job satisfaction and workplace comfort to encourage maximum productivity.

The awareness of ergonomics and health symptoms associated with workplace accommodations has encouraged a new wave of "desking" design. Workplace benching is an innovative solution driven by sustainable office design, cost reductions and emphasis on collaboration. These systems are a variety of individual components combined to create one or a system of many workspace solutions.

Benching is a reconfigurable workplace system that is capable of integrating with other products, such as storage, panels and height-adjustable tables. As transient work environments grow in popularity, design is focused on a smaller footprint and flexibility for user needs of collaboration, storage and mobility.

Standard benching may vary from large, stand-alone solutions to serve as touchdown points, teaming areas or shared workspace. The most customizable solution is the panel-based bench, returning to the open-office roots of the cubicle. To incorporate natural light, collaboration and cost-effectiveness, the new panel-based benching system is a renovated cubicle design. Lower height panels, rectangular work surfaces and mobile storage promote user effectiveness. These benching qualities most importantly allow for change. Reusable systems are capable of integrating new technologies, as well as reconfiguring existing product, reducing the need for excess, new and under-used space. The inherent qualities of the benching system maintain sustainable usage of workplace real estate and cost effectiveness for the changing user.

The built environment is an ever-changing resource for new technologies to allow designers to incorporate sustainable and cost-effective solutions for the workplace and user. Military construction is designed for durability, and now allows for the interior to become a sustainable solution for function by use of furniture. The built interior continues to grow in importance with incorporation of sustainability mandates to design and construct facilities that consider plug-loads affected by workspace furniture solutions. Moveable wall systems and workplace benching introduces a new approach to the built interior and allows for designers to focus on sustainable goals. As integrated design functions, or installed independently, the systems will provide a functional use for the duration of the building's lifetime.

Stream

Continued from Page 1

The Corps and the Philadelphia Water Department restored Tacony Creek in 2010. The project included the construction of several bendway weirs and planting more than 10,000 native plant species along the banks of the creek. Bendway weirs are rock structures that redirect stream flow away from banks and into the middle of the channel. This helps prevent erosion and can also create pools of water where aquatic life can thrive.

The Indian Creek project involved removing approximately 700 feet of the stream from a culvert, a practice known as daylighting. Contractors excavated a new channel, planted vegetation and converted the existing culvert into storage for combined sewage overflow. These measures serve to improve the habitat and reduce the amount of sewage overflow that may enter the creek during heavy rain events.

Dave Derrick, one of the course instructors, travels the country serving as a USACE expert on navigation, dam removal, dam decommissioning, aquatic and riparian corridors, and stream restoration. He worked on the design for the Tacony Creek and Indian Creek projects.

"One of the best aspects of the training is having participants walk through the project sites with the designers so they can appreciate what construction was like and observe the functionality we brought back to these streams and the ecosystems," Derrick said.

A main benefit of the workshop was meeting counterparts from partner agencies at state, local and federal levels, added Adrian Leary, a biologist for the U.S. Army Corps of Engineers Philadelphia District.

It's a girl!

Kitten born to rescued Florida panther

By Erica Skolte
Jacksonville District

It is said that "success breeds success." In one case, several successes led to the happy news of the birth of a Florida panther kitten near the Picayune Strand Restoration Project in southwest Florida.

The story began on a sad note. In September 2011, a pair of orphaned 5-month-old Florida panther kittens was rescued by Florida Fish and Wildlife Conservation Commission biologists, after their mother was found dead. Too young to survive on their own, they were raised in captivity at White Oak Plantation in Yulee, Fla., with the goal of one day releasing them back into the wild.

Once they were able to make it on their own, the young adults were outfitted with radio collars, so biologists could track their movements. They were reintroduced back into the wild in separate locations that were deliberately chosen to avoid overlap with the known home ranges of other collared panthers.

Only 23 days after she was returned to the wild in the Picayune Strand Restoration Project area Jan. 31, Florida panther 219 (FP 219) mated with a local male panther. There are only an estimated 100 to 160 adult and juvenile Florida panthers in the last remaining breeding population south of the Caloosahatchee River.

Rather than staying in one place, which normally cues biologists that a female may have denned, FP 219 apparently moved her kitten frequently. When her kitten was finally discovered in the Fakahatchee Strand Preserve State Park east of the Picayune Strand Restoration Project area, the 1-month-old, blue-eyed, spotted bundle of fur weighed 3.5 pounds and appeared to be healthy.

"We were very excited to find this panther's kitten," said Dave Onorato, FWC biologist. "The fact that she has given birth is positive news for the recovery of this endangered species and a testament to the hard work of all involved in its rescue and rehabilitation. While we are encouraged the female became a contributor to the population so quickly, it was not completely unexpected, given that her home range is within prime panther habitat. The new kitten has a chance of one day contributing to the population as well."

"The Picayune Strand Restoration Project connects surrounding state and federal lands, including nature preserves and wildlife areas. It provides contiguous land area with opportunities for habitat for many animal species, including the Florida panther," said Lacy Shaw, project manager.

"The work done on the Prairie Canal area several years ago by our partners at the South Florida Water Management District has already provided benefits, not only to Picayune Strand but also the Fakahatchee Strand Preserve State Park to the east of the project site," Shaw said. "Corps construction projects are moving forward, with Merritt Pump Station construction scheduled by the end of 2013, followed by the Faka Union Pump Station in fall 2014. We are currently performing operational testing and monitoring of all systems in the Merritt Pump Station. We awarded the Miller Pump Station contract in September. We expect all phases of the Picayune Strand Restoration Project to be complete in 2018."

(Above) Once a kitten is discovered, it takes FWC panther biologists like Mark Lotz and a veterinarian about 20 minutes to process a kitten while mom is away hunting. The workup includes determining the kitten's sex, weight and measurements; de-worming; administering feline vaccinations; inserting a microchip transponder; performing a biopsy and taking hair and other samples. (Left) This panther kitten was discovered in the Fakahatchee State Park Preserve, just east of the Picayune Strand Restoration Project area. *(Photos courtesy of Florida Fish and Wildlife Conservation Commission)*

Awards of Excellence Program

USACE names winners in six sustainability categories

The U.S. Army Corps of Engineers has once again recognized the agency's outstanding professionals for their creativity, and those projects that promote USACE's sustainability initiatives.

The Corps of Engineers honored two individuals and five teams through its 2013 Chief of Engineers Awards of Excellence Program, which rewarded exceptional performance by individuals and teams demonstrating excellence in overall quality, sustainability or energy performance by supporting Corps of Engineers goals, such as those spelled out in the USACE Sustainability Plan and Executive Order 13514: *Federal Leadership in Environmental, Energy and Economic Performance*. All the USACE winners were then asked to compete in the federal Green Gov awards program.

***Baltimore District Geographer Karl Kerr uses the Real Time Kinematic survey equipment to gather the location and invert elevation of a culvert at Fort Indiantown Gap, Pa.. The data collected supported the development of the Chesapeake Bay TMDL**. (Courtesy photo provided by the U.S. Army Corps of Engineers Baltimore District)*

"Making progress toward implementing energy efficient and sustainable solutions is much more about modifying our culture than about bricks and mortar. These Sustainability Award winners exemplify the passion and innovation the Corps of Engineers needs to be world-class leaders in sustainability," said Deputy Chief of Engineers Maj. Gen. Todd Semonite.

Chief of Engineers Lt. Gen. Thomas Bostick noted the correlation between the awards and the USACE Environmental Operating Principles, saying that through the awards "we are honoring the frontrunners in implementing the Environmental Operating Principles, (those) who have demonstrated a level of incorporating the principles into the work they do day to day."

The sustainability categories in Chief of Engineers Awards of Excellence included Sustainability Hero; Green Innovation; Green Dream Team; Good Neighbor; Lean, Clean and Green; and Building the Future.

Two Corps professionals were honored as the USACE **Sustainability Hero:**

Sara Robert, Baltimore District, and *Jeanette Fiess,* Northwestern Division.

Robert is recognized because she has shown a talent to quietly and effectively foster relationships that allow her to persistently infuse sustainability throughout Baltimore District projects and engage more than 1,100 employees as well as provide support for North Atlantic Division's Regional Sustainable Engineering Center. Her people skills and drive to succeed are evident as are her ability to lead, think sustainability with all programs, mentor all staff, empower interns and exhibit a vision to produce products such as a public domain website and conference with the small business community. These efforts not only enrich the Corps of Engineers, but provide knowledge and training to the industry professionals and public on successful sustainable applications.

Fiess has established herself as a sustainability champion and agent of change within the Corps of Engineers, having developed technical competency in the sustainability and energy field and applied her skill set and knowledge base to a wide variety of projects and programs since joining USACE in 2003, serving as an advocate at every level and has clearly inspired others along the journey to sustainability. As the Sustainability and Energy Program Manager for Northwestern Division, she has effectively organized the NWD program into a nationally known resource that supports the entire Corps of Engineers. A pioneer in the Leadership in Energy and Environmental Design program for the Corps of Engineers, she is committed to ensuring that the Corps of Engineers "builds the bench" with future sustainability experts.

Green Innovation:

Army Total Maximum Daily Load Team: Baltimore District.

Working in and around the Chesapeake Bay, with the Presidential Directive to restore the bay's health and focus on Total Maximum Daily Loads among other issues, the Baltimore TMDL team took on a complex task and ended up putting the Army at the forefront of Department of Defense agencies when it comes to managing and meeting TMDL requirements. To implement Executive Order 13508, Protection and Restoration of the Chesapeake Bay, as well as two consent decrees, the Chesapeake Bay states of Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia each received a target load that they are responsible for meeting, and each state prepared a watershed implementation plan to meet those target loads. The Baltimore District, Planning Division TMDL Implementation Team took on the task of juggling the demands of multiple Bay jurisdictions, developing a region wide TMDL for the Chesapeake Bay that the Army could implement ensuring that the Army's many installations within the region met the states' TMDL requirements. The Army has since requested that the Baltimore team recreate a national TMDL Implementation Protocol that will be the guideline for the Army to meet TMDLs in other regions. Team members are *Lawrence D. Eastman, Jason Rinker, Mike Schuster, Heather Cisar, Vaso Karanikolis, Karl Kerr, Marco Ciarla, Karla Roberts, Marisa Lewis, Jared Scott, Craig Thomas, Robert Nagy, Dan Risley, Martha Newman, Tom Lazco, Ellen Maguire, Laura Jones and Jennifer Gross.*

Green Dream Team:

Army Low Impact Development (LID) Technical User Guide: Lawrence Eastman,

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Awards

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Baltimore District, Project Delivery Team lead.

Baltimore District's Planning Division teamed with the Office of the Assistant Chief of Staff for Installation Management to develop an Army Low Impact Development (LID) Technical User Guide and provide centrally funded training in the area of LID for Army Active, National Guard and Reserve, Directorate of Public Works and USACE staffs. An interdisciplinary project delivery team for the guide and training was formed with participants from Baltimore and Fort Worth districts and the U.S. Army Engineering, Research and Development Center, forming a comprehensive team with knowledge on sustainability policy, site planning, master planning, stormwater management, hydrologic modeling, design, and integrating sustainable stormwater design and green building. As a result of these efforts, the team developed the Army Low Impact Development Technical User Guide; a LID Training Curriculum; oversaw the training of more than 100 installation/activity planners, engineers and scientists; and developed a LID Planning Tool to aid in designing LID features.

Good Neighbor:

NY and NJ Harbor Deepening Project: Regionally Based Project Delivery Team New York District.

USACE partnered with the Port Authority of New York and New Jersey to execute a large scale construction project and incorporate sustainable initiatives. During the past decade, the regionally based project delivery team took advantage of a unique opportunity to beneficially reuse more than 50 million cubic yards of dredged materials, which resulted in closing the Newark Bay Confined Disposal Facility, making shallow water habitat improvements in the Upper New York Bay, enhancing local fisheries with more than 100 acres of offshore artificial reefs, as well as creating and restoring more than 130 acres of tidal wetlands and saltwater marshes. In addition, the project is expected to eliminate more than 500 tons of pollution each year. USACE team members included *Tom Shea, Ali Palen, Anne Marie Dilorenzo, Ben Baker, Beth Nash, Bryce Wisemiller, Catherine Alcoba, Gezahegne Assegid, Hibba Wahbeh, Jamal Sulayman, Jenine Gallo, Oksana Yaremko, Sidrah Mirza and Steven Weinberg.* Other members were *Mattew Masters* and *Thomas Costanzo* of the Post Authority of New York and New Jersey; *Scott Douglas* of the New Jersey Department of Transportation, Office of Maritime Resources; *Suzanne Dietrick* of the New Jersey Department of Environmental Protection; and *Will Murphy* of E4Sciences.

The U.S. Army Corps of Engineers Savannah District managed and executed the largest renovation project ($168 million) in the Army, the Maneuver Center of Excellence Headquarters at Fort Benning, Ga. The facility was named after two Medal of Honor recipients, Spc. Ross McGinnis and Cpl. Jerry Wickam, during a dedication ceremony Sept. 23, 2011. Construction began in late-2008 and was performed by prime contractor McCarty Corp. *(Photo by Kristian Ogden)*

Lean, Clean, & Green:

Clint Border Patrol Station, Euless, Texas; Albuquerque District, *Jeff Firebaugh*, Team Lead.

The Clint Station Administration Building will be the U.S. Border Patrol's first Leadership in Energy and Environmental Design Gold Building and the patrol's first near Net Zero energy building. Near Net Zero energy buildings produce almost as much energy annually as they consume by incorporating renewable energy technology such as photovoltaics. In the case of the Clint Station building, constructed by Spawglass of Selma, Texas, with oversight by the Corps of Engineers Albuquerque District, the new facility will use roughly 55 percent less energy than a similar code compliant building, which translates to annual energy savings cost of approximately $81,000. It is a great example of how an integrated design team process can produce a highly sustainable building that meets or exceeds the owner's expectations for sustainability and energy efficiency – the owner had expected energy savings of at least 30 percent, but the final design projected a 55 percent reduction in energy usage, due in part to renewable energy features such as solar hot water and photovoltaic electrical generation. The project is being used as a model for follow-on projects with the Department of Homeland Security and Customs and Border Protection, establishing a standard of design for future Border Patrol Stations.

Building the Future:

Renovation of the Maneuver Center of Excellence Headquarters (Bldg. 4), Fort Benning, Ga.; Savannah District.

The Renovation of the Maneuver Center of Excellence Headquarters (Bldg. 4) project, now known as McGinnis-Wickham Hall, involved a complete renovation of the former Infantry School headquarters building, originally constructed in 1964, at Fort Benning, Ga. Savannah District personnel, working with the McCarty Corporation of Austin, Texas, saved the Army more than 30 percent of project costs or almost $50 million by renovating Bldg. 4 rather than demolishing and replacing it with a brand new facility. In addition, the sustainable features designed and built into the facility are expected to continue saving millions of dollars throughout the building's life. In December 2012, the building achieved LEED Gold Level Certification, a significant achievement as it is the Department of the Army's largest LEED Gold renovation project. The renovated building uses high efficiency equipment, building automation systems, intelligent light and spray foam insulation to reduce the building's energy demands. It has 40,000 square feet of solar panels on the tower and auditorium roofs, which produce renewable energy for the facilities. The combination of energy demand reduction measures and renewable energy are expected to produce about $450,000 a year in energy savings. Instead of filling the local landfill with thousands of cubic yards of construction debris, the team reused the existing building's structure, and recycled 70 percent of the debris that was generated. The renovation of the Maneuver Center of Excellence Headquarters (Bldg. 4) project proves that large renovations can be cost-effective, energy efficient and sustainable. It serves as a model and valuable case study when the Army considers whether to renovate existing facilities or construct new structures in the future.

Hopper Dredge CURRITUCK

'Indispensable' vessel safely removes hazards to navigation

From Florida to Maine, one unique vessel in the U.S. Army Corps of Engineers' maritime fleet earns its "indispensable" reputation 363 days a year by dredging dangerous shoaling in shallow draft federal channel inlets: hopper dredge Currituck.

The Currituck is economical, safe to operate and easy to maintain. Its shallow draft and ability to withstand sea conditions other types of dredges cannot make it a valuable resource in dredging shallow draft inlets, like those found in New England, in a timely and cost-effective manner.

The Currituck spent six weeks in New England between May and June and dredged four harbors where it removed the most shoaled portions of the entrance channels thereby increasing navigational safety: Cuttyhunk Harbor in Gosnold, Mass.; Green Harbor in Marshfield, Mass.; Hyannis Harbor in Hyannis, Mass.; and Block Island Harbor of Refuge and Great Salt Pond, R.I. Also in November 2012, the Currituck dredged the Housatonic River in the vicinity of Stratford, Conn.

The Currituck is assigned to the Corps' Wilmington District in North Carolina. It's the only special-purpose type of hopper dredge in the U.S. that works the same projects as larger sidecasting dredges, only on a smaller scale. It features a self-propelled split hull and is equipped with a self-leveling deck-house located at the stern, where all controls and machinery are housed.

The Currituck is hinged above the main deck so that the hull can open from bow to stern by means of hydraulic cylinders located in compartments forward and aft of the hopper section.

There are more than 170 federal navigation projects maintained by the U.S. Army Corps of Engineers, New England District. While most of these are coastal harbors, there are also several river channels. Navigation projects in New England include 11 deep draft commercial waterways with authorized depths of 35 feet or more and a diverse array of channels and harbors that support the navigation needs of national defense, petroleum and other commercial goods shippers, commercial fishing vessels and recreational boating.

Federal waterways in New England carry about 80 million tons of commercial goods annually and facilitate substantial ancillary economic activity associated with both commercial shipping and recreational pursuits.

Cuttyhunk Harbor

Local officials have reported that shoaling has occurred in the authorized 10-foot deep entrance channel in Cuttyhunk Harbor as a result of Hurricane Sandy. Cuttyhunk Harbor is located at the northeastern end of Cuttyhunk Island, which lies at the southwestern end of the Elizabeth Islands. The harbor is used by a small fishing fleet, local and transient recreational boaters, and mail and freight carriers from the mainland. It frequently serves as a harbor of refuge. A hydrographic survey was performed in early spring 2013 to determine the extent of shoaling. Funding for maintenance dredging has been appropriated in the Disaster Relief Appropriations Act of 2013. Maintenance dredging with the government-owned, special-purpose dredge Currituck began on June 16.

Green Harbor

Considerable shoaling has occurred in the authorized 6-foot and 8-foot deep entrance channel at the "Narrows" in Green Harbor, and damage to the east and west jetties at the mouth of the harbor has occurred as a result of Hurricane Sandy and subsequent nor'easters.

Green Harbor is situated in the northwestern end of Cape Cod Bay, about 30 miles southeast of Boston and 9 miles north of Plymouth Harbor. It is located at the mouth of Green Harbor River, a small stream that drains nearby marshlands. Green Harbor is a popular recreational boating and sport fishing center.

Funding for maintenance dredging and jetty repair has been appropriated in the Disaster Relief Appropriations Act of 2013.

Maintenance dredging to alleviate shoaling in the entrance channel was performed with the Currituck from May 22-31. A plan for repairing the jetties is being developed.

Hyannis Harbor

Shoaling in the authorized 13-foot deep entrance channel, the 13-foot deep inner harbor channel and the 13-foot deep inner harbor turning basin in Hyannis Harbor has occurred as a result of Hurricane Sandy and subsequent nor'easter storms.

Hyannis Harbor lies midway along the south shore of Cape Cod in Hyannis, about 21 miles east of the harbor at Woods Hole and 16 miles west of Chatham. It consists of an outer harbor, a middle harbor (known as Lewis Bay) and an inner harbor. The outer and middle harbors are separated by Dunbar Point.

Hyannis Harbor is used extensively by recreational boaters and serves as a base for a small fishing fleet, sport fishing charter boats and ferry boats that service the offshore islands. Shoaling is causing hazardous conditions for the ferries that are the primary lifeline to the islands of Martha's Vineyard and Nantucket.

The Woods Hole, Martha's Vineyard and Nantucket Steamship Authority has recently reported that the M/V NANTUCKET and M/V EAGLE have both incurred damages to their hulls believed to be resultant from interactions with these shoals.

Funding for maintenance dredging has been appropriated in the Disaster Relief Appropriations Act of 2013. Maintenance dredging with the Currituck started June 21.

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The Currituck pumps dredged material into its hull. *(Photo by Hank Heusinkveld)*

Dredge

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Block Island

Dredging of the entrance channels of the Block Island Harbor of Refuge and Great Salt Pond is needed. The Corps has obtained approvals and plans on using the Currituck during June to complete the dredging. Block Island, coextensive with the town of New Shoreham, is an 11-square-mile island lying 12 miles off the southern coast of Rhode Island and 15 miles northeast of Montauk Point, the eastern tip of Long Island, N.Y.

The Block Island Harbor of Refuge, located on the island's east side, is used by a small fishing fleet and is the subsistence harbor for the island. Great Salt Pond is located on the island's west side and is used by large numbers of recreational boaters (more than 1,000 per day) during the summer season.

Housatonic River

The local community contacted the Corps to request dredging of the federal project, the 18-foot channel, in the Housatonic River. A recent survey of the project indicated about 600,000 cubic yards of sand needed to be removed to return the project to authorized dimensions. In an effort to dredge the most shoaled portions of the river, the state of Connecticut funded the entire cost of $750,000 to have the Currituck dredge approximately 50,000 cubic yards of sand to approximately - 14 feet mllw from the most shoaled portions of the 18-foot authorized channel below the Route 1 Bridge. Nearshore disposal was about 6 miles away off Point No Point. The Currituck dredged from Nov. 2 - 30, 2012. Connecticut Department of Transportation is coordinating with the Corps for possible additional dredging in 2013.

The Corps is coordinating with Wilmington District to possibly use the Currituck and is coordinating with the Connecticut Department of Transportation and the city of Stratford to develop a plan on how to complete the dredging. The next dredge window is Oct. 1 to March 31.

Editor's Note: Jack Karalius, Bill Kavanaugh, Mike Walsh, Tim Dugan and Larry Rosenberg of the New England District and Hank Heusinkveld of the Wilmington District all contributed to this article.

Reducing invasive species impact through partnership

By Hilary Markin
Rock Island District

In an effort to reduce the impact of invasive species, Coralville Lake was one of the first agencies to sign a memorandum of understanding with the Hawkeye Cooperative Weed Management Area in 2007. This partnership is just one of the ways the U.S. Army Corps of Engineers is working with others to fight invasive species. Since then, the Mississippi River Project has also signed an MOU with the Hawkeye Cooperative Weed Management Area.

The main focus of the Hawkeye CWMA is reducing the impact of invasive species in Eastern Iowa through cooperative education, demonstration and restoration.

"We are working hard to get the word out," said Mary Sue Bowers, natural resources specialist, Coralville Lake.

Together the group has produced more than 20 brochures on individual invasive species to educate others on how to identify and manage them – and more are in the works. The brochures can be found on Coralville Lake's website at www.mvr.usace.army.mil/Missions/Recreation/CoralvilleLake/NaturalResourceManagement/InvasiveSpecies.aspx

"The brochures have been extremely well received," Bowers said. "We have a display rack and banner that we put up at events, natural resource meetings and field days. The brochures consolidate information from a variety of sources in a very user friendly way for the public, which was our target audience."

Together with the Hawkeye CWMA, Coralville staff has worked to engage adjacent landowners in discussions about invasive species.

"We have held field days with our neighbors to talk about invasive species on Corps lands and on their adjacent lands and strategies to manage them," Bowers said. "It takes everyone – invasive species don't recognize jurisdictional boundaries so we need everyone's help to control them."

Participating in the Hawkeye CWMA has helped the Corps in other ways too.

"During the meetings I get to talk to others who are working to control invasive species and learn about different pilot programs or new management tools they are testing," Bowers said.

The Hawkeye CWMA also is working to educate local plant nurseries on invasive species.

"Japanese Barberry is a common landscaping plant that we are starting to see as an escaped invasive in our woodlands," Bowers said. "We want to educate the nurseries about their spread and hopefully encourage them to do the same to potential buyers or replace their stock with a native shrub like the buffaloberry."

Mary Sue Bowers, natural resources specialist, Coralville Lake, talks to adjacent landowners about oriental bittersweet, an invasive species threatening Iowa's woodlands. *(Photo by Corps of Engineers)*

The Hawkeye Cooperative Weed Management Area is a group of federal, state and local agencies, nonprofit organizations and community groups who are interested in combating invasive species in Eastern Iowa. More information can be found at www.HawkeyeCWMA.org.

Be a part of the solution by subscribing to the Corps of Engineers' Invasive Species Sub Community of Practice at https://eko.usace.army.mil/usacecop/environmental/subcops/invasive/. Contact your regional USACE Invasive Species Leadership Team representative if you have invasive species news from your area. If you don't know your regional representative, call 309-794-5385. The ISLT is working together to prepare, prevent and protect.

Far East District installs its first green roof

By Patrick Bray
Far East District

The U.S. Army Corps of Engineers Far East District installed a roof-top garden on the new health and dental clinic at Camp Carroll, making it the first green roof on a U.S. military facility in Korea.

According to the district's subcontractor, Urban Jungles, the roof will host about 40,000 plants, all of which are native to the Daegu area. This follows new trends in medical facility design in which plants and gardens are incorporated into healthcare facilities.

Besides being aesthetically pleasing, the green roof will offer many other benefits to the building.

The green roof will lessen the building's environmental impact. During the summer months, the insulative qualities of the roof top vegetation will reduce the need for air conditioning, and in the winter it will also keep the building warm, reducing energy costs year-round. Also during the rainy season, runoff water re-entering the environment will be much cleaner after passing through the green roof.

Another major cost-saving feature is the waterproofing material beneath the green roof that will not have to be replaced. On other facilities, this material is often damaged by the effects of ultraviolet radiation and has to be periodically repaired.

While construction progressed on the health and dental clinic, the green roof was already growing on an off-site farm. Urban Jungles delivered the vegetated tiles as soon as construction of the roof was completed. The plants will have a chance to mature over the summer, and when the project is delivered later this year, the user can enjoy the green roof from day one without having to wait for seeds to grow.

To ensure that the green roof becomes self-sustaining, the district will replace any plants that do not survive a two-year warranty period. After this, the garden will be well established and be able to survive on its own.

Meeting held on Watertown GSA Formerly Used Defense Site

By Ann Marie R. Harvie
New England District

The New England District hosted a public meeting to inform the community on the remedial activities at the General Services Administration property in Watertown, Mass., July 23.

Project Manager Maryellen Iorio provided a 30-minute status presentation that discussed the work already completed, work that is ongoing, work that will be starting soon, and the District's Operation and Maintenance Plan once the project is complete.

After the presentation, Iorio took questions from the audience that ranged from what the future plans for the site will be to questions about maintenance on catch basins.

The New England District is responsible for completing remedial activities at the 11.91-acre site, under the Formerly Used Defense Site (FUDS) program. With the exception of one building that was demolished with GSA funding, the $3.68 million project is completely funded under FUDS.

During World War II, the U.S. Army constructed five structures on the GSA property to store various materials and equipment. According to the Operation and Maintenance Plan document written by the project contractor, Charter Environmental of Boston, a concrete pad on the site was used for burning and stabilizing depleted uranium machined chips and turnings prior to offsite disposal.

Charter Environmental and its subcontractor, Nobis Engineering of Concord, N.H., mobilized to the site in November 2012. Remedial action work on the site included demolishing all of the structures that were unoccupied and deteriorated. That work was completed in March.

Excavation and off-site disposal of approximately 450 cubic yards of polychlorinated biphenyls-contaminated soil with concentrations greater than 50 milligrams per kilogram (mg/kg) began in August.

For the land that is contaminated with PCB concentrations less than 50 mg/kg, a soil cover will be constructed using 18 inches of clean soil cover underlaid by a geotextile filter fabric and then a vegetative support layer consisting of six additional inches of clean topsoil.

Work on the soil cover began in September and is expected to be completed in November.

The construction of a wetland where the demolished buildings once sat also began in August with an estimated completion sometime in October.

The contractors are planning to be finished with all construction and be off the site by December. At that time the site will be immediately turned over to the Massachusetts Department of Conservation and Recreation (MassDCR). As per the Operations and Maintenance Plan, bi-weekly inspections of the wetland and the soil cover will take place for the first three months to replace any plants that do not survive and also to perform routine maintenance checks.

Mike Penko, Engineering/Planning, and the contractor are expected to perform the biweekly inspections. After the three-month period, inspections of the wetlands will be performed twice a year for five years.

After the first year, a representative from the District's Geotech Branch will inspect the soil cover, and a representative from the District's Environmental Resource Section will inspect the wetlands according to the agreed upon plan.

The MassDCR's future plan is to use the site for passive recreation such as walking trails and bird watching.

Iorio plans to hold one last public meeting in October to again update the public on the progress of the site and to answer questions.

Buildings are demolished as part of the remedial action plan for the Watertown GSA Formerly Used Defense Site. *(Photo by Charter Environmental)*

A strategic approach to delivering technical expertise

Regional Technical Centers of Expertise for energy, sustainability and life cycle cost analysis

By James C. Dalton
Chief, Engineering and Construction Division

High performance sustainable design is both a driver and a challenge to the Architect/Engineer/Construction industry. During the past century, the built environment has undergone a drastic evolution in technology, design/construction delivery methods, and the quality of performance. These advancements require honed technical competencies that engineers, architects and construction managers must have if they are to implement appropriate solutions. Through the traditional role as the Army's technical expert for military construction and the nation's technical expert for civil works, the U.S. Army Corps of Engineers strives toward innovations that will expand the boundaries of possibilities for our customer's future.

As the technical requirements for implementing sustainable technologies and processes advanced, it quickly became evident that the level of service provided to the customer was not uniform across divisions. Some districts have been leading their industry counterparts; while others have been confined by old standards and habits that inhibited the application of improved solutions. From a strategic perspective, this became an opportunity to raise the expectations and technical competencies of all divisions, thus catalyzing the Corps as an agency to lead our customers toward universal high performance sustainable buildings. The result was a nexus of technical expert centers, acting as independent consultants, to be utilized as needed on both military construction and civil works projects. These centers have a distinction in that while they are charged to provide supervision and guidance for a project, they are also challenged to include and educate the project delivery team, thus raising the team's overall competency through hands-on experience.

October is Energy Awareness Month

In 2011, the USACE initiated the Regional Technical Centers of Expertise (RECX) for Energy, Sustainability, and Life Cycle Cost Analysis through OPORD 2011-72. These RECXs are uniquely managed through a lateral strategy that allows for customer-driven priorities with regional leadership. Each regional technical center is accountable to the Corps as the technical expert for identified critical areas of concern in the fields of sustainability, energy and life cycle cost analysis.

They are managed directly through the major subordinate command program manager assisted by the regional business director, headquarters proponent, and the Engineering Research and Development Center liaison that collectively form a management board led by U.S. Army Engineering Research and Development, Engineering and Construction Branch. The relationships and structure are clearly depicted in the organization matrix.

In addition to consulting on projects with sustainable technologies/ processes, the centers are responsible for the following as related to sustainability, energy and life cycle cost analysis: developing and reviewing policy, leading projects for technical advancement and adaptation into the Corps technical process, exposing and broadcasting the project successes and lessons learned for critical technologies and processes, and building the technical competency of the Corps. To facilitate the creation and sharing of knowledge, all Corps components are encouraged to work through and utilize the RECX and not have discussions of significant technical importance without inclusion of the center's technical representative. Through collaboration of the center, knowledge gained in discussions or execution of work will be uploaded to the Sustainability & Energy Website: http://mrsi.usace.army.mil/sustain.

Information about related policies, example projects, research/ studies, products and the contact information for the RECX staff are all provided on each center's page.

The RECX defines success as the continued supply of relevant and capable technical experts within USACE for the planning, design and construction of high performance sustainable buildings and civil works projects. Energy security and conservation are national priorities that require focus, leadership and engagement at all levels within our command. The RECXs are challenged by the energy targets set by law and methods and means to deliver these results through unknown, emerging and in some cases existing technology not before effectively applied through an enterprise approach. Industry is moving in parallel and the Corps embraces the opportunity to lead. The RECX will accelerate learning and knowledge transfer to create a base level for each technical competency throughout the organization to deliver beyond the expectations of our Military Missions and Civil Works customers.

RECXs - responsible major subordinate command

- **High Performance Building Envelopes – Northwestern Division**
- **Energy Modeling – Pacific Ocean Division**
- **Ground Source Heat Pumps – Great Lakes and Ohio River Division**
- **Commissioning – North Atlantic Division**
- **Waste to Energy – Southwestern Division**
- **Sustainable & Energy Efficient Contingency Design – TransAlantic Division**
- **Contracting Vehicles for Energy – Engineering and Support Center, Huntsville**
- **Life Cycle Cost Analysis – South Pacific Division**
- **District Energy – South Atlantic Division**
- **Solar Thermal – North Atlantic Division**
- **Lighting Design (Natural / Electric) – Pacific Ocean Division**
- **Waste Efficiency – Northwestern Division**
- **Site Planning Charette (Eco-Charette) – Great Lakes and Ohio River Division**
- **Hydrology / Low Impact Development – North Atlantic Division**
- **Water Efficiency / Black Water – South Atlantic Division**
- **Wind Energy – South Pacific Division**
- **Operations, Maintenance, and Renovations – Southwestern Division**
- **Metering – Engineering and Support Center, Huntsville**

Mississippi island turned into forestry Petri dish

By Shannon Bauer
St. Paul District

The St. Paul District finished a three-year reforestation project with a massive planting of 7,000 trees in June.

The project, called the Gores Reforestation Project, is intended to enhance wildlife habitat and manage invasive species on a Mississippi River island near Red Wing, Minn., which is public land managed by the U.S. Army Corps of Engineers. Reed canary grass, an invasive, has slowly been taking over this 60-acre site.

The project included having 60 acres on the island broken into three 20-acre sites, each using one of three "silviculture" treatments, to include clear cutting, group selections (removing a percentage of the trees in small groups) and shelter wood (removing overgrown trees to release established seedlings), to determine which treatment works best. St. Paul District Forester Bobby Jackson, the project manager, said the Corps and Minnesota Department of Natural Resources will monitor the site for an additional five years to determine which method gives the best results.

"Our main objective is to ultimately have a new forest made up of native trees that provide high level habitat for the next 50 to 100 years," Jackson said. "We want to be able to manage the spread of reed canary grass, because we know we can't control it."

Additional partners are working with the district to collect more data throughout the life of the project for a number of different research projects. Jackson said the U.S. Geological Survey is monitoring bird response pre- and post-harvesting to document bird response in each treatment. They are also testing two different types of deer enclosures on the new seedlings. Minnesota, Iowa and Wisconsin DNRs and Pierce and Vernon counties in Wisconsin also are studying the planting of enriched American Elm at the site to see how they compare in survival and growth in each treatment, as well as how they compare with other types of native hardwood species also being planted.

Since the site is natural habitat and ever fluctuating, due to it being on a river island, Jackson said the project has involved a lot of adaptive management. For example, he said, he had to change one of the sites at the last minute with the contractor standing there due to high water content in the soils where it wasn't anticipated.

"Overall, it's been very challenging, but the data we obtain from this project will help us at our other sites," he said, explaining that the data will assist the many agencies working on the Mississippi River in coming up with a cost-effective, consistent management plan for reforestation along the river.

U.S. Army Corps of Engineers foresters Dan Reiburn and Bobby Jackson, La Crescent, Minn., plan for the reforestation of a 60-acre island on the Mississippi River. The island, located near Red Wing, Minn., is being taking over by the invasive reed canary grass. *(Photo by Shannon Bauer)*

Tenure ends for Environmental Advisory Board members

The Chief of Engineers Environmental Advisory Board bade farewell on Sept. 11 to four outgoing board members as their tenures come to an end. Lt. Gen. Thomas P. Bostick, commanding general, U.S. Army Corps of Engineers, presented the four with coins and certificates in recognition of their service to USACE and the nation in identifying environmental challenges and issues and how USACE can work with others in addressing them. Members departing the board are Dr. Denise Reed, chief scientist for the Water Institute of the Gulf; Dr. Richard Ambrose, a professor at the University of California Los Angeles Department of Environmental Health; Dr. James Kundell, professor emeritus from the University of Georgia and EAB chair for five of his six years on the board; and Dr. Christopher Goddard of the Great Lakes Fishery Commission. Also attending the meeting were new board member Dr. Kurt Preston, formerly of the Army Research Office and now Associate Vice Chancellor for Research at the University of Nebraska, Lincoln; and Dr. Mary Barber, senior environmental scientist for Sustainable Ecosystems and Global Change with the research institute RTI International, and Charles "Si" Simenstad from the University of Washington School of Aquatic and Fisheries Science. Barber and Simenstad have been designated as future EAB members. *(Photo by F.T. Eyre, Headquarters, U.S. Army Corps of Engineers)*