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Lower Monument Dam improves fish passage

By Joe Saxon and Gina Baltrusch
Walla Walla District

The U.S. Army Corps of Engineers Walla Walla District is expanding its use of state-of-the-art spillway weirs with the addition of a unit at Lower Monumental Dam.

That spillway weir is a 120-foot high, 80-foot wide, 2 million-pound, steel-coated fish slide that is fitted into a dam's existing spillway bay. Spillway weirs allow juvenile salmon and steelhead to pass dams near the water surface under lower accelerations and lower pressures, providing a more efficient and less stressful dam passage route.

Installation of the new spillway weir at Lower Monumental Lock and Dam on the lower Snake River began Oct. 24. Project officials anticipate completion of the installation by mid-January.

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The spillway weir passes under McNary Dam's raised navigation lock bridge as it exits the lock. *(Courtesy photo)*

Corps studies feasibility of recycling range residue

By Debra Valine
U.S. Army Engineering and Support Center, Huntsville

For the past five years, a team has been exploring the feasibility of building range residue recycling facilities on Native American lands in Alaska, Hawaii and the continental United States.

The U.S. Army Engineering and Support Center, Huntsville, is partnering with Bering Sea Eccotech (BSE) and Science Applications International Corporation (SAIC) to conduct a Centralized Range Residue Recycling Facility feasibility study (CR3F).

"The phase one portion of the study is winding down," said Maureen Lawrence, the CR3F project manager. "If we get the funding from Congress to continue, we will move into phase two.

"The next step is to present this concept to the commanders at the active military installations who may benefit from these recycling facilities," Lawrence said. "Then we would need to develop a memoranda of understanding between the installations and the tribes that will be operating the facilities."

Range residue recycling is the destruction or removal and proper disposition of military munitions (unexploded ordnance and munitions

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Inside this issue:

Environment scores high on the list of priorities

By Candice Walters
Headquarters, USACE

More than 400 Corps employees, united in their commitment to being good stewards of the environment, demonstrated that commitment at the USACE Environmental and Natural Resources Conference Oct. 28 through Nov. 1 in San Antonio.

With two plenary sessions, more than 170 breakout sessions and a separate Natural Resources Management Plenary Session, the attendees shared information and thoughts on the conference theme of "Sustaining the Environment .. Remember the Environmental Operating Principles!" The Formerly Used Defense Sites team and the USACE Operations project managers conducted program reviews with the conference.

Chief of Engineers Lt. Gen. Robert L. Van Antwerp told the group that "we all have passion when it comes to taking care of the environment. The question is what is going to be our legacy.

"That's where sustainability comes in, ensuring that what we do today doesn't impact the future negatively," he said. Talking about the challenges in the environmental and the military construction programs, Van Antwerp quoted Larry the Cable Guy, telling the group the Corps needs to "Git 'r done!"

He encouraged the group to "work within the rules, but to challenge the rules. We're leaving it up to you to get it done. I know we have challenges, but together we're going to meet those challenges."

Lt. Gen. Van Antwerp congratulates Bob Lubbert, chief of the Formerly Used Defense Sites Program, on his 46 years of service. *(Photo by Scott Strotman)*

John Paul Woodley Jr., the Assistant Secretary of the Army Civil Works as the Oct. 30 luncheon speaker, spoke about the Water Resources Development Act (WRDA), recently passed by Congress, noting that it "includes so many good things the Corps needs. It will help us with work on a watershed scale."

Woodley said the Corps is facing a big challenge in increasing infrastructure requirements.

Maj. Gen. Merdith W. B. "Bo" Temple, director of Military Programs, said that one of the challenges for the MILCON Transformation program has been trying to attain speed, quality and sustainability in building the facilities for relocating Soldiers and their Families.

That means complying with the Energy Policy Act of 2005 and looking to the U.S. Green Building Council's Leadership in Energy and Environmental Design, among other programs. "I like to think that we've been in the lead for the entire nation and for the world. It's been driven down from the top into your capable hands to execute every day," Temple said.

"We're building green, buying green, going green," said Addison (Tad) Davis, IV, Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health). "We're looking to the future, we have a dream. I see enthusiasm, energy. It's a matter of doing what you can with what you have where you are now. It's sustainability."

Calling sustainability "a fundamental tenet," Mike Ensch, chief of the Operations and Regulatory Community of Practice, said the Corps' reputation and performance in the environmental arena are keys to maintaining public trust and confidence."

"We are the nation's largest environmental agency – we are the doers. We recognize that the environment is part of the solution, not an addition," said Dr. Ed Theriot, director of the Environmental Community of Practice. "We understand our responsibility when people say 'sustainability'. It's an effective, long-term solution."

US Army Corps of Engineers ®

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Army stresses sustainability

By Candice Walters
Headquarters, USACE

When it comes to sustainability, "the Army gets it. We're building green, buying green, going green," said Addison (Tad) D. Davis, IV, speaking to employees of the U.S. Army Corps of Engineers at the USACE Environmental and Natural Resources Conference.

"It's not just green people hugging trees in a corner someplace," the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) told the group gathered in San Antonio Nov. 1. "Taking care of the environment is not perceived as a hindrance, but the right thing to do. It's embedded in the Army's values, and it now resonates within the highest echelons of the Army leadership."

In an interview with *The Corps Environment*, Davis talked about the Army's environmental programs, sustainability, and the relationship between his office and the Corps especially when it comes to programs that the Corps manages for the Army, such as Formerly Used Defense Sites.

"We've been making a greater effort to further embed environmental concepts and sustainability initiatives into every aspect of the Army – we're moving beyond compliance," Davis said. "The environment is no longer an afterthought. Army leadership has a greater understanding for and appreciation of the impact the environment has on a wide variety of critical decisions impacting combat readiness, Soldier welfare and Family well-being."

That means that programs that fall under his office's purview, such as environmental quality, sustainability, installation restoration, FUDS, compliance, occupational health and safety, are getting more attention from Army leadership. Davis provides leadership for Army environment, safety and occupational health programs including Army National Guard and Reserve activities. His responsibilities span an annual environmental program of more than $1 billion and oversight of the safety and occupational health policy for more than 1.2 million Soldiers and Army Civilian employees.

Helping the Army leadership ensure that the environment is considered is the Army Strategy for the Environment: Sustain the Mission, Secure the Future, and the Strategic Plan for Army Sustainability, being staffed at the Pentagon.

"One of our biggest challenges is trying to define sustainability, which most simply is assessing what the future needs of the Army will be when it comes to clean air, water and land resources 30, 40, 50 years from now and then better understanding what actions need to be taken today to preserve those resources for our future generations of Soldiers," Davis said.

"The Corps plays an integral role in creating the sustainability ethic at our installations and has been a leader of the sustainability movement within the Army, both on the Military Programs and Civil Works sides

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More stories available online

The Internet exclusive stories for this issue are: Corps works to protect the national shoreline from erosion; Students sample watershed on World Water Monitoring Day; The Frankentester comes to the rescue; Exhibit reflects coexistence among environment, people, river; Department of Defense seeks to fund environmental research and development; You can clean up dirt; and Corps establishes new community of practice

These articles are located at https://ekopowered.usace.army.mil/ecop/corps_environment/.

IMCOM's energy program helps garrisons lower energy costs

By Debra Valine
U.S. Army Engineering and Support Center, Huntsville

Just like civilians can call their local power company for an energy use assessment, Army garrisons can call on the energy experts of the Installation Management Command's (IMCOM) Energy Engineering Analysis Program (EEAP).

"HQ IMCOM implemented EEAP to assist garrisons in achieving energy reduction goals mandated in EPACT (Energy Policy Act) 2005 and Executive Order 13423," said Paul Volkman, IMCOM's Energy and Utilities program manager.

The EEAP team includes the U.S. Army Engineering and Support Center, Huntsville, the Construction Engineering Research Lab, the Department of Energy's Pacific Northwest National Lab, contractors and garrison staffs.

"The team performs building surveys to observe operations and identify energy savings opportunities," Volkman said. "The team works with the garrison to identify energy saving opportunities and funding strategies; then provides garrison DPWs (Directorate of Public Works) with technical assistance in developing projects."

Recent energy assessments at Fort Polk, La., and Rock Island Arsenal, Ill., could mean big savings in energy cost and consumption.

At Fort Polk, the study identified 247 energy conservation measures in four packages: building envelope insulation improvements; lighting improvements; heating, ventilation and air conditioning improvements; and central energy plant improvements.

If these ideas are implemented, they can save Fort Polk about $3.6 million per year in energy cost and an additional $547,000 in maintenance costs, while reducing annual energy consumption by as much as 26.2 percent. These projects have an estimated total capital cost of $13.6 million with a payback of 3.3 years.

At Rock Island, the study identified 259 energy conservation measures that were presented in eight packages that include building envelope insulation improvements, lighting, mechanical, steam distribution and central energy plant measures. If the packages are implemented, savings could reach $21.8 million and reduce the arsenal's annual energy use by up to 26 percent.

"If a lot of these measures are implemented, there will be real cost savings in consumption ... "

— Mark Allen

According to Mark Allen, an electrical engineer functioning as the EEAP technical manager for the Huntsville Center, the primary energy uses on an installation are heating, cooling and lighting.

Allen said the way EEAP improves savings is by developing strategies that decrease energy transfers to/from conditioned (building) spaces and optimize the delivery and use of energy during the times the buildings are in use.

"There are more energy efficient lighting fixtures than those the Army currently uses in many cases, and improvements can be made in heating, ventilation and air conditioning (HVAC), and renewable resources," Allen said.

Examples include lighting piped into buildings (use of available sunlight), solar generation of electricity for small uses, solar water heating, and geothermal (ground) heating and cooling.

"We can optimize size of windows in the building and use double pane windows, improve on doors and improve gaskets around windows and doors, and put in better insulation," Allen said. "Additionally we need to be installing roof systems that have higher reflectivity because higher reflectivity means less heat transferred to the interior of the building. It has to do with the coating material more than it does the color."

The goal of the Installation Management Command is that Huntsville Center be a resource for garrisons to implement energy conservation opportunities, Allen said.

"If a lot of these measures are implemented, there will be real cost savings in consumption and that would provide funds for paying back the capital investment in doing these things," Allen said. "There is a pay back period associated with each project (typically less than 10 years)."

Once measures are identified, and funds are available through garrisons or IMCOM, we can go directly to contractors under our Facilities and Medical Repair and Renewal or Utility Monitoring and Controls Programs to get these things implemented, Allen said.

"If the garrisons don't have the money in their budgets, they can apply for funds through the Energy Conservation Improvement Program through the Office of the Assistant Chief of Staff for Installation Management," Allen said. "Alternatively, we can use the Energy Savings Performance Contract (ESPC) where we get a third party to fund the projects."

Corps project will improve river's environment

By Dave Treadway
Nashville District

Motorists on Interstate 40 will witness a watery display of scenic proportions this summer at J. Percy Priest Dam when a project to benefit the aquatic environment in the Stones River is complete.

Sponsored by the Metropolitan Government of Nashville and Davidson County, the project will involve the installation of a Howell-Bunger Valve, donated by the Tennessee Valley Authority, to the U.S. Army Corps of Engineers Nashville District.

"The display of water will look much like what might come from a huge fire hose," said Craig Carrington, the Nashville District project manager. "Motorists will not be able to miss it."

The valve, installation of which will begin soon, will make several things possible, all of them positive.

Carrington said the valve will allow the Corps to set a water release goal of 150 cubic feet per second in the Stones River below J. Percy Priest Dam and return the river to what it may have looked like before the dam was built. The amount of rainfall received might impact that goal.

The valve will add dissolved oxygen to the water as it is released in a huge plume, and this will allow the Stones River to again meet the state water quality standard of 5.0 milligrams per liter for a warm water environment.

The release will also decrease the amount of taste and odor problems caused by hydrogen sulfide prevalent in previous discharges. The unpleasant odor is frequently detected in water releases occurring in summer months.

Finally, it will also reduce the amount of iron and manganese in the discharged water.

A Howell-Bunger aeration valve, similar to the one in this photo, will be installed at J. Percy Priest Dam in 2008. *(Courtesy photo)*

All of the above benefits justify the modifications to J. Percy Priest Dam for the Ecosystem Restoration Project, which will be cost-shared by the sponsor.

Prior to this improvement, the Corps periodically released water through the tainter (flood) gates to maintain flow in the Stones River but encountered limited success.

The Howell-Bunger valve will be installed at the end of a 36-inch bypass line that terminates near the tailwater. A standpipe type structure will be attached to the upstream face of the dam intake so water can be drawn from high in the water column to avoid most of the iron, manganese and hydrogen sulfide. Construction of the ecosystem restoration project will be completed at a cost of $686,000.

Make plans to attend the upcoming DoD Environmental Monitoring and Data Quality Workshop in Atlanta

The Department of Defense (DoD) Environmental Data Quality (EM/DQ) Workgroup is pleased to announce the fifth annual DoD Environmental Monitoring and Data Quality Workshop.

This workshop is open to all interested members of the environmental community involved with DoD sites or projects, including representatives from the DoD services, other federal agencies, state, local, and tribal governments, academia, and the private sector.

The 2008 EM/DQ Workshop will be held March 31 to April 4 in Atlanta at the Doubletree Atlanta Buckhead hotel.

Abstracts for technical presentations are currently being accepted and must be submitted by Jan. 18. More information on technical paper topics and how to submit an abstract can be found online at: http://www.navylabs.navy.mil/DoDChemistmeeting.htm.

The EM/DQ meeting has its roots in the U.S. Army Corps of Engineers. Navy chemists attending the annual Corps chemist's meeting at Jeckyl Island, Ga., in 2003 were impressed with the nature and structure of the meeting and suggested it be expanded to cover all of DoD.

New water treatment facility opens at N.Y. Superfund site

By Vince Elias
New York District

Clean, purified water is now a reality for residents of High Falls, N.Y., thanks to an ambitious partnership between the U.S. Army Corps of Engineers New York District and U.S. Environmental Protection Agency.

A new drinking water facility was built by the Corps as part of the EPA's cleanup of the Mohonk Road Industrial Plant Superfund site in High Falls.

The High Falls Water District drinking water treatment facility was built on seven acres of the 14-acre Superfund site. Reusing part of the site for the water treatment facility is in accordance with the EPA's Superfund Program land reuse goals. Well water was affected due to contaminants related to past industrial activities at the plant.

The facility provides filtration and disinfecting of water. A sampling and monitoring program has been established to ensure that the treated drinking water meets federal and state safe drinking water standards.

Construction began in August 2005 on the water treatment plant and water distribution system to ensure that the water district provides clean drinking water to residents and businesses.

"This is something I would like a lot of people to see. This is Superfund at its best," said Alan Steinberg, EPA Region 2 administrator.

A new main water line connects the treatment facility to the main aqueduct in the Catskills that is also connected to the New York City water supply.

New York District's West Point Area Office oversaw the construction.

Klaus Kretschmer was the project engineer for the High Falls project before he retired.

"We started this more than two years ago. I got involved in the design stage with Kansas City District who handled the design," Kretschmer said. "Conti Construction was selected based on their experience. It's a great project."

The treatment system includes a ground level raw-water tank to store supplies of raw water and an elevated finished water tank for storage of treated water and to ensure sufficient water pressure throughout the water system.

Col. Nello Tortora, New York District commander, and Alan Steinberg, EPA Region 2 administrator, observe the treatment plant's operation. *(Photo by Vince Elias)*

Installation of residential service line connections to affected homes and businesses was the last step in the construction process. Service line connections from the water main in the street into each home were completed.

"What we've done is provide a municipal water system for the community of High Falls. To provide them with good domestic drinking water and other operations they need," said Andrew Smith, current project engineer. "We're providing a domestic water service for approximately 200 resident units out here and at around 45,000 to 60,000 gallons of water produced every day."

"It was a great collaborative effort by the virtual Corps team. The project delivery team includes Kansas City District — providing the project design and engineering support during construction, Baltimore District — providing real estate support for the multiple easements and access agreements required, and the New York District as lead — providing construction management for the project," said Angelo Antzoulis, project manager for the High Falls project.

At the ribbon cutting ceremony, Col. Nello Tortora, New York District commander, emphasized the strong partnership and great teamwork.

"When the Corps and EPA get together, the first thing that goes on, is a lot of planning," Tortora said. "In New York District, we are able to draw back upon the entire U.S. Army Corps of Engineers for the expertise that is needed to make a project like this happen. We turned to, in this case, the Kansas City District that did the design work and also Baltimore District that has expertise in real estate issues that needed to be resolved to make this project happen. We rely on the construction contractors and private industry, and in this case that was Conti. He had a number of sub-contractors that worked out here, and they did a fantastic job."

Virtual team tackles tough site

By Patricia Graesser
Seattle District

A virtual team including members from the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers Sacramento, Albuquerque, Seattle, Kansas City Districts and the Environmental and Munitions Center of Expertise (EM CX) is working to clean up groundwater below a former California creosote plant.

From 1942 to 1990, McCormick and Baxter Creosoting Company treated utility poles and railroad ties with creosote, pentachlorophenol (PCP), and compounds of arsenic, chromium and copper. Now the McCormick and Baxter Superfund site occupies approximately 32 acres in a predominantly industrial area near the Port of Stockton, Calif.

In mid-1992, the EPA began an investigation into the nature and extent of groundwater contamination at the site.

It was determined that groundwater beneath the site is contaminated with wood preservative chemicals, and groundwater contaminant plumes emanate from the site and migrate past the site property line. However, no drinking water supplies are threatened by site-related contamination.

"Creosote is difficult to get out of the ground, and it will leach contaminants for decades," said Michael Bailey, an EM CX representative on the team. "Fortunately they are not very mobile — they don't move far from the source."

"No one is at risk right now," said Kathryn Carpenter, a Seattle District technical manager. "There is nobody drinking the water and no plans to use it as drinking water."

Albuquerque District has been the Corps' project manager and Seattle District has been technical lead for the groundwater unit of the cleanup since the 1990s. The Corps is continuing to investigate cleanup alternatives for the EPA, and the plan is to select a final cleanup remedy after 2010.

The project goal is to remove NAPL — Non-Aqueous Phase Liquid (a liquid that is denser than water and does not dissolve or mix easily in water) — to the extent practicable to reduce the continuing source of groundwater contamination or to contain NAPL sources that cannot be removed.

To better develop the range of alternatives and better understand the situation, the team is investigating two things: where and how fast groundwater is migrating; and the rate at which the contaminants degrade and under what conditions.

The team is conducting on-site and laboratory biological studies to determine at what rate the naphthalene, a component of creosote, degrades in anaerobic conditions and what factors might influence that rate. EM CX is leading this phase, using a Kansas City District contract.

"We have a bunch of circumstantial evidence that indicates the chemicals are breaking down, and we suspect biological processes," Bailey said.

Natural attenuation has been evaluated for other types of contaminants such as Trichloroethylene (TCE), but for things like naphthalene in the type of conditions at McCormick and Baxter, there isn't much research out there, Bailey said.

The contractor will analyze groundwater and soil samples in a lab over time. Because components like naphthalene break down very slowly, it may take months to see if the contaminants are being broken down in a biological process. If the team does show that the process is occurring, then they can look at ways they might encourage the biological activity.

At the project site, the team has more than 110 test wells in place and is testing twice a year to look at groundwater direction and at a list of chemicals of concern, natural attenuation parameters and geochemical conditions. Seattle District's Joe Marsh has been the field lead for the water sampling effort since 1999, when he was initially coordinating annual testing of 20 wells.

Now the scope of the testing has grown significantly, with Corps of Engineers staff sampling 60 wells twice a year. The location is a Superfund site, but even Marsh who

See Virtual team page 15

Bruce VanEtten, Sacramento District, collects a sample from one of the test wells at the McCormick and Baxter site. *(Courtesy photo)*

Projects restore floodplain ecosy

By Jeff Opperman
The Nature Conservancy
and Larry Buss
Omaha District

Floodplains are extremely productive ecosystems that support high levels of biodiversity and provide valuable ecosystem services that directly benefit society.

One high profile study concluded floodplains ranked second among ecosystem types based on the monetary value of their ecosystem services, which include flood attenuation, fisheries, groundwater recharge, water filtration and recreation. However, to function as diverse, productive ecosystems, floodplains must periodically flood.

The extent of functional floodplains in the United States has been dramatically reduced from historical conditions because many flood damage reduction projects reduce or eliminate connectivity between rivers and floodplains. To reverse these losses, numerous agencies and organizations seek to restore floodplains while simultaneously minimizing future flood risk.

Nonstructural flood damage reduction measures are an essential strategy for achieving these multiple objectives because they can be consistent with significant ecosystem restoration.

Nonstructural measures modify the characteristics of buildings, infrastructure and land use within floodplains without changing flood characteristics. Nonstructural measures include the elevation or floodproofing of buildings, and the buyout of floodplain land. In contrast, structural measures, such as levees and dams, modify flood characteristics but do not modify the characteristics of buildings or land use within the floodplain.

While U.S. Army Corps of Engineers flood damage reduction projects historically emphasized structural approaches, today's Corps policies recognize the multiple objectives of reducing flood risk and restoring ecosystems, and Corps projects are increasingly considering and implementing nonstructural measures. Removing damageable structures from the floodplain is the nonstructural measure that can achieve the most in terms of reducing flood risk while enhancing floodplain ecosystems.

In addition to helping the Corps reduce flood risk and restore ecosystems, nonstructural approaches align the goals of the Corps with those of agencies and organizations that are working to promote functioning floodplains, including The Nature Conservancy (TNC). The Conservancy is the largest nonfederal sponsor for Corps ecosystem restoration projects (based on number of projects).

By bringing in new partners, such as

Floodplains support high levels of biodiversity and maintained by floods. *(Photos by Jeff Opperman)*

Floodplains are very productive ecosystems, as illustrated by the abundant growth of aquatic plants and algae in this floodplain along the Cosumnes River in California.

ystems while reducing flood risk

contain diverse habitat types that are created and

TNC, flood damage reduction projects that feature nonstructural approaches and/or floodplain restoration can draw on a wider range of tools and sources of funding and expertise.

Hamilton City, Calif., has been at risk of flooding despite a private levee system that had been in place for decades. Corps planners initially examined structural solutions to reduce the risk of flooding, but these could not pass cost-benefit analyses. So, TNC, Corps and city leaders developed a plan that combined structural and nonstructural solutions along with floodplain restoration. The substandard levee was replaced with a new levee set back far from the river. This plan also included restoration of 1,500 acres of important floodplain habitat.

"Considering ecosystem benefits was really key," said Alicia Kirchner, a Sacramento District regional planning specialist. "Approaching this as a multipurpose project expanded the benefits and resulted in a cost-effective project and a recommendation for federal interest in implementation."

Nonstructural approaches are just one example of the movement to integrate water management with floodplain management, and a partnership between the Corps and Conservancy for river restoration is doing just that.

In 2002, the Corps and TNC launched the Sustainable Rivers Project (SRP) to restore rivers below Corps dams. The SRP features demonstration projects in nine basins where the Corps, Conservancy and other partners work to define flow regimes that restore downstream ecosystem processes and services, while maintaining or enhancing the original project benefits.

These restoration flow regimes have been defined for six of the nine current sites. While some of the recommended flow components have been implemented, the release of high flows often faces the challenge of downstream floodplain land use.

Addressing this challenge requires integrating floodplain management and reservoir operations. This strategy is being applied at the Willamette Basin SRP site, which is being coordinated with the Willamette River Floodplain Restoration Study.

"The potential benefits from any floodplain restoration project will be strongly affected by the flow regime at the restoration site," said Matt Rea, Willamette Basin coordinator for Portland District. "Similarly, the restoration benefits from a reservoir flow release will be strongly influenced by the amount of connectivity between the river and its ecologically important floodplain. Therefore we're thinking synergistically about the floodplain restoration study and the SRP flow studies, to maximize the benefits of each."

These projects point toward a new paradigm for river management, one that integrates water management with floodplain management and that restores ecosystems to benefit both nature and people. These integrated and sustainable projects are likely to become even more important in a future with increasing demands on water supplies and uncertainty over precipitation and runoff.

By working together on a range of projects across the country, the Corps and TNC are developing the tools and examples for integrated, flexible and sustainable water management.

During an experiment comparing the growth of juvenile Chinook in floodplain and river habitats of the Cosumnes River, fish reared in the floodplain (right) grew faster than those reared in the river (left).

District acts quickly to clean up missile sites

By Chanel S. Weaver
Baltimore District

Not until 2020.That is the timeframe that the U.S. Army Corps of Engineers Baltimore District was planning and budgeting to clean up and remediate 13 formerly used defense sites (FUDS) containing waste from *Nike* missile equipment abandoned since the 1970s. But in a little more than a year, the Baltimore District team completely cleaned up these sites due to what FUDS program manager Jack Butler describes as some "quick thinking and hard work."

Near the end of fiscal year 2006, the Office of the Secretary of Defense (OSD) informed Corps districts that $9 million in funding was available for FUDS properties that could be cleaned up quickly. The challenge was OSD would only fund projects that could be completed before the end of fiscal year 2007.

Butler knew Baltimore District could tackle such a task. He suggested the district clean up 10 *Nike* missile storage bunkers that held containerized hazardous, toxic and radioactive waste (HTRW). Due to limited funding, which was needed to address higher priority contamination at other FUDS properties, these projects had been programmed for execution in 2020.

In the late 1950s, the Department of Defense began building *Nike* air defense systems to surround 40 U.S. cities and military installations as a defense against high-flying enemy bombers. *Nike* air defense systems were used to detect, identify and destroy enemy aircraft. By the 1970s, Intercontinental Ballistic Missiles Technology rendered *Nike* air defense systems obsolete, and they were deactivated.

The Department of Defense began using Nike missiles as a defense against high-flying enemy bombers during the late 1950s and 1960s. *(Photo courtesy of Weston Solutions, Inc.)*

To clean up these sites, Baltimore District would need to remove containerized waste — hydraulic systems and underground storage tanks — from these *Nike* missile sites. Removing the hydraulic tanks and distribution lines located in underground missile sites eliminated the potential release of petroleum products into the environment.

Under the leadership of Brent Graybill, project manager in the HTRW section of Baltimore District's Engineering Division, the team went to work. As funding permitted, the district added three more *Nike* missile sites to the project.

One year and $5.1 million later, 13 sites — eight in Maryland and five in Pennsylvania — are now cleaned up. This cleanup included removing 32 underground storage bunkers that contained waste.

Butler praises Graybill and his team for the quick turnaround in the cleanup of these projects because the cleanup of the *Nike* sites benefited the district in so many ways.

Graybill credits the contractor, Goel Services, as well as the various partners and stakeholders, with helping to ensure the district's success. He commends the Maryland Department of the Environment and the Pennsylvania Department of Environmental Protection for working closely with the Corps to ensure this project moved along swiftly.

"Both Maryland's and Pennsylvania's expedited review of submittals and their genuine interest in being involved ... has allowed us to stay 'on schedule' with all 13 of these projects and enabled us to get a better understanding of what the state regulators envisioned for a completed project," Graybill said.

Many of the community members whose neighborhoods were affected by the Corps' *Nike* missile bunker cleanup said the project — from start to finish — went extremely well.

"The Corps was very open and very cooperative during this project," said Chip Pope, the general manager at Pineer Manufacturing in Rillton, Pa. "Changes were communicated well in advance, and both the Corps and its contractors did a great job on this project."

Kevin Kcehowski, a staff member of Deer Lakes Youth Football and member of the West Deer Township Planning Commission, agrees. He said the Corps took special care in addressing the needs of youth in his Pennsylvania community and assuring residents that the Corps would remove and dispose of the waste safely.

"Brent and his team were responsive to our needs, and they did a great job of calming our fears," he said.

Communication was also important in ensuring this project's success, Graybill said.

"We wanted people to know that the big, powerful federal government was not trying to come in and take over their property," he said. "We were simply removing waste, and being open and honest was the key."

Corps becomes forerunner in Chesapeake Bay Restoration

By Brittany Brown
Norfolk District

Decades ago, enormous beds of submerged aquatic vegetation (SAV) could be found in the Chesapeake Bay and vicinity.

These grasses serve as nursery areas for juvenile crabs and finfish where they find food sources and refuge from predators. Additionally, SAV protects bottom areas of the bay and tributaries from erosion. A majority of these underwater grasses have been lost due to water-related and man-induced changes. The importance of these underwater grasses has spawned efforts by various agencies to attempt to restore this valuable resource by implementing innovative restoration approaches.

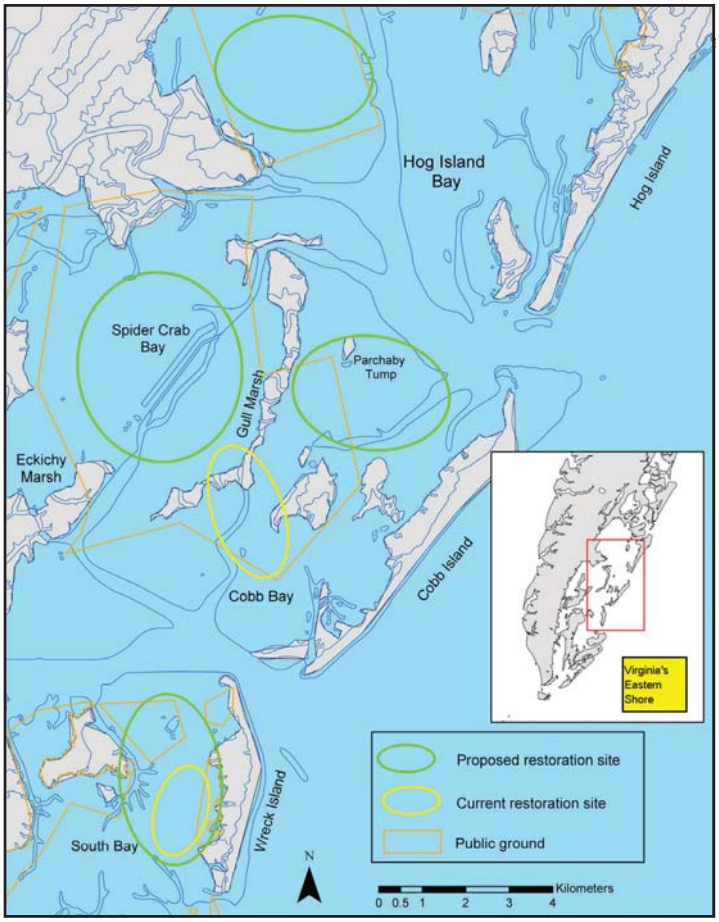
The U.S. Army Corps of Engineers Norfolk District, with its cost-sharing partners the Commonwealth of Virginia and the Virginia Institute of Marine Science (VIMS), was the first agency to sign a Project Cooperation Agreement (PCA) under the Estuary Restoration Act of 2000. This act aims to restore 1 million acres of estuary habitat by re-establishing the chemical, physical, hydrologic, and biological features and components associated with the nation's estuaries.

In June 2007, the Secretary of the Army approved this PCA, which will implement a $95,000 project to restore 40 acres of embayment areas (semi-enclosed coastal bodies of water) along the Eastern Shore of Virginia by harvesting, germinating and broadcasting SAV seeds in areas where SAV once thrived.

According to Craig Seltzer, the district's project manager, this method of restoration is more economical and effective than hand planting individual sprigs, a more traditionally used technology. During the spring, when SAV beds are healthy, seeds are harvested in thriving beds where millions of seeds are being produced. Once seeds are harvested, they are taken to a lab where they germinate in large holding tanks. When the seeds reach the optimal germination point, they are collected and transferred to pails and placed on boats for dispersal in the field.

Using GPS (global positioning system) technology, restoration sites are located and verified and seeds are spread from the boats. A majority of the seeds will sink to the bottom and take root.

During the past four to five years, VIMS has been investigating this methodology in Eastern Shore embayments. The preliminary results have indicated a 90 percent recovery of SAV where seeds were planted. Based on the success of these initial efforts, the Corps and VIMS will do additional planting in two phases.



Spider Crab Bay is the site for Norfolk District's project in restoring submerged aquatic vegetation. *(Map courtesy of Virginia Institute of Marine Science)*

Follow-up monitoring is also a part of the program and is critical for observing the success of the planted seeds and for implementing adaptive management measures. The awarding of this project has made Norfolk District a forerunner in the efforts to restore the projected goal of 1 million acres.

"As the first PCA signed under the Estuary Restoration Act, other agencies now have a model and are in a position to move ahead with projects nationwide," Seltzer said. "At the same time, the Corps is a forerunner in the effort to restore an important estuary habitat using an innovative approach that, hopefully, will have baywide implications."

Recycling

Continued from page 1

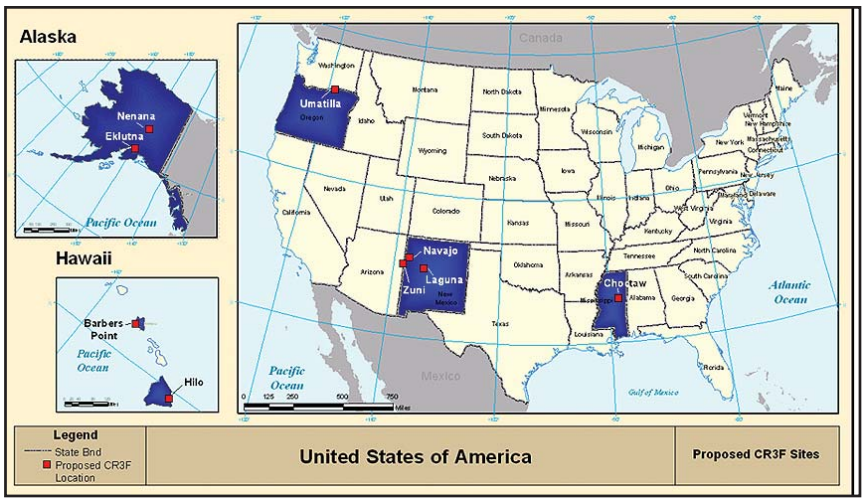
debris) and other range-related debris to maintain or enhance operational range safety or prevent the accumulation of such material from impairing or preventing operational range use.

"This project presents a great opportunity to provide economic growth that may improve the lives and livelihoods in Indian Country, Alaska Native communities and on Hawaiian Homelands," said Elary Gromoff Jr., the executive vice president for BSE. "This is a unique opportunity for BSE to work with other Native Americans and Native Hawaiians to improve the environment, support American military readiness and provide economic opportunities."

Following a screening process, the potential sites have been narrowed down to two in Alaska, two in Hawaii and four in the lower 48 states.

The team screened 562 groups recognized by the Bureau of Indian Affairs and chose 14 tribes they believed could support a CR3F business: two in Alaska, two in Hawaii and 10 in the continental United States.

"Each of the tribes selected received a letter from the Huntsville Center commander, followed by a site visit with tribal leaders to discuss the possible partnership," said Arnecia Bradley, the technical manager for the study. "We ended up with the two groups in Alaska, two in Hawaii and four in the continental United States.



"We also provided status briefings to congressional representatives on Capitol Hill," Bradley said. "We used feedback from the tribes and members of Congress to address issues and make final determinations."

The selected groups or sites include Eklutna and Nenana, Alaska; Barbers Point and Hilo, Hawaii; the Mississippi Band of the Choctaw Indians, the Confederated Tribes of the Umatilla Reservation, Ore., and the Pueblo of Laguna and Navajo Nation in New Mexico.

These sites were selected based on a process that looked at land availability, tribe size, location, business infrastructure, work force skill level and size and proximity to mills.

"For each of the sites, we developed a detailed business plan and a project management plan/action plan that included design and buildings plans along with permits; agreements, procedures and approvals; and operation and maintenance manuals," said Frank Pickering, the assistant vice president for Engineering and Infrastructure at SAIC.

"If we get the funds to proceed into phase two, we will be working to complete range residue inventories, preparing a product recycle plan and assess any DoD certifications required," Lawrence said. "A 'pilot' facility is being considered as a test bed for this project in an effort to ensure success for facilities of this nature. Though this project is not the normal Formerly Used Defense Site type work supported by the Ordnance and Explosives Design Center, we plan to accept this challenge and provide the best service we possibly can."

Deadline nears for new Army sustainability award

The Secretary of the Army Sustainability Award is a new award designed to recognize outstanding sustainability initiatives by Army activities/installations and individuals. The award emphasizes accomplishments and innovations in sustainable operations that have tangible, cost-effective results and potential Army wide applicability. These sustainability initiatives enable the Army to meet current and future needs while improving the ability to organize, equip, train and deploy Soldiers. Many of the Army installations, activities, Soldiers and Civilians routinely accomplish sustainability successes worthy of recognition.

Nomination instructions can be found at http://www.sustainability.army.mil/. Please forward nominations (via your chain of command) to Wanda Johnsen at wanda.johnsen@hqda.army.mil by close of business Jan. 25. For more information, please call Johnsen at 703-601-1512.

Corps library lowers costs and increases efficiency

By Bob Romic
Rock Island District

The journals, *Advances in Water Resources*, *Conservation Biology*, *Ecological Restoration*, *Hydrobiologia*, *Transactions of the American Fisheries Society* and *Wetlands Ecology and Management* are just several of the more than 1,600 journals included in the U.S. Army Corps of Engineers Electronic Library available to Corps employees.

For further information, contact Tim Hays, USACE librarian, at timothy.p.hays@usace.army.mil or 978-318-8349; or Bob Romic, e-Library coordinator, at robert.l.romic@usace.army.mil or 309-794-5576.

In fiscal year 2007, the USACE Library Program brought together 22 districts to obtain library and research materials through centralized consortium purchasing. As a Knowledge Management initiative, the USACE Electronic Library significantly lowered costs while increasing efficiency and effectiveness by providing access to electronic subscriptions and research tools to the desktops of more than 18,000 USACE professionals. The library consortium produced a cost avoidance of $4.2 million in fiscal year 2007.

These services would have been beyond the funding resources of any one individual district. Each district contributed $10,000, which in turn, allowed access to a $220,000 electronic library of more than 1,600 electronic journals and 1,000 full text reference books on mission-essential content.

According to usage statistics, the investment of $220,000 resulted in $260,000 worth of downloads to research material, saving $40,000 within the first five months.

This initiative allows a broad spectrum of state-of-the-art, electronic resources and services to attract, retain and train engineers, scientists and other technical professionals, contributing to the Corps as a learning organization.

The journals in the library reflect the data call survey of August 2006 that USACE Corporate Information conducted for mission-essential research material. The content includes the engineering journals of the American Society of Civil Engineers; science and engineering texts from the KNOVEL Research Library; and scientific journals related to aquatic and biological sciences from American Fisheries Society, BioOne, JSTOR, Springer Publishing, Web of Science and others.

The research material may be found at the following Web sites:

- **USACE Electronic Library**

1,600 full text journals
http://xq2qu9bg7s.search.serialssolutions.com/

- **KNOVEL Research Library**

1,000 full text reference manuals in science and engineering
http://www.knovel.com/knovel2/library/default.jsp

Fish passage

Continued from page 1

"This removable spillway weir (RSW) is one of three in existence in the world," said Cary Rahn, the Corps project manager for the weir. "The RSW concept will increase efficiency of the system, and pass more fish over the spillway, which diverts the juveniles away from the turbines and other bypass structures, which will improve overall project survival numbers for out migrating juvenile salmon and steelhead."

The spillway weir design has proven an effective means of providing a surface bypass route for fish, while retaining navigation, power production, irrigation and flood-risk-management benefits to the region. A prototype spillway weir was installed at Lower Granite Dam on the lower Snake River in 2001. A second weir was installed during February 2005 at Ice Harbor Dam on the lower Snake River.

Testing at Lower Granite and Ice Harbor noted averages of 96-98 percent survival for fish passing via the fish slides.

Walla Walla District officials said programs like the spillway weir demonstrate the Corps' commitment to improving migration conditions for Endangered Species Act-listed fish.

"Recovering these listed species requires a comprehensive, science-based approach, and spillway weirs are one of the tools the Corps is using to build environmentally sustainable solutions for the nation's water resource challenges," said Lt. Col. Anthony Hofmann, Walla Walla District commander. "It takes a lot of hard work by many dedicated people to bring something like this to fruition, and I salute the efforts of all involved."

The Corps has various surface bypass improvements at six of its eight dams on the Columbia and Snake rivers — Bonneville, The Dalles, McNary, Ice Harbor, Lower Monumental and Lower Granite dams, and plans to add surface bypass improvements in the future at John Day and Little Goose dams. Spillway weirs are designed to be "removable" by controlled descent to the bottom of the dam fore bay. This capability permits returning the spillway to original flow capacity during major flood events.

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of the house," said the former garrison commander for Fort Bragg, N.C.

The Strategic Plan for Army Sustainability includes 10 objectives and 31 critical tasks. Objective 10 addresses the Corps Civil Works program. "This objective demonstrates understanding of the tremendous contributions of the Civil Works program on both the overall Army sustainability effort and the nation's sustainability effort," Davis said.

Although people view FUDS as a legacy program because it cleans up contamination from past activities, it also can be seen as environmental restoration, a step beyond sustainability.

Davis said the FUDS program relationship between his office and the Corps is "excellent. I take very seriously my responsibility to oversee the execution of the program for the Department of Defense.

"The FUDS program is huge. There's a lot of interest because of the tremendous number of communities that have FUDS projects. We're talking every state and almost every Congressional district – that heightens awareness and interest. And that's a challenge."

But that's not the only one. "Probably the number one challenge is resourcing. We need to do a better job of demonstrating the success of the program (in cleaning up and reducing risk) in order to obtain additional funding so we can expand our scope of work to get to more sites and accelerate completion.

"The second challenge is the unknown," Davis said. "We have a lot of preliminary information, but not the in-depth information on the type and extent of contamination. We have to get on the sites so we can better characterize the nature and extent of the problem so we can develop a plan of action and secure the needed funding.

Left to right: Dan Noble, Spring Valley project manager; Col. Peter Mueller, Baltimore District commander; and Ed Hughes, Spring Valley program manager, provide Tad Davis a tour of the Spring Valley Formerly Used Defense Site. *(Photo by Joyce Conant)*

"People need to understand the historical context of how these sites got where they are – in many cases what we're trying to clean up occurred more than 50 years ago. Records weren't always good, so until you start turning dirt, you can not fully appreciate the magnitude of the problem."

Another area of concern is community involvement at FUDS properties. "This is extremely important," Davis said. "We have to engage the local community leadership and ensure that citizens are involved every step of the way. It's critical that we find innovative and the most effective ways to ways to communicate with the public. Restoration Advisory Boards are good, but we need other ways as well."

Two more challenges are prioritizing sites to determine which ones should be cleaned up first and ensuring that there's a consistent funding stream to complete the work without having to start one phase and then wait several years for enough money to come back and start another phase at the same property, he said.

"I believe that the Corps has done an excellent job of managing a very complex program," Davis said. "For the most part, senior leadership recognizes the accomplishments as do many members of Congress, and that's why we've been able to retain an acceptable level of funding to sustain the effort. But we have to keep working to get them to recognize the importance of the program in hopes of continuing to see an increase in funding. We've seen some increases, but not as much as we would like."

Davis said that he would like to see the Corps, on both the Civil Works and Military Programs sides of the house, continue its efforts in communicating its successes and accomplishments when it comes to sustainability. "It's not just environmental sustainability," he said. "It goes beyond that – it touches everything that we do in the Army."

Awards

National Council honors team featuring Corps' West Coast engineers

By Patricia Graesser
Seattle District

Sheri Moore, U.S. Army Corps of Engineers Seattle District, and Brad Call, USACE Sacramento District, are part of a national team that was recently recognized as the Interstate Technology and Regulatory Council (ITRC) team of the year.

Moore and Call are members of the state-led, multi-agency Sampling, Characterization and Monitoring Team (SCM) of the ITRC, which provides tools, information and training to state regulators across the United States.

These products help state environmental agencies share valuable technical knowledge and develop consistent regulatory approaches for reviewing and approving specific technologies. State regulators lead ITRC technical teams, which rely on broad-based participation from federal agencies, industry, academia, and other stakeholders in building collective knowledge and collaborative products.

Sheri Moore

"Sheri's and Brad's technical expertise and practical experience have been invaluable to the high level of quality in the products that the ITRC's SCM Team has been able to provide," said team leader Stuart J. Nagourney, New Jersey representative.

"Being on this team has allowed us to establish relationships we may not have otherwise, and it allows the states to have access to our organization and expertise," Moore said.

Brad Call

ITRC consists of 49 states, the District of Columbia, multiple federal partners, industry participants and other stakeholders, cooperating to broaden and deepen technical knowledge and streamline the regulation of new environmental technologies.

The award-winning SCM Team is led by a representative from the state of New Jersey and includes the U.S. Environmental Protection Agency, Corps and other agency, state and industry participants.

It was formed in 2002 to address the opportunities presented by a number of innovations and changes in the sampling and monitoring field related to real-time information, continuous monitoring, and long-term monitoring for site closure and stewardship.

"Sheri and Brad have been integral parts of [the] team's efforts to develop technology and guidance documents on a variety of subjects including TRIAD, direct-push wells and sensor technologies," Nagourney said.

Virtual team

Continued from page 7

has worked on many says this site is the worst because of the dust, and sometimes intermittent high temperatures inducing the consistent "mothball" smell that the naphthalene produces.

The team chose to do the work with Corps employees. "It is unusual to do the work in-house," Marsh said, but the EPA had used a contractor in the past and is more satisfied with the way the Corps conducts the sampling.

The Seattle and Sacramento district team can test about a half dozen wells a day. The team tests the water as it is withdrawn for temperature and some chemical properties. Then the sample bottles are put onto ice until each day's set of samples is shipped to labs.

"In April (2007) we shipped 8,000 pounds of samples, and we had to fill more than 1,200 bottles with water samples so we had to order more than 80 cases of bottles and keep a room full of empty coolers and two deep freezers full of ice," Marsh said.

"We're in the investigation phase," he said. "Results have been fairly consistent though."

The team is made up of experts across the country including project manager Marie Lacey and peer reviewer John Wilson at EPA, Corps project manager Monique Ostermann, Albuquerque District; Chuck Coyle, Carol Dona and Michael Bailey, EM CX; and Kathryn Carpenter, Mick Easterly, Jefferey Powers, Joe Marsh, John Wakeman, Tim Grube at Seattle District. Expert contractors and Professor Mark Widdowson at Virginia Tech also are part of the team.

"If it wasn't for the initiative of the team members and their willingness to run with what they're doing, this wouldn't be such an easy project to manage virtually," Osterman said.

Highlighting some of the many 'green' projects throughout the Army Corps of Engineers

Building and Location	SPiRiT/LEED Rating*	Lead District	Interesting Sustainability Feature
41st Division Barracks Fort Lewis, Wash.	LEED Gold	Seattle	This building collects rainwater for use in toilet flushing.
Installation Communications Facility Fort Gordon, Ga.	SPiRiT Gold	Savannah	Paint, carpets and sealants with little to no volatile organic compounds were used throughout the project.
2nd Infantry Division Band Training Facility Camp Red Cloud, Korea	SPiRiT Gold	Far East	Existing pagodas inside the building's footprint were able to be relocated, rather than destroyed.
Medical Department Activity Barracks Fort Carson, Colo.	LEED Silver	Omaha	The barracks' location near the fort's hospital allows employees to commute by foot rather than cars.
Lodging Facility Niagara Falls Air Force Reserve Station, N.Y.	LEED Silver	Louisville	Much of the old facility was recycled for use in the new facility, and the old site became green areas.

This is just a small sampling of the many "green projects" that the U.S. Army Corps of Engineers has finished. There are countless others that have already been completed and many more in the works around the world. As part of the Corps' mission of environmental stewardship, the Corps strives to include sustainability features in all of its many projects.

*** SPiRiT** stands for "Sustainability Project Rating Tool" and **LEED** stands for "Leadership in Energy and Environmental Design." The Corps has used both systems as guidelines while working on green projects in recent years.

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