



US Army Corps
of Engineers®

Engineer Update

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New Chief stresses relevance, teamwork

Article by Candy Walters
Photo by F.T. Eyre
HQUSACE

Keeping the Corps of Engineers relevant to the Army and continuing the emphasis on working with its customers are among the goals for the 49th Chief of Engineers, Lt. Gen. Joe N. Ballard.

Three days after taking command of the Corps, Ballard hosted his first town hall Meeting with Corps employees on Oct. 4. He was greeted with a standing ovation from more than 750 Corps employees wanting to learn about Ballard's background, operating style, and plans for the Corps.

Although he has not worked directly for the Corps in his military career, Ballard said "I have been a customer of the Corps and I can tell you that the 30 years you supported me, you supported my soldiers and, most important, you supported the Army mission.

"The folks in the civil works program have provided an unmatched service to millions of Americans," Ballard continued. "Here again, I have enjoyed the benefit of what the civil works folks have done.

"The bottom line is that I'm tremendously impressed with the organization and with the folks in it," Ballard said. "You have a great reputation for quality, integrity, and service, and that reputation is unmatched. You didn't get it by accident — you earned it with quality work to the Army and nation."

A native of Louisiana, Ballard was raised in Oakdale, the oldest son of six children. He has an undergraduate degree in electrical engineering and a masters degree in engineering management from the University of Missouri in Rolla. Ballard is a registered professional engineer in civil engineering.

Ballard joined the Army in 1965, served two separate tours in Vietnam, then left the Army. He worked briefly as an engineer and manager for Illinois Bell in Chicago, then returned to the Army. "I found I had a knack for it and really enjoyed it, so I stayed and here I am."

Married for the past 34 years, Ballard is the father of three grown daughters and the grandfather of five.

"I love soldiers," Ballard said. "Let me tell you what I mean. When I say I love soldiers, I'm not just talking about those who wear the uniform. The Department of the Army is symbolized by soldiers, but behind every soldier stands a strong support group of families and Department of the Army civilians. So when I talk about the love of soldiers, I'm talking about that whole spectrum of that support group. That's why I think it's important for those who work for me to understand what I mean when I say 'I love soldiers,' and that you buy into that, because you are important in that process.

"All too often, we forget why we are here," said Ballard. "If we didn't have this thing called the Army, I doubt we would need this thing called the Corps of Engineers. So that's where I'm coming from. And I say that without apology and without exception — 'I love soldiers.' I have a deep commitment to them, their purpose, the things they do, and to the Army. And I'm passionate about



Lt. Gen. Joe Ballard (right), the new Chief of Engineers, inspects the 3rd Infantry Division (Old Guard) during the assumption of command ceremony Oct. 1 at Fort Myer, Va. He is accompanied by Secretary of the Army Togo West Jr. (left), and Col. David Huntoon, 3rd Infantry Division commander.

that, as you will learn."

Calling himself a sports nut, Ballard said he also is passionate about fishing. "So when I get a chance, I'm going to go fishing," he said. "I'll try to fish in every Corps lake before I leave."

Ballard said that he felt stunned disbelief when told he would be the 49th Chief of Engineers. "I know the importance of being the Chief of Engineers and I know what goes along with that," he said. "I felt an overwhelming sense of honor. When you work in your profession and one day someone tells you that you've reached the pinnacle, you have to feel good about it. I felt very happy, not only for me, but also for my family. I felt thrilled about the opportunity to lead the Corps of Engineers for the next four years."

Ballard talked briefly about a transition team he assembled to take a top-to-bottom look at the Corps. The team had members from the Corps (civilian and military, retired and active), customers, stakeholders, and members of the Army Staff and Army Secretariat.

"I told them to be bold," Ballard said. "Look at the Corps. Tell me those things we're doing well, what we can improve, and what we need to just stop doing. They will give me that, and I will mull it over and talk to the leadership, both inside and outside the Corps. In the next 90 days, I'll come up with a plan that will get me through at least the first year."

After only three days on the job, Ballard said he was not prepared to give his vision for the future. "I have some ideas. My philosophy is 'If it's not broke, don't fix it.' I'll come back to you with my

assessment of the organization and our strategic vision in a couple of months."

Ballard said he wants to communicate with Corps employees often. "I'm approachable; I'll talk to you," Ballard said. "You'll know what's on my mind. I can tell you right now that customer service and being relevant to the Army will be high on my list. I do *not* want the Corps to become a Department of Something in any administration. I want the Corps to stay within the Department of Defense and Department of the Army. If we're going to do that, we have to remain relevant. There are folks who say, 'Why do we need the Corps? Why don't we just give it to the Department of Interior?' So we'll work on that."

As far as hot buttons, Ballard said, "first and foremost, I have zero tolerance for discrimination of any type. Now before you say, 'He's just talking about race,' I'm talking about discrimination of *any* kind — race, sex, religious, *any* type. I expect each member of the Corps to treat all other members exactly the way they wish to be treated. I hope all of you want to be treated fairly and with dignity and be given the opportunity to be all you can be. You need to buy into that. If you can't, you'll have a difficult time with me. It's just plain and simple."

Ballard said he wants Corps members to rise above the rumors and gossip that flourish in Washington, D.C. "I tell folks, 'Stay in your lane,'" he said. "If you concentrate on your job, everything else will be okay because it will all come together. There's something called synergism. If we start worrying about what's happen-

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McFarland dredges river in Hurricane Fran's aftermath

Article by Edward Voigt
Photos by Tony Bly
Philadelphia District

The call came the evening of Sept. 9, 1996, during a long day's work in Delaware Bay — "Get down to North Carolina."

After dumping one more load of channel-bottom sand, the dredge *McFarland* headed south at 9:40 p.m. At 12:30 a.m. on Sept. 12, a little more than two days later, she was ready to begin dredging in the mouth of the Cape Fear River, where Hurricane Fran had blocked the channel.

As with similar operations to clear the Mississippi River in 1993 and 1995, Philadelphia District sent the *McFarland* in response to a request from a sister district. Jim Butler, chief of Operations for Wilmington District, said, "We knew no other vessel could do the job we needed as quickly and effectively as the *McFarland*. Wave action from the hurricane had reduced the minimum draft across half the channel width by three feet, setting up a severe navigational bottleneck."

Capt. Karl VanFlorcke was in command to begin the mission, with Capt. Joseph Vilord taking over halfway through. The 58-man crew worked a six-hours-on, six-hours-off rotation. All the dredging took place in the Bald Head Shoal Channel, the portion of the Cape Fear River federal channel most affected by the hurricane.

The *McFarland* is the only oceangoing vessel in the world equipped for three dredging methods — bottom-dump, pump-ashore and sidecast. For this assignment she worked exclusively via bottom-dump dredging. Dredged material was deposited in open water outside the channel, where it helped build up an underwater berm to protect

nearby shrimping areas.

"Since Wilmington is one of only two deep-draft ports in North Carolina and the only one that handles containerized cargo, the Cape Fear channel is critical to commerce," Butler said.

"Even more important, it feeds the Military Ocean Terminal at Sunny Point," he continued. "MOTSU is the major munitions port on the Atlantic Coast, and it also supports Fort Bragg. If the 82nd Airborne Division is mobilized, which can happen anytime at short notice, heavy equipment and bulk supplies and ammunition for the division and its supporting units would be shipped out of MOTSU. So from a readiness standpoint, we can't afford to take any chances."

"We really appreciate the quality of service we can count on from Philadelphia," said Butler. "Captains Vilord and VanFlorcke and their crew accomplished everything we asked for, and they stayed right on schedule. And thanks to the groundwork laid by Bob Hopman, Operations Division chief in Philadelphia District, and Rich Lockwood, their Physical Support Branch chief, we had to provide only minimal support at this end. It was professional all the way."

"We were very pleased with how quickly the *McFarland* restored our channel to its proper dimensions," said Eric Stromberg, director of North Carolina State Ports. "Wilmington moves close to three million tons a year in and out of our state, so keeping the port open is a top priority. The professionalism and customer service shown by the Corps were outstanding."

The *McFarland* concluded its emergency mission on Sept. 29, having removed more than 167,000 cubic yards of sandy material that was limiting navigation in the channel.



With historic Old Baldy Lighthouse in the background, the *McFarland* makes her way up the Cape Fear River during her mission to restore the federal channel after Hurricane Fran.



Croatia rowing team

I read with much interest the article printed in the September edition of *Engineer Update* concerning the training of Olympic rowing teams at Lake Russell.

I am pleased to inform you that the rowing team from Croatia trained on the Tennessee-Tombigbee Waterway. The cities of Tupelo and Fulton, Miss., hosted the Olympian delegation from that country.

Croatian rowing officials said the Tenn-Tom's still water area, which is protected from the wind at Fulton, is a world class venue. "I've been to Germany, Australia and Austria for rowing, but they have nothing like Fulton," said the vice president of Croatia's rowing federation. "I'm not saying this just because of the hospitality. My coaches would like to come back here and train for a world championship."

As a result of this memorable experience, local leaders are now pursuing the prospects of hosting a national or international rowing event in the future.

The success of these rowing exercises can be attributed to the excellent cooperation of Norman Connell, the area engineer for the Tenn-Tom and his Corps personnel. However, no Corps funds were spent for this training. All the funds needed to host these Olympians was raised by the two local communities, a tribute to generosity and hospitality of these Mississippians.

Donald G. Waldon
Administrator
Tennessee-Tombigbee Waterway
Development Authority

Chicago flood control

The Bret Rappaport article "Wildlife returns to the Chicago River Area" in the August *Engineer Update* illustrates how careful design of the environmental phases of a project can achieve more than just flood control. The project is credited with preventing \$1.8 million in flood damage this spring.

Unfortunately, the article did not give credit to Chicago District, which designed and built the North Branch Chicago River Flood Control Project, or to North Central Division, which provided significant guidance in both planning and implementing the project.

John D'Aniello, present Deputy Director of Civil Works, was Chief of the Engineering Division in Chicago District during the design of this project.

Paul D. Mohrhardt
Assistant Chief
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Programs, people make WES Lab of Year

By Debbie Quimby
Waterways Experiment Station

The Waterways Experiment Station (WES) in Vicksburg, Miss., has been selected as the Army Research and Development Organization of the Year for the second time in four years.

WES competed with more than 30 Army research and development organizations for the honor. Gilbert F. Decker, Assistant Secretary of the Army (Research, Development and Acquisition), announced the winning laboratory on Aug. 26.

"The competition for this year's award was very keen, but the Waterways Experiment Station was the clear winner," Decker said.

WES was judged on its accomplishments and impact; vision, strategy and plan; resource input; and continuous improvements. The WES award package highlighted specific accomplishments in technical and management arenas.

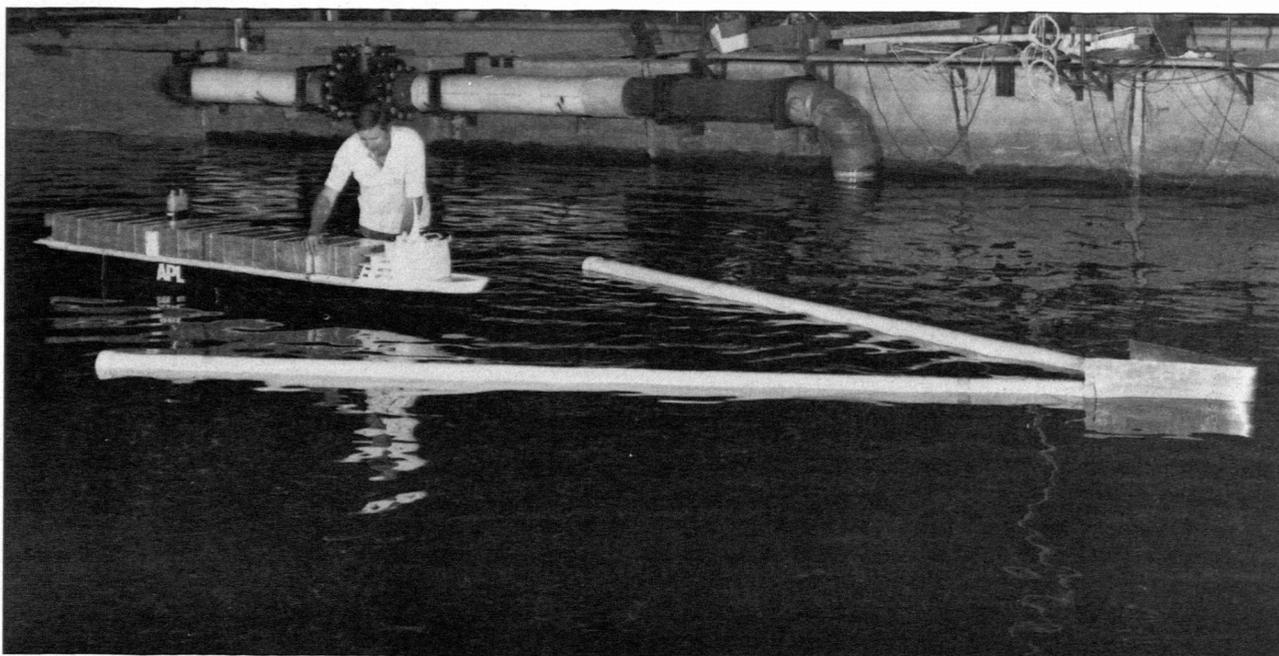
RIB system

The major technical accomplishment highlighted was a rapidly installed breakwater (RIB) system for logistics-over-the-shore (LOTS) operations. In LOTS operations, large quantities of military personnel, equipment and supplies are moved from large ships to shore in smaller coastal vessels. These operations are severely hampered when conditions reach sea state 3 (wave heights in excess of three feet) in loading and off-loading zones.

In 1993, Gen. Gordon Sullivan, former Chief of Staff of the Army, identified sea state 3 as a major obstacle for military operations. "You truly can't off-load in the stream (during sea state 3) because the seas are too high. We've got to solve this sea state problem," Gordon said.

WES engineers met that challenge with the RIB system. The RIB system is a floating V-shaped device, much like the bow of a ship which, when anchored in the loading zone, deflects incoming waves. The system has a curtain that extends below the surface to deflect wave energy. This creates a sheltered area immediately behind the angle so that crane operators and stevedore crews can continue to operate in sea state 3 conditions and higher.

RIB systems were successfully evaluated in laboratory experiments. Further developments will be evaluated in large-scale field experiments, followed



A WES laboratory worker places a model container ship behind a model RIB system during a test.

by experiments in actual LOTS operation exercises.

Communications infrastructure

The major management accomplishment highlighted in the award package was the WES communications infrastructure. WES has more than \$200 million in information technology resources to assist researchers throughout the Department of Defense (DoD) in accomplishing their mission.

WES has continually upgraded its communications infrastructure during the past decade and has one of the most capable communications networks in the world. In fiscal year 1995, WES upgraded its facilities to include the design of a 6.5 mile single-mode fiber cable physical plant. The single-mode fiber significantly extends WES's networking infrastructure and provides greater capacity to transmit video, audio and data.

Currently, 155 megabits (mega=million) per second of data can be transferred over the network. By 1998, using the single-mode fiber already in place, the network will be able to handle 1.2 gigabits (giga=billion) per second.

The WES backbone networks are managed by a centralized network monitoring facility. This

state-of-the-art facility monitors all activities and trends on the network and subnets around the clock, providing quick fault detection, network database integrity, and long-term performance statistics for future design decisions.

In addition, WES is home to DoD's first High Performance Computing Major Shared Resource Center. The center, anchored by CRAY C-90 and CRAY Y-MP supercomputers, is capable of computing 19 billion mathematical calculations per second, and can store 500 trillion characters of online information for DoD researchers around the nation.

Outreach programs

WES is particularly proud of its outreach programs to historically black colleges and universities (HBCU) and minority institutions (MI). These programs focus on civil and environmental engineering, and computer science.

WES has two educational partnership agreements in place with HBCU/MI's in Mississippi. The goal of each partnership is to enhance science and engineering education through contracting with these students.

For the fifth consecutive year, WES has exceeded both Department of the Army and DoD goals in contract awards to HBCU/MI students (46). Contracts have been awarded to the University of Puerto Rico, North Carolina A&T State University and the University of Maryland-Eastern Shore. These contracts provided 35 graduate students with challenging research experience during the summer term for which they received graduate credit.

People

The research and development accomplishments of WES would not be possible without a highly trained staff. WES is committed to staying on the cutting edge of technology through continued education of its team members.

Twenty-six percent of the professional staff hold doctorate degrees (183) and 39 percent hold master's degrees (273). This is achieved through professional development assignments, university graduate level study in engineering and science, and the WES Graduate Institute where three universities offer on-site instruction.

In addition, there are more than 50 professionals from academia working on-site at WES. This talent complements the facility's research staff.

Ballard

Continued from page 1

ing on the eighth floor, or what's happening across the hall, or the desk next to you instead of concentrating on your thing, then we're going to have problems. I just don't like that.

"As I told my staff, we're all adults," said Ballard. "We're about serious business. So I have no tolerance for those who lie or for those who tolerate those who lie."

Corps employees should all work off one agenda — "to do the best for the Army, for the Corps and for the country," Ballard said. "I expect accountability up and down the chain. We're accountable to our bosses and to our people. And you should challenge the accountability of anyone you work for, and they should challenge you.

"I expect us to operate as a team, and I expect you to make customer satisfaction the norm," said Ballard. "I'm not talking about slogans and bumper stickers. Your customer could be the directorate down the hall, but if you're providing input and you make them Number One, you're doing what you're supposed to do. I prefer to

think and speak 'we' rather than 'I.' We're part of a team, and everyone is important.

"One thing you can count on, you can count on getting my respect and loyalty," Ballard said. "There's a flip side to that — it's reciprocal. If we give respect and loyalty to each other, then we should expect to receive the same back.

"You should enjoy coming to work because you like the folks in the office, you like what you're doing, you're making a commitment, and you feel good about it," Ballard said. "We should have an environment where you feel good about coming to work and doing your job. Working without commitment makes it just another job and not much fun. I suspect there's a strong sense of commitment in the Corps.

"Again, I expect us to be relevant to the Army," Ballard said. "We are an Army organization composed primarily of civilians. Although we do a lot of important work for the nation and others, we can't forget our roots. Support to the soldier and Army is critical."

TAC projects upgrade Kuwait facilities

By Joan F. Kibler
Transatlantic Programs Center

Kuwait is long-gone from the headlines, but the Army, including the Corps of Engineers, is still there, hard at work. Transatlantic Programs Center (TAC) is helping the Army improve its training and living facilities in Kuwait.

TAC's Camp Doha office is providing engineering assistance to the forward-deployed unit of the Army's Central Command in Kuwait (ARCENT-KU) for renovating Camp Doha. Doha, an industrial warehouse complex 20 miles north of Kuwait City, has been a major base of U.S. operations in Kuwait since the end of the Persian Gulf War.

"All the engineering work that's being done is high priority work," said Col. Robert Smalser, Camp Doha commander. "We want to keep the projects simple and focused on integrated operations."

Indeed, the Camp Doha warehouse complex now functions much like any Army installation. It is a case of "making do" with available facilities provided by the Kuwait government until a new facility can be built for the Army.

The warehouses contain maintenance, storage, and quality of life facilities. Some of the smaller-scale improvements are being made by the Director of Public Works (DPW) staff at Camp Doha.

But a significant portion of the Camp Doha renovation is being made by the Corps under a \$24 million contract awarded by TAC in February 1995 to American International Contractors, Inc., of Dallas, Texas.

"Under the contract, we're converting 17 warehouses to maintenance facilities, vehicle and supply storage, and troop billeting," said Sam Baxter, Camp Doha resident engineer. "We're also installing 171 modular duplex housing units, five laundry units, five TV day-rooms, and a modular kitchen unit."

Baxter said that some buildings require a great deal of work while others require little. "It depends on what the Army wants them for. For example, the maintenance facilities that support wheeled and tracked vehicles require the installation of cranes, vehicle ramps, specialized systems for lubrication and oil, and compressed air systems. They also require administrative office space, storage rooms, door systems, and fire protection."

To further improve the quality of life for the permanent party members, 171 trailers are being installed. "These trailers will accommodate two individuals who will share a bath," said construction representative Eddie Sherman. "Many of the Camp Doha permanent staff are living in trailers or barracks and have to walk to toilet rooms. These trailers will significantly improve their lifestyle."

For military personnel who rotate into Kuwait for various exercises, the Camp Doha office renovated two buildings into barracks. "We installed bays that will accommodate up to 2,000 transients," Baxter said. The Camp Doha office and contractor staffs had to complete the barracks buildings by early April to accommodate an Intrinsic Action military training exercise.

Completion is occurring incrementally, with immediate turnover to the Army for its use. Final contract completion is expected by February 1997, according to Keith Evers, project manager.

This is a great group of people here at Camp Doha," Sherman said. "We really strive hard to have good relationships with all the players. It's important that we do the best we can for our soldiers and airmen stationed far from home."

To provide tailored engineering services to the Army in Kuwait, two Corps members are part of the DPW staff of 12. They are Marcelo Salles,

plans and construction engineer, and Mark Skarbak, civil engineering facilities officer.

"Our projects are relatively small," Salles said. "They're not glamorous engineering projects, but the work nets immediate improvements in living conditions for the troops stationed here. The projects range in value from \$15,000 to up to \$300,000 each."

Salles said the DPW budget for engineering improvements last year was \$1.5 million and this year's budget is about \$3.5 million.

"One of our larger projects was to renovate two bays of a warehouse into housing by providing individual rooms for permanent party Air Force personnel," Salles said. "Of course, they still had to walk to shower and latrine facilities down the street, so we added a couple of toilet rooms to the bays which gives them more convenience."

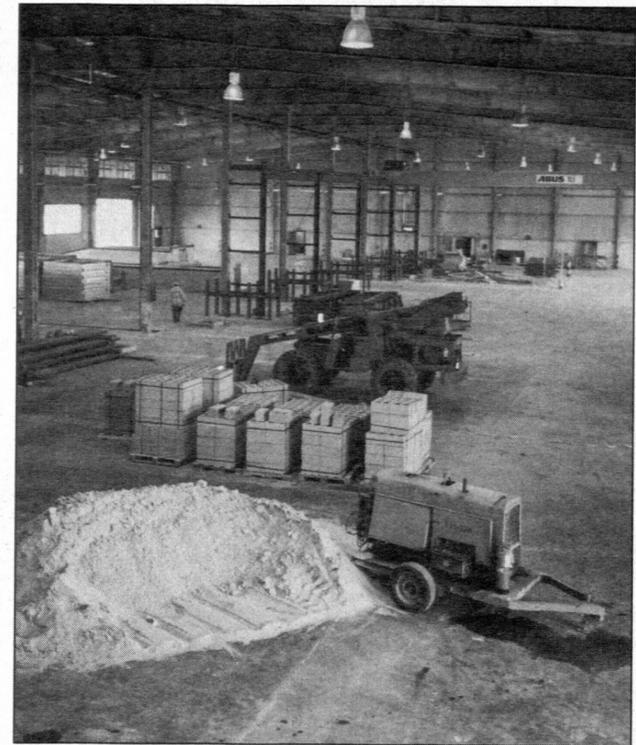
Other typical projects include installing shower and latrine trailers, a laundry facility, game rooms, a ceremonial flag pole, enlarging the post exchange, and modifying the dental clinic.

Salles said there are two clear advantages to his job as part of the DPW staff.

"We have marvelous working relationships with all the engineers on the Camp Doha team," he said. "Our activities are mutually supportive. We rely heavily on the Kuwait engineers to provide us with electrical expertise, while they do much of the maintenance work. We've established procedures where we meet regularly and sort out how we'll get the work done most efficiently."

The other advantage is the engineering experience, Salles said. "While we don't have large projects, we manage all aspects of the work — estimating, design, contracting, quality assurance, change orders, and contract administration. We have to get the work done quickly; it's normal to juggle six or seven projects at a time and to complete a project within 75 days of inception."

Central Command has asked TAC to redesign



Seventeen warehouses are being converted to maintenance facilities, vehicle and supply storage, and troop billeting. (Photo by Eddie Sherman, Camp Doha Office)

portions of the permanent facility that will be built in Kuwait.

The installation is being jointly designed by the Kuwait Military Engineering Projects office (the engineering element in the Ministry of Defense), and by the Army, using the TAC as its design agent.

The facility will accommodate U.S. military forces that now occupy the Camp Doha installation. Besides providing housing, it will be used for staging equipment and supplies and for joint training.

Houston port growing larger

By Ken Bonham
Galveston District

The Port of Houston Authority has advanced \$1 million to Galveston District to continue designs for enlarging the Houston Ship Channel.

The purpose of the landmark partnering action is to achieve the earliest possible construction start for widening and deepening the channel which serves one of the nation's busiest ports. The port handles 30 percent of the nation's refining capacity and 50 percent of the petrochemical production.

The Port of Houston advanced \$1,020,000 after a memorandum of agreement was signed by Thomas Kornegay, representing the port, and Col. Robert Gatlin, Galveston District Engineer.

"Funds were advanced to keep design efforts on course for channel modernization during a time when federal funding could not be acquired at the rate needed," Gatlin said.

Approval of the funding advance by the Port of Houston Authority (which serves as local sponsor along with the Port of Galveston for the \$448.5 million project) will continue efforts to enlarge 57 miles of channel from Houston to the Gulf of Mexico.

Dalton Krueger, project manager, said the funds transfer by the Port of Houston was a first for the Corps of Engineers because local funds had never been accepted during the design phase. Approval of the arrangement had to be given by

all levels of the Corps, as well as the Assistant Secretary of the Army (Civil Works), Office of Management and Budget, and Congress.

Krueger said a limited reevaluation report and supplemental environmental impact statement were prepared by Galveston District and were sent to Congress for authorization of the project. The project was included in the Water Resource Development Act of 1996, which was passed by Congress and signed by the President, so the project is authorized for construction.

The improvement plan calls for widening the Houston Ship Channel from its present 400 feet width to 530, and deepening the channel from the 40 feet to 45. Galveston Channel will be deepened from 40 to 45 feet and will vary in width from 650 to 1,112 feet.

Plans call for construction to start in 1998, with completion in 2003.

The Houston Ship Channel, ranked second among U.S. ports in overall cargo, carried 143 million tons of commerce in 1994, including 80.2 million tons in foreign commerce.

Material removed from the channel bottom during the enlargement project will be put to beneficial use, including creating 4,250 acres of salt marsh, and a 12-acre waterbird nesting island. An estimated 68 million cubic yards of material will be removed during the initial deepening project, followed by another 261 million cubic yards from channel maintenance during the life of the project.

Winning the game

Workshop focuses on customer outreach

By Alicia Gregory
Savannah District

The game is business and the competition is tough. Successful players have learned the key to winning this game. The key is the customer.

Private industry has shifted from a product-based to a customer-based environment to remain viable in a world where consumers have more options than ever before.

The federal government is following this trend. South Atlantic Division (SAD) is working toward a new business environment with its Regional Village Concept. The division has standardized business systems and implemented information systems. Its focus is now on developing a customer outreach program.

The division conducted its first formal workshop on this subject recently in Savannah, Ga. Hope Gardina, Director of Marketing for the Army Management Engineering College (AMEC), facilitated the customer outreach workshop. Several employees from the division, all five of its districts, and HQUSACE attended.

"Agencies have to learn to think outside their box — focus not just on the customers they have, but also ones they could have," said Gardina. "To succeed you must stay customer-focused and market-driven — find out what your customers want and need."

Gardina has worked with several federal agencies to advance their outreach programs, including the Veterans Administration, Departments of Navy, Air Force and Army, and several Corps districts.

During the five-day workshop, she explained how to work smarter using customer-focused initiatives.

"We are in the infancy stage of the customer outreach program and still learning how to make it work," said Bill Stein, Senior Program Manager in SAD. "This workshop focuses not

only on where to go, but on how to get there.

"We realized we had to develop some program to inform other government agencies capabilities," said Stein, who is in charge of assembling SAD's customer outreach program.

"Hope (Gardina) explained to us the need to find out who our customers are and why customers should choose us," he said. "One of several 'taskers' that came out of the workshop was to pick two or three agencies we would like as cus-

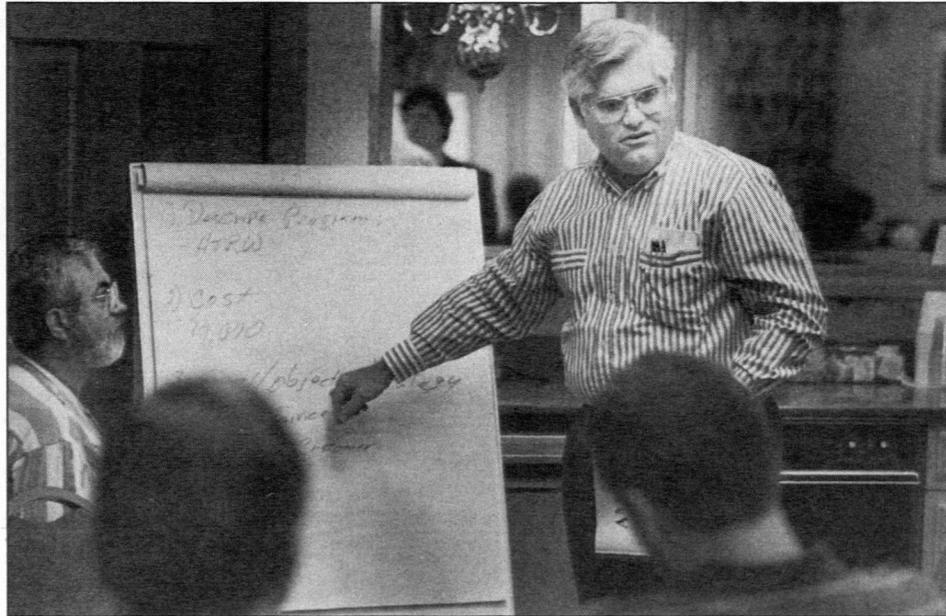
tomers, and form groups to study them and their needs."

"We are in an environment where reaching out to the customer is good," said Judith Reid, Ph.D., representing HQUSACE Support for Others program. "We have different leadership that is pursuing our current, and hopefully future, customers. And with the incentive of 500 full-time employee positions from the Office of Management and Budget (OMB) for any reimbursable work we get from other agencies, more emphasis is on pursuing this program."

"Our customer outreach program is the big picture that will put the Regional Village Concept into practice," said Stein. "This is not just a division plan; it is all five districts working together as a whole. As a working program, at times we may run into issues or conflicts between the districts, but the Regional Village Concept creates a team environment."

"But it takes time to change the mindset from district-centered to division-centered," said Stein.

"Our plan is to communicate to other government agencies how contracting with the Corps can, among other things, reduce overhead costs and job workloads," said Stein. "We want to allow our customers to concentrate on their primary missions and let us be their engineering agency of choice."



Emilio Colon, Jacksonville District, discusses objectives in developing a marketing program.

New barracks reflect changing lifestyles

By Jan Duchnowski
Seattle District

It's a world away from the early 1950s when 2nd Infantry Division soldiers, the first division sent to Korea, bunked at Fort Lewis, Wash., in open-bay barracks with common-use latrines and tough first sergeants.

Times have changed and so has the lifestyle of the serviceman and woman. With continued emphasis from the top on quality of life for today's soldier, new barracks construction is taking on a look and utility for the volunteer Army of the 1990s.

At North Fort Lewis, Seattle District's Barracks Project Office and resident engineer John Haddick opened for business in March 1995 when the contract for an 800-soldier barracks complex was awarded to M.A. Mortenson Construction of Bellevue.

Now, 18 months later, across the street from the project office, workers and equipment scurry about the Burris Field construction site, a former parade ground named after one of the 2nd Infantry Division's heroes.

On one side of 41st Division Drive, a gray slate-roofed barracks for 400 soldiers is 98 percent complete. On the other side, with red tile roofs and some architectural differences, another 400-soldier barracks has just passed the 89 percent construction mark.

In addition, there is a dining hall, company operations and supply buildings, and battalion headquarters spread across the field in a pattern which

lends itself to a community environment for today's soldier. That design didn't happen by chance.

"The selected site plans provide a distinctive neighborhood flavor within each building cluster," said Jim Clark, district project manager. "Fort Lewis was deeply involved in the site selection process and development and choice of architectural styles, and they view the barracks accomplishments in fiscal year 1995 (FY95) as keystones in the long-range North Fort development plan."

The district is finishing the FY95 portion of the barracks project at a cost of about \$59 million; and an ongoing barracks renewal program will add even more living and working space at North Fort Lewis to the tune of \$49 million in FY97 and \$26 million in FY98.

Although modern in design (two people to each unit with a shared bathroom, telephone jacks and cable connections, attractive carpet and wall decor, and electronic locks for security), the exterior of the barracks style repeats some architectural features of the brick garrison barracks built on main post in the 1930s.

"It's the largest military construction project for the district since Madigan hospital," said Dave Green, project design manager. "It has been one of the biggest joint architect engineer (AE) in-house design efforts."

Green said that about 80 district people were involved in the design and survey of this project. The project was listed in the 1995 top 10 projects in *Construction Data & News*, a trade magazine.



One of the 400-soldier barracks clusters on 41st Division Drive at Fort Lewis, Wash.

Tenn-Tom

Massive waterway project spawns equally massive effort to restore wildlife and timber

By Tim Dugan
Mobile District

It's the biggest wildlife mitigation effort in the Corps of Engineers. Replacing wildlife habitats lost due to construction and operation usually involves a few acres here and there. But Glen Coffee, of Planning's Environment and Resources Branch, is managing efforts to purchase 88,000 acres.

Wildlife mitigation

The Tennessee-Tombigbee Waterway Wildlife Mitigation Project was authorized by the Water Resources Development Act of 1986 to offset wildlife losses from building and operating the Tenn-Tom Waterway, completed in 1985. It authorized the Corps to acquire 88,000 acres of land to replace bottomlands and flood plain forests.

"Plans for managing wildlife mitigation lands are being developed jointly by the Corps, the Fish and Wildlife Service and the states of Alabama and Mississippi," Coffee said. The waterway is located in Alabama and Mississippi. Both states will manage the lands for fish, wildlife and other public recreational uses.

The project is being financed by the federal government. Land acquisition for the \$87.3 million wildlife mitigation project began in fiscal year 1990. The project is set to be completed by next September.

To date, the Corps has acquired more than 81,000 acres. Factors considered in evaluating lands include habitat type, suitability for mitigation, size, cost and proximity to other lands managed for fish and wildlife purposes.

The authorization requires replacing lands in-kind or with better wildlife habitat than those lost. The law requires not less than 20,000 acres be acquired in Alabama's Mobile-Tensaw River delta, and not less than 25,000 acres in Mississippi's Pearl, Pascagoula and Mississippi River deltas. These requirements have been met.

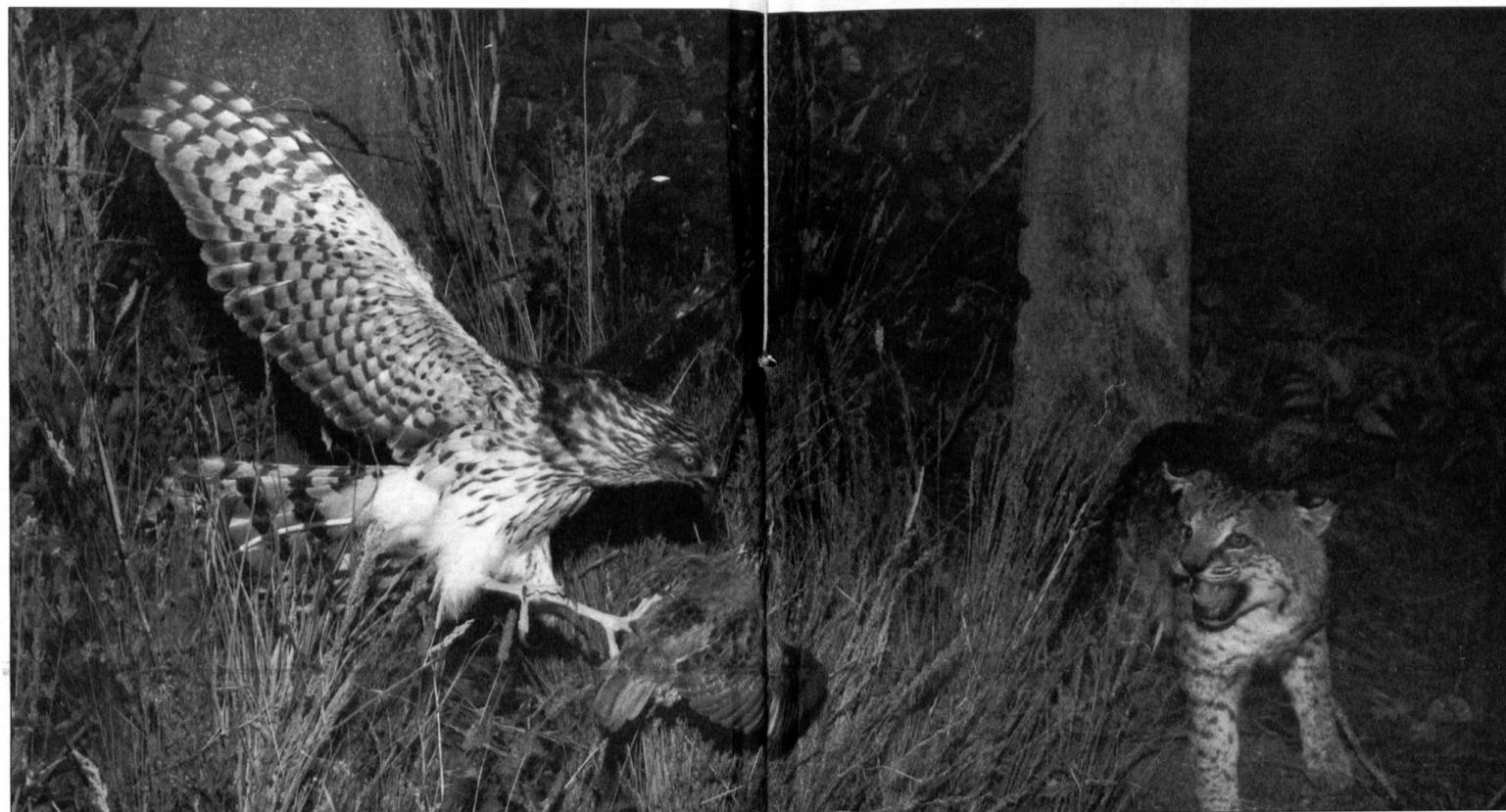
The law allows the remaining 43,000 acres to be anywhere in Alabama and Mississippi. However, Corps, state and Fish and Wildlife officials want to acquire as much land as possible in the Tenn-Tom Waterway area where wildlife habitats were impacted the most.

"Emphasis has been placed on purchasing predominantly bottomland hardwood habitats," Coffee said, and more than 90 percent of the lands purchased will support this sensitive habitat.

The project also calls for managing about 92,000 acres of existing project

"One of the most rewarding aspects...has been the way the Alabama Department of Conservation and Natural Resources; the Mississippi Department of Wildlife, Fisheries and Parks; the Fish and Wildlife Service; and the Corps have cooperated in making this project a reality."

Glen Coffee



This dramatic exhibit in the Tom Beville Visitor Center on the Tenn-Tom Waterway shows the type of wildlife in the region.

lands. When the land at these existing projects are added to the 88,000 acres being purchased, the total acreage in the Wildlife Mitigation Program becomes 180,000 acres.

Land in Alabama will be managed by the Alabama Department of Conservation and Natural Resources (ADCNR). Land in Mississippi will be managed by the Mississippi Department of Wildlife, Fisheries and Parks (MDWFP).

The Corps is managing about 57,000 acres of the 180,000 acres. "The Corps-managed lands are areas which have operational constraints, recreation areas or are small scattered tracts that can be more efficiently managed by the Corps than the states," Coffee said. "A site-specific management plan is developed for each mitigation area. Once in the mitigation program, the habitat quality of the involved lands is improved through management."

Management measures include reforestation, building waterfowl impoundments, improving roads, increasing law enforcement, planting food plots and installing artificial nesting structures.

After the Corps acquires the land, it is licensed to the states which manage them as wildlife manage-

ment areas.

Real estate challenges

The project required a great deal of work by the Real Estate Division staff.

"They've had to work in specified regions under time constraints with little negotiation room and have averaged buying more than 12,000 acres a year for seven years," Coffee said.

Planning Division's challenge has been to find willing sellers in the desired areas to support the project. More than 500,000 acres in both states have been offered by potential sellers that had to be evaluated.

Real Estate staff must appraise, review and purchase. The Corps uses contract and in-house appraisers to review the land's value. Vicksburg District contributed to the purchase of two large tracts of land in Mississippi by working on appraisals, negotiations and closings.

Reforestation efforts

"A major management measure will be reforestation of existing and abandoned agricultural lands," Coffee said. "The initial phase of the reforestation effort was begun in

1992 and will continue through 1997. More than 7,000 acres have been planted in hardwoods to date.

"Reforestation of cleared agricultural areas offers some of our best opportunities for true wildlife mitigation by returning wildlife to such areas," he said. "Many of these areas were only marginally suited for agriculture due to flooding.

"We anticipate up to 8,000 more acres will be planted before we complete work in 1997," Coffee said. "It's important that we maintain timber on these lands to obtain the maximum benefit for wildlife."

Tony Palmer of the Tenn-Tom Office developed criteria for matching seedling mixtures to sites. Also, the Corps is allowing natural regeneration at many locations.

Wildlife habitat

The Corps and the states have a variety of wildlife management programs.

"Part of the wildlife mitigation project involves readying the land for public use," Coffee said. "A variety of wildlife management activities will be pursued on these lands."

About 2,000 wood duck nest boxes were installed along the Tenn-Tom

Waterway, and several hundred others at other wildlife mitigation projects.

"This program will continue to expand," said Danny Hartley of the Tenn-Tom Office. "The Tenn-Tom nest box program is already one of the largest such efforts in the Southeast. We've had tremendous success which increased the wood duck populations in the affected areas."

The last waterfowl census conducted in January for the Tenn-Tom Waterway estimated 24,000 ducks, which exceeds the annual average of 12,000 to 14,000.

Efforts include building waterfowl impoundments, wildlife food plantings, and building bluebird nest boxes.

"We've built several seasonal impoundments and have plans for a few more to better manage water levels for migratory waterfowl," said Brian Peck of Planning's Inland Environment Section.

Deer and turkey management are also an important part of the mitigation program.

"A major mitigation objective is to increase the capacity of our lands," Coffee said. "This should produce a surplus of animals which can be made available to hunters. As a result, regulated hunting becomes an



One cooperative effort between state and federal partners is to restore the bald eagle population by placing immature eagles on mitigation lands. The young eagles mature, leave the nest, and later return to repopulate the area.

important part of the wildlife management program."

The Corps, the states and Fish and Wildlife Service are also making great efforts to protect and assist the recovery of threatened and endangered species.

"We are taking advantage of several opportunities to manage sensitive species," Peck said. About 100 young eagles were released in 1991 and 1992 on Corps project lands in Mississippi and Alabama to help restore bald eagles in the Southeast.

Through the success of such programs, the Fish and Wildlife Service has changed the status of the bald eagle from endangered to threatened.

"We are also funding an effort to provide information on the range of the endangered Alabama redbelly turtle in the Mobile-Tensaw Delta, and to identify management efforts which can be pursued on our lands to assist the recovery of this species," Peck said.

A similar effort is underway for the threatened yellow blotched map turtle at the Ward Bayou Wildlife Management Area. Also, at the Ward Bayou WMA in Jackson County, Miss., officials are improving habitat on 600-700 acres of former pine plantation to improve habi-

tat for the threatened gopher tortoise.

"The endangered red hills salamander occurs on some of our project lands at Claiborne Lake which are also included in the wildlife mitigation program," Peck said. "These areas will continue to be protected and managed. We also have the potential to contribute to the recovery of the threatened Louisiana black bear at several locations, particularly our Mississippi Delta lands."

Interagency cooperation

"One of the most rewarding aspects of the Wildlife Mitigation Project has been the way the ADCNR, the MDWFP, the Fish and Wildlife Service, and the Corps have cooperated in making this project a reality," Coffee said. "Many times in the past our agencies have been at odds on water resource projects. But the Wildlife Mitigation Project has proven how well we can work together."

Environmental organizations which have contributed to the project success include Ducks Unlimited, the Nature Conservancy and the Coastal Lands Trust in Mobile and Baldwin Counties, Ala.

New digital hardhat puts engineering in cyberspace

By Capt. Kurt Floyd
Fort Worth District
And Annette Stumpf
CERL

(Editor's note: Capt. Kurt Floyd and Annette Stumpf are both involved in developing and testing the digital hardhat.)

It's 3 p.m. on a Friday afternoon and the phone rings in a Corps of Engineers' field office. A project engineer answers and hears a construction representative lamenting about an unexpected problem at the job site across town. Soon, the construction representative uses his "digital hardhat" to send a real-time picture of the job site to the project engineer's computer screen. The project engineer is also "on-line" to comment and make suggestions.

After seeing the picture, the project engineer diagnoses the problem and makes recommendations immediately. The construction rep and project engineer don't have to work late on a Friday and the customer is happy because the project is still on schedule.

This scenario is futuristic, but it could be here sooner than you think. Experts at the Construction Engineering Research Laboratories (CERL) are testing existing commercial desktop video teleconferencing technology and working closely with Dr. Liang Liu from the University of Illinois to make this real-time interaction a common occurrence.

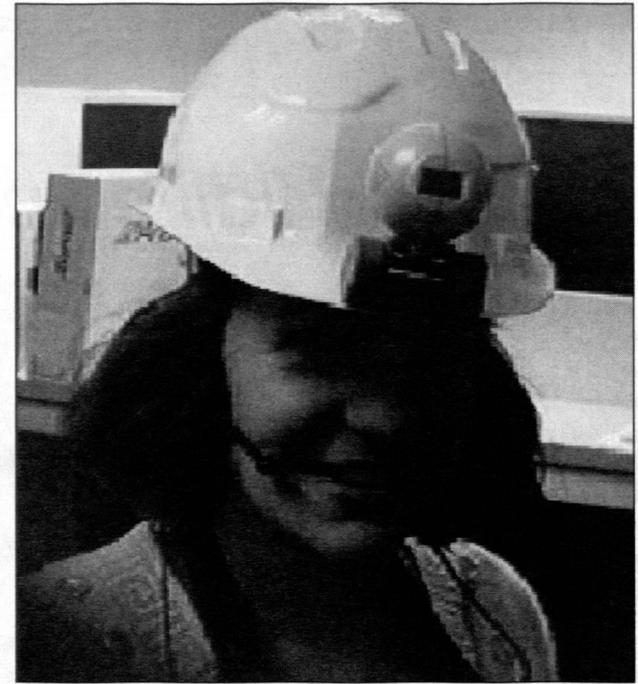
The digital hardhat will have a small video camera, microphones and a two-way input pad. It will collect and transmit multimedia information (text, sound, video and images) between the construction site and other locations. The field representative wearing the digital hardhat uses a pen-based computer running Windows 95 to video teleconference on a wireless network. Special software allows the field representative to save multimedia information into a database which is then accessible to others through the World Wide Web.

The project information collected will help document site conditions, progress and problems so the information can be easily retrieved by any project participant.

Currently, when a problem arises at the job site that can't be resolved at the field office, the project engineer submits a request for information (RFI) to the technical engineering representative in the district. RFIs are sent via fax or E-mail. If photographs are included in the RFI, most field offices must mail them to the district since the quality of faxed photos is poor, and few offices have scanners to convert photos to an electronic format.

The average turnaround time for an RFI is three to seven working days. Usually, it involves several more faxes or E-mail messages between the project engineer and the technical engineering representative.

Digital hardhat technology will allow real-time interaction between field and district personnel.



Annette Stumpf models a prototype of the digital hardhat. (Photo courtesy of CERL)

It won't solve all problems at a construction site, but it will greatly enhance the ability of field personnel to interact with designers and technical representatives at the district level.

An obvious benefit of this technology will be a reduction in both problem resolution time and travel costs. The ability to quickly resolve construction claims and shorten the time for RFIs are other benefits that make this project worth testing.

Fort Worth District is working closely with CERL to test the digital hardhat. A demonstration is planned in the near future on an actual construction project.

Agreement yields signs, better cooperation

By Candy Walters
HQUSACE

To most Corps employees and customers, the only tangible result of a recent agreement between the Corps of Engineers and the Federal Prison Industries, Inc. (UNICOR) will be signs at Corps facilities that are recognizably the same.

Less tangible, but just as real, has been improved communication between the two organizations and a willingness to work together for a common goal.

During the past 16 months, Corps and UNICOR negotiators worked to "salvage" a memorandum of agreement that called for UNICOR to provide the Corps with signs for its districts, divisions and facilities.

After agreeing to a seven-month trial period, Maj. Gen. Stanley G. Genega, then Director of Civil Works, and Steve Schwalb, Chief Operating Officer for the Federal Bureau of Prisons, signed a revised interagency agreement on May 16.

"This is the right way for things to be worked out," Genega said at the ceremony. "We are committed to this and will try to make it happen right."

"I appreciate the commitment everyone made in working together," Genega added. "Someday, this could turn into a model of how to work together."

Schwalb agreed that working to-



Cooperation between the Corps and Federal Prison Industries (UNICOR) led to building this huge sign. (Photo courtesy of UNICOR)

gether has resulted in "communication that is better than ever. We're looking forward to the customer care arrangement which calls for periodic, regular meetings with customers in the field."

Under the agreement, UNICOR provides the Corps with custom signs, standard signs and waterway signs. The Corps agreed to provide clear, concise specifications and ensure

that prompt payment is expedited.

UNICOR also agreed to grant the Corps clearance to obtain signs from alternate sources if the performance of the agreement is not mutually satisfactory.

Part of the problem was that the Corps was asking UNICOR to fabricate signs that were larger than they were accustomed to, according to Russ Snyder, project manager for the Mandatory Center for Expertise for Waterway Signs in St. Paul District. Snyder was a member of the negotiating team.

"We needed waterway signs almost the size of billboards because of the long viewing distances required at some Corps facilities," Snyder said. "This was causing problems and disagreements. We worked together to clarify some of the engineering requirements and provide guidance. Although we couldn't reduce the size of the signs because of safety considerations, we are working to simplify the sign structure."

The lack of engineering drawings for orders for large signs led to many of the problems with the waterway signs, according to Snyder. Without such drawings, UNICOR often had to guess at how the signs should be fabricated and assembled, leading to complaints from districts.

Resolving the ordering and fabrication problems was critical to the

Corps' goal of having all safety-critical waterway signs in place by Jan. 1, 2001, according to Snyder.

"We have been working on an engineer circular that will have standardized drawing plates for the districts to use," Snyder said. "This will make it much simpler for UNICOR to fabricate the signs and understand our needs."

Snyder said the success of the agreement hinged on the commitment of the negotiators to forge a workable agreement between the Corps and UNICOR.

"We worked together to resolve the issues since the federal government is required to procure its signs from UNICOR," Snyder said. "Everyone made a good-faith effort to work out the differences, which required a lot of coordination and cooperation."

UNICOR has established a customer care group consisting of Corps employees from all levels, including projects, districts, divisions and headquarters, to provide input on what works and what doesn't with both UNICOR's fabrication system and the Corps' ordering and payment system. Fourteen Corps employees have been invited to participate. A series of four quarterly customer care meetings will be conducted. The first was held at UNICOR's sign fabrication facility at Lompoc, Calif., in Aug.

Vicksburg District tracks 'the birds'

Article by David Longmire
Vicksburg District
Photo by John Rumancik
Memphis District

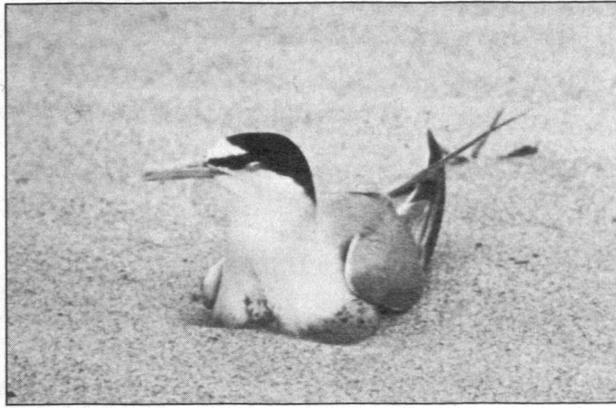
In Vicksburg District they are called simply "the birds," and the reference to Alfred Hitchcock's famous horror movie is deliberate. The interior least tern is an endangered species, but anyone who mistakenly wanders into their nesting colonies scattered among the large sandbars along the lower Mississippi River will know immediately that they have trespassed.

"They dive bomb you and harass you until you get out of their space," said Maryetta Smith, senior biologist in the Environmental Branch. "Of course we don't disturb them intentionally, but they are a very territorial species. Another bird in their air space could upset them."

For 10 years, Vicksburg District has been taking part in a least tern monitoring program being conducted by Lower Mississippi Valley Division as part of the Lower Mississippi River Environmental Program.

St. Louis and Memphis districts have cooperated with Vicksburg District in compiling habitat and nesting data on the endangered bird.

"Maryetta obtains information from a patrol on the Motor Vessel *Mississippi*," said John Rumancik Jr., a fishery and wildlife biologist at Memphis



Least terns nest on open sandbars during Mississippi summers.

District. "I collect data by helicopter and by going down the river in a 15-foot ski boat May through July. We've just completed collecting another year of data."

Terns don't like trees, said Rumancik. They have webbed feet, which are not adapted for perching. They are fish eaters and have adapted to the hot temperatures on the sandbars during the Mississippi summers. The openness of the sandbar provides protection because predators can't sneak up on them.

"The nest is a fist-sized depression in the sand

and usually holds about three eggs," Rumancik said. "When it gets so hot out there that you can't touch the sand, the female will fly out and skim the water with her breast feathers, picking up water. She returns to the nest and spreads her wet feathers over the eggs to keep them cool."

"We want to know if our dike and revetment work on the river is having any affect on the habitat of the least tern or the birds themselves," said Steve Cobb, division program manager for environmental studies on the Mississippi River. Cobb is writing the biological assessment from data provided by the districts.

"We have found that once you have a lot of vegetation on one of these sandbars, the birds tend to leave," Rumancik said. "And any time there is a lot of exposed sand with little vegetation, the birds will go to it. They are really opportunistic."

"The Corps has found that we have almost 10 times the known 1984 population when the bird was placed on the endangered species list," Rumancik said.

The Corps of Engineers has provided all information it has gathered on the interior least tern to the U.S. Fish and Wildlife Service in an effort to aid the recovery of the species. For the last couple of years, the count has exceeded what was listed in the recovery plan for changing the bird's status from endangered to threatened.

Sherlock Holmes would have loved this

By Todd Hornback
Louisville District

Ground penetrating radar systems (GPRS) are generally used to locate underground utility sewer and gas lines. But their capabilities have also been used in everything from law enforcement cases to finding lost graves.

Chris Heintz, a geodist with Survey and Mapping Branch in Louisville District, has been to several sites in the U.S. and overseas to Japan with the district's GPRS.

GPRS operates like the radar at an airport, but on a smaller scale. The operator drags an antenna which looks like a box across the surface. The antenna emits radar waves from a transmitter to search at a certain depth. A receiver on the antenna picks up the reflected radar waves and sends them by wire to a computer which displays them on a graph similar to a heart monitor. The line varies according to the consistency of the soil or materials buried in it.

Heintz first used GPRS to search for World War II ordnance buried at Wright-Patterson Air Force Base, Ohio. His work caught the attention of the Air Force which requested his services in Japan.

The work in Japan involved an Air Force-operated golf course near the base. The civilian in charge allegedly accepted money to bury trash at the course. Heintz used the GPRS to verify if materials were buried in the area.



(Left) Chris Heintz stands at the golf course in Japan. (Right) One assistant pulls the GPRS antenna while another straightens the wire to the computer system. (Photo courtesy of Louisville District)

Heintz was given two days to work. Using the GPRS, Heintz found what he believed to be buried material at seven sites. Before his return to the U.S., the Air Force officials had excavated one site Heintz identified and found barrels containing an unidentified substance. He has not received a report on the other sites.

"GPRS doesn't identify what the object is, but it says there's something there," Heintz said. "It could be an oil drum or the hood of a '57 Chevy."

In early April, the Miami County



Sheriff's Office in Ohio requested Louisville District's assistance in searching for a possible corpse buried in a 30-acre area.

A man had been convicted and given a 15-year prison term for the attempted murder of a woman at C.J. Brown Lake. Evidence led the department to follow allegations that the man had committed several murders and buried the bodies near his home.

The department narrowed the search area to one acre and brought in three different "cadaver" dogs to sniff out possible sites for the body.

Each dog searched the area separately, and all three identified the same sites.

Heintz searched the sites with the GPRS, found inconsistencies in the soil, and officials excavated the area. Although no visible body parts were found, the police took soil samples for testing.

This wasn't the only cadaver search that Heintz and the GPRS has conducted. Heintz and Mike Fowler, a realty specialist in Real Estate Division, used the GPRS to locate graves in Tennessee near Fort Campbell, Ky. A demolition landfill encircled the cemetery and Fort Campbell requested the graves to be moved so the landfill could be expanded.

Fort Campbell officials thought there were just three graves at the site, but Heintz and Fowler found 12 graves with the GPRS.

"When they brought them up, it was just as we specified," Fowler said.

The graves dated from 1865 to 1940. With the family's permission, the graves were moved to a cemetery 15 miles from the family burial plot. According to Boyd McClellan, chief of Survey and Mapping Section, the families were cooperative since GPRS is non-destructive and does not disturb the sites.

How does Heintz feel about these somewhat macabre missions?

"This radar does get me in some strange situations," Heintz said. "Sometimes I feel like I'm part of *The X-Files*. I kept looking over my shoulder and expecting to be introduced to Agent Mulder."

Trail appeals to senses

Article and Photos
By Edward Voigt
Philadelphia District

What started as a good idea for a Scouting project has become a trail that can be experienced with all the senses. Blue Marsh Lake's new sensory trail, a quarter-mile loop located off Parking Area D at the Dry Brooks Day Use Area near Reading, Pa., is designed to accommodate people with disabilities.

The trail winds through woods, a wildflower area, and open space overlooking the lake. It boasts:

- Gravel base construction overlaid with crushed limestone, providing a firm, durable surface without the "unnatural" feel of asphalt or concrete.

- Guide ropes along the outer edge to aid the blind and visually impaired.

- Curves and inclines laid out to accommodate wheelchairs, walkers or crutches, while still requiring a healthy exertion of effort.

- Six-foot-wide trails, more than enough for two wheelchairs side by side.

- Three park benches for rest stations.

Features to be added in the future are wheelchair-accessible picnic tables near the end of the loop, a series of interpretive braille signs, and knots and beads in the guide ropes to signal upcoming stations.

The sensory trail came about largely due to the initiative of Steven Stauffer of Muhlenberg, Pa. Stauffer is a junior at Muhlenberg High School and an Eagle Scout with Troop 150.

He first approached Park Manager Al Schoenebeck almost three years ago about build-



Eagle Scout Steven Stauffer and ranger Scott Sunderland prepare to inspect the new Eye of the Eagle Sensory Trail at Blue Marsh Lake.

ing a "universal-access" facility for his Eagle Scout project. Stauffer had visited another local trail that accommodated the blind, but it was not equipped for wheelchairs. He wanted to make sure that no one would be left out at Blue Marsh.

As it happened, the ranger staff had already set aside an area for that purpose. All they needed to make it happen were time and money, two things that volunteers could provide.

Once Stauffer got the go-ahead from Schoenebeck, he arranged a meeting with his father, family friend Mike Frankhouser and ranger Kathy Grim to scope out the project. Frankhouser, himself a former Eagle Scout, is a registered landscape architect and was instrumental in many aspects of the design.

Another invaluable resource was Joan Silagy of the Berks County Association for the Blind, who provided helpful input on the design of features for the visually impaired.

Throughout much of 1994, Stauffer, parents Kevin and Sandy and brothers Pat and Mike, and the ranger staff logged many hours preparing the trail route, sometimes joined by fellow Scouts, friends and neighbors.

One Saturday in October 1994, they assembled 16 people armed with a rented skid-steer loader and power and hand tools to widen the trail, clear debris, dig out stumps and rake the trail surface.

"At that point my Scout project was complete," said Stauffer. "But once we got that far I wanted to see it through to completion, so I stayed with it."

Much of the trail construction was accomplished during the annual 1995 Take Pride in Blue Marsh volunteer work program. Take Pride in Blue Marsh draws about 500 volunteers, including Scouting organizations, service clubs, and chapters of the Family Campers and Recreational Vehicles Association (FCRVA), a national organization that promotes camping and conservation in public parks.

The volunteers are organized into work teams for litter pickup, park beautification, trail work and tree planting. That year, volunteers from FCRVA and other Boy Scout troops joined the Blue Marsh rangers and Stauffer's group to remove tree stumps and roots, widen the trail, and use the cuttings to create brush piles for wildlife.

Before the 1996 Take Pride program, the ranger staff performed final grading of the trail, placed the stone base material, and made other minor preparations. The finishing touches were applied during the April event, including spread-

ing crushed limestone, installing the guide rope posts and raking the trail shoulders. Afterward, the rangers machine-compacted the surface and attached the guide ropes to the posts.

Total actual expenses came to less than \$5,000 for materials, a fraction of what it would have cost as a federal-funded and -contracted project. The Stauffer family and Troop 150 put in about 300 hours of labor, plus the work contributed by the ranger staff.

Stauffer was given the honor of naming the trail. He chose "Trail of the Eagle," calling to mind scouting and the American spirit, and also a creature known for its keen senses. The Blue Marsh ranger staff modified it to "Eyes of the Eagle Sensory Trail," its official name.

Why this project? "I have a good friend who was in a wheelchair temporarily, my grandmother suffered through a long bout with cancer, and I have my own experience as a diabetic, so I'm aware of limits on what a person can do," said Stauffer. "That's why I see universal access as so important. I know how much I enjoy the outdoors, and I wanted other people who face physical challenges to have the same enjoyment."

And why this location? "I first learned about Blue Marsh Lake doing bird feeder projects there as a Cub Scout, then later I had the chance to do some volunteer work there with the handicapped," Stauffer said.

The Blue Marsh ranger staff conducted a special tour of the new trail for members of the Berks County Association for the Blind on Oct. 1. Silagy, who accompanied the group, said, "I can't tell you how much this means to them, getting out in the fresh air and exercising their senses. They can appreciate smells and sounds that most of us never notice."

This day was particularly special for one visitor, Ty Schaeffer of Sinking Spring, Pa. It was at Blue Marsh Lake three years ago that Schaeffer accidentally fell from a cliff and was so severely injured that he went into a coma. At one point the odds were against his survival, but he has persevered through a lengthy rehabilitation.

Although he is legally blind and must use a wheelchair most of the time, he was eager to enjoy the outdoors again, something the sensory trail now allows him to do.

It was also fitting that the group's host for the morning was Kathy Grim, one of the rangers who first responded after Schaeffer's fall and provided first aid until emergency medical services arrived.



Ty Schaeffer (seated) joins fellow members of the Berks County Association for the Blind for a guided tour of Blue Marsh Lake on the Eye of the Eagle Sensory Trail.

Seattle District celebrates its centennial

Article by Patricia Graesser
Photo by Bonnie Ecker
Seattle District

The agency that built the Hiram M. Chittenden Locks in Seattle, dams throughout the Pacific North-

west, and Madigan Army Medical Center at Fort Lewis, Wash., marked its 100th birthday with special events throughout the Northwest.

The Chittenden Locks hosted a celebration for Seattle District employees on July 20. For the athleti-

cally inclined, a fun run, bicycle ride or fun walk offered a morning workout before the program. The formal program featured Assistant Secretary of the Army (Civil Works) H. Martin Lancaster, U.S. Representative Jim McDermott, Kisuk (Charley) Chueng from Corps headquarters, and North Pacific Division Commander Maj. Gen. Russell L. Fuhrman (now Director of Civil Works at HQUSACE). The program was followed by a huge picnic lunch for 1,000 Corps employees, retirees and family members.

Special events included a band concert by the Seattle Wind Symphony, a surprise appearance by the locally famous Seafair Pirates, an artwork design competition, exhibit booths, activities for children, and tours of the locks. Employees from the Chittenden Locks and all the district's dams staffed exhibit booths at the celebration.

A huge birthday cake concluded the day's events with a 100-year candle blown out by all the past district engineers in attendance, and a special centennial song.

In addition, Libby Dam offered

special evening tours July 4-6, when the entire dam was illuminated, and showed a special historical presentation July 6. Albeni Falls Dam offered a free camping day in honor of the centennial, and employees at Chief Joseph Dam participated in the local community's Bridgeport Days parade and celebration.

Seattle District was established in 1896 to improve navigation routes and build forts around Puget Sound, and for 100 years Seattle District has solved problems and met the nation's needs by providing both military and civil engineering services. Seattle District is:

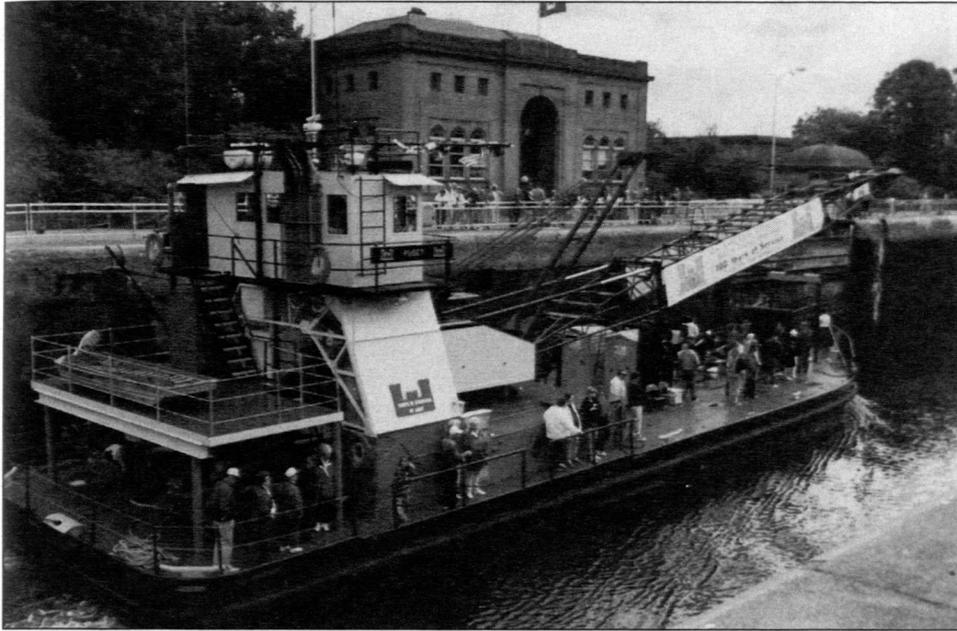
— The Army's design and project manager for its non-appropriated funds program.

— The technical center of expertise in the Corps for historical preservation.

— The design support district for the Environmental Protection Agency's Region 10.

— North Pacific Division's design center for hazardous/toxic/radiological waste clean-up.

— An Army Community of Excellence.



The Corps vessel *Puget* ties up at the Chittenden Locks during Seattle District's centennial celebration.

Around the Corps

General officer news

Maj. Gen. Albert J. Genetti Jr. has moved from Director of Military Programs to be Deputy Chief of Engineers and Deputy Commander at HQUSACE, effective Oct. 11.

Maj. Gen. Russell Fuhrman has moved from Acting Deputy Commanding General to Director of Civil Works at HQUSACE effective Oct. 11.

Brig. Gen. Phillip Anderson has moved from Deputy Commanding General of the Engineer School at Fort Leonard Wood, Mo., to Director of Military Programs at HQUSACE.

Brig. Gen. Robert Griffin is moving from Chief of Staff, HQUSACE to Commander, North Pacific Division in Portland, Or.

Maj. Gen. Pat Stevens IV, Deputy Chief of Engineers and Deputy Commander, has retired.

New Chief of Staff

The new Chief of Staff at HQUSACE is Col. Otis Williams, effective Oct. 14. He replaces Brig. Gen. Robert Griffin who takes command of North Pacific Division.

Mariners' award

The United Seamen's Service presented the Admiral of the Ocean Sea Mariner's Plaque to the crew of the *Hudson* on Nov. 8 at the Sheraton New York Hotel and Towers in New York.

The *Hudson* is a Corps of Engineers hydrographic survey boat. The National Maritime Union nominated the *Hudson* crew for their recovery work when TWA flight 800 crashed.

Capt. Thomas Dwyer accepted the award.

Vicksburg District moves

Vicksburg District is moving to a new location this month. The phone numbers will remain unchanged, but the new address will be 4155 Clay

Street, Vicksburg, Miss. 39180.

Cost-sharing project

A letter from a citizen got the ball rolling to build a new pavilion at East Branch Clarion River Lake in Pittsburgh District. The letter united three federal agencies and a private company to initiate the district's first project under the new Challenge Cost-Sharing Program.

The program, authorized under the Water Resources Development Act of 1992, allows local companies to partner with the Corps to help build recreation projects that are low priority on the district's budget but are needed.

Pete O'Connell, program coordinator, contacted Wilamette Industries, a paper mill near East Branch, and briefed them on building a pavilion near the East Branch Dam overlook area. The company agreed to pay part of the cost for the structure and an access ramp from the parking lot for the physically challenged.

The estimated cost is \$10,000. Wilamette Industries will pay 75 percent, the district will pay the remainder.

After the formal contract was signed, the project began with a groundbreaking ceremony on Aug. 29. Danny Watson of the U.S. Forest Service supervised eight to 10 workers from the Federal Bureau of Prisons who built the pavilion.

Superior unit award

The 249th Engineer Battalion (Prime Power) received a new ribbon for its guidon in July. Maj. Gen. Al Genetti, Director of Military Programs, honored the unit with the Superior Unit Award in ceremonies at Fort Belvoir, Va.

The unit has carried out a host of missions at home and abroad. Making sure critical areas overseas have electrical power is one important mission. It sustained power at Soto Cano Air

Force Base, Honduras; supported Operation Provide Comfort with base-camp power for more than a year, and assisted the State Department in Northern Iraq, improving quality of life for the Kurds and keeping critical facilities operating.

The 249th made important contributions to Operation Uphold Democracy in Haiti, life support for Cuban refugees in Guantanamo Bay and at Camp Safe Haven in Panama, and power for the Joint Task Force Provide Promise field hospital in Zagreb Croatia, and hospitals in the former Soviet Union.

Disaster relief is a second major mission for the 249th. Hurricanes Luis, Marilyn, and Opal gave the battalion a challenge in 1995. The battalion performed damage assessments, provided power to critical facilities, and installed emergency generators at dozens of sites.

History articles

Two Corps historians published articles about our military and civil work in the current issue of *Periodical: Journal of America's Military Past*.

Dr. Martin Gordon, Office of History, wrote "Henry Robert, the Corps of Engineers, and Galveston" with the assistance of Lisa A. Wagner. Brig. Gen. Robert, author of *Robert's Rules of Order*, was instrumental in protecting Galveston from hurricanes and other water damage in the first part of this century.

Dr. Colt Denfeld, Alaska District, describes the impact of the Cold War on military construction in Alaska in "The Cold War: Alaska, The Northern Bulwark." Alaska formed the front line for early detection, warning, and limited delay of an attack by the former Soviet Union.

This issue of *Periodical: Journal of America's Military Past*, spring 1996, is available in the Office of History research room in the Kingman Building. For further information call Dr. Gordon at (703) 428-6558.

MESH program offers classes beyond walls

Article By Verdelle Lambert
Photo by Jonas Jordan
Savannah District

It's happening all across the country. To the delight of students, teachers are breaking down walls brick-by-brick, opening up the classroom to the wealth of community resources.

The MESH (Marine/Environmental/Science/Humanities) program at Sol C. Johnson High School in Savannah is typical of the special programs being created to give students experiences far beyond the four walls of the classroom.

In March Tom Fischer, a biologist with Savannah District, talked to the MESH class about delineating wetlands and how these areas serve their communities in terms of flood retention and water quality.

After the lecture, Fischer and several other Corps employees took the class into the wooded area behind the school where the students discovered, by examining the soil and observing the surroundings, there is a wetland.

"I knew it was school property but I didn't know some of it was wetlands," said Jamie Gilbert, a 10th grade student.

Two weeks earlier, another Savannah District employee lectured the same students on how data can be falsified and the problems associated with space travel.

"I was swamped after the lecture," said Dr. Franz Froelicher, a Corps chemist. "The kids came up to me asking all kinds of questions:

"'Could you tell me again why evolution is a fact?'

"'Why is it possible that we can travel into the future but we can't travel into the past?'

"'And, 'How come you know all this!?'"

Classroom scenes like these are repeated more and more as businesses realize that children are their future.

Savannah District is one of about 170 businesses in Chatham County involved in business/education partnerships. In fact, the district is involved in two programs — the MESH program and a seven-year partnership with May Howard Elementary School's 5th Grade SEARCH (Students Exploring and Reasoning for Creative Horizons) class.

Every year the district dedicates more than 1,200 man-hours to the SEARCH program. The annual schedule includes about 38 lectures/demonstrations on topics ranging from beach erosion to computer-aided drafting and design in an effort to foster students' interest in science and engineering.

Of the 38 students in the original SEARCH class, 19 are still in the school system, and those 19 are all in the engineering/robotics magnet program at Jenkins High School.

By contrast, the MESH program is just three years old and the Corps' involvement less than a year. The program focuses on the environment and marine biology, drawing from the marine science degree program offered by the school's neighbor and partner, Savannah State College (SSC).

While based in the sciences (biology, chemistry and physics) MESH also encompasses other disciplines, including English, mathematics and social studies. Students take MESH biology in ninth grade, MESH chemistry in 10th grade and MESH physics in 11th Grade, with the senior year open for MESH electives such as environmental science, marine biology or oceanography.

"It takes awhile to build the program, get the basic curriculum in place, decide what we're going to add at different places, and then see what works and what doesn't," said Mary Lambright, the MESH program director and biology teacher who has been with the program since its inception. "We've had two years of MESH biology and chemistry and this is the first year of MESH physics."

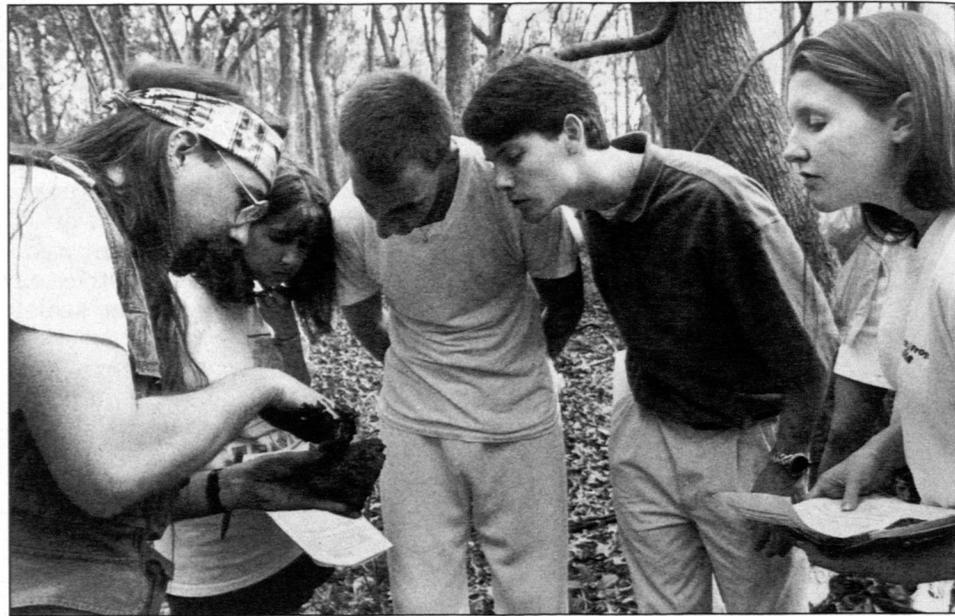
There has been no lack of student involvement. The program has grown from 23 students in the first year to 39 students this past school year.

"This is my first year here, and the first thing I asked my chemistry class was, 'How many of you want to be environmental or marine scientists?'" said Randy Pitt, the MESH chemistry teacher. "None said they did, so I asked, 'Why are you in the program?' I was shocked that all these students had signed up and were not even interested in marine science. The way I look at it, if I can bring something out in them or enlighten them enough that they become interested in the field, I consider the program successful."

"We don't necessarily expect the students to go into the sciences, but this is also a means of career development," said Deonn Stone, the MESH social studies teacher and special programs coordinator. "Many students may not know about the career fields that are available; many may change their minds. But being exposed to the MESH program gives them some alternatives, and that's what we're trying to do."

Students' comments suggest the program has met that objective.

"I liked the Corps' presentation on geology," said Jamie. "I like fossils.



Richard Legere (left), a Corps biologist, shows MESH students what to look for in the soil to identify wetlands.

I could be an archeologist, I think. I think that would be fun."

"For a while, being exposed to just Mrs. Lambright, I was going to be a marine biologist," said Tiffany Imler, a senior. "But a physics instructor from Georgia Southern came to talk to us, and a physics instructor from Armstrong also talked to us. Now that I've seen some career opportunities in engineering, the physics instructors and the Corps people kind of helped me to push myself over the edge, because I was torn between marine biology and engineering for a while."

To participate in the MESH program a student must be recommended by a teacher, must have made a passing score on a standardized test, and must maintain a "B" average while enrolled in the program. The classes meet every other day and the students spend almost two hours in each class.

"This gives the students more time to do their homework or work on special projects," said Stone. "Even though they're getting what all of my other social studies and world history classes are getting, they're getting more research. They're getting more of a MESH focus."

MESH students have conducted experiments on Tybee Beach, performed odd jobs on Oakland Island (a natural-environment animal park on a barrier island near Savannah), done research in programs the Savannah Science Museum created especially for them, taken trips to places like Sea World in Orlando, Fla., collected more than \$525 in a penny drive and doughnut sale to "purchase" 15 acres of rain forest in Costa Rica, are looking into adopting a stream near the school, and publish a newsletter of their activities.

"We want to expand the program with the Corps to encompass the entire school year," said Stone. "These kids are smart. They really can absorb what the Corps offers."

The 1995-96 MESH schedule included Corps presentations on sea turtles as endangered species; coast

engineering; forestry, fisheries and wildlife; hazardous toxic and radioactive waste; science and law; and dredging operations including a harbor tour on Corps survey vessel.

When the call went out for Corps volunteers to participate in the MESH program, Froelicher got more applications than he could use.

"We see the Corps' participation as a way to influence these students in a philosophical scientific way rather than to purely drive them into science careers," said Froelicher. "In the process, these kids put a friendly face on the Corps of Engineers and, in the future, they will perhaps think differently when they deal with the Corps. It won't be just a bureaucrat, but somebody who, in their youth, gave them something valuable."

"There's this view that the teacher is supposed to encompass all things and knowledge, and we don't," said Stone. "We have our disciplines that we are proficient in but, even in those disciplines, there are other people we can bring in to broaden what the students learn. What's good for me are the hands-on opportunities I can provide for my students that allow them to remember things much longer than me talking with them."

"And sometimes they retain much more when it's a different person delivering the information," Stone said.

"Remember the whale that washed up on the beach near Brunswick about a month ago," said Cecilia Tran, a 10th grade MESH student. "Mr. Pitt, our chemistry teacher, took us to see that. It was so neat! That was a once-in-a-lifetime experience. I never expected to be so close to a whale. And it was the prettiest thing, although it was all sliced up. When I found out we were going I was so happy! They had dragged the whale down to Harris Neck, where we saw it. There were scientists there from all around the country. It was real neat!"