



US Army Corps
of Engineers®

Engineer Update

Vol. 20 • No. 9 • Sept. 1996

TWA Flight 800

Corps people, boats work hard at crash site

Vince Elias
New York District

Since July 17, a sustained salvage effort has been recovering debris and victims from the site where a 747 jet, TWA flight 800, crashed off the coast of Long Island, N.Y.

The crash brought platoons of federal officials from many agencies to help in the rescue efforts and salvage operations. The crew of the Corps of Engineers' survey boat

Hudson was among the first on the scene the night of the crash. The Corps' *Driftmaster* was subsequently dispatched to further assist recovery operations.

"The U.S. Army Corps of Engineers stands ready to help in any endeavors where our assistance is required," said Frank Santomauro, deputy district engineer for project management. "We will participate, and Corps assets will be used for re-

covery operations to locate debris or remains."

On the afternoon of the crash, the *Hudson* and her three-man crew had been carrying a group of New York District environmentalists on a preliminary sampling trip at Moriches Inlet near the disaster site. The 52-foot vessel is used for hydrographic surveys and harbor supervision duties.

On the night of July 17, the *Hudson* was moored at the Coast Guard Station in Shinnecock Inlet on Long Island. When news of the crash reached the crew, they sped to join the rescue effort, working throughout the night to recover wreckage and bodies.

All retrieved aircraft parts were laid out in a warehouse at the Shinnecock Inlet Coast Guard Station. Luggage, personal effects, and human remains collected by the *Hudson* were turned over to the Coast Guard.

The *Driftmaster* was dispatched to the crash scene on the day following the disaster and remained on retrieval duty until July 27. The Coast Guard's commander asked for the 99-foot vessel's participation because of its unique ability to collect debris. Its catamaran design enables it to trap floating debris be-

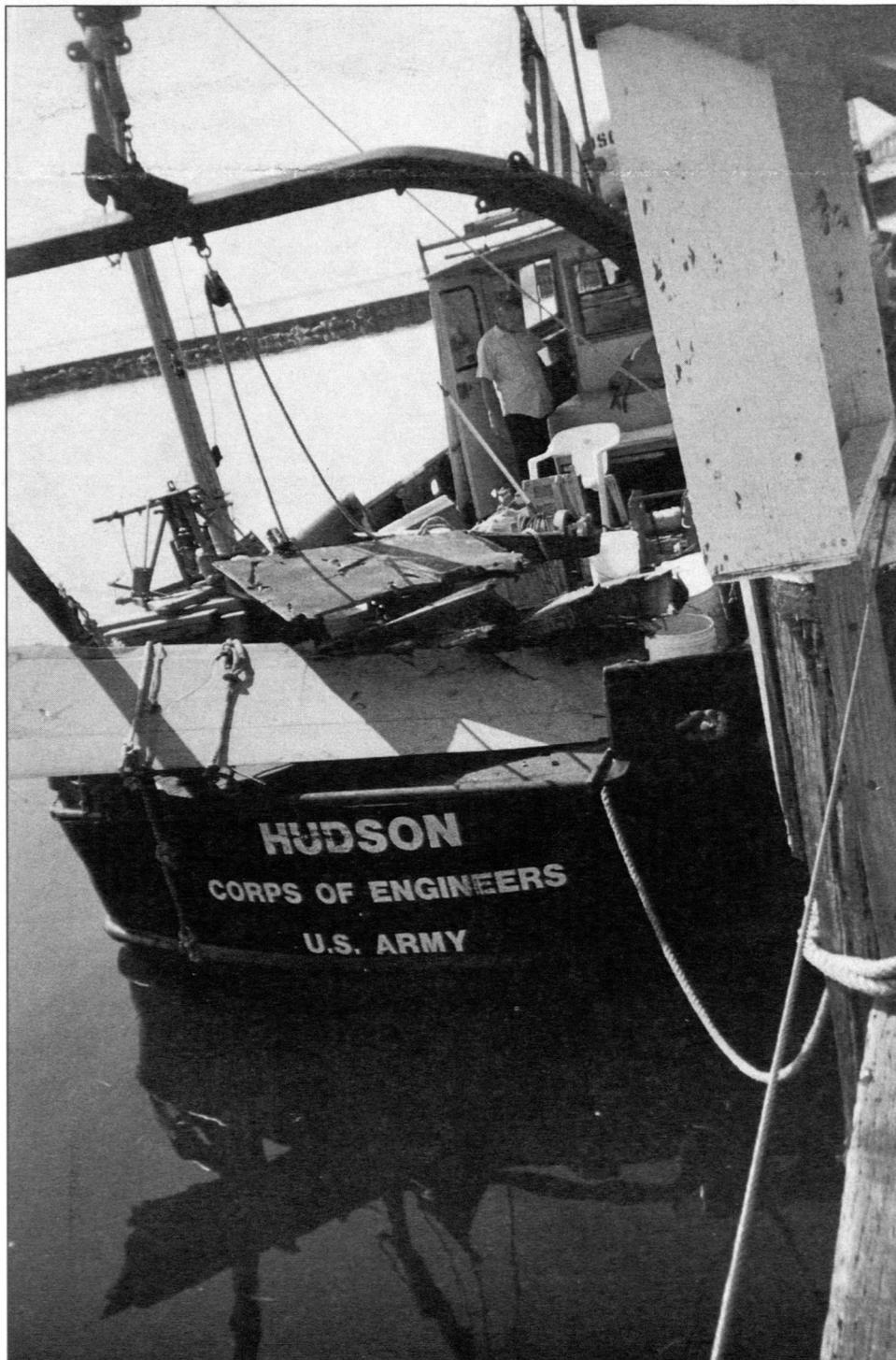
See "Hudson's"
story on page 12

tween its two hulls where it is collected in nets and lifted aboard with a 15-ton crane. Pieces too large for the nets are towed alongside.

At 5 p.m. on July 18, the *Driftmaster* and its crew of five headed by Capt. Richard Gaudreau departed its dock at Caven Point, N.J., and arrived at the disaster area around 3 p.m. on July 19.

At the crash site, "everyone worked frantically to pick up debris and search for victims", Gaudreau said. During the recovery efforts, the crew retrieved many aircraft parts such as fuselage panels, seat cushions, pillow covers, and engine insulation. These items were bagged and each bag was labeled as to where its contents had been found. All bags were transferred, at sea, to the Coast Guard.

At different times during its nine-day mission, the *Driftmaster* hosted a CNN news crew and a *New York Times* reporter.



(Left) Wreckage from the crash of TWA flight 800 is stacked on the fantail of the Corps' hydrographic survey boat *Hudson*. On deck is crewmember Joe Daskalakis. (Right) The *Driftmaster* spent more than a week collecting wreckage at the crash site. (Photos courtesy of New York District)

Commentary

Accident shows need for extra caution

By Bernard W. Tate
HQUSACE

Cliches are easy to ignore, until one comes to life right in front of you. "School's in; drive carefully" is one of those. You see it until it either becomes annoying, or fades into the background noise of our media-heavy culture. I felt that way, too, until one day when I got the wits scared out of me.

My first job after I graduated from college was as a correspondent for the *Kingsport Times-News*. I lived in and covered the news in Wise County, a coal-mining region of the Appalachian Mountains in Southwest Virginia.

The car I drove back then was a 1965 Galaxy with manual steering and manual brakes. It was so big and awkward to drive that I named

it "Ol' Roadhog."

One afternoon I was driving through St. Paul, Va., past the high school. I was going slow because I was in a school zone, and I slowed down more when I saw a bunch of kids at the crosswalk ahead.

The orange-belted "patrol boy" was struggling to hold one of the boys at the curb. He looked like one of those kids that grow up quick and wild as weeds in the hollows of the southern mountains — mop-haired and lean in faded denim, a little feral-looking.

The kid broke away from the chunky patrol-boy and darted across the street in front of me. I stood Ol' Roadhog on his nose and laid 20 feet of screaming, smoking rubber as I slammed both feet on the brake pedal and rammed it to the floorboard.

The kid was so busy watching me that he never saw the pick-up truck coming in the other lane.

I'm a writer, and I've had more than 20 years to think about it, but there's no word in the English language to describe that sound — the twang of metal mixed with the soft thump of flesh. The kid rolled past my car door in a tangle of arms and legs, thrashing faster than a human being was ever meant to move.

Incredibly, he got up and walked to the other side of the street with a stunned "What was that?" expression on his face. The driver of the pick-up truck had also slowed down for the flashing school-zone lights and had hit the brakes when the kid darted in front of him, so the impact bounced the kid away from the pick-up's grille, instead of crushing him against it and then dragging him

under the truck.

I pulled over as fast as I could and grabbed my notebook and pen. The kid was still standing on the curb, quivering visibly like someone was shaking him by his shoulders, utterly silent in the hub-bub of the children surrounding him. I swear his face was white as a sheet of paper; every freckle stood out like a spot of paint.

The driver of the pick-up and his wife weren't in much better shape, standing a little distance away, holding each other and just staring at the kid, not saying anything, either.

I walked away without asking anybody any questions. I figure there are some moments when people ought to just be left alone.

Yeah, it bears repeating.

School's in.

Kids can be squirrely.

Watch out and drive carefully.

Students learn in floating classroom

Article by Linda Lofstead
Photo by Liane Freedman
Pittsburgh District

What better way to learn about rivers than to study them aboard a boat? In 1990, Pittsburgh's education and business leaders realized that a floating classroom could be an excellent venue for area students to learn the math, science and technology of water quality and river ecosystems.

Armed with that vision, a number of individuals, including several from Pittsburgh District, brought the floating classroom to fruition.

The project obtained nonprofit status in 1992 and received several grants from public and private organizations. Then the Navy donated a vessel, an 80-foot surplus yard patrol boat. The project named her *Voyager*.

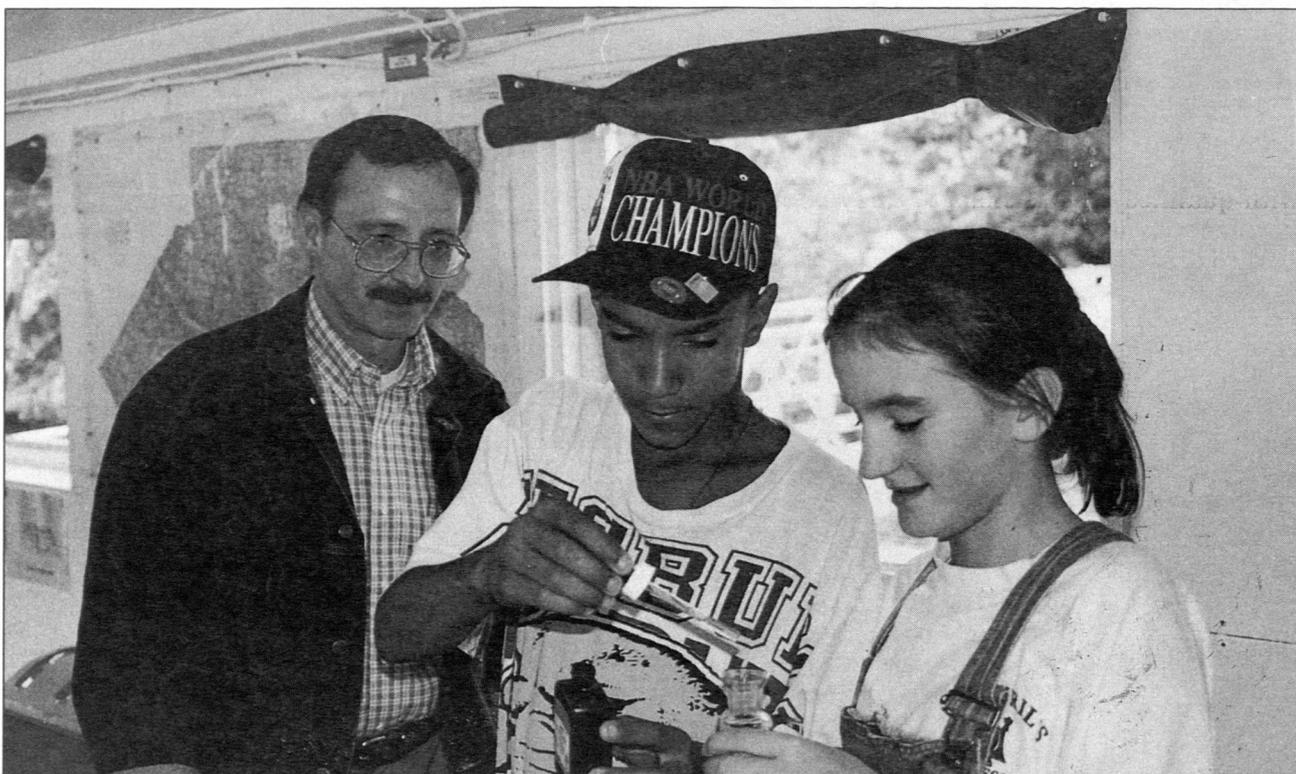
Mike Koryak with the Water Quality Lab is technical advisor for the project.

"I went to an initial training session several years ago, when the project was still in the planning stages," Koryak said. "At that time, we committed to helping in any way. After further discussion with the front office we decided our most effective role would be training the program's teachers."

Two other Water Quality Lab employees, Rose Reilly, biologist, and Mike Sheehan, biological aide, also have been part of *Voyager* since its inception. Reilly traveled with area teachers to aid and advise in collecting plant specimens used in the training program.

The *Voyager*, docked near the Carnegie Science Center on Pittsburgh's North Side, is equipped with a science and navigation lab and computer work sites. But when she arrived here from San Diego via amphibious ship and barge, the boat needed refitting.

A crew from the district's equipment warehouse and repair station offered their expertise during the initial stages. Much of the refitting was done with surplus and scrap material. "A lot of items



Mike Koryak watches as two students carry out an experiment aboard the *Voyager*.

that went on that boat would have normally gone to a dump," said Dan Foster, maintenance mechanic general supervisor.

Students visiting the *Voyager* get much more than a one-day field trip. Preparation begins with a teacher orientation a month before the class is scheduled to board. Teachers receive a Captain's Chest — a self-contained kit of materials and lessons not usually on the school agenda, including macroinvertebrate specimens, chemical kits for testing water quality, slides of local specimens and river navigation charts.

After two weeks of study, the class takes its

voyage. First stop is the district's Emsworth Locks and Dams where students get an orientation of the lock-through procedure. They then cruise the rivers, stopping to sample water and obtain organisms from each of the rivers' surfaces and bottoms. The students also scan the river-bank areas for avian wildlife which inhabit the islands and channels.

Data from the samples and observations are entered into the onboard computers and can be compared to results from previous studies. Finally, using the radar equipment, students are permitted to pilot the boat.

ENGINEER UPDATE is an unofficial publication authorized under the provisions of AR 360-81. It is published monthly by offset for the Headquarters, U.S. Army Corps of Engineers.

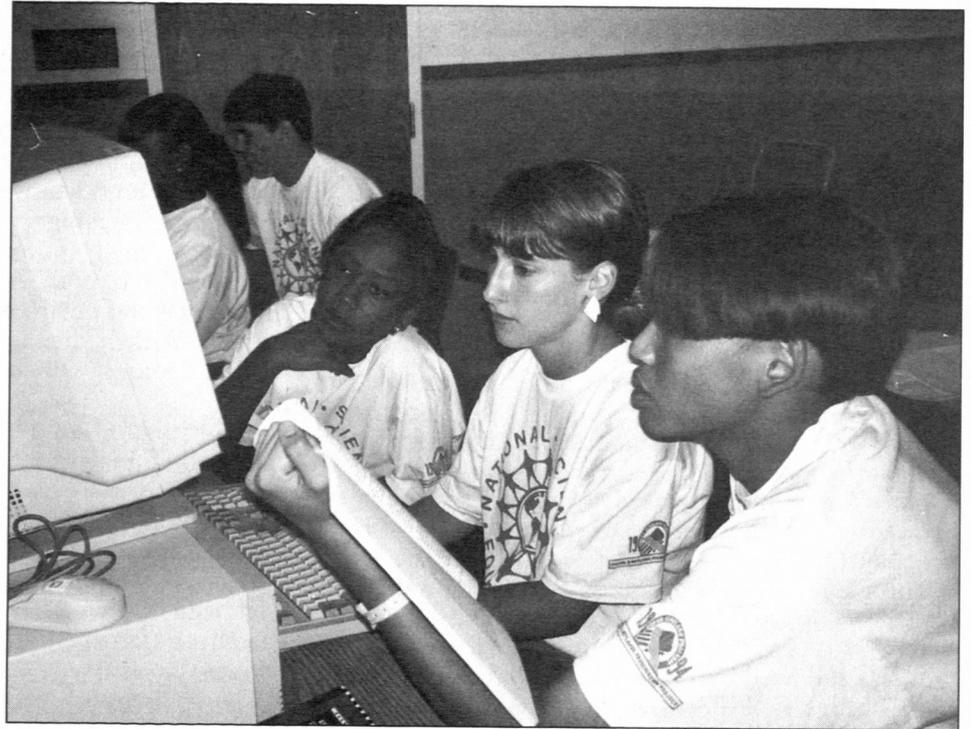
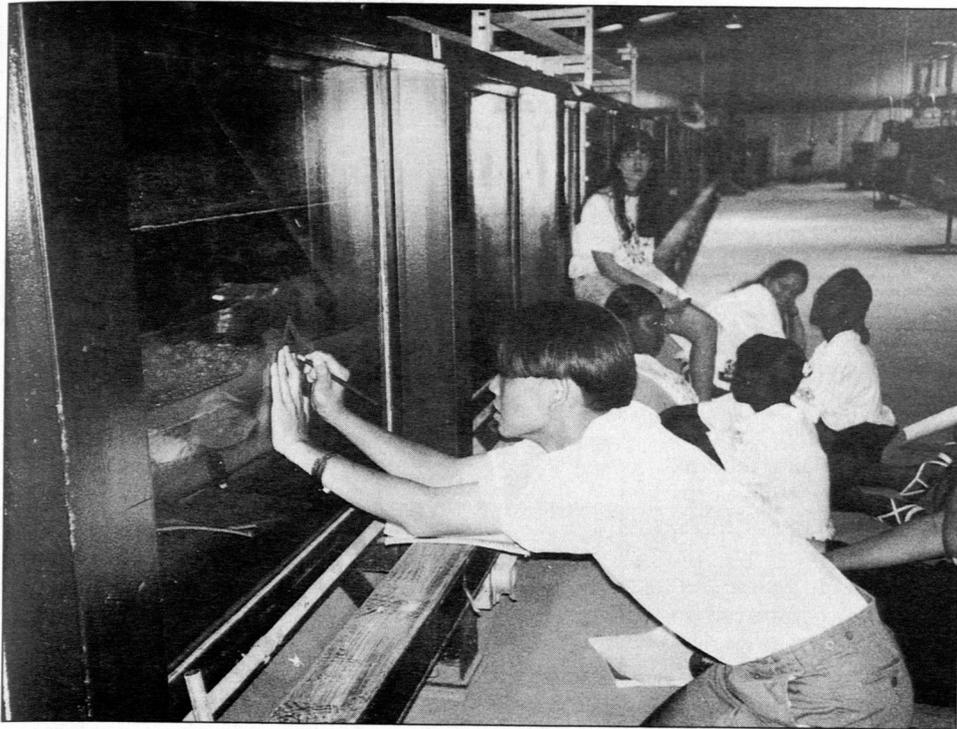
Editorial views and opinions expressed are not necessarily those of the Corps of Engineers or the Department of the Army. Letters to the editor are encouraged.

Deadline for submitting articles is the 15th of the month preceding publication. Subscriptions are available free of charge but must be requested in writing. Circulation: 35,000.

Address mail to: EDITOR, ENGINEER UPDATE, CEPA-C, Washington, D.C. 20314-1000. Telephone (202) 761-0015. Photographs are U.S. Army photos unless otherwise credited.

Acting Commander, USACEMaj. Gen. Pat M. Stevens IV
Chief, Public AffairsCol. William L. Mulvey
Chief, Command Information.....George E. Halford
EditorBernard W. Tate





(Left) Students take measurements of wave activity in one of CERC's wave flumes as part of the Young Scholars Program. (Right) Students get hands-on experience with computers and numerical modeling technology. (Photos courtesy of Waterways Experiment Station)

Education outreach reaps what it sows

By Deborah Quimby
Waterways Experiment Station

There is truth in the saying, "You reap what you sow."

By sowing seeds of interest in the minds of today's youth to pursue careers in science and engineering, the Corps will reap future benefits with qualified professionals to carry on its tradition of service to the nation.

Through numerous educational outreach programs, the Waterways Experiment Station (WES) hopes to cultivate a continuing crop of professionals to sustain the Corps' mission.

In November 1992, WES signed a formal educational partnership agreement with the local school district which includes 10 elementary schools, two junior highs and two senior highs.

Under the agreement, WES involves students in laboratory research by employing qualified students in outreach programs. WES also established a list of volunteer professionals for mentoring, tutoring, lecturing, and providing demonstrations and field trips for local schools.

Since the partnership agreement was signed, WES has interacted with hundreds of students in programs such as the Federal Junior Fellowship Program, Stay in School Program, and the Science and Engineering Apprentice Program (SEAP).

SEAP

One of the most successful student programs has been SEAP, administered through George Washington University (GWU) in Washington, D.C. WES began participating in this program in 1993 through an agreement between the Department of Defense and GWU.

Under the program, qualified high school students spend eight weeks during their summer vacations working under the guidance of a WES mentor. Students may work on a single project, contribute to ongoing research, or work on a project with intermittent activity.

At the end of the summer, they are required to write a paper about their work and are eligible to present that paper with more than 600 other students at GWU. The students also receive an educational award of \$1,350 for their participation.

Each summer, WES sends two SEAP students to GWU to present their papers. During the four-day stay, students meet with members of the Mississippi Congressional delegation to discuss their

summer work and participate in specially planned programs at the National Air and Space Museum and the Navy Memorial.

Each year that WES has participated in the program, a WES student has received the Armed Forces Communications and Electronics Association Educational Foundation Award. This award recognizes the 12 most outstanding students in that summer's program.

Teachers

WES programs also enhance the abilities of teachers in the community. The U.S. Army Summer Associateship Program for High School Science and Mathematics Faculty enables teachers to acquire experience in research while working beside engineers and scientists at WES.

Teachers can then relate the latest technology back to their students, thus conveying the importance of education in professional fields and increasing student interest in scientific careers. Thirty-four high school faculty have participated in this program since 1992.

Technology Support to Education

The commitment by WES to provide a pool of volunteer professionals has evolved into a network that includes more than 100 WES employees and 23 volunteers from the community.

A list of volunteers and their areas of expertise is maintained in a database and provided to the schools at the beginning of each school year. To assist in answering requests, each school has a WES volunteer point of contact who uses the database to match the faculty member's request with a WES engineer or scientist.

Since the partnership began, WES has provided more than 150 interactions for lectures, field trips, tutoring and classroom assistance. WES has also provided more than 250 science fair judges to local schools.

Other areas of outreach under the educational partnership include workshops for volunteers to assist them in successfully communicating their expertise to all levels of students; training classes for teachers in computer applications; and transfer of surplus equipment to the schools.

More than \$15,000 in scientific equipment and more than \$85,000 in computer equipment have been transferred.

E30I Program

The WES Environmental Laboratory has formulated a list of environmental seminars specially targeting high school students into the E30I Program. These seminars can be easily incorporated into scientific, mathematical and computer classroom curricula. The WES staff includes more than 200 environmental professionals in 32 scientific disciplines. This program works closely with the educational partnership and Upward Bound.

Conservation Carnival

For the past three years, WES has also hosted the Vicksburg Conservation Carnival for area fifth graders to teach them about conserving the environment and preserving our natural resources. Last year, more than 500 students participated.

Other outreach programs

WES participates in other outreach programs that are not part of the formal partnership with the local schools. The National Science Foundation's Young Scholars Program Coastal Erosion Project is conducted each year by McNeese State University in Lake Charles, La. One goal of this program is to encourage minority students to enter the field of engineering.

WES supports the Young Scholars Program by providing two, three-day sessions of coastal engineering lectures and hands-on laboratory experiments using its facilities and computer.

The Opportunities in Coastal Engineering for Academically Talented Students is used to introduce high school students to coastal engineering and to act as a recruiting tool. The program provides a better understanding of coastal engineering and explains career opportunities.

Scientists and engineers visit schools and tailor programs to fit the instructional needs of the students. Tours of WES facilities are also included. The program targets minority schools and has interacted with more than 1,000 students since its inception in 1991.

WES established an agreement with a local community college to serve high school students from several southeastern states. Under the Upward Bound program, scientists and engineers contribute their time to explain aspects of their research. Students are given tours, presentations and demonstrations to encourage their futures in scientific fields. Each group makes two trips to WES during the summer term.

P2 to reduces pollution

By Mary Beth Hudson
Tulsa District

Done disc? *Don't ditch it!*
Emptied aerosol spray? *Can it correctly!*
Dried out correction fluid? *Think green!*

Things are changing in the Corps of Engineers. National policy established in the Pollution Prevention Act (PPA) of 1990 emphasizes that pollution is to be prevented or reduced *at the source*. If this is not feasible, recycling is the preferred choice, followed by treatment, and then disposal as a last resort.

All Corps districts and divisions have been tasked by headquarters to develop Pollution Prevention (P2) Plans.

The PPA established prevention as the nation's preferred approach to environmental protection and waste management.

It was followed by Presidential Executive Order (E.O.) 12856 in 1993 which required federal compliance with PPA and preparation of P2 plans for each federal facility.

An August 1994 memorandum from the Secretary of Defense directed the military to implement E.O. 12856 and prepare P2 plans. That was followed by an August 1995 memorandum from the Director of Civil Works which directed all USACE commanders to comply with federal/agency program laws and policy directives at their facilities.

P2 promises to change how the Corps does business and manage waste products. In some cases, alternative products will be purchased, and some processes will change.

P2 is a novel approach to waste management which seeks to both avoid generating waste, and to manage the entire environment (air, land and water). With it, headquarters hopes to eliminate "waste streams" which used to enter the environment.

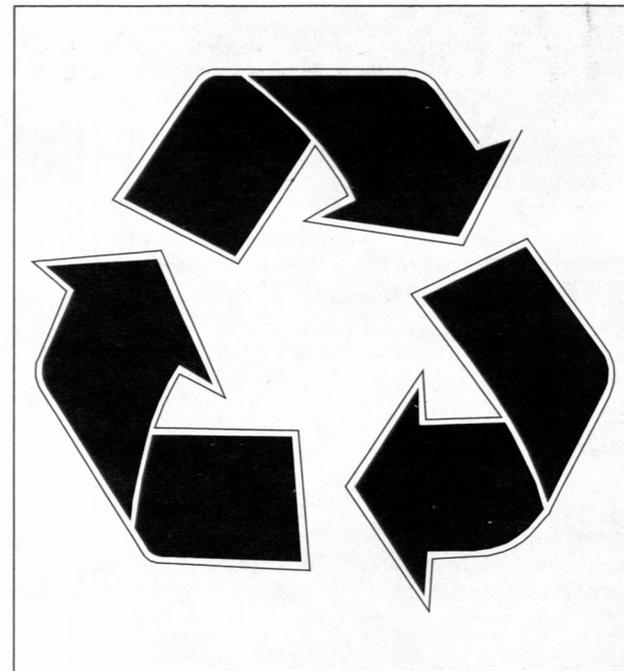
According to Loren Mason, environmental manager and P2 program manager, Tulsa District was the first in the Corps to complete all P2 plans directed by Presidential Executive Order 12856, plus DoD and HQUSACE policy.

When the program is fully in effect, Tulsa District will recycle 21 waste streams, compared to the three (paper, aluminum cans and toner cartridges) currently being captured.

The basic philosophy of the district's P2 plan is that all waste streams are to be reduced through product substitution or elimination of products and/or processes, and that all recyclable wastes are to be captured for recycling.

Goals are to reduce the generation of hazardous pollutants to zero where possible and to reduce the total volume of wastes disposed off-site to as near zero as possible.

Source reduction is a major part of P2, according to Mason. Hazardous products being pur-



chased need to be replaced with environmentally friendly ones where possible, and processes should be looked at to see if there is a "greener" way to complete them.

But waste will always be generated, and that's where P2 initiatives throughout the Corps will probably be most visible, Mason says. In Tulsa, a P2 team has been formed with representatives from each division/office. Team members are responsible for coming up with ways to capture all recyclable waste.

Course offers wetlands restoration training

By Brian Mark
St. Louis District

Growing from the increased environmental awareness in the late 1960s and early 1970s, the Corps of Engineers began to evaluate ways to improve its stewardship of public lands. Many opportunities were seen, including the need for wetland restoration and development. The first wetland restoration and development training was conducted about 20 years ago at the Wave Energy Research Center in North Carolina.

Today, the Corps of Engineers' Wetland

Prospect Course training program has grown to include 10 separate wetland subject areas, each with multiple sessions. Those subjects include wetland restoration and development, fundamentals of wetlands, wetland evaluation methods, construction of wetlands, wetland executive, wetland delineation, wetland functions and values, and wetland environmental compliance.

"In 1996 the Wetland Prospect Course program will have trained more than 1,000 personnel from the Corps of Engineers, Fish and Wildlife Service and Environmental Protection Agency," said Bob

Lazor, National Wetland Training Program Manager at the Waterways Experiment Station (WES) Wetlands Research and Technology Training Center.

In addition, on-site training can be requested by a district to meet special wetland training needs for specific geographical areas. Lazor commented that they had recently spent two weeks in Anchorage, Alaska, and Missoula, Mont., fulfilling special training needs for Corps personnel.

The Riverlands Project in St. Louis District is designated as a Remote Wetland Training Site for wetland restoration and development in the Inland Waterways and Fresh Water Wetland Prospect Course.

This is the fifth year that the project has hosted the course. About 60 natural resource and regulatory personnel, and others from related professions and agencies, participated in the two training sessions conducted June 17-21 and 24-28.

The course draws on the knowledge and experience of leading national experts, such as Dr. Robert Johnson, retired from the Forest Service's Southern Hardwoods Laboratory, who specializes in reforestation of bottomland hardwoods; and Dr. Gary Pierce from Southern Tier Consulting who specializes in herbaceous and woody plant establishment in constructed and restored wetlands.

The course combines classroom lectures with hands-on field activities. Johnson oversees bottomland hardwood restoration along the Chain of Rocks Canal, and Pierce provides guidance for herbaceous plant restoration in the Environmental Demonstration Area.

Doug Whitaker, Ph.D. candidate and contract student with WES, directs the hands-on restoration demonstrations where class participants get to apply bioengineering restoration techniques to shoreline portions of the Environmental Demonstration Area.

Besides providing knowledge and practical hands-on experience, the bioengineering demonstrations provide useful data on how various restoration techniques are compatible with the environment and ecology of the Mississippi River.



Participants in the Wetland Prospect Course get hands-on training in wetlands restoration. (Photo courtesy of St. Louis District)

TAC assists in Russian nuclear facility

Article by Denise Tatu
Photo by Jonas Maciunas
Transatlantic Programs Center

Construction of a facility to store fissile materials from dismantled nuclear weapons is under way near the Russian city of Oziorsk, some 1,500 miles southeast of Moscow.

A contract to complete the foundation was awarded to the South Urals Management Company, the Russian contractor that has been executing construction for the Mayak Production Association, the facility owner.

Earlier this year, the Transatlantic Programs Center (TAC) awarded a \$2.5 million contract for engineering and construction management support services to Bechtel National Inc., of San Francisco.

"Bechtel's contract is for coordinating and implementing any assistance that the U.S. provides to the project at the site," said Lt. Col. Gary Gumm of the Corps' Cooperative Threat Reduction Office. "As such, we envision them to procure equipment and materials, subcontract design work or do it in-house, and subcontract construction services, such as the contract that they just awarded to South Urals."

After the foundation is completed, work will progress on the next logical construction phase. Equipment design and procurement will continue, with delivery tied to construction schedule activities.

The storage facility consists of two large, hardened concrete warehouses for storing fissile material and includes ancillary support buildings. The Department of Defense and the Ministry of Atomic Energy (MINATOM) of the Russian Federation are cooperating on the design and construction of the facility, which is Russian led.

U.S. assistance for this project is funded under the Nunn-Lugar Cooperative Threat Reduction (CTR) Program. Activity at the site will be a joint effort led by MINATOM and its Mayak Production Association, the Corps, and Bechtel National Inc.

Funding for the project is provided yearly, based on Congressional appropriations.

TAC has the lead for U.S. assistance on the facility on behalf of the CTR Program Office for the Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs.

In May, Transatlantic project managers Bob Schaible and Jonas Maciunas went to Oziorsk to open a new office. They were assisted by Nick Konovodoff of Jacksonville District, who managed the office until the arrival of resident engineer Rod Markuten, formerly of the South Atlantic Division, in early August.

In June, TAC sponsored a partnering session between Corps and Bechtel representatives. According to Schaible, the purpose of the two-day session was to improve communications between the two groups, identify any barriers that might exist, and improve processes.

"We didn't focus on technical problems but instead focused on getting to know each other and on identifying anything that might get in the way of successfully executing the contract," he said.

At the end of the session, the group signed an agreement pledging to promote a partnering relationship with MINATOM and other parties involved with the project, to work to minimize delays, and to work as partners.

The partnering session pooled the talents of two facilitators — Bruce Garwood from TAC and C. N. (Nick) McDuffie, provided by Bechtel.

"This facilitating arrangement ensured that the relationships were established to produce a quality partnership agreement," Garwood said. "Using two facilitators could well be in our future for construc-

tion partnering, particularly when there are multiple U.S. and foreign partners involved in a single project."

Schaible said a partnering session with Corps and MINATOM officials will be held at a later date.



A facility to store fissile materials from dismantled nuclear weapons is being built at a site near the Russian city of Oziorsk.

'Copters help out with logging

Article by Alicia Gregory
Photo by Jonas Jordan
Savannah District

Whomp-whomp-whomp-whomp-whomp.

The helicopter's blades beat the wind into submission as it lowered toward the ground to pick up its load. The mission this day was to harvest timber from a wet area.

"Helicopter logging is rare in the Southeast," said Warner Spence, chief of Forest Resource Section in Savannah District. "We had extremely wet weather last spring plus a southern pine beetle epidemic at Fort Stewart, and we couldn't get conventional logging equipment into many areas."

Helicopter logging was used to salvage the wood not destroyed by the beetles and to minimize environmental damage in the area.

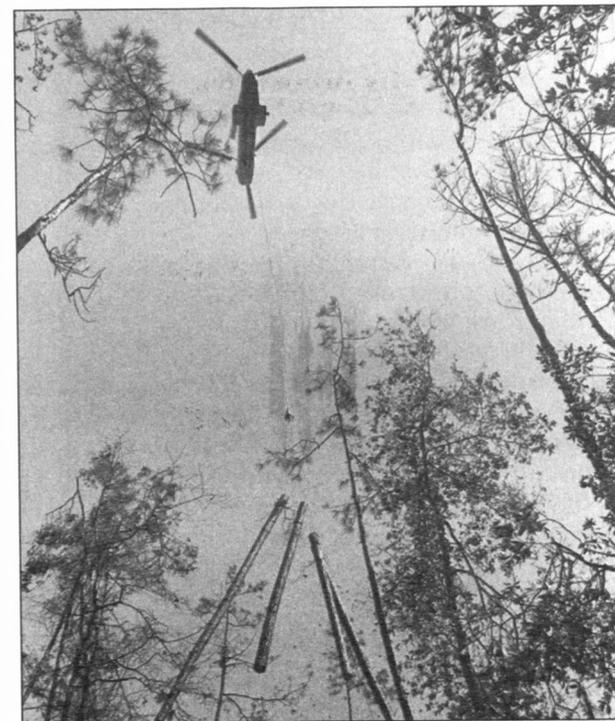
The forestry staff harvests timber at Army installations in four states and at the district's three lakes — Hartwell, J. Strom Thurmond and Richard B. Russell.

"We work hand-in-hand with the installations," said Spence. "They decide what's to be cut and we supervise the logging, advertise the sale and handle the income from the sale of timber. We act as the real estate agent and solicit bids on timber from local contractors."

Timber harvesting improves the vitality of a forest, according to Spence. "We perform general thinning of the forests, do specialized work to improve endangered species habitats, and clear trees from construction sites if it is commercially feasible," he said.

"The main goal is to support military readiness through good land stewardship," said Bill Woodson, director of Forest Management Programs in the Army Environmental Center (AEC). "As a side benefit, many counties receive money from these programs."

Federal law requires that DoD use forest product proceeds for forest management expenses. However, 40 percent of net proceeds from timber harvested on military installations is returned to the states where the timber was harvested. The AEC is the guardian of the forestry fund, and sends the



A helicopter lifts logs out of the forest.

money in a lump sum to the states for distribution to the appropriate counties.

Savannah District had total sales of more than \$4 million from timber harvesting in fiscal year 1995 (FY95). Of that amount, Georgia received \$458,856; South Carolina received \$23,682; Alabama received \$32,901; and North Carolina received \$51,389. The rest of the money was invested in the forestry program.

"Not every installation produces more income than expenses every year," said Spence. "It just happened that several installations made a profit in FY95 due to an extremely strong market for forest products the first half of the year. Income can fluctuate tremendously from year to year, depending on everything from timber prices, to construction activity and training for soldiers, to general harvesting levels."

Lake Lanier strikes permanent gold

Article by Pat Robbins
Mobile District
Photo by Jonas Jordan
Savannah District

Lake Sidney Lanier struck gold during the 1996 Centennial Olympic Games as the site of the rowing and canoe/kayak sprint events. The venue at Clark's Bridge Park, just outside of Gainesville, Ga., drew praise from Olympic officials, athletes, International Canoe Federation members, and thousands of fans who watched the events for two weeks.

The venue had a seating capacity of nearly 18,000 and the two Olympic events on Lake Lanier drew 4,500 to 17,500 spectators per day.

Lake Lanier's location and the exceptional effort by the venue manager and hundreds of volunteers permitted the events to proceed without the trouble that initially plagued other venue sites. Traffic flowed smoothly, athletes from around the world praised the facility, fans were treated to outstanding athletic competition, and the weather was pleasant throughout the games.

Lake Lanier, and the fact that it is a Corps facility, was highlighted on the venue's electronic signs between races, giving the Corps exposure to an international audience of millions.

All this is amazing, considering that Lake Lanier wasn't even the first choice for the venue. The Atlanta Committee for Olympic Games (ACOG) originally selected Stone Mountain, Ga., for the venue site.

But the Gainesville area continued to quietly but persistently compete for the venue. Among those involved were Gainesville Hall '96 (a steering committee of local community leaders), the Corps, the Chamber of Commerce, Gainesville Hall Convention and Visitor's Bureau, the Sports Council, local government, the Parks and Recreation departments, the Arts Council, and many dedicated volunteers.

Because of environmental and cost concerns, the ACOG announced on Dec., 1993 that Clark's Bridge Park would be the site.

Two large new boathouses and a finish tower were built in Clark's Bridge Park, as well as a 2,000-meter eight-lane cabled rowing course. The course can be altered to 1,000 meters and nine lanes for a canoe/kayak course.

Scott Bridge Company, Opelika, Ala., built a unique 700-foot-long grandstand partly over water to seat 16,000 people. It included a concession, restroom and handicapped seating.

"This is an outstanding venue," said Diefer Pieper, a an IOC member from Spain.

The Corps signed a 25-year lease with Gainesville/Hall County giving them authority to jointly maintain and operate the park. In addition, Savannah District, which was responsible for applicable permits for Olympic venues in Georgia, worked closely with ACOG to ensure that environmental impact was avoided where possible and that permit actions were completed quickly.

Lake Lanier's Park Manager Sarah Robinson became the project's day-to-day interface with ACOG and Gainesville Hall '96. She ensured that the needs of the Corps, lake residents and ACOG were considered to make the event an exceptional memory for everyone.

In addition to the excitement of the venue, Lake Lanier's campgrounds became home to visitors from around the world. To help with the influx of visitors, 12 rangers from Corps projects around the nation volunteered to assist.

When the games ended, the grandstand was dismantled and the site returned to its natural state. A smaller seating area, in storage after the



A four-man sprint kayak race surges past the Corps-built grandstands at Lake Lanier. The teams trained at Corps Facilities at Lake Russell.

Olympics, will remain for future events.

But many facilities are permanent, making the Lake Lanier site one of only two sanctioned 2,000-meter sprint canoe/kayak courses in the nation. It will serve as a national rowing and sprint canoe/kayak training center and as host of possi-

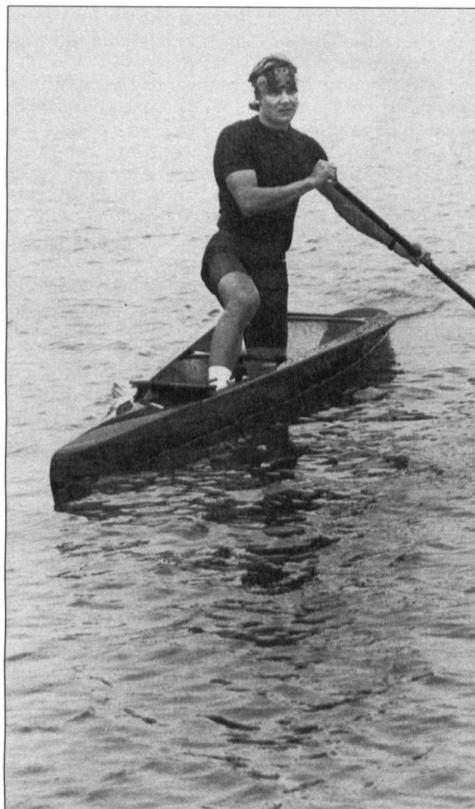
ble future world championships for many years.

"It's the best venue for sprint in the U.S.," said Sergio Orsi, president of the International Canoe Federation.

(Sarah Robinson, Lake Lanier Project Management Office, also contributed to this article.)

Olympic rowers trained on Corps facilities at Lake Russell

Article by Alicia Gregory
Photo by Jonas Jordan
Savannah District



Martin Doktor of Czechoslovakia warms up at the Richard B. Russell rowing center. Doktor won two gold medals in the 1,000 meter and 500 meter sprint canoe race.

A cooperative effort between the Corps of Engineers' Richard B. Russell Lake office, Georgia's Department of Natural Resources (DNR) and Elbert County provided the lake with a new rowing center where athletes from all over the world trained for the Olympics.

"Two years ago I spoke at the Elberton Rotary Club about updates at the lake and dam and mentioned there was talk of the lake being used as a training site for Olympic rowing teams," said Bob Bain, project manager at Russell Lake.

And from there it snowballed.

The Elbert County Chamber of Commerce established a task force to solicit rowing teams to train for the Olympics at Russell Lake. Walter McNeely was its chairman.

The 60-year-old granite salesman contacted Jim Buckalew, the Southeast representative for the U.S. Rowing Association. After touring the site, Buckalew told McNeely that the area was excellent for rowing and could be used as a training site.

"Russell Lake is an excellent candidate for rowing training because of the lake's placid surface and the area's mild climate," said Bain. The lake has no current and little wind — perfect training conditions for rowers.

"I ran a little miscellaneous ad in a rowing magazine for 45 bucks," said McNeely. "They had never run an ad for a training site before. From then on rowers came to our door. Everyone needs a good training site."

Elberton sent a delegation last February to an Atlanta Committee for the Olympic Games (ACOG) meeting to explain how small communities could market themselves as pre-Olympic training sites. "ACOG joked that Elberton had



Jeff Madgil prepares his Soling class sailboat for a race. The American Soling team won a bronze medal.

more people attending that meeting than all of northeast Georgia combined," said McNeely.

The following April, the county's chamber of commerce submitted an application to ACOG for the lake to be a training site for Olympic rowing.

"Never before in the history of the Olympics has a host state provided training sites for pre-Olympic training," said McNeely. "I had no idea that people would travel this far to train."

They had rowers knocking on their door; now they had to build the rowing center. "When the Georgia DNR and Walter decided they wanted a rowing center, they came to us with a development plan, showed us the facilities they wanted, and we reviewed and approved it," said Bain.

"Our next objective was getting a dock at the site," said McNeely. The specifications for the dock came from the U.S. Rowing Association. They require a dock six inches off the water, about 120 feet long and 12 feet wide. One of only two of its kind, the 180,000 lb. concrete dock was built in Jacksonville, Fla. The floating dock was shipped in six sections and assembled at the rowing site.

The Corps cost-shared the \$38,000 price for the specialized rowing dock with Georgia DNR. They also issued permits for facilities to be built and installed. The facilities include a picnic shelter, boat storage facility, restrooms and a six-lane, 2,000-meter rowing course.

The rowing lanes and boat house were paid for with grants from the Governor's Development Council.

"I wrote a personal letter to the governor explaining what we wanted to do and how much it would cost," said McNeely. "The governor wrote back saying the grant was approved. I took that letter to the bank and said, 'If you can believe this fellow ... he's going to send me \$40,000.' The bank told me to start writing checks."

Volunteers work hard, earn memories at Savannah sailing venue

Article by Victoria L. White
Photo by Dan Parrott
Savannah District

Atlanta enjoyed all the glamor and media attention but, for the people of Savannah, the Olympics were no less memorable. Yachting, the Olympic event held there, may not have received national notice, but the Olympics celebrations and young sailors competing for the gold touched the heart of this Southern seaport.

The Olympics also touched many in Savannah District who volunteered for the events. At the marinas during those two weeks, sailors from all over the world competed for the gold in 10 classes of sailboats. District volunteers were by their sailors' sides, just as excited to be a part of this event.

Some, like Franz Froelicher, a chemist in Hazardous, Toxic and Radioactive Waste (HTRW), started four years ago as a team leader measuring boats to meet strict standards. According to Froelicher, the teams measured every thing on the boats and at least one boat was spot-checked later each competition day to ensure integrity. All medalists' boats were also measured after winning their event.

The Olympics was a Froelicher family affair. His daughter, Britta, also measured boats. His wife, Margaret, volunteered as a German translator. All the Germans spoke English, so she spent the two weeks with the Russians, who all spoke German and no English.

Raised in Switzerland, Froelicher developed close ties with the Swiss team. His swimming pool was finished in time for the Olympics, so the family hosted a party to celebrate the Swiss Independence Day on Aug. 1.

"We had the most fun throwing the athletes, their coaches and even the President of the Swiss Olympic Federation into the pool in their evening wear," said Froelicher. "Now that the Olympics are over, we're all going through withdrawal because we made so many friends we may never see again."

"It really was a great experience, especially meeting athletes from all over the world," said Brian Sautter, an electrical engineer in Construction Division, who measured the 470s class of sailboats. Sautter was also on a search-and-rescue team. "It was so interesting and rewarding that I'm hoping to volunteer for sailing events in Sydney during the next Olympics."

Burton Howell, an architect in the Engineering-Architectural Branch, volunteered as a timer on the signal boat for the Laser and Europe Class sailboats. He timed the sequences for the race start, using different flags to communicate with sailors. He also trained for four years in Savannah regattas, and the U.S. Olympic trials last May.

"We couldn't talk to the sailors, but I had to get them back safely one afternoon because of a thunderstorm, so it was still exciting," Howell said.

Launching and recovering sailboats kept Dan Parrott, civil project manager in Project Management, running around the docks making sure athletes got their boats out for the competition, and from hitting the docks when they came back.

"Sometimes my job was just to stay out of the way," Parrott said, and laughed. "Some athletes could be really concentrating on the competition and you didn't want to break their concentration."

Thunderstorms and unpredictable winds played havoc during the two weeks. "We all got wet quite a bit," Parrott said. "Then there were days with little or no wind. The sailors got bored one afternoon and a Canadian athlete started jumping rope. It soon became an international game of jump rope that led to tightrope walking. They were competing and having a great time."

"I've got so many wonderful memories," Parrott said. "I was fortunate to be assigned to the American teams, who won five bronze medals, but I met people from all over the world. They had to trust us to take care of their boats, so we really got to know the athletes while they were here."

Security during the games affected almost everyone. Those attending ceremonies were taken aback as cellular phones were confiscated and even babies were scanned by metal detectors. Athletes were bused between the Olympic Village and marina escorted by a small army of police.

"The day after the bombing in Atlanta, security did a big sweep of the area," Parrott said. "They scanned a suspicious box and evacuated us. It turned out to be an extra video camera battery."

Wayman Hiriems of Specifications and Plans Section, Information Management Mailroom does have some glitzy Olympic memories. His daughter, Misha-El, 17, and son Johnny, 15, danced in the African nations troupe during the opening and closing ceremonies in Atlanta.

"Both of them studied ballet, jazz and interpretive dance," Hiriems said. "They were the only high school students asked to dance with the Savannah State University dance troupe. They practiced for six weeks for this performance. They had so much fun and met so many famous people. When they came back all I heard was 'I'm never going to wash this hand again because I touched so-and-so!'"

Munyon Island

Jacksonville District brings dredge dump back to life

By Christina Plunkett
Jacksonville District

After three years of partnering studies, research, plans and specifications, a tiny island in Palm Beach County, Fla., will soon become Jacksonville District's first constructed environmental restoration project.

At first glance, Munyon Island doesn't seem like a candidate for restoration, a dredging disposal site that's 45 acres of sand and silt. It has a short but eccentric history — a Robinson Crusoe-like hermit once lived there with a pet wildcat. It was named Pitts Island for a couple who turned it into a famous garden of fruit trees. It was renamed for Dr. James Munyon who built a spa there in the early 1900s, which later burned down.

Good location

But Munyon Island had some things going for it. Back in 1989, Department of Environmental Resources Management (DERM) studies said it was an excellent choice for environmental restoration because of its location on public lands. The proximity of the island to other substantial natural resources in John D. MacArthur Beach State Park (a clustered habitat) provides additional ecological benefits.

Clustered habitats (several habitats in one area) furnish greater environmental value than isolated habitats, said Amy Hill, study manager. Hill acted as the Corps of Engineers' liaison with Palm Beach County managers during assessment.

Another important consideration was the local desire to restore the island. Historical records show that during the past 100 years urbanization had impacted the water quality and habitat of the Lake Worth Lagoon estuary where Munyon Island is located.

Lake Worth Lagoon has more than half of the estuarine habitat in Palm Beach County, and is recognized by biologists as one of the area's important estuarine lagoon systems.

Restoring Munyon Island will rejuvenate this portion of Lake Worth Lagoon, said Annon Bozeman, a Corps of Engineers outdoor recreation planner who worked on the reports to have the project accepted.

Restoration

With everything considered, the Munyon Island Restoration Project was born under Section 1135 of the 1986 Water Resources Development Act, and planning began in 1993.

Tim Murphy, the overall project manager, partnered with the local sponsor, Palm Beach County's DERM, on specifics to restore the is-



The growth of these mangroves shows the early results of the Munyon Island Restoration Project. (Photo courtesy of Jacksonville District)

land's functioning wetlands and upland habitat. The ecological improvements will in turn revive the native wetlands and coastal hummock habitat, essential for fisheries and wildlife, in the Lake Worth Lagoon Estuary.

First, dredged material deposits that accumulated during creation and maintenance of the Atlantic Intracoastal Waterway will be removed. So will exotic vegetation, mainly Australian pine and Brazilian pepper, that has taken over the island.

Next, canals and channels will be dug to reinstate tidal flushing action to attract fish, invertebrates and birds. Then native upland vegetation and wetland vegetation (mangroves) will be planted.

Finally, the wetland will be protected by installing an 800-foot-long wavebreak made of limestone boulder riprap and a 1,200-foot-long protective earthen berm.

All this activity will take place while preserving the island's history of prehistoric and historic habitation.

Three archeological sites were discovered on the island in the early 1990s, but only part of one site falls into the project area, according to Janice Adams, archeologist. The zones will be flagged and Adams will monitor the project to ensure that cultural resources are not affected by construction.

Exotic vegetation in the buffer zones will be removed by hand-clearing and herbicides, rather than the usual bulldozing.

Material dredged from the project's canals and channels will also promote ecological growth in the area, according to Bozeman. The sandy material will be used to fill an

on the northern portion of the island. These restorations, also totaling 9.6 acres, were performed from early 1991 through October 1993 by Palm Beach County's DERM.

The wetland created in Phases I and II has been monitored bi-monthly. The data shows high ecological success, according to the Corps' environmental assessment. The mangroves are growing rapidly. Hill observed thousands of fiddler crabs during a site visit about a year ago.

"We saw a variety of crabs scurrying about and were also pleased to see the white ibis in flight, a 'special concern' species," Hill said. "Continuing the restorations made in Phase I and II should bring an increase in wildlife habitat for the island, including those species that are endangered or threatened."

Animals and fish

She also observed schools of various fish. Biologists have documented the common snook, mangrove snapper, silver and black mullet, flounder, Irish pompano, hogfish, barracuda, needlefish, checkered puffer, lady fish and stonefish.

"It is gratifying to think that restoring the island will directly benefit many threatened and endangered animal species by providing essential habitat," Hill said.

Other endangered species which will benefit from the restoration are the green and leatherback turtles, the wood stork, the peregrine falcon and the West Indian manatee.

During a site visit in August 1994, Adams and Kim Brooks-Hall, civil engineer, observed an endangered manatee eating newly planted vegetation along the mouth of the newly restored Phase II project area.

Nuctasachoo

Munyon Island was once one of the largest bird rookeries in the area. The Seminoles called it *Nuctasachoo* ("Pelican Island") for the vast number of birds there, especially brown pelicans. It may deserve that name again someday.

Palm Beach project managers have observed various wading birds feeding in the wetlands of the restored northern section. They include various egrets, the brown pelican wood stork, the peregrine falcon, various herons, the osprey, the white ibis, and the kingfisher. It is expected that all bird species commonly linked to aquatic environs will use Munyon Island once it's fully restored.

The contract was awarded and construction began this month, and is expected to continue until next April.



Thousands of fiddler crabs forage along the edge of the tidal channels at low tide on Munyon Island. (Photo courtesy of Jacksonville District)

anoxic (no oxygen) hole in the Lake Worth Lagoon, 1.7 miles north of Munyon Island.

The hole was dredged in the 1950s for fill for nearby properties. The water in it now contains no oxygen. Filling it should improve water quality of the area and encourage growth of seagrasses, said Bozeman.

Benefits

The Corps' project will restore about 9.6 acres of mangroves and spartina (cordgrass) wetland habitat in the southern section of the island.

The environmental benefits from this project can be seen in two other restoration projects, Phases I and II,

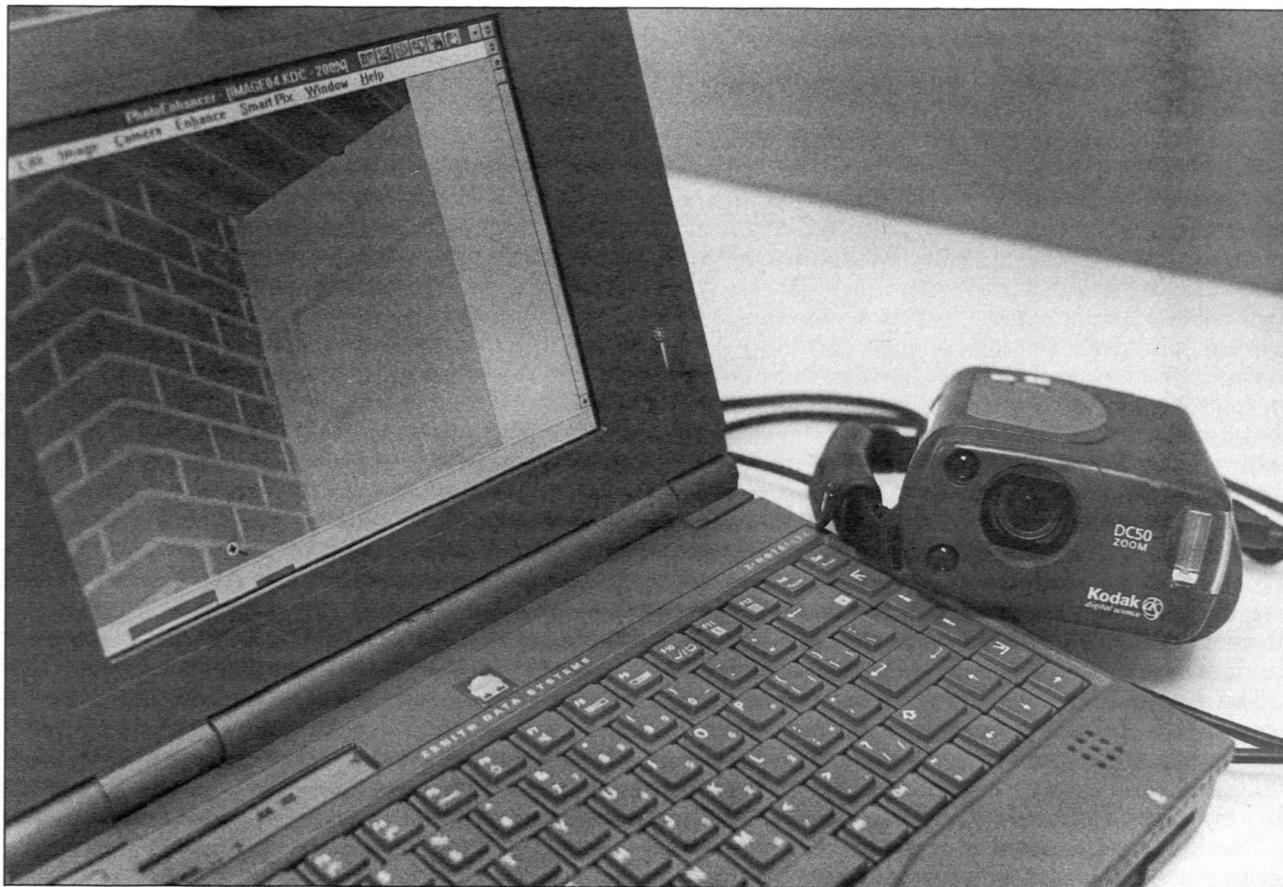
Digital photos worth more than 1,000 words

By Verdelle Lambert
Photos by Jonas Jordan
Savannah District

One digital picture is worth *more* than a thousand words. By the calculation of the construction folks at Savannah District, it's worth more than a thousand dollars.

"We probably get 15 to 30 calls a week from our construction field offices," said Stuart Clifton, chief of Technical Support Section. "We try to assist them immediately with their problem. Obviously, one big obstacle is understanding what the problem is. They try to describe a three-dimensional object, referencing plans or sketches in two dimensions. We often go back and forth for 30 minutes or more until we have an understanding, but even then you're never *really* certain if you have a *clear* understanding."

"What really helps in the construction industry is being able to visualize the problem," said Joe Caggiano, chief of Quality Assurance Branch. "In the past, the area resident engineer would call the designer and maybe fax a sketch or a Polaroid of the problem, or send pictures by Federal Express, or give the designer a reference in the drawings. Ninety-nine times out of 100 the designer would have to visit the site to look at the problem before he could resolve it. A normal cycle for that could range from 10 to 14 days."



A laptop computer can be used to view digital photos either in the office or a field site.

Electronic cameras

A digital picture of the problem sent electronically to the designer could save the cost of a site visit, days of research, or construction down-time. Equipping each of the district's 17 field offices with a digital camera seemed the way to go. The cameras cost about \$1,000 each, including software and other gear.

"Even if we save one field trip a month (an airplane ticket, per diem, and the like), the payback on those cameras will come fairly quickly," said Clifton. "Rather than pay someone to sit on an airplane and travel to the construction site, that person could be sitting at his or her desk working on the solution. That's where a lot of savings come in. And if we can involve the architectural-engineering (A-E) firms that work for us, we'll save more money by not having to pay them to visit the site. But the real advantage is faster response in solving problems."

"We had a design issue not long ago," said Chris Wenk, area engineer at Fort Bragg. "We had a masonry wall up against a steel beam, and the steel deflected. The designer left out a cushion and some mortar was knocked out. The digital camera showed what the problem was. There was no need for the designer to make a site visit, and the problem was solved by phone immediately."

Like 35mms

"Obviously, the camera won't solve every problem," said Clifton. The photographer may not be able to get the camera to the proper vantage point. Sometimes a subtle problem won't show up in a photo. Sometimes the problem may be too big for a camera frame to show.

Taking a picture with a digital camera is much like using a 35mm camera. But, unlike the 35mm camera, where images are placed on film and must be developed, the digital camera saves images to an internal disc, which can be reused for the life of the camera. Further, the engineer can take photographs, view them at the construction site on a laptop, and retake them if necessary.

"You don't have to worry about having the right speed film for the conditions," said Clifton. "The camera adjusts automatically."

Computerized

At the office, the engineer downloads the photographs from the camera's internal drive and onto a computer, a two-minute operation. The file can be sent electronically to the designer at district headquarters in minutes.

A standard operating procedure (SOP) is being written to ensure that pictures contain the necessary information (including applicable drawings), are of suitable quality, and are transmitted using the right software.

"The longest time is waiting for the router to cycle," said Clifton. "If you catch the router cycle right, that photo can go from the field office to my monitor in five minutes or less."

Affordable

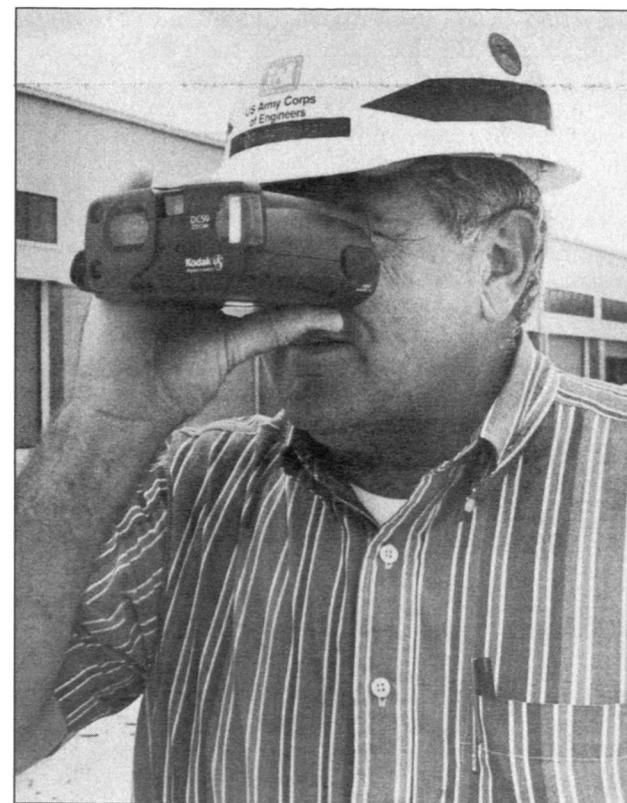
"These cameras have been around for a while," said Lt. Col. Harald Von Fischer-Benzon, deputy district commander. "We've just started to take advantage of it because the technology to send a digital picture quickly wasn't in place in the district until recently. In the meantime, the price of the camera has come down to where it's affordable."

"A big advantage in having the camera is that it allows us to use our manpower better, with the savings going to our customers since site visits are charged against their projects," said Von Fischer-Benzon. But he noted that the savings may not be readily apparent in dollars and cents because the engineers may be answering more questions, now that resolving design problems at the construction site has been simplified.

The digital camera software has been loaded on computers in Engineering and Construction divisions. The district is looking into writing contracts that require A-E firms to have the software to receive digital photographs because digital photographs have multiple uses.

Photo database

"We can put digital pictures into the database to provide additional information," said John Roberts, chief of Structural Section, who has been working on a database to capture lessons learned during design and construction.



Fred Gotthardt, project engineer, uses a new digital camera to document a maintenance facility on Hunter Army Airfield, Ga.

Clifton plans to add digital photographs to his quarterly quality assurance field trip reports.

"Photos add a lot of information and save a lot of conversation," said Clifton. "Many of our customers struggle with reading plans, so if we can show them a picture of what the blueprints represent, that's a BIG plus."

Tremendous improvement

"Are we going to use this technology and reap tremendous benefits today or tomorrow? Probably not," said Von Fischer-Benzon. "But I'd say that in two to three months we'll see a tremendous improvement, and the benefits will grow in both cost savings and quality support."

Cattle drive across Freshwater Bayou Lock

By Joyce Tsai
New Orleans District

"It's a scene from the Old West that you don't even see in Texas anymore," said Walter Theall, lockmaster at Freshwater Bayou Lock in New Orleans District. "Cowboys, horses, and cattle dogs are running around, like the Wild West in the 20th century."

Theall was describing how it feels to watch a long line of cattle rush over the lock gates. The Freshwater Bayou cattle crossing has taken place twice a year since the lock opened in 1968. Each fall and spring, cowboys can be seen riding high on horseback, crossing the lock gates. Amid the sounds of cattle stampeding through, the cowboys yelling their cattle calls, a "Hip-hi-yo" and "Hey-ya-ya-yo" to goad their cattle to get along.

"After 27 years, it's just something that happens twice a year," said Theall about the seemingly out-of-the-ordinary occurrence. There are two or three drives each year; each drive takes about two hours for 500-to-600 cattle to cross the lock gates.

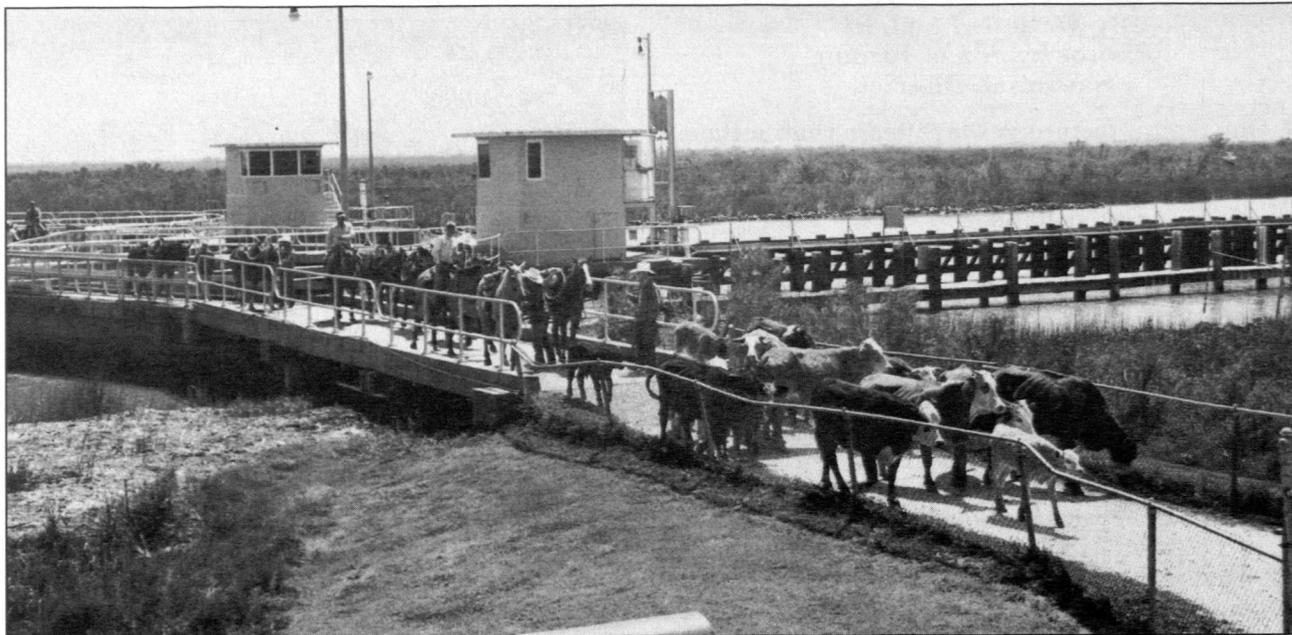
The cattle drives started long before the locks were built. Austin Segrera, a cattle rancher who has driven cattle across the lock for the past 30 years, said he doesn't remember a lot of the history of the cattle crossing, but knows some of it.

"Back in those days, I was still a young kid when they proposed the construction of the lock," Segrera said. "Dr. Martin Miller had a lot of grazing lands on both sides of the lock. For him to agree to allow the government to build the lock, they had to agree to allow the cattle to cross the lock and build a cattle walk over lock gates." When Miller died, other cattle families picked up the lease. The Sagreras and Broussards are the two families who make the cattle drives every year.

During construction, the Corps built the south gate of the walkways so cattle could cross from east to west. It also put up special wiring and wooden gates so calves would not fall.

"The Sagreras have been in the cattle business for about 100 years," said Segrera. "We've been driving them since the 1960s, when barging cattle out became financially unfeasible." Without this crossing, the only other way he and other cattle farmers could make the crossing would be by ferryboat or barge.

"It's a unique situation," said Segrera. "I was born and raised in the cattle business and in this



Cowboys drive cattle across Freshwater Bayou Lock. (Photo courtesy of New Orleans District)

environment, and we don't know anything else. Very few people do this anymore, but I wouldn't do it any other way. We want to continue the tradition."

According to Segrera, every year they make the 20-to-23 mile trek, leaving from Pecan Island and arriving in Chenier au Tigre, walking the levees and the Gulf of Mexico Beach. The drive one way takes about 12 hours. The cattle are raised out in the marshland in the winter where they stay for six months. Then the cowboys bring the cattle back in April and May for summer grazing.

Segrera said that the cattle walk works fine. "It's a little small and narrow, but we get along okay."

He said the cows aren't disturbed by the trek across the lock, either. "They aren't spooked, but we try not to have too many visitors too close to the fence. We try to keep visitors out of their field of vision. Once the majority of the cattle get going we have to hold them back so they don't cross too fast."

Segrera also said there haven't been any serious accidents in all the years that they've driven the cattle. "A few calves might have fallen overboard in the channel, but we just threw ropes over them and dragged them out," he said. "Cows have never gotten hurt, though, and our manpower have never gotten injured, either. We've never had a problem and hopefully we never will."

Cattle ranchers have to make special preparations for the crossings, as well. "The lockmaster requests that hay and rice straw be sprinkled on the iron sheeting of the walk to keep the cattle from slipping on the flooring and to protect the surface of the iron sheeting," Segrera said. "Normally they wouldn't have any traction."

"Most of the time there are different visitors who come out to watch the cattle pass," said Theall. "It's an experience for them."

For boat crews waiting to come through it's also something they don't see every day — a long procession of cattle, switching their tails, mooing and trundling through a labyrinth of silver gates.

Freshwater Bayou is the only lock in the nation that has cattle cross its gates. The crossing temporarily disrupts lock traffic, but said that since 1968 Freshwater Bayou Lock has still been No. 1 in lockages for New Orleans District, 26 out of 27 years. In 1995, it rated No. 2 in the nation in lockages.

"We have to shut down completely when the cattle make their crossing, but we try to keep everyone informed," said Theall. "Corps people have to provide the best customer care possible to a variety of customers. Here at the Freshwater Bayou Lock we've got customer care for both marine interests and cattle ranchers."

Range expertise nets overseas missions

By Todd Hornback
Louisville District

Joe Pike's expertise in the field has become well-known in Army firing range circles, which led HQUSACE to ask Pike to serve in Hungary in Operation Joint Endeavor, and took him to Albania to serve in Operation Peaceful Eagle.

Pike's reputation includes working on the project team which designed the award-winning Yano Multi-Purpose Range, the Cedar Creek Multi-Purpose Range, and the Baum/St. Vith Range at Fort Knox, Ky. Pike was also the construction manager for these projects.

In February, the Army deployed Pike to Hungary to head construction of two small-arm ranges for M-16 rifles and nine-millimeter pistols for Operation Joint Endeavor. He was the engineer support officer in Hungary for the Deployable Operative Group (DOG) sent to build ranges to support the peacekeeping effort.

"The DOG is a Training and Doctrine Command special task force of live-fire range and

training experts with extensive experience in working in and around live/dudged impact areas," said Claude Matsui, Program Coordinator for Army Training Facilities. "The DOG was a prototype unit under development and evaluation when it was tasked to assist the NATO peacekeeping force throughout Operation Determined Effort/Joint Endeavor."

In June, Pike went to Albania as part of Operation Peaceful Eagle, a peace-keeping mission to discourage the forces of other nations from crossing Albania's borders. Pike assisted in building permanent ranges with Albanian forces and temporary ranges for American troops. They installed a tank range, infantry battle course, a 300-meter rifle range, a 900-meter machine gun range, and a 25-meter pistol range.

For the ranges in both Hungary and Albania, Pike selected the site, designed the layout and oversaw construction. Pike was in Hungary for about six weeks. In Albania, where Pike spent 30 days, the ranges took six weeks to complete.

Extensive training is necessary to prepare for deployment to trouble-spots. For the Hungary deployment, Pike left for Fort Benning, Ga., in February for training, then to Germany for another week of training on surviving in cold regions.

Pike also trained in scenarios to avoid mine fields, take care of the injured, and prepare for snipers. The training involved recognizing the enemy and avoiding booby traps such as machine guns.

"If you didn't put it down, you don't pick it up, no matter what is it," Pike said.

Pike and the other DOG members also experienced the same hardships soldiers did. "We flew in Huey helicopters because it is such a remote area. We ate MREs (Army field rations) and lived in pup tents."

In an electronic message to the district, Matsui said, "Joe did a great job and impressed the DOG commander in both his expertise and ingenuity, and in the kind of support the Corps can lend to the DOG mission."

Around the Corps

Cherokee/Corps MOU

The Cherokee Nation and Tulsa District recently signed a precedent-setting memorandum of understanding (MOU) in the council chambers of the tribal complex near Tahlequah, Okla., on May 29. Joe Byrd, Cherokee Principal Chief, and Col. Timothy Sanford, district engineer, represented their organizations at the signing ceremony.

Both Byrd and Sanford hailed the government-to-government agreement as the first step in the Cherokee Nation's new, aggressive economic development strategy. Byrd has been conducting strategic planning sessions that target specific sectors of the economy. The MOU authorizes the Corps to provide planning assistance for developing, using and conserving water and water-related resources.

Castle Ball

The 1996 Castle Ball will be held Sept. 14 in the Officers' Club of Bolling Air Force Base, Md. Cocktails will be at 6:30 p.m., dinner at 7:30 p.m., and entertainment and dancing begin at 8:15 p.m.

Cost is \$34 per person. Dress for military is mess dress or dress blues with bow tie. Civilian dress is black tie or dark business suit.

For reservation forms contact Margaret Burke, protocol officer at (202) 761-1220.

Interpreter of the Year

Viola M. Bramel, a park ranger at West Hill Dam in Uxbridge, Mass., has received the Corps of Engineers' 1996 Hiram Chittenden Award for Interpretive Excellence (Interpreter of the Year).

The award is presented to an individual who has shown exemplary performance in increasing public understanding of the Corps, promoting positive attitudes and encouraging voluntary stewardship of natural, cultural and created resources.

Bramel's enthusiastic attitude and her commitment to sharing her knowledge were also factors in receiving the Interpreter of the Year Award.

Bramel's many accomplishments include organizing a fishing fair which included interpretive sessions on water safety, river ecology, baiting and knot tying.

She assisted in developing a Junior Ranger and Advance Junior Ranger Handbook which help youth and pre-teens learn about water safety and preserving natural resources.

Bramel's contribution to New England Division's exhibit, "Wetlands Are Wonderful" at the Eastern States Exposition in Springfield, Mass., added to the success of the event. She collected and cared for live specimens during the event to add credibility to the exhibit.

Project of the Year

The Clarence Cannon Dam Mark Twain Lake Project was chosen as the 1996 recipient of the Natural Resources Management Project of the Year. This annual award is bestowed on one Corps project nationwide. Mark Twain Lake was chosen for exceptional achievement in natural resource management, efficiency in using financial and personnel resources, success in interagency programs, initiative in public involvement and effectiveness in visitor safety.

Resource manager award

Albert Wiegand, chief of Budget and Management Analysis Branch in Pittsburgh District, was awarded the Gerald F. Gregor Award on July 25. John Wallace, Director of Resource Management, presented the award on the third day of the Senior Resource Manager's Conference in Alexandria, Va.

Wiegand is the second recipient of the award. His outstanding report titled "Financial Goals, Performance Indicators and Measurement" earned him the honor. The award citation reads, "Your efforts are an outstanding example of how one person can cause meaningful change within an organization. Your unique command management review report serves as a prototype for not only all Corps of Engineers commands but for the entire federal government as well."

Action Officer Development Course

The Assistant Secretary of the Army (Manpower and Reserve Affairs) recently announced the addition of the Action Officer Development Course (AODC) to the Civilian Leadership Training Common Core. The AODC, along with the Intern Leadership Development Course, will form the first tier in the progressive, sequential Department of the Army leadership and development program.

Effective Oct. 1, AODC will become mandatory training for career interns and for Army civilians newly appointed or promoted to journeyman-level positions. Interns (both local and those funded by the Army Civilian Training, Education and Development System, will be required to successfully complete the AODC before graduation or promotion to journeyman-level positions. New journeyman-level employees must enroll within 30 days of appointment or promotion to a position and successfully complete the AODC within six months. This applies only to employees in a two-grade interval professional and administrative series.

The AODC is available to all em-

ployees. Civilian and military action officers wishing to enhance their skills are encouraged to take this course.

The AODC is a correspondence course that prepares individuals for staff work. This training will ensure that participants possess the knowledge and skills required to function effectively as action officers.

Unlike most correspondence courses, the AODC requires supervisor involvement. The supervisor must provide opportunities for the employee to conduct briefings and write to the Army standard. On completion of the course, the supervisor must certify the employee's proficiency.

Hare Krishna virus

A dangerous new virus has struck computers nationwide, including the Corps. Despite strikes by the Hare Krishna virus at 12 Corps locations on Aug. 22, no data was lost.

The significance of the name and dates is unknown. The virus is resident (hard to kill), excripted (hard to detect), polymorphic (changes digit patterns in the files where it hides), and multipartite (infects files and the boot sector of a PC).

The Hare virus hides in files downloaded from the Internet and attaches to .exe or .com files activated after it has infected a PC's hard-drive. Many Corps' infections were Hare. 7610 attached to Lotus.com and Lotus.exe files. It displays "Hare Krsna Hare Hare" on a PC's monitor before it overwrites the hard-drive.

On Aug. 21, Thomas J. Aubin, Information Systems Security Program manager, received a warning about the virus from the Defense Information Systems Agency. Aubin sent the warning to all Corps security and information management offices.

Software to detect and eliminate the virus is available free via the Internet. Aubin downloaded the "vaccine" onto the Corps' server (FTP address 155.75.1.42), then sent a sec-

ond message that the software is available and how to obtain it. The vaccine is called vs-hare or f-hare.

A third message on Aug. 22 reported that the virus had hit the Corps in several locations. This message had a copy of the "vaccine" so that the field could download it and save time in the fight against the virus.

"It is programmed to hit again on Sept. 22," said Aubin. "I want everyone in the Corps to know that it's a very real threat, but we have the software to handle it. Everyone should practice "safe interface." Use an antivirus shield, and scan for viruses any time you use the Internet, even if you only visited the Corps' home pages."

International forum

The First International Forum on Discontinuous Deformation Analysis was held June 12-14 in Berkeley, Calif. Eighty engineers and scientists attended from the U.S., South Africa, Japan, Taiwan, England, Norway, Canada, Israel, Russia, the Ukraine, and the People's Republic of China. They represented more than 25 universities and various government agencies and consultants.

Discontinuous deformation analysis is a new numerical modeling tool developed by the Waterways Experiment Station (WES). It allows modeling of jointed, fractured or separate materials, such as rock slopes or foundations. It is being used in construction, mining, tunneling and other industries to model slope stability and earthquake stability, among other things.

The international forum was sponsored by WES. It was hosted by North Carolina Agricultural and Technical State University and the University of California at Berkeley.

Correction

In the August *Engineer Update*, we reported that the Food Processing Facility at the U.S. Military Academy had not been renovated since 1948. The facility was actually completely renovated in 1965-68.

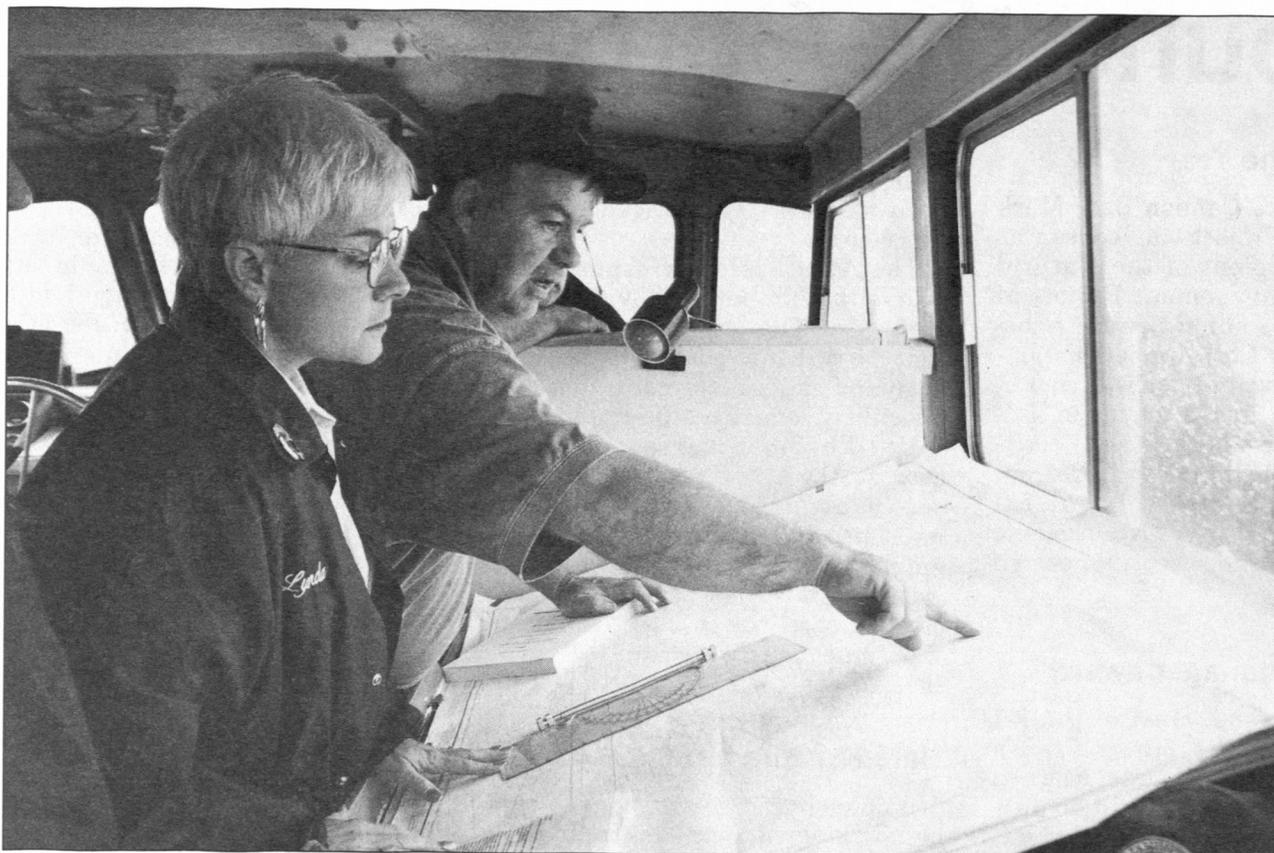
U.S. Army is 8th largest

(ARNEWS) Americans recognize their Army as the strongest in the world. But, according to a new publication, in terms of number of personnel it is only the eighth largest.

That determination comes from the book *The Military Balance 1995-1996*. The active end-strength figure used for this comparison is the 495,000 end-state the Army will reach by the end of this fiscal year. At current levels, our Army would be the fifth largest.

Here are the top eight active-duty armies in the world by personnel:

China	2,200,000
North Korea	1,000,000
India	980,000
Russia	870,000
South Korea	520,000
Vietnam	500,000
Pakistan	500,000
United States	495,000



Thomas Dwyer, captain of the *Hudson*, discusses the first night at the crash scene with Linda Visco, a counselor with the Critical Incident Stress Debriefing Team. All workers at the scene were required to take counseling. (Photo courtesy of New York District)

'We'll go see if we can assist!

By Thomas Dwyer
New York District

(Editor's note: On July 17, the night that TWA flight 800 crashed, New York District's hydrographic survey boat "Hudson" was moored at the Coast Guard Station in Shinnecock Inlet on Long Island. A team from Environmental Planning Division had been aboard carrying out environmental sampling at Moriches Inlet, a Corps shore project near Southampton Beach.

Thomas Dwyer captains the "Hudson"; the crew is Joe Daskalakis and Edward (Angus) Dwyer, the captain's 16-year-old son. As soon as they heard about the crash, they took the "Hudson" back out and joined the search and rescue effort.

This is Dwyer's story of that night.)

We arrived back at the Coast Guard Station close to 7 p.m. The planning team departed, and our crew stayed aboard to clean up and prepare the vessel for the next day's trip.

We finished around 7:30 p.m. and decided to have dinner across the street from the Coast Guard Station.

Later we went out for ice cream in nearby Hampton Bays. While Joe and Angus were getting ice cream, I saw the Hampton Bays fire chief speeding toward the beach, lights blazing and siren screaming. Then the Hampton Bays fire department siren went off.

Being a volunteer fireman at home, I said, "Let's go see what's on fire." As we drove toward the beach we pulled over to let the ladder truck and pumper pass. Their response had the urgency of a working fire.

But as we neared the beach there was no visible smoke or fire. I immediately said "False alarm," but was curious enough to cross the bridge to where the fire trucks sat. As we neared the trucks, I could see the chief talking with someone and looking out to sea. I thought they were just waiting for someone with keys to get into the building to check it out. With that, we headed back to the motel.

We were only there about 10 minutes or so when Joe called saying a plane had crashed off of Moriches. I said, "Get ready; we'll go see if we

can assist!" I called Angus, who was in the shower and appeared dripping wet getting ready to go.

We got back to the Coast Guard station around 9:30 p.m. I instructed Joe and Angus to get the boat ready immediately. While they did, I went into the Coast Guard station where there was a lot of activity in their communication center. They knew little more than that a commercial airliner was down off-shore, and that communication and rescue coordination was being handled by the U.S. Coast Guard Station at Group Moriches.

I ran to the *Hudson*, whose engines and generator were already running. The crew tossed off the last lines and we sped out toward the inlet.

As we neared it, I called Group Moriches on the VHF radio, Channel 16. They asked us to respond to the crash scene 10 miles from Shinnecock Inlet. I brought the vessel up to 12 knots and headed due south. The seas were calm except for an occasional swell; a small Suffolk County Police Boat followed us.

I monitored Channel 16 until Group Moriches directed on-scene traffic to Channel six where the Coast Guard cutter *Adak* was directing rescue operations. I asked the *Adak* to give her position, which was about six miles west. After adjusting my course I began to see a return on my radar almost six miles ahead.

Joe had posted himself on the bow as a lookout. Angus was readying all our extra lines and lifesaving gear.

We were three miles east of the *Adak* when Joe yelled that we were in a heavy slick of jet fuel. I pulled the engines back to neutral and went out on deck to listen for cries for help. Instead, I met smoke coming from the *Hudson's* engine room! I immediately lifted the engine hatch and saw fire glowing through the smoke! I yelled for Joe and Angus. Angus got the fire extinguisher, handed it to me and I knocked down the main body of flames above the starboard main engine. Angus charged the fire pump, Joe handed me the hose and I extinguished the fire.

The whole event took around seven minutes and no major damage had occurred. I surmised that the fire had been caused by fumes from the

jet fuel entering the engine room through intake vents. The engines superheated the fumes and who-knows-what set it off.

We continued into the scene. About that time there was an explosion and a fireball ascended into the night. At first I thought another boat had suffered a fate similar to ours, only worse. As we drew near the fire, we could see it was just debris soaked in jet fuel that was burning. We entered the fire line searching for survivors.

There was death everywhere and the smell of burning flesh. No cries for help, only carnage. As the night wore on, we recovered bodies and searched through twisted life rafts, hoping there would be a life clinging to a piece of wreckage.

Throughout the night, we followed trails of debris to all points of the compass. At around four a.m. the first signs of dawn appeared in the east. The last flicker of flame seemed to go out as the sun broke the horizon, revealing the devastation that the night had hidden. A pall of smoke hung low over the wreckage. We were directed to pick up what wreckage we could and to continue recovering victims. We picked up pieces of aircraft, a book bag, some mail, a package, an address book, and a pet turtle who perhaps survived the crash but died in the jet fuel.

We loaded the boat with debris and human remains. Some of the larger remains were transferred to the Coast Guard while at sea; smaller remains were placed in biological sampling buckets which the *Hudson* normally carries.

Finding ourselves physically and emotionally exhausted, I requested permission to depart the scene. That was 8 a.m.; we had been on-scene for more than 10 hours and were completely spent. Permission was granted and we returned to the Shinnecock Coast Guard Station, arriving there around 9:30 a.m. on July 18. We carried off airplane parts to the Coast Guard warehouse. The human remains in the biological sampling buckets were turned over to the Suffolk County coroner's office.

At 12 noon we once again got underway with the planning crew aboard. We completed our mission at Southampton Beach and returned to the Coast Guard station at 4 p.m.