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Mississippi Valley Division
US Army Corps of Engineers

Open Channels

Stemler receives "Most Valuable Partner Award"

Joan Stemler, senior water control manager in the St. Louis District, carries herself with an easy grace. Her calm and composed manner and soft voice make it easy to forget that her high-pressure job often involves making daily decisions that can sustain or halt millions of dollars worth of commerce on the nation's inland waterways.

While Stemler has never been one to boast, and is even a bit uneasy with recognition and accolades, she received a noteworthy award from the River Industry Action Committee (RIAC) on March 16 at the Inland Waterways Conference in New Orleans, La. Raymond Hopkins, RIAC's chairman, presented Stemler with the committee's first ever "Most Valuable Partner Award."

Raymond Hopkins, RAIC Chairman, presents Joan Stemler the committee's first ever "Most Valuable Partner Award."

Our region has been greatly impacted by a five-year drought that really bared its teeth in the fall of 2002. The drought is by far the "worst and longest" Stemler has experienced. "The twenty-year average is typically twelve days of zero or below [reading on the St. Louis gage], but last water year [the same as a fiscal year] we experienced 112 days," Joan explained.

In past years, similar low water events have caused Mississippi River navigation to halt for many days. But this time, throughout the extended period of low water, barge traffic kept moving. "Joan's efforts helped stop many barges from grounding," Hopkins said.

"It's not that I'm unappreciative [of the award], but it's a bit uncomfortable being singled out," Joan said. "There are so many people working behind the scenes like Mary Miles and Dave Gordon [both hydraulic engineers in Water Control]."

During the drought, Stemler was often the district's point of contact for Industry and the Coast Guard, but she stresses that her job would not be possible without daily coordination and cooperation with individuals in the district's Operations and Engineering divisions.

"Many people don't have any idea what a great data collection network the St. Louis District has," Stemler said. "I've been to a number of districts and in my opinion the network developed by Don Coleman and maintained by Mike Barfield and Bill Williams is the most reliable I have seen. The Water Control Office would not have been able to produce the results we did without this reliable network."

Stemler worked tirelessly, gathering extensive data from the network on flow rates from the Upper Mississippi, Missouri and Illinois Rivers, and making sensitive adjustments at the three district dams north of St. Louis.

(see Stemler, next page)

-Stemler-

Stemler's river stage forecasts became one of the "most important information outputs" during the critical low water conditions. Her award states, "Her accurate and timely information enabled Industry, along with the Corps and the Coast Guard, to develop a proactive plan to adjust tow sizes, barge drafts, buoy placement and dredging."

Water Control staff worked closely with Locks 24, 25 and Mel Price during the low-water event. At critical points, flows had to be monitored every two hours, and Water Control would issue gate instructions, as needed, to the lock and dam operators.

Stemler was not only getting up every two hours, but she was taking work with her wherever she went. "I always travel with a laptop in my car," she said. "I remember having to use a friend's house once in order to log into the Omni and check the latest flows when my son was playing in a basketball tournament."

Water Control took additional steps to help manage the low water. "The district received special permission from division (Mississippi Valley Division) to maintain a half a foot deviation at Mel Price for nine months last year," said Dave Busse, Chief of Potamology. A deviation is required whenever actions differ from those prescribed in the water control plan.

The extra water can make all the difference, Busse said. Whether the water is released quickly or slowly, it can increase the St. Louis gage by one to two feet. "The deviation was used at least ten times last year and every time it was successful," Stemler said.

Gate instructions were issued to Mel Price Locks and Dam for over seven months in 2003. "When we take over management of the gates, it's not because the lock and dam operators have done anything wrong. In fact we have the best lock and dam personnel in our division," Stemler said. "Mel Price is the last opportunity to impact river stages in the St. Louis Harbor. When unforecasted fluctuations occur, we are able to make adjustments by using the pool at Mel Price so industry is not affected."

"Joan's hard work helped control any extreme fluctuations in river levels that would have endangered the movement of barges from St. Louis to Cairo, Ill.," Hopkins said.

Whenever there was an unexpected change in the river levels, Joan called RIAC. "When she called us we were able to notify the barge industry immediately and let them know which barges to move and which ones to hold until the water levels increased," Hopkins said.

"Her continued communication with us helped the barge industry load barges deeper and take advantage of short windows of increased river levels, even if ever so slightly," he added.

"Joan solidified our 'partnership' through the recent crisis by showing us that the Corps and Industry's interests are one and the same: safety of people, equipment, property and the environment," Hopkins concluded.

Generally Speaking

by Brig. Gen. Don T. Riley
Mississippi Valley Division

We have a unique responsibility to the people we serve in the Mississippi Valley and to the nation. For the nation our job is to provide comprehensive water resources advice, respond to her needs, be effective stewards of her resources, and balance multiple, varied, and competing requirements. Not easy.

The U.S. Army Corps of Engineers is a "contact sport." There are some who choose to disparage without giving a thought to involving themselves in the very labor they criticize. We, however, operate daily and cannot choose to sit on the sidelines and cheer or heckle; and we do not allow substitutes.

The Administration and Congress have given us a challenging mission and they look to us to develop solutions that are in the best interests of the nation. Balanced, thoughtful, logical, and practical. They rely on you – each one of you.

Like our Army, you and our many partners represent staying power. You maintain enduring and reliable contact with the people of America. You work with our citizens daily and you represent, in many ways, stewards of their livelihoods – flood protection for their way of life, protection and enhancement of their environment and recreation areas, economic viability for their region and the nation, and recovery from natural disasters. Your obligation is to engage – to make progress, to balance, to assist, to solve, to improve conditions and prepare for the future.

And now we have an added responsibility – to protect against the threat of terrorism here and abroad.

This is an important consideration to comprehend. Without your commitment to directly engaging local citizens, answering the toughest of questions, taking candid criticism, and solving the most difficult engineering and environmental problems, we would fail our nation. I have observed that you do this continually, with confidence in yourself and your team members, strength of character, and humility.

You and our partners make a magnificent team and have done so for many, many years in this Valley. I thank you for what you do and for your dedication to our mission. Do not underestimate the importance of your work to the health and well-being of America.

Water control team maximizes benefits of water resources

The Corps operates the locks and dams on the Mississippi River for navigation and not flood control.

By Shannon Bauer
Public Affairs Office
St. Paul District

Maintaining the region's water resources for maximum economic and environmental benefit is a 24/7 seven operation for the St. Paul District.

Congress mandates the U.S. Army Corps of Engineers maintain a nine-foot channel on the Mississippi River, control the water levels and monitor the water quality at each of its projects and more on a daily basis.

To do this at the St. Paul District, there is a 10-person water control team, located in the Water Control and Hydrology Section that focuses on water resources. "We're a highly-specialized, capable group with a wide variety of abilities," said Bob Engelstad, chief of this section. "Maintaining the water levels throughout the region is a significant responsibility, and we have to do it right. If we don't, we could flood people out or devastate a local economy."

Engelstad, who's been a hydraulic engineer with the Corps for 31 years, explained that the different Corps' projects maintained by the district are operated for many purposes, such as navigation, flood control, water supply or environmental enhancement. "We have a number of different interest groups that watch our actions very closely," he explained. "We try and operate in a way that meets the interests of all those concerned."

Both the river and the reservoirs have water control plans, which have been approved by the Mississippi Valley Division and Congress. The St. Paul District may not deviate from these plans without going through a public involvement process and obtaining approval up the chain all the way to Washington, D.C.

The Corps operates the locks and dams on the Mississippi River for navigation and not flood control. The locks and dams create slack-water pools for navigation during periods of low- and moderate-level water. These dams, combined with dredging, allows the Corps to maintain the nine-foot channel on the river.

Scott Bratten, a 25-year veteran at the St. Paul District, regulates the pool levels from Upper Saint Anthony Falls in Minneapolis to Lock and Dam 10 in Guttenberg, Iowa.

Each day, he checks pool elevation and water flow at each of these locks and dams. This data is entered into a computer system by the lockmasters.

Bratten also checks data collected from gages the district has strategically placed around the region, as well as information provided by the National Weather Service and various power plants located on the rivers.

Ted Pedersen, St. Paul District, out on a snow survey.

For each pool, there is a primary control point, where a predetermined water elevation must be kept for navigation to continue. Bratten uses the data he's collected on the current flows, elevations and forecasted weather to predict how high or low he must move the gates on each dam to maintain the correct elevation at each primary control point. He monitors his changes throughout the day to ensure he's made the correct modifications.

Regulating upriver affects pools below

How Bratten regulates upriver will affect each pool below, including the pools maintained by Rock Island District, the district directly below St. Paul. He said he maintains contact with his Rock Island counterpart daily.

(see Water, next page)

The busiest season for him is navigation season. “If there’s any major rain events or when we’re going into winter and the river converts to ice, it can be a bit tricky,” he said. “Then, we sometimes have to make changes throughout the day.”

In times of flood, Bratten said he removes the gates on all the locks and dams and the water flows in as if the dam wasn’t there; it’s what he calls “open river condition.” He doesn’t empty the pools for flood control, he said, because even if he were to completely drain the pools, they’re not that big, they’d fill up again in hours.

Reservoirs operated for flood control

Unlike the operating plan for the river, which is operated for navigation, the reservoirs are operated mainly for flood control and recreation purposes. They also don’t need to be operated every day of the year like the locks and dams, explained Kenton Spading, who regulates the Corps’ dams in the Mississippi River Headwaters reservoirs.

“Normally in the summer, we’re operating primarily for recreation and environmental concerns,” he explained. “And in the winter, we’re drawing down the reservoirs for spring runoff.”

Spading, who’s been at the Corps since 1984 and in water control since 1994, regulates the Mississippi Headwaters dams of Leech, Winnibigoshish, Big Sandy, Cross, Pokegema and Gull lakes. There’s also a Corps’ Red River of the North dam on Red Lake but the Headwaters operations staff regulates it. He also regulates the Eau Galle dam on the Eau Galle River.

Winnibigoshish, Leech, Pokegema and Big Sandy are regulated to provide flood protection for Aitkin, Minn., which is located downstream. Pine River and Gull can be operated for flood control during extremely wet winters but usually aren’t.

The Eau Galle dam was built to protect the city of Spring Valley, Wis., after a huge flood in the 1940s wiped out much of the city.

Most of the reservoirs are drawn down in the winter to provide for spring rain and snowmelt storage.

Winnibigoshish and Leech are so big, though, that the drawdowns need to start in September or October each year.

“You have to start letting the water out before you know whether or not it’s going to snow,” said Spading. “You’re always kind of biting your nails, wondering if you’re going to get down enough or down too far.

Water for fishing opener

“If you let out too much, you won’t have enough water back in the reservoir in time for the opening of fishing,” he continued. “And if you don’t let out enough and there’s a lot of snow in March, you could flood people out. It can be a very stressful job.”

Ferris Chamberlin, a hydraulic engineer, regulates the St. Paul District reservoirs in North Dakota and western Minnesota. He’s been with the Corps 20 years, in water control for the past six. The dams he regulates include Baldhill, Homme, Lac qui Parle, Orwell, White Rock, Reservation and the Highway 75 dam.

Baldhill Dam, located on the Sheyenne River in North Dakota and which forms the Lake Ashtabula Reservoir, is regulated primarily for flood control for the protection of Valley City, N.D. Reservation and White Rock dams, which caused the formation of Lake Traverse and Mud Lake reservoirs, provide flood protection for Wahpeton, N.D., and Breckenridge, Minn., as does Orwell Dam on the Ottertail River in Minnesota. Lac qui Parle Dam, on the Minnesota River, helps protect Montevideo, Minn.

Unlike other reservoirs, which are drawn down in the winter, the Lac qui Parle pool is raised a foot in the winter for the benefit of fish habitat.

In the spring, he draws it back down to conservation level to make room for spring runoff.

Chamberlin regulates the Homme Dam, located on the Park River in North Dakota, for water supply. He said, “It provides a small amount of flood control benefit on the Park River.”

The U.S. Fish and Wildlife Service controls the Highway 75 dam. It drains into the Minnesota River and affects the city of Montevideo, Minn. It was constructed for mitigation measures, and Chamberlin regulates it in accordance to the wishes of the Fish and Wildlife Service.

Since the regulators can’t always be at work everyday, Farley Haase, water control technician, will regulate the locks and dams or reservoirs when they’re out. He’s been at the Corps 15 years, in water control for the last three.

(see Water, next page)

-Water-

When he's not subbing for the regulators, Haase calls several of the district's field sites daily to check their water levels and make needed adjustments. He also records and archives data for the water control section, as well as works on updating the operating manuals for each site. Since they each need to be updated every 10 years, he said, it's an ongoing process.

"Working with the reservoirs is pretty interesting," he said. "It's a challenge, though, to keep the water within its limits."

According to Engelstad, the regulators must deal with the public a lot. They get numerous calls regarding lake levels and whether or not they think it's going to flood. There are a lot of public meetings, he said, and a lot of explaining to upstream folks what goes on downstream and vice versa. He said, "Experience is critical to our success."

Rich Pomerleau, a hydraulic engineer who's been with the Corps since 1974, maintains the district's Corps Water Management System (CWMS). This high-end information system, with its own servers connected to the rest of the Corps' system, collects and interprets hydraulic data from across the region, as well as integrates it with other regional data across the country. This information supports project operation decisions.

Gage data beamed to satellite

Reservoir managers and lock and dam operators enter data daily into the system, as is data from automated gages that are beamed to a satellite. A dedicated phone line facilitates two-way data exchange to the National Weather Service (NWS).

Regulators around the Corps have hydrologic models and forecasts at their fingertips. As does the general public, since much of it is located on the internet.

"We want to get the hydrologic data out to the whole world as quickly and efficiently as possible," he said. "It helps reacting to a flood happen a lot faster." In fact, more than two million people looked at the water control section's website during the 2001 floods for water information.

Pomerleau's job consists of ensuring needed data arrives each day, as well as that the system keeps running. "There's nothing worse than coming in to work in the morning and having one of the regulators waiting for you because somebody can't input the data," he said. "Every day is different."

A system of 110 gages

The information in CWMS, however, is only as good as the data going in. Ted Pedersen and Dave Ekstrand, hydrology technicians, maintain a system of 110 gages throughout the district's rivers and projects.

Each gage measures the water levels, water temperature, wind speed and wind direction. They are small units, about one foot by one foot and six inches deep. Most of them send the information to CWMS via phone or satellite.

Pedersen, who's been at the Corps for 23 years and in water control for the last six of those years, said he and Ekstrand periodically check each gage to make sure they are providing accurate information.

In addition to maintaining the gages, they also accomplish the annual snow surveys each year.

They measure the depth of the snow throughout the district to help both the operators and the National Weather Service determine the amount of spring runoff there will be and allow them to predict whether or not there will be flooding.

"You can't get how deep the snow is from a satellite," said Pedersen. "We have to go out in the field and take a look."

The water quality program run by this section is mandated by the Clean Water Act of 1972. The Corps is required to monitor the water quality at all of its reservoir projects, as well as the locks and dams, to determine a baseline for water quality conditions and to identify problems. Where they find problems, they are supposed to work with other environmental agencies to develop improvement strategies.

Dennis Holme, a physical scientist who's been with the Corps for 26 years, works on the water quality program with Jim Noren. He said they ensure proper samples are taken throughout the district and then sent to a lab for testing. "We have several instruments that measure temperature, specific conductance, dissolved oxygen and acidity," he said.

Holme said the district has been monitoring its projects for a number of years and there are some that are improving, some staying the same and some that are degrading. Where there are concerns, he explained, he and Noren are working with other agencies, such as the Minnesota Pollution Control Agency or the North Dakota Public Health Department, to try and identify and solve the problem.

MVD Watershed Management Team

The term "watershed management" has recently been discussed as the way projects should now be evaluated and managed to ensure that projects, both existing and new, work in harmony with each other to benefit the entire watershed.

This is nothing new to the Watershed Management Team of the Mississippi Valley Division's (MVD) Watershed Division of the Programs Directorate. The team, formerly referred to as the Water Control Branch, and each of the six district's Water Control Management Sections have always used this perspective in effectively regulating Corps projects to achieve the water resource goals set out in the projects for each respective watershed.

The goal for each of the Water Control offices is to ensure the safe operation of their respective projects during flood and drought conditions and in accordance with their approved water control plans.

The role of the division's Watershed Management Team is to ensure the actions taken or projects developed by one district are compatible with actions taken or projects within a sister district.

The Watershed Management Team communicates/coordinates with our sister divisions during critical periods to ensure the impacts of actions taken by the MVD and the other divisions on existing and future Corps projects are understood and compatible with overall objectives.

Two recent examples of this close coordination is the Missouri River Master Water Control Manual Study, just completed by the Northwestern Division and the recently completed Tennessee Valley Authority Reservoir Operation Study, of which the Great Lakes and Ohio River Division was the Corps point of contact.

During these two studies, the MVD was heavily involved to ensure the needs of the lower Mississippi Valley were considered and that upstream actions were not implemented which would adversely impact the lower Mississippi Valley.

Under MVD's new organization, the Watershed Management Team, along with the Mississippi River & Tributaries (MR&T) Team, and MVD's dam safety specialist, is part of MVD's Watershed Division, led by Larry Banks.

Mary Lynn McArthur is the administrative assistant for the Watershed Division. In addition, the members of the team are matrixed into the District Support Teams (DST) and the MR&T Team whenever necessary to provide the hydrology and hydraulics technical expertise for the studies and projects that are being performed by the districts.

To better serve our customers, real time and historical river information is available via a public website called Rivergages.com. Don Flowers, who has recently retired, lead a team of district water control and information management staff that developed the website. This data is used by the team to forecast river stages for the lower Mississippi River, which aids the public and Corps personnel in the planning of operational plans and river construction activities.

Within the team, Bob Occhipinti, Eddie Brooks, and Chuck Shadie work with the DST's to provide the hydrologic and hydraulic technical expertise needs, while Donnie Cool ensures the water control needs are met.

John Brooks works closely with the channel improvement program and Duane Stagg coordinates the dam safety program and periodic inspection program.

The team also has an asset that is unique to the Corps of Engineers. Since 1977, the MVD has partnered with the National Weather Service and as a result has a meteorologist working as a liaison with the team. This unique working relationship with the NWS and the Corps offers many advantages to the MVD.

Bill Frederick, the current meteorologist, has provided several outstanding daily products that are used to better serve the valley. In addition to these products, Bill participates in conference calls concerning projects within the MVD and provides weather information pertaining to specific meteorological events such as hurricane landfalls, flooding/low water events, and severe weather.

The "One Corps" concept was utilized from this position during the 2002 hurricane season as Bill, working closely with Emergency Operations Center, provided landfalling hurricane information for events that impacted the MVD, Southwestern Division, and Corps Headquarters.

The members of the team are ready to assist the Division's efforts in the continued stewardship of the Mississippi Valley.

Mississippi River Partnering Conference

"The Greatest Living and Working Watershed"

and

Mississippi River Commission

125th Anniversary Celebration

June 28-29, 2004

Memphis, TN

Hosted by the

U.S. ARMY CORPS OF ENGINEERS

Mississippi Valley Division

US Army Corps of Engineers

OBJECTIVES

Build Effective Partnerships

Develop Common Guidelines for a Living, Working Watershed

Understanding USACE Transformation

MAJOR ACTIVITIES

Congressional Speakers, Panel Discussions, Interactive Sessions, Mississippi River Commission 125th Anniversary Dinner, Social Activities and more.

MARK YOUR CALENDARS

Details about this conference and registration material are available on our website.

ADDITIONAL INFORMATION

- ✓ The historic **Peabody Hotel (149 Union Ave, Memphis, TN)** has blocked rooms for the nights of June 27 and 28 at the rate of $119 per night plus tax. Reservations can be made after March 15 by calling 1-800-Peabody or local (901) 529-4000. Rooms are blocked under the Corps of Engineers.
- ✓ See our Web site (www.mvd.usace.army.mil) for more information on the conference.

Questions

Call Karen Buehler at (601) 634-7729 or Esther Banks at (601) 634-5823.

MVM Advancing With New Technology

story and photos by Steven Sansone
Memphis District

The collection of river discharge data is an important aspect of water control activities. This data has usually been obtained by mechanical current meters with deployment over sides of bridges, and/or physically deployed from small outboard motorboats. This method can be very time consuming and hazardous.

However, developments in Acoustic Doppler Current Profiler (ADCP) technologies are making these instruments very useful for measuring river discharge in the Memphis District, as well as for many other federal, state, and private entities around the world. ADCP's measure velocity magnitude and direction using the Doppler shift of acoustic energy reflected by material suspended in the water column.

The ADCP has a four-beam (transducer) configuration in which the acoustic pulses are transmitted through the water, thus producing vertical velocity profiles composed of water speed and direction at regularly spaced intervals.

The river bottom is tracked by measuring the Doppler shift of acoustic pulses reflected from the bottom to measure boat speed, and direction is determined with the ADCP on-board compass. The Memphis District, Hydraulics & Hydrology Branch, has successfully used this technology for more than 10 years.

Photo from RDI's website (www.rdinstruments.com)

The latest ADCP model (RDI Workhorse RioGrande).

We are continually advancing our efforts with this new technology and implementing it as studies and field trials produce accurate results. Our next step is to move into the smaller streams and tributaries and acquire measurements using either tethered boats, radio controlled boats, or modified surfboard mounts to be towed across the stream. The acquisition and playback software used is Windows based and has even been developed to transmit data via Bluetooth (wireless communication) software directly to either a handheld PDA or notebook computer.

Pocket PC running WinRiver software

As the U.S. Army Corps of Engineers evolves into a team of teams, we must embrace and implement this new technology. By adopting this improved collection method, the Memphis District will help to realize it's Vision focus, to be recognized as the region's premier engineering organization. The team of choice, customer driven and focused on performance and continual improvement.

Ocean Science Riverboat

Vicksburg District Forecaster on Speed Dial

Yazoo Basin farmers have an essential interest in rainfall and water levels, especially at planting time, harvest time, and the rest of the time in between. When farmers want the undisputed basin forecast they know who they can count on - Vicksburg District's Wayland Hill.

Hill, a civil engineering technician in the Water Control Management Section of the U.S. Army Corps of Engineers, Vicksburg District Hydraulics Branch, has made a real name for himself in river forecasting.

"Anytime we have a major rainfall event, we will do the forecast for downstream purposes," Hill said. "I make the forecast of elevations at Yazoo Basin lakes and forecast downstream stages, particularly when they threaten municipalities or communities."

The most rewarding part of his job, Hill said, is his relationship with the public. "I really enjoy communicating with these people and helping them any way I can."

Brad Barefoot of Charleston, MS, who farms about 1,800 acres in the area and whose community is affected by three of the flood-control reservoirs, said Hill's name is the first one on the speed dial on his telephone.

"Wayland is definitely a hands-on person," he said. "He stays in touch and understands the needs of the farmers, and he is always available to us."

Wayland Hill, Hydraulics Branch, Vicksburg DIstrict, finds his job rewarding.

The most important way that Hill helps the farmers in his area, Barefoot said, is by providing vital information and keeping the farmers in mind in his flood-control schedules.

"His schedules of opening or closing the dams are all worked around the needs of the community," he said. "We appreciate the way he believes in running the reservoirs strictly for flood control. They never get out of shape due to lack of management."

Jesse Willis of Valley Park, MS, who farms 5,000 to 10,000 acres, said Hill is irreplaceable to the farmers in his area. "He has been a big help to us. We make our plans according to his forecasts, and he helps us every time the river comes up."

Willis' community is affected by the Yazoo backwater storage area which is controlled through the Corps' operation of the Steele Bayou and Little Sunflower drainage structures.

Although Willis said there have been countless instances in which Hill has helped him over the past 20 years, he said he recalls a few years ago he was able to save 3,000 to 4,000 acres in soybeans because of the accuracy of Hill's forecasting. "As far as forecasting, he's probably the best," Willis said.

Flood-control lakes along the Yazoo Basin include Arkabutla, Sardis, Enid, and Grenada. Major rivers affected by them include the Coldwater, Tallahatchie, Yalobusha, and Yazoo Rivers in addition to many other streams and tributaries.

(see Wayland, next page)

-Wayland-

Hill watches to make sure when to open and close the structures. "In the Yazoo Basin, we have a crop-season release schedule and a non-crop season release schedule," he said, in which water is released from the reservoirs which are usually stored during the spring months.

The crop season release begins each spring around March 1. Reductions in flows from the reservoirs are made to allow cropland to dry out as opposed to non-crop season in which they run full channels from the reservoirs when it is not crucial to farming interests. "We store that water as much as we can and release it at a slower rate in the spring and summer," he said.

As a result, the farmers can make plans as to when to plant or not to plant, when to harvest, poison, fertilize, or spray. "Their livelihood depends on our forecasts," Hill said.

In a cooperative effort, Hill also works closely with the National Weather Service in forecasting the elevations of the Mississippi River. "This is probably where we do as much good as anywhere because there is such a huge lag time from when rain occurs in the upper basin before it gets here, so we can make plans accordingly," he said.

They exchange data frequently and during flood stages, they coordinate information. "You get a better forecast that way," he said.

To keep abreast of what to expect, Hill said he prepares a water control summary. The information states when the rivers will crest and what is expected thereafter. The public is also informed of how the reservoir systems are operated in the Yazoo Basin, he said, and when and how much water will be released.

Robert Simrall, Chief of Water Control Management, Vicksburg District, said all these efforts set forth by Hill make him an important part of the staff. "Thousands of farmers depend on his forecasts and use his long-range projections in preparing their crops. Millions of dollars in croplands depend on him and his forecasts each year," Simrall said.

Overall, about two to three million acres of farmland are impacted by the Mississippi River and the Yazoo Basin.

Wayland "Speed Dial" Hill.

Although Hill has a gift for forecasting, it was an interest that developed over time and was fueled by his mentors.

"I started out in the Mississippi Valley Division's River and Reservoir Control Center," Hill said, " and worked with an old gentleman by the name of Sam Bailey who did the forecasting for the Mississippi River. I learned a lot from Sam, who taught me as much as he could."

After transferring to the Vicksburg District, Hill said he was also influenced by Frank J. "Biff" Andell of the New Orleans District. "He helped me out a lot," Hill said. "Then I developed my own techniques over the years and refined them as I gained more forecasting experience."

RiverGages.com

"One door to the Corps" website for Mississippi Valley Water Level Information

By Rich Engstrom Rock Island District

What is RiverGages.com?

Rivergages.com is a public web site designed to centralize the dissemination of Mississippi Valley water level information. The intended audience is everyone who needs real-time, historic, or forecasted water level information at Corps of Engineers projects.

Additionally, RiverGages.com is designed to contain enough operational information that Corps water managers can use it to operate district projects in the event of the catastrophic failure of their primary information systems.

This continuity of operation plan only requires the Corps project regulator to have access to a personal computer with an Internet connection. RiverGages.com was designed by the six Water Control Centers in the Mississippi Valley Division (MVD).

(see RiverGages, next page)

Each Water Control Center has years of experience serving the public and each is well aware of the local concerns. All of this experience and expertise is brought together into RiverGages.com.

Why is Rivergages.com needed?

Mississippi Valley Division has six Water Control Centers, one at each district office, located at St. Paul, Rock Island, St. Louis, Memphis, Vicksburg, and New Orleans. In the past, each Water Control Center had its own public web page, each with a different "look and feel". The inconsistency of these web sites led to much confusion among the public who had trouble finding the information they needed.

Within the Corps, developing and maintaining six different web sites was not an efficient use of water management personnel and the network security requirements for web servers has grown more complicated in the past several years. Most Water Control Centers could not provide the additional staff required to meet these requirements. But by combining the six water control web sites into one centralized RiverGages.com location, the public is better served by having a consistent method to access all the water level information within the Mississippi Valley Division. The Corps also benefits because it can assign trained information technology professionals to maintain and secure the one site. In general, RiverGages.com benefits both the public and the Corps.

What is available on RiverGages.com?

RiverGages.com organizes and publishes data for hundreds of gage locations within the Mississippi Valley.

Water level information from the Canadian border to the Gulf of Mexico is all located in RiverGages.com. RiverGages.com is organized around Districts and their river basins. Gage stations are located within river basins, and shown from upstream to downstream. A gage station may provide the current stage, historic stages, and gage description. Often the gage measures precipitation in addition to stage.

At gage locations where the National Weather Service provides stage forecasts, these forecasts are made available as soon as they have been issued. Additional information at selected gages includes flow, air temperature, wind speed/direction and even water temperature. At some locations, the historic data extends back well into the 1860s! A Geographic Information System (GIS) has been incorporated into RiverGages.com and can be accessed by clicking on the map located on the opening page.

Currently the GIS technology is quite resource intensive and may not be suitable for anyone not using a high-speed network. The GIS portion of Rivergages.com shows interactive maps that include the gage locations.

How is Rivergages.com managed?

A Configuration Control Board (CCB) was established to manage the Rivergages.com web site. The CCB consists of one representative from each Water Control Center in the MVD. Each CCB member has an equal vote in determining issues regarding Rivergages.com development and maintenance.

What's in a name?

In the past, web URLs linking to water control web servers had very long and complex names. For example, the URL for the old Rock Island Water Control web site was http://water.mvr.usace.army.mil. Web URLs that are this long and cryptic lead to much confusion by our customers. It is so much simpler to inform the public that they can access Mississippi Valley water level data from http://RiverGages.com. The idea for using a .com domain name for accessing Mississippi Valley water level information was born when a CCB member saw an Army recruiting commercial on TV. The commercial referred to an http://goarmy.com web site. He reasoned that if the Army thought a .com domain was necessary for their recruiting web site, then maybe Mississippi Valley water level information should borrow the idea. The Configuration Control Board got together and brainstormed for a couple of hours. When they were done, the RiverGages.com URL became the official name of the Mississippi Valley water level web site.

What is the future of RiverGages.com?

In the near future, a mirror site will be established for RiverGages.com. The mirror site will be located in the Vicksburg District and will function independently from the primary site located in the Rock Island District. Having a fully functional mirror site will ensure the continuity of operations of RiverGages.com and will also minimize the Internet traffic load on any one of the two sites.

(see RiverGages, next page)

-RiverGages-

Another future enhancement may be adding additional river basins to the site. All the members of the RiverGages.com Configuration Control Board would like to see all the tributaries of the Mississippi River that are not in the Mississippi Valley Division be included within RiverGages.com. Ideally, the inclusion of the Missouri River, Ohio River, Red River and Arkansas River will happen in the future. In general, you can expect new functionality to be added to RiverGages.com as the need arises.

Point Of Contact for RiverGages.com

If you have any comments or questions regarding the RiverGages.com project, please email us at cemvrrivergages@mvr02.usace.army.mil.

Forecasting on the River, Much More Than a Weather Report

Story and photos by Patricia Ryan, Rock Island Public Affairs

"Find a job doing something that is fun and you are passionate about, and you will love coming to work every day like I do," said Scott Pettis, hydraulic technician.

Navigation on the Mississippi and Illinois rivers is something many people take for granted; however, the Rock Island District Water Control Section works 365 days-a-year to maintain optimal conditions for everyone on the district's waterways, and Pettis is happy to play an active role on that important team.

As a forecaster in the Water Control Section, Pettis starts his day early, reviewing the data coming in from more than 180 gages located throughout the district, as well as information provided from the St. Paul District. He coordinates with other agencies involved in gathering and using the data such as the National Weather Service, U.S. Geological Survey, and the U.S. Coast Guard. The information and data form the basis for the forecasts and gate settings Pettis provides to the locks and dams to maintain the optimum channel depth for safe navigation.

A native of Osceola, Wis., a town perched on the banks of the St. Croix River, Pettis always knew he wanted to live and work on the river.

He graduated from high school in 1976 and joined the Coast Guard Reserve. After attending college for two years and working a couple of different jobs, he signed up for a full-time duty position with the Coast Guard in 1981.

After serving two years at a search and rescue station, Pettis transferred to the Quad Cities in 1983, met his future wife, got married, and settled down in the Davenport, Iowa, area. After six years of active duty with the Coast Guard, Pettis decided to return to reserve status and applied for a job with the Corps.

"The day I got home from my last day of active duty in 1987, I got a job offer from the Corps and started the following Monday," Pettis said. "I couldn't believe such good luck and perfect timing."

Pettis began his career with the Corps as a navigation assistant on a hydrologic survey crew that traveled up and down the district waterways taking soundings on the rivers to provide data to create maps of the river bottom. The data was used mostly for dredging purposes to ensure the channel remained safe for navigation.

"We made reconnaissance surveys then returned to the areas that

Scott Pettis (in striped shirt) and Hydraulic Engineer Tom Nock discuss navigation pool information. Both work as forecasters in the Rock Island District Water Control Section coordinating navigation dam and reservoir operations.

looked like they might need further attention and followed with a more complete survey," Pettis said. "Today they use Global Positioning Systems that are more efficient in determining your position than the old shore-based method of calculating positions from known points along the river banks, like we used to do."

After spending seven years on the survey crew, Pettis accepted an office job as an engineering technician in the Survey Branch working mainly on data processing and Computer Aided Design and Drafting (CADD), which allowed him to spend more time at home with his wife and two sons.

(see Pettis, next page)

"All of the jobs I have had helped prepare me for the job I have now," Pettis said. "The years I spent on the water in the Coast Guard and the Corps' survey crew, as well as working in engineering on data processing and CADD systems provided a background that I utilize every day forecasting.

"Everyday I edit the data, meaning I check to see if there are problems such as a gage not functioning properly that could provide inaccurate data; adjust the data and make sure it is in the proper format for forecasting and archival purposes," said Pettis.

"I then contact the locks and dams with recommended gate settings, as well as pass on maintenance information to hydrologic technicians in the field who keep gages throughout the district operating correctly and producing accurate data."

There are many things Pettis says he loves about his job. Especially interacting with the people he works with in water control, the folks at the locks and dams, reservoirs, and other Corps offices, as well as Coast Guard and other allied agency personnel. He said he enjoys networking with the water control team, exchanging ideas so they can come up with new ideas resulting in better and more efficient ways to do their jobs.

"This is a great job and I look forward to coming to work everyday to see the actual results of my forecasts." Pettis says he also enjoys taking calls from the public, answering questions about the Corps' mission and educating people about the district waterways.

Scott Pettis on the phone with a lockmaster discussing recommended gate settings.

Pettis takes advantage of his many years with the Coast Guard, now acting as unofficial district liaison with them (the Coast Guard also plays an active role in regulating and maintaining the district waterways). He helps instruct a boating safety class given each year to Corps' personnel obtaining or renewing required boat operator licenses.

He has been deployed with the Coast Guard Reserve five times in support of missions including Desert Storm, the 1993 Flood, Hurricane Floyd, Sept. 11, and Operation Iraqi Freedom. Pettis said while working on Hurricane Floyd in 1999, he rescued animals that were left behind in rapidly rising waters in North Carolina.

"We were told to forget the animals," Pettis said. "But for some people that was all the family they had, and I was happy to reunite the pets with their grateful owners. I get a lot of satisfaction working as a civil servant, and think it is important to do a good job for the public who support us. Saving pets and wildlife was rewarding too," Pettis said.

It looks like Pettis has followed his own advice, and turned his love of the river and public service into his career and life's work.